

COLORADO OIL AND GAS CONSERVATION COMMISSION

2015 ANNUAL REPORT

to the

WATER QUALITY CONTROL COMMISSION (WQCC)

and

WATER QUALITY CONTROL DIVISION (WQCD)

of

THE COLORADO DEPARTMENT OF

PUBLIC HEALTH AND ENVIRONMENT



IN ACCORDANCE

with

THE AUGUST 28, 1990 MEMORANDUM OF AGREEMENT

and

THE IMPLEMENTING PROVISIONS OF SENATE BILL 181

December 29, 2015

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1.0 INTRODUCTION

The Colorado Oil and Gas Conservation Commission (COGCC) is an implementing agency for water quality standards and classifications adopted by the Water Quality Control Commission (WQCC) for ground water protection. This authority was provided by SB 89-181, and is restated and clarified by a Memorandum of Agreement (MOA) that was adopted by the agencies on August 8, 1990.

Section 5.1 of the MOA specifies that the COGCC must report annually to the WQCC and the WQCD about how its programs assure compliance with WQCC water quality standards and classifications for the activities that are subject to the jurisdiction of the COGCC.

This 24th annual report provides an overview of COGCC functions and a summary of calendar year 2015 activities, with a focus on groundwater protection programs. Major issues concerning the implementation of water quality standards and classifications are also reported.

2.0 WQCC/WQCD and COGCC COORDINATION AND PUBLIC OUTREACH

2.1 Inter-agency Coordination

In 2015 the COGCC, WQCC, and WQCD worked closely on several issues. COGCC and the CDPHE Office of Emergency Preparedness and Response staff communicated frequently through email and telephone calls regarding spills at oil and gas facilities when there was some question as to whether a spill was exploration and production (E&P) waste or not. COGCC took the lead for all E&P waste spills.

The COGCC staff met with WQCD/WQCC on May 13, 2015 to discuss program issues.

COGCC participated with WQCD and Colorado Rural Water Association (CRWA) in assisting several water suppliers to develop Source Water Protection Plans. In addition, five CRWA personnel participated in a Local Government Designee training session to become more familiar with COGCC rules and website.

2.2 Public Outreach

The COGCC employed the following strategies for effective communication with the public and the regulated industry:

Staff reports were prepared prior to each hearing for the COGCC Commissioners. Ongoing staff activities such as compliance and enforcement actions, environmental and landowner issues, and other topics relevant to the mission of the COGCC were summarized in these reports. The 2015 reports were distributed widely to interested parties and they are posted on the COGCC website www.cogcc.state.co.us.

In 2014, COGCC initiated a Lean Process Improvement to evaluate and enhance our complaint response process, and in 2015 the COGCC implemented a new public complaint process. The new process includes dedicated staff for public complaint intake, a new online tool enabling the public to quickly and easily file a complaint, and a webpage providing complaint information to the public. The process holds COGCC accountable to timely follow-up on complaints resolving them through our regulatory processes or referring the complainant to the appropriate regulatory agency, such as CDPHE or local governments. The complainant can easily find information relating to their complaint on our website.

In 2015, the COGCC held two of its regular ten hearings outside of Denver: one in Ft. Lupton, Weld County and one in Gunnison, Gunnison County.

Regularly scheduled meetings are conducted in parts of the State with active oil and gas activity. The Gas and Oil Regulatory Team (GORT) met in Durango on a quarterly basis, focusing on oil and gas operations in the San Juan basin in southwestern Colorado. GORT provides a forum for meaningful dialogue between operators, citizens, county and local governments, the Southern Ute Indian Tribe (SUIT), the Bureau of Land Management (BLM), the US Forest Service (USFS), and the COGCC. The Northwest Colorado Oil and Gas Forum (NWCOGF) usually meets in Rifle or Grand Junction, also quarterly, and focuses on the Piceance basin and other operations in the northwestern part of the state. The NWCOGF is co-chaired by Garfield County and the COGCC, and other State, Federal, and local government agencies, the oil and gas industry, and concerned landowners and citizens regularly participate. COGCC staff and the Director or Deputy Director regularly attend these meetings and give presentations on emerging issues, hot topics, as well as routine updates on operations statewide and in the respective geographic areas.

COGCC continues to solicit participation in the regulation of oil and gas exploration and production. Stakeholders, including the oil and gas industry, local governments, citizens, other regulatory agencies, agriculture interests, and the environmental community provide input into permitting, policy development, rulemaking, and other processes. During 2015, COGCC staff participated in 137 meetings at the request of municipal, county, and other local governments, EPA, BLM, trade organizations, and special interest groups. The Local Government Liaisons (LGL) were actively involved in this outreach, participating in 83, or about 60%, of the total.

The Local Government Designee (LGD) process was created by the COGCC in 1992 to provide a conduit of information between local governments and the COGCC. Two LGLs, hired in 2012, facilitate participation in the LGD program through training, answering questions and providing information, data, and presentations about specific aspects of oil & gas operations, COGCC rules, and the COGCCs role as a regulatory agency within the Department of Natural Resources. In total, 166 entities (54 counties, 101 municipalities, and 11 special districts) currently participate in the LGD program.

The COGCC continues to use the website to make announcements and distribute information/data. COGCC information and data systems are described in Section 3.3.

3.0 COGCC ORGANIZATION

3.1 COGCC Commissioners

The Colorado Oil and Gas Conservation Act specifies the number and composition of the Commission. The Act requires nine Commissioners, seven of whom are appointed by the Governor with the consent of the Senate, and two ex officio voting members who are the Executive Directors of the Department of Natural Resources and the Department of Public Health and the Environment. At least two members are appointed from west of the continental divide and the other members are appointed taking into account the need for geographical representation of other areas of the state with high levels of oil and gas activity or employment. Of the seven, three members are to have substantial experience in the oil and gas industry and at least two of these must have college degrees in petroleum geology or petroleum engineering; one member must be a local government official; one member must have formal training or substantial experience in environmental or wildlife protection; one member must have formal training or substantial experience in soil conservation or reclamation; and one member must be actively engaged in agricultural production and also be a royalty owner.

A chart showing the makeup of the COGCC Commission is included in Appendix 1. Although several of the Commissioners' terms expired in 2015, at the request of the Governor, they agreed to remain active through the rulemaking efforts required to implement the recommendations of the 21014-15 Governor's Task Force on Oil and Gas.

3.2 COGCC Staff

The COGCC has 109 FTE positions located in the Denver office and throughout the State in field offices. The Staff are made up of engineers, environmental protection specialists (EPSs), field inspectors, permitting technicians, hearings specialists, and a variety of administrative professionals. Table 3-1 summarizes each group and their primary functions. The current organizational chart and a series of maps showing regional areas of responsibility are included as Appendix 2.

Table 3-1

Group	Number of FTE	Primary Functions
Executive	3	Director, Deputy Director, and Executive Assistant.
Environmental	20	Spills, Remediations & Pit Closures, Complaint response, Environmental projects, Oil and Gas Location Assessments & Pit Permitting, Environmental database.
Engineering	16	Permitting downhole wellbore plans, UIC Permitting, Oil/Gas Facility oversight, Plugging orphan wells, flowline integrity.
Field Inspection	31	Inspection of Oil/Gas wells, facilities, and locations, Complaint response, Interim and final reclamation.
Permitting & Technical Services	23	Permitting oil and gas wells, Bonding, Production reporting, GIS, Website development/support, eForm development/support.
Hearings	12	Hearings, Rulemaking, Enforcement, Local Government Liaisons.
Financial	4	Budget Management, Procurement, Purchasing.

Staff functions that directly relate to water resource protection and compliance with groundwater and surface water standards include the following:

Permitting- Well permits are reviewed to ensure compliance with all rules related to aquifer protection, such as surface casing and cementing requirements. The permit technicians and engineering staff perform this function.

Location Assessments- Under the Form 2A process, Operators are required to provide site specific environmental information about surface locations. Consultation by the Colorado Department of Public Health and Environment (CDPHE) and Colorado Division of Parks and Wildlife (CPW) with the surface owner and operator is required in some circumstances. Oil and Gas Assessment Location (OGLA) specialists in the environmental group review and evaluate Form 2A applications, as well as publicly available information, to determine whether the proposed oil and gas operations have the potential to negatively impact water resources; public health, safety and welfare; the environment; and/or wildlife resources. Site-specific conditions of approval (COAs) may be placed on permits to prevent or mitigate potential impacts.

Underground Injection Control (UIC) Permitting- COGCC staff continues to work with WQCD and EPA staff to ensure that operators of Class II injection wells in Colorado are in compliance with ground water standards and classifications. In the past, the Colorado Geologic Survey was consulted on site specific matters, such as the occurrence of faults and potential seismic issues. However, this function is now being handled by our in house geologic experts. Injection operations in the Raton Basin and in Weld County are being actively managed by the COGCC in conjunction with the U.S. Geological Survey Earthquake Notification Service, through the installation and continuous monitoring of several local seismometers to evaluate if injection of produced water has some relationship to local seismicity. Through December 7, COGCC Staff approved 44 Class II UIC well permits in 2015.

Pit Permitting- Operators construct pits at oil and gas locations for a variety of purposes; most commonly to contain drill cuttings, produced water and flow back, and reuse and recycling of produced water. COGCC is responsible for permitting pits (Form 15), inspecting their operation and overseeing their closure. The OGLA staff review pit permits for construction and operational details, and evaluate the environmental setting to ensure that the pit can be used without causing adverse environmental impacts. The Director may apply conditions of approval with additional provisions to protect waters of the state, public health or the environment. In 2015, 17 new pits were permitted. Applications for new pits are down significantly over previous years (192 permits in 2011, 84 permits in 2012, 106 permits in 2013, and 45

permits in 2014) reflecting both a decrease in new O&G activity in areas that traditionally have used pits for produced water disposal and widespread industry use of “pit-less” drilling and completion activities.

Centralized E&P Waste Management Facility Permitting- Non-commercial centralized exploration and production (E&P) waste management facilities are permitted by COGCC under Rule 908. Generally these facilities are larger than a typical tank battery that might handle wastes from only one or a few wells. These larger facilities handle wastes from many wells and often from more than one field or lease. These facilities may include lined pits, land farms, drill cuttings solidification facilities, and tank batteries. A permit is required for these facilities and, as part of the approval process, staff evaluates the proposed site, operation, financial assurance, environmental impacts and preliminary closure plans. These facilities are currently required to have financial assurance in an amount equal to the estimated cost for proper closure, abandonment, and reclamation. During 2015, the COGCC permitted 4 new centralized E&P waste management facilities and closed 4. There are 36 active permitted centralized E&P waste management facilities in the state.

Disposal of Produced Water Oversight- Approximately 50% of the water co-produced with oil and gas is disposed of or used for enhanced recovery by underground injection. Most produced water that is not injected is disposed in evaporation and percolation pits or discharged under Colorado Discharge Permit System (CDPS) permit. A small amount of produced water is used for dust suppression on oil and gas lease roads. In addition, to minimize waste and the use of fresh water, many operators are reusing and recycling produced water and other fluids for drilling and well completion activities including hydraulic fracturing treatment operations. COGCC staff review UIC permits, pit permits, centralized E&P waste management permits, and other proposals, including water reuse and recycling plans, to ensure that produced water is handled appropriately.

Complaint Response- COGCC responds diligently to complaints received from individuals and other agencies. Complaints are tracked in the COGCC’s database and can be accessed via the COGCC website. In 2015, COGCC received approximately 18 complaints related to groundwater or surface water issues. The environmental staff follows up, where appropriate, and collects samples for laboratory analysis. A letter report is provided to the complainant explaining the analytical results, regardless of whether an oil/gas impact is indicated. When oil/gas impacts are detected, Operators are required to perform additional investigation, remediation, and mitigation, as needed, to bring sites into compliance with soil and groundwater standards.

Spill/Release Response and Remediation Oversight- Spill response by the environmental staff includes onsite inspections, sample collection, remediation oversight, and review of reports, remediation plans, analytical data, and operating practices, to ensure protection of surface and ground water, in accordance with COGCC rules and WQCC standards and classifications. Spills are tracked in COGCC's Master Records Database (MRDB) and can be accessed via the COGCC website. In response to numerous public and media inquiries, COGCC maintains a table summarizing annual spills reported since 1999. This table is updated quarterly on our website and is attached as Appendix 6.

Plugging Orphan Wells- COGCC engineering staff used appropriated funds and claimed financial assurance to plug and abandon and to reclaim orphaned oil and gas sites in eleven counties including Baca, Rio Blanco, Montrose, Mesa, Washington, Adams, Larimer, Garfield, Logan, Prowers, and Kiowa. Nine wells were plugged and ten well sites were remediated and/or reclaimed during Fiscal Year 2015. In Fiscal Year 2016 the engineering staff plans on plugging, abandoning and reclaiming up to seventeen orphaned oil and gas wells and/or well sites in twelve counties including Ouray, Moffat, Yuma, La Plata, Logan, Garfield, Baca, Montrose, Adams, Weld, Logan and Mesa counties.

3.3 COGCC Information/Data Systems

Each year the data management systems and geographic information systems (GIS) are improved as time and resources permit. Highlights of the 2015 improvements are provided below. Primary data systems that experienced improvements included:

- eForms – eForm system was enhanced; and
- Environmental Database – Database improvements.
- Geographic Information Systems
- Data Downloads – new data sets were made available.

A brief description of the changes for each system is provided below:

3.3.1 eForms

The eForm application allows Operators to submit forms electronically. eForms currently in use or pending completion (*) are:

- Form 2 – Application for Permit to Drill
- Form 2A – Oil and Gas Location Assessment

Form 4 – Sundry Notice
Form 5 – Drilling Completion Report
Form 5A – Completed Interval Report
Form 6 – Well Abandonment Report
Form 7 – Monthly Operations Report
Form 10 – Certificate of Clearance/Change of Operator
Form 14 – Monthly Report of Non-Produced Water Injected*
Form 14A – Authorization of Source of Class II Waste for Disposal*
Form 15 – Earthen Pit Report/Permit
Form 17 – Bradenhead Test Report
Form 19 – Spill/Release Report
Form 21 – Mechanical Integrity Test (MIT) Report
Form 26 – Source of Produced Water for Disposal
Form 27 - Site Investigation and Remediation Workplan*
Form 31 – Underground Injection Formation Permit Application
Form 33 – Injection Well (UIC) Permit Application
Form 41 – Trade Secret Claim of Entitlement
Form 42 – Notice of Notification (Notice of Hydraulic Fracturing)
NOAV – Notice of Alleged Violation

With eForms, COGCC staff is able to review the forms and attachments electronically. Each staff member involved in the process then approves their portion of the form (i.e. permitting, engineering, etc.) online. Paper files are not generated for these new permits. Multiple approvals are typically required on each form. As a form is working its way through the COGCC review process, the public is able to track the status of the form through the use of the public user interface.

3.3.2 GIS- Geographic Information Systems

The GIS Online map continues to be a critical application for staff, industry, and other agencies to use in processing permits, creating reports, and viewing information valuable for exploration and development. The COGCC interactive map is also the go-to-resource for the general public and regulatory stakeholders in addressing environmental concerns and siting issues, including location proximity to CDPHE 317B Buffer Zones, Sensitive Wildlife Habitats (SWH), and/or a Wildlife Restricted Surface Occupancy (RSO) Area.

The GIS Online map contains over 150 spatial datasets including oil and gas well locations, permits, spacing orders, field boundaries, and useful reference information such as cities, rivers, roads, sections, land ownership, etc. Aerial photos, topographic

quads, and geologic maps are also included as valuable information resources. The newest version of our online mapping system allows a user to zoom to a street address (available in early 2016), has improved printing functionality, and includes a live connection to our environmental sampling database. To aid operators and other interested parties with their own GIS work, the COGCC website provides GIS shapefiles for download, including files that have daily updated well information, permit and pending permit data, and wellbore traces for directional and horizontal wells across Colorado. The COGCC's online mapping tool is regularly cited as one of the best state-level oil and gas resources in the nation.

3.3.3 Environmental Database

The Ground Water Protection Council (GWPC) in conjunction with the COGCC has developed a publicly-available, searchable database of groundwater, surface water, and soil sample analytical results from throughout the state. This database is referred to as the COENV database. The COENV database has been active since September 2012. The database has sampling data dating back as far as 1941. The environmental database currently contains over 14,179 sample locations and 36,960 individual samples.

In 2015, 1,665 samples from 605 separate locations were added to the database. Since the statewide rules for groundwater sampling went into effect (May 1, 2013), COGCC has received a total of 4,667 samples from 1,771 separate locations.

The data can be accessed through the GIS Online map. Sample locations with available water and natural gas data appear as blue triangles when the "Sites with Lab Data" layer is turned on. The user can double click on a sample site and gain access to the analytical data for that site. An example analytical report is included as Appendix 3.

The database allows for electronic data deliverables to be used for input. New samples from COGCC staff sampling efforts, current COGCC baseline sampling rules (rules 317B, 318AE4, 608, and 609), and the COGA Voluntary Baseline Sampling Program are available.

In April 2014, the COENV database was made available for download in an Access database format for those who wish to query large datasets. Access to the download is under the HELP section of the COGCC webpage under DOWNLOADS. It is anticipated that the database download will be used by a number of entities such as scientific organizations, local governments, and others to better understand background water quality in their area of interest.

3.3.4 Data Downloads

Historically, the COGCC has provided production data, spacing order data, and GIS shapefiles for download from the website. GIS Data available includes well surface locations and directional data (updated daily), pits, oil and gas fields, sensitive wildlife habitat, certain significant geologic information, and buffers associated with COGCC Rule 317B.

In response to the new floodplain Rule 603.h, GIS shapefiles for the 100-year floodplain have been created and are available for download on the website. In addition to GIS data listed above, and in an effort to increase transparency, the COGCC has begun to aggregate datasets directly from our master relational database (MRDB) and provide them for public use. The MRDB, managed and maintained by COGCC with assistance from the Governor's Office of Information Technology, is a comprehensive repository of Colorado's oil and gas data. Although all the data is available through interactive search tools on the website, these downloads allow the industry, public, non-governmental organizations, or other interested parties to access large amounts of data in searchable formats so that they may run their own analyses. These datasets are updated periodically.

The data downloads now available are:

- Complaints Data
- Notices of Alleged Violation (NOAVs) Data
- Mechanical Integrity Test (MIT) Data
- Water Well Data
- Spill and Release Data (released December 16, 2015)

The COGCC is developing additional data downloads for future release, including Remediation Projects, Inspections, and Enforcement Orders.

3.3.5 Online Environmental Reports

Written reports for COGCC managed baseline sampling projects and other special environmental studies, such as the Water Quality Trend and Data Analysis for the San Juan Basin, Status reports for Monitoring Project Rulison, Methane Seep studies in Las Animas/Huerfano Counties, and the Naturally Occurring Radioactive Materials (NORM) Study are posted on the website under the "Library" tab where they are primarily organized by basin. Many of these reports are in PDF format and can be downloaded. Several new reports were added to the Library this year.

A fact sheet, *Methane in Colorado Groundwater* was developed by COGCC staff and posted in the online Library. The fact sheet explains the differences between thermogenic and biogenic methane and also briefly covers how the COGCC determines if the source of methane in a water well is biogenic or thermogenic.

Although not new, the brochure, *How Well Do You Know Your Water Well* continues to be very popular. The brochure has been updated and revised to include information about mitigating methane in water wells, current contact information for various agencies, and water well maintenance and record keeping. COGCC provides this useful brochure to water well owners when water samples are collected from their wells by COGCC, operators, or third party contractors. The update project was initiated by the Colorado Oil and Gas Association (COGA) with support from the COGCC and cooperation of CDPHE and DWR. An electronic version of the brochure is available in the Library section of the COGCC website.

3.4 COGCC Program Funding

The COGCC receives an annual appropriation of \$312,033 that is used primarily by the environmental staff to respond to and investigate complaints alleging environmental impacts from oil and gas operations. An additional \$325,000 appropriation can be used to conduct special environmental projects. Typical projects involve baseline ground water testing, gas seep investigations, and regional investigations of potential impacts from oil and gas operations. The FY 2014-15 special environmental projects are described in more detail in Section 8.

Because of the COGCC's potential need to respond to emergency situations related to oil and gas operations, the COGCC receives an annual appropriation of \$1,000,000 for emergency response activities. In addition, the COGCC continues to receive an annual appropriation of \$445,000 for plugging, abandoning, and reclaiming orphaned wells.

4.0 NEW COGCC REGULATIONS AND POLICIES

House Bill 14-1356

House Bill 14-1356, effective June 6, 2014, amended the Conservation Act in order to deter violations and encourage operators to promptly correct violations. Among other things, the amendments eliminated the \$10,000 penalty cap for a violation, increased the daily maximum penalty amount from \$1,000 to \$15,000 for each violation, and called for

the Commission to assess a penalty for each day that evidence demonstrates a violation occurred.

Rulemaking to conform Commission Rules to HB 14-1356 began in 2014 and was completed in 2015. Concurrent with this rulemaking, the Director also issued a companion Enforcement Guidance and Penalty Policy in January 2015. The Conservation Act, Rules and Enforcement Guidance and Penalty Policy are all available on the Commission's web site.

Floodplain Rules

On March 14, 2014, the Commission published a report titled "Lessons Learned in the Front Range Flood of September 2013". This report recommended several changes to Commission regulations as a result of the September 2013 Front Range Flood. During the September 15, 2014, Commission hearing, the Commission directed Staff to hold a rulemaking to address the recommendations in this report. The final rule amendments were adopted at the March 2, 2105 COGCC Commission hearing.

The adopted floodplain rules established a definition of "Floodplain" to clearly identify the area where the new rule is applicable. Additionally, the floodplain rule (Rule 603.h.) requires the following:

- Operators must indicate on the Form 2A whether a proposed Oil and Gas Location falls within the Floodplain.
- New wells in the Floodplain must have remote shut-in capabilities.
- Steel or engineered secondary containment constructed with a liner for new facilities.
- Maintenance of an inventory of equipment in the floodplain.
- Equipment anchoring.
- Pits allowed only with a variance approved.
- Alternative compliance plan for any variances from the new requirements.

Governor's Task Force on Oil and Gas

In late 2014, Governor Hickenlooper convened a Task Force of 21 distinguished Coloradoans to evaluate and address oil and gas development conflicts with community development and citizens. The Task Force met for several months in a variety of venues in the regions of the state with high levels of oil and gas activity. The Task Force heard from the oil and gas industry, local governments, environmental

groups, regulatory agencies (including the COGCC), and many private citizens with varieties of backgrounds and concerns, and ultimately came up with several recommendations, two of which required the COGCC to engage in a formal rulemaking process.

Recommendation #17 required COGCC to specifically address “large oil and gas facilities” in urbanized areas, and Recommendation #20 required a COGCC rulemaking that would require operators to register with the municipalities in which they operate for the purposes of long-term planning. Following the disbanding of the Task Force, COGCC began a series of outreach meetings to engage affected parties, including industry, local government, and citizens to solicit input on how best to implement the recommendations. These outreach meetings were held throughout the state, and generally focused on how “large facilities” should be defined, what measures could be taken during the siting of large facilities, how local governments can be involved in permitting and planning, and what mitigation measures could help alleviate the impacts from large facilities.

Formal rulemaking procedures began with stakeholder meetings in September 2015 and Commission hearings began November 16. It is expected that the rulemaking hearings will conclude on January 25, 2016.

Risk Report (Senate Bill 13-202)

In January 2014, the COGCC reported to the General Assembly our findings in response to Senate Bill 13-202, which required that the COGCC evaluate environmental risk associated with oil and gas activities and identified ways to reduce the risk. The report summarized a 2013 review of COGCC’s data surrounding spills and releases and made recommendations for a risk-based inspection strategy.

Since the publication of the report, the COGCC has been implementing the recommendations. Key measures taken in 2015 include the creation of a sub-group in the Engineering Unit with a specific focus on flowline and production facilities integrity, and the development of a risk model which integrates GIS data and data from the MRDB that is utilized by the Field Inspection Unit to prioritize their inspections.

5.0 OIL AND GAS EXPLORATION AND PRODUCTION ACTIVITY

Data used in the following discussion is current as of December 7, 2015 as reported in the December 2015 COGCC Staff Report.

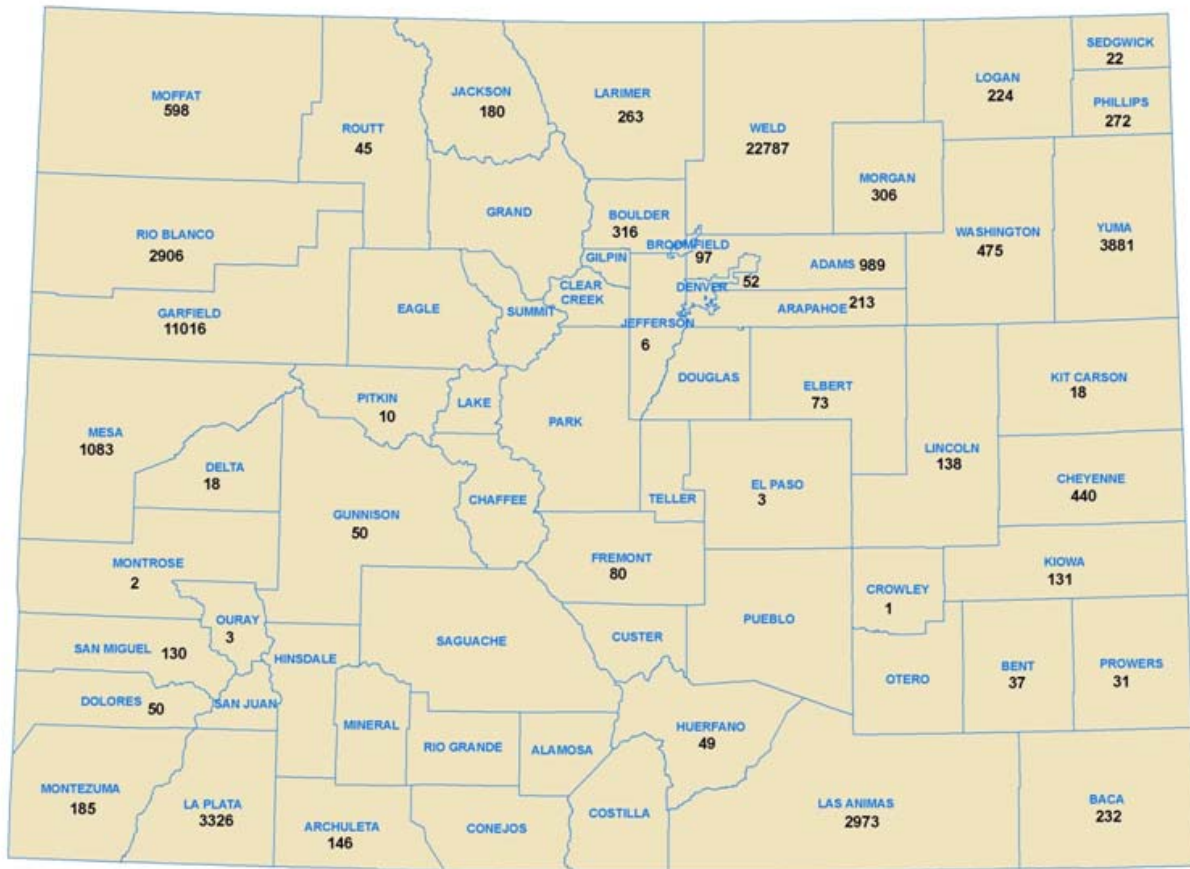
One metric used to measure exploration and development activity levels is approved permits. A total of approximately 2,269 permits to drill were issued in 2015 well below than 2014's total of 4,190. Most of the permits were issued in Weld County (1,688 permits) in the active shale play of the Niobrara and Codell Formations. Of the 1,688 Weld County permits, 1,636 were for horizontal wells (approximately 97 percent). The second most active County for permits was Garfield County with 495 permits issued—down from 1,066 in 2014—however only 12 were for horizontal wells. Coal Bed Methane (CBM) development remains lower than historical levels as indicated by lower permit counts in Las Animas and La Plata Counties. Historic details of permit activity by County since 2000 are provided in Appendix 5.

Another metric to gage activity level is well starts. This number approximately represents the actual number of wells drilled. As of December 7, 2015, there were a total of 1,375 starts, as compared to 2,236 well starts in 2014 and 1,977 well starts in 2013. In 2015, 1,027 wells starts were for horizontal wells, or approximately 74 percent of the total. As in 2014 and 2013, horizontal drilling associated with the Niobrara and Codell Formations in the DJ Basin dominated the drilling activity in 2015. It has been estimated that a single horizontal well may effectively drain the equivalent minerals as 6 traditional vertical wells in the same formation; therefore the year's horizontal well starts could be compared to about 6,000 traditional wells spud in years prior to the horizontal boom.

As of December 7, 2015, there were 53,719 active wells in the State. Figure 5-1 shows the approximate number of active wells by County. Weld and Garfield Counties have the most active wells, with more than 22,000 and 11,000 wells, respectively.

Oil and gas production reports for 2015 are not yet complete and therefore final production figures for 2015 are not available. COGCC expects production reporting to be finalized by April 15, 2016. With that caveat, we estimate that approximately 1.55 trillion cubic feet of natural gas will be produced in Colorado during 2015. Of that, approximately 356.7 billion cubic feet (BCF) will be produced from coal bed methane operations. COGCC estimates that statewide oil production for 2015 will exceed 73 million barrels (BBLs) and possibly over 120 million BBLs after final accounting; recently an industry trade association has predicted 140 million BBLs.

Figure 5-1. Number of Active Wells by County



6.0 SPILLS/RELEASES AND REMEDIATIONS

6.1 Statewide Spills/Releases and Remediations

Operators are required to report spills and releases that occur as a result of oil and gas operations in accordance with COGCC Rule 906. Produced oil, gas, and water are the substances most commonly spilled or released. These substances fall under the exploration and production (E&P) waste exemption to regulation as hazardous wastes under Subtitle C of the Resource Conservation and Recovery Act (RCRA); therefore, they are subject to COGCC jurisdiction. Through December 7, 2015, 518 spills or releases were reported to the COGCC in 2015. The spills are tracked in the COGCC database and can be accessed by the public from the COGCC website (Database Tab). Most spills occurred as a result of some type of equipment failure, such as leaks in

process piping or pipelines, valve failures, tank leaks, and/or water vault leaks. Some spills were attributed to human error.

Once a spill has occurred, the Operator is required to remediate environmental impacts. The environmental staff review and approve remediation plans, evaluate analytical data, monitor the progress of the remediation, and ensure cleanup standards and other remediation requirements are met through verification sampling, data review, and other measures.

Where groundwater has been impacted, operators are required to: eliminate any continued release; investigate the extent of contamination; remove the source of contamination (such as the impacted soils in contact with ground water or free hydrocarbon product); remediate; establish points of compliance; and monitor contaminant levels. In accordance with the MOA for Response to Spills/Releases to Surface Water, the COGCC notifies the CDPHE of releases impacting waters of the state. In 2015, four releases to surface waters of the State were reported to CDPHE WQCD.

Remediation projects are tracked in the COGCC's database and can be accessed on the COGCC website. Through December 7, 2015, the COGCC received approximately 363 new remediation plans, and closed approximately 484 remediation projects.

7.0 ENFORCEMENT

In fall 2014 COGCC implemented a LEAN process to improve the enforcement program. The process was undertaken to develop an enforcement procedure to help expedite enforcement matters, formalize penalty calculations and provide better tracking methods for enforcement matters. During 2014 the Legislature also passed House Bill 14-1356, which increased the COGCC penalty authority from \$1,000/day to \$15,000/day.

As of December 7, 2015 the Commission issued 63 enforcement orders, including 54 Administrative Orders by Consent, 8 Orders Finding Violation, and an additional order foreclosing a financial assurance instrument. These orders resolved 96 Notices of Alleged Violations and imposed \$3, 322,436 in gross penalties, of which \$1, 421,372 was conditionally suspended.

The number of enforcement orders and penalties assessed is an all-time record high for a calendar year.

8.0 SPECIAL ENVIRONMENTAL PROJECTS

COGCC is currently working on the following projects using the FY 2015-2016 Special Environmental Projects budget line:

3M4M Project, La Plata and Archuleta Counties – Monitoring gas pressure in monitoring wells along the Fruitland Outcrop and operation gas mitigation recovery systems at two sites.

Project Rulison and Rio Blanco Nuclear Test Sites, Garfield County – Review of monitoring data and new Sampling and Analysis Plan.

CSU Real-Time Ground Water Monitoring Network – The Center for Energy Water Sustainability (CEWS) at Colorado State University in Fort Collins along with assistance of the COGCC, has designed Colorado Water Watch (CWW), a real-time groundwater quality monitoring pilot program for the Laramie-Fox Hills Aquifer. The monitoring system is comprised of a network of groundwater wells near oil and gas operations in Weld County with sensors installed that are capable of detecting changes in groundwater quality due to natural or anthropogenic changes in water level or water quality.
(<http://waterwatch.colostate.edu/>)

San Juan Basin Water Quality Study - The objective of this study is to assess potential long-term trends in general groundwater quality in the San Juan Basin based on data available in the COGCC database. In FY 2015, trend and data analysis for more than 2,000 water wells in the San Juan Basin from a period of more than 15 years was updated. The analysis included groundwater data collected from baseline and post-completion samples, for analytes including cations, anions, TDS, iron, manganese, dissolved nutrients and methane throughout the San Juan Basin in La Plata and Archuleta Counties. The analysis included mapping, time-concentration plots, and Mann-Kendall trend analysis as a means to filter a large amount of data to allow staff to identify and focus on potential areas of concern. As in past evaluations, this year's analysis did not delineate any clusters of significant upward trends in methane or major cation/anion concentrations within the San Juan Basin. However, as a result of Commission Orders 112-156 and 112-157 and statewide sampling requirements, the dataset is constantly being increased and requires periodic evaluation.

APPENDIX 1

COGCC Commissioners

Colorado Oil & Gas Conservation Commission Statutory Requirements

*Please note that information within parentheses is additional background information and not a statutory requirement

Commissioner (Officer)	2 Executive Directors (ex-officio voting members) (Current Employment)	2 West of Continental Divide (Resident County)	3 with Substantial Oil & Gas Experience (Employed by Oil & Gas Industry) (Current Employment)	2 Out of 3 Must Have a College Degree in Petroleum Geology or Petroleum Engineering	1 Local Government Official (Current Employment)	1 with Substantial Environmental or Wildlife Protection Experience (Current Employment)	1 with Substantial Soil Conservation or Reclamation Experience (Current Employment)	1 engaged in Agricultural Production and a Royalty Owner (Current Employment)	Maximum of 4 from Same Political Party (excluding Executive Directors)	Current Term Expires
Richard Alward		X (Mesa)					X (Ecologist)		D	7/1/2016
Tom Compton Chairman		X (La Plata)						X (Rancher)	R	7/1/2016
Tommy Holton		(Fort Lupton)			X				R	7/1/2019
John Benton		(Littleton)	X	X					R	7/1/2019
James W. Hawkins		(Jefferson)	X	X					D	7/1/2019
DeAnn Craig		(Denver)	X	X					R	7/1/2016
Andrew Spielman		(Denver)				X			D	7/1/2019
Mike King	X (Department of Natural Resources)	(Denver)								
Larry Wolk	X (Department of Public Health and Environment)	(Denver)								

Commissioner requirements are set by statute in the Oil and Gas Conservation Act at §34-60-104 (2) (a)(1), C.R.S. (Current as of July 10, 2015)

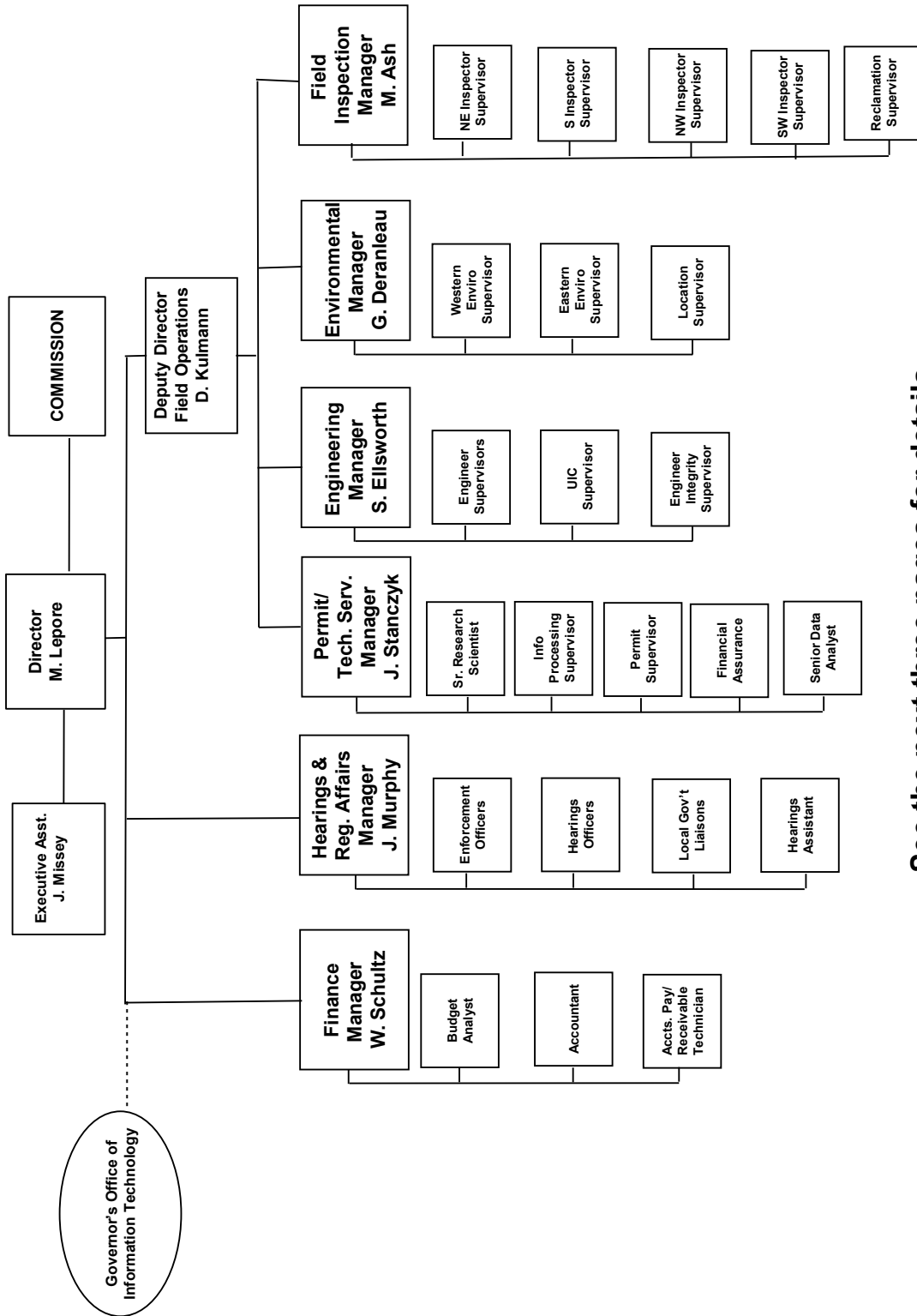
APPENDIX 2

COGCC Organizational Chart



Organizational Charts and Statistics

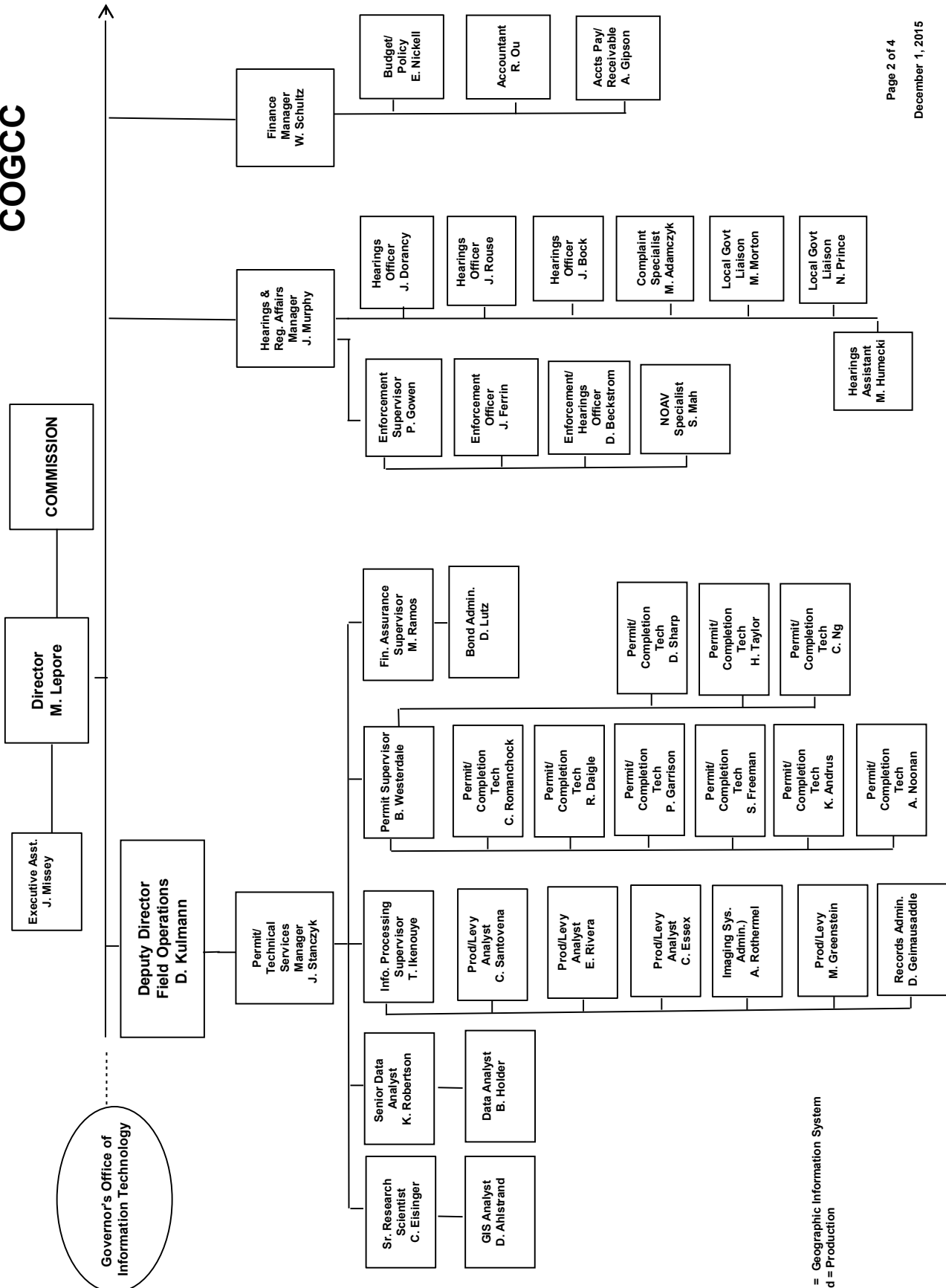
COLORADO OIL & GAS CONSERVATION COMMISSION



See the next three pages for details



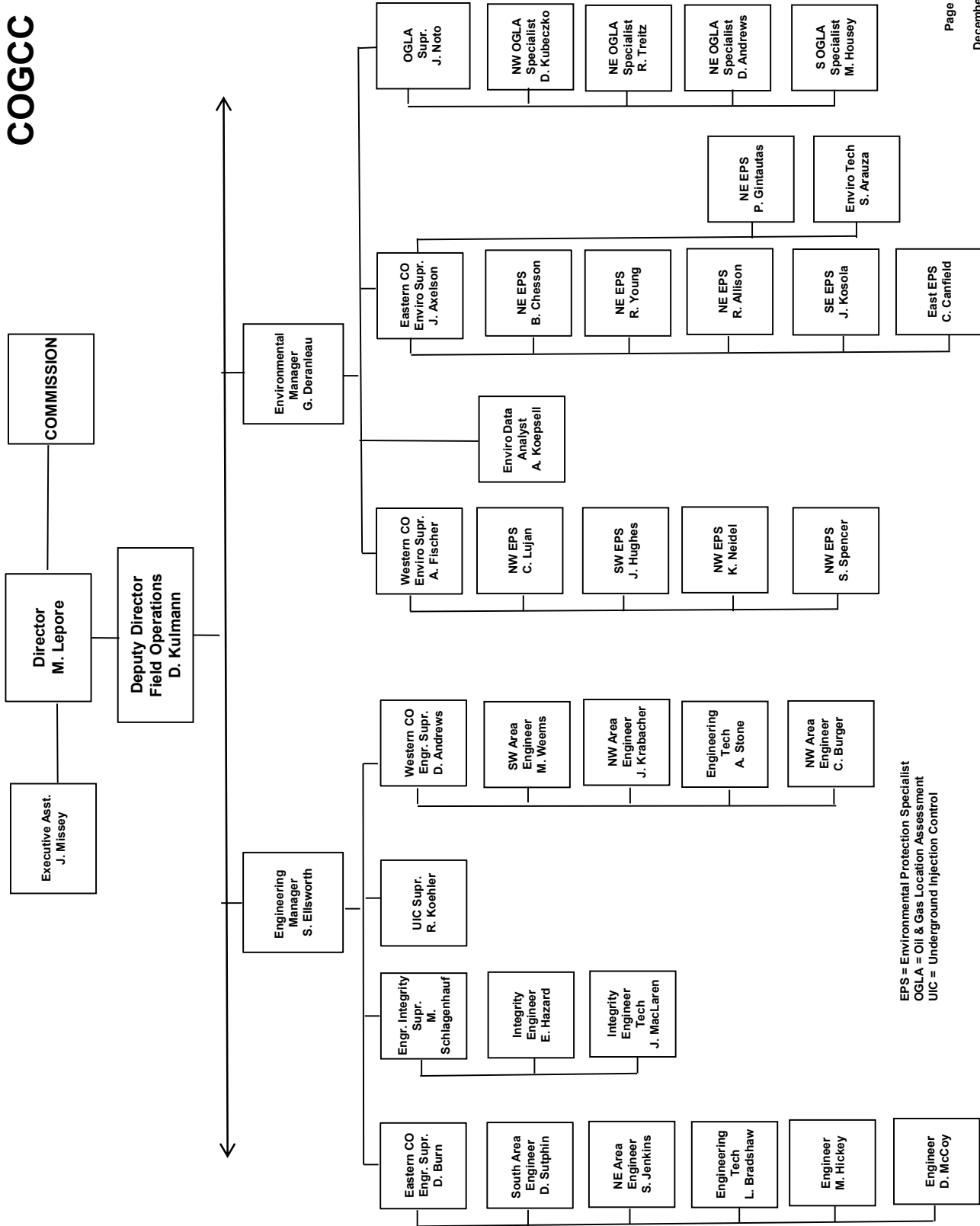
COGCC



GIS = Geographic Information System
Prod = Production



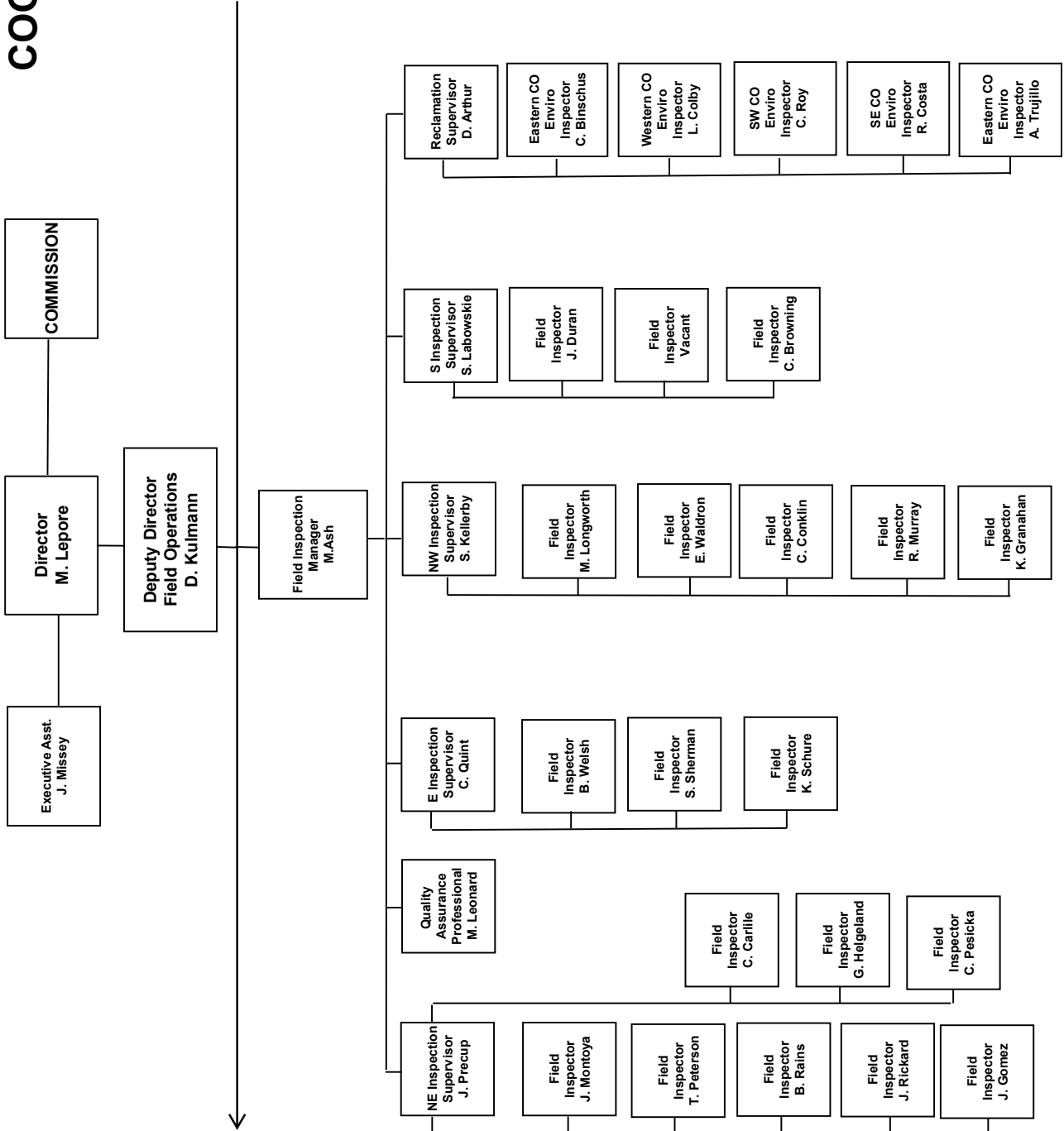
COGCC



EPS = Environmental Protection Specialist
 OGLA = Oil & Gas Location Assessment
 UIC = Underground Injection Control



COGCC



APPENDIX 3

COGCC GIS Online Map

<http://cogcc.state.co.us/maps.html#/gisonline>

COGCC GISOnline

Layers

- O&G Facilities
 - Wells
 - Pits
 - Active
 - Closed
 - Unknown
 - Permits
 - Pending
 - Permits
 - Pending2As (Diamond)
 - Well Status
- COGCC Data
 - O&G Locations
 - Directionals
 - COGCC Rules
 - O&G Fields
 - Seismic
 - Permits
 - Water/Gas
 - Sampling Data
 - Roads & RRs
 - Water Resources
 - DWR_Wells
 - Dsgntd GW
 - Mgmt
 - REG42
 - Dsgntd Basin
 - Acquires
 - Planned Reservoirs
 - Lakes
 - Rivers-Streams
 - Floodplains
 - SectwpRng
 - Wildlife CPW
 - State Lands
 - Indian Lands
 - BLM Lands
 - Surface Lands

COGCC GISOnline

Address Search | Zoom | Selection Results | Intersect | Copy | Redline | Add Point | Lat/Long | Suggested Sites | Print | Help

Google Maps | LaserFiche | VPN | eForm | COGCC Reports Portal | eCFR | Colorado eLite | COGCC_Outside | Google | COGCC_Outside

05-123-12351
PDC ENERGY INC
HOSHIKO/SOLIS 1
Double-click to open link (<http://cogcc.state.co.us/cogis/FacilityDetail.asp?factid=12312351&TYPE=WELL>)

COLORADO
Oil & Gas Conservation Commission

Note: If some of the tool buttons are not functioning, please see the [Compatibility_View](#) document.

MAPGUIDE HELP

- [Disclaimer](#)
- [Map Layer Info](#)
- [Map Tools](#)
- [Other Browsers](#)
- [FAQ's](#)
- [GIS Contacts](#)

This window is also used for some of the map functions, such as redlining and measure distance. When these functions are

0 features selected

7.38 x 4.94 (mi)

1: 46546.22

Powered by Infrastructure Map Server

X: 536357. Y: 4471510 (METER)

125%

APPENDIX 4

Groundwater Sampling Report Example

GIS Online Sampling Data

COGCC GISOnline

Layers

- O&G Facilities
 - Wells
 - Pits
 - Active
 - Closed
 - Unknown
 - Permits
 - Pending
 - Pending2As
 - Pending2As (Diamond)
 - Well Status
- COGCC Data
 - O&G Locations
 - Directionals
 - COGCC Rules
 - O&G Fields
 - Seismic
 - Permits
- Water/Gas
 - Sampling Data
 - Sites w/Lab Data
- Sample Sites
 - Sample Sites
- Roads & LRRs
- Water Resources
 - DWR Wells
 - DWR Wells GW
- Mgmt
 - Dsgntd Basin
 - REG42
 - Aquifers
 - Planned
 - Reservoirs
 - Lakes
 - Rivers-Streams
 - Floodplains
 - SecTwpRng
 - Wildlife CPW
 - State Lands

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Oil & Gas Conservation Commission

Note: If some of the tool buttons are not functioning, please see the [Compatibility View](#) document.

MAPGUIDE HELP

- Disclaimer
- Map Layer Info
- Map Tools
- Other Browsers
- FAQ's
- GIS Contacts

This window is also used for some of the map functions, such as redlining and measure distance. When these functions are used, please refer to the [Map Guide](#) document.

Sample site ID: 752763
Analytical data is available.
Double-click to open link (<http://cogcc.state.co.us/COGIS/EnviroSample.asp?facid=752763>).

1 Sites w/Lab Data selected

1: 46546.22 7.38 x 4.94 (mi)

Powered by Infrastructure Map Server

X: 521320. Y: 4456756 (METER)

COGIS - Environmental Sample Site Information

#752763 Information

Sample Site ID: **752763**
 Facility Type: **DOM** Proj Number: **NWNW 2 3N 66W**
 County: **WELD - #123** Location: **40.26034/-104.7496**
 Elevation: **9064191** Well Depth: **130**
 DWR Receipt #: **9064191**

Related Facility/Well

NonFacility ID: **99999** Facility Name: **No Facility** Location:
 Status: **CL** Operator Name: **UNKNOWN # 1**

COGCC Water Quality Database Disclaimer:

The analytical data and other information in this database are a compilation of data collected by COGCC staff, data submitted to COGCC from a variety of third parties, and historical data. All analytical data collected by or submitted to the COGCC is public information and COGCC posts the data to this database as a public service. The data is provided for informational purposes only. COGCC does not conduct a detailed review of quality control/quality assurance protocols, chain of custody procedures, or field or laboratory methodologies on data received from third parties. The level of review performed on historical data is unknown. COGCC does not regularly perform formal data validation for any of the data posted to this database. **The COGCC makes no warranties or representations of any kind, express or implied, regarding the quality, accuracy, reliability, merchantability, or fitness for a particular purpose of the data provided herein.**

Sample(s) All

Sample ID: **534633** Sample Date: **8/15/2013** Matrix: **WATER** Lab: **ALS Lab Group (formerly F**

Sample Results for Sample # 534633 ALS Lab Group (formerly Paragon) ID: 1308260-1					
Methodcode	ParamDescription	ResultValue	Units	DetectionLimit	Qualifier
BART	BACTERIA, IRON RELATED	1	NU	1	Prsnt
BART	BACTERIA, SLIME FORMING	1	NU	1	Prsnt
BART	BACTERIA, SULFATE REDUCING	0	NU	1	Abs
E200.8	BARIIUM	55	ug/L	1	
E200.8	BORON	98	ug/L	50	
E200.8	CALCIUM	120000	ug/L	1000	
E200.8	IRON	ND	ug/L	100	U
E200.8	MAGNESIUM	45000	ug/L	100	
E200.8	MANGANESE	ND	ug/L	2	U
E200.8	POTASSIUM	4200	ug/L	1000	
E200.8	SELENIUM	34	ug/L	1	
E200.8	SODIUM	96000	ug/L	1000	
E200.8	STRONTIUM	1300	ug/L	1	
E300.0	BROMIDE	1	mg/L	0.2	
E300.0	CHLORIDE	84	mg/L	4	
E300.0	FLUORIDE	1.1	mg/L	0.1	
E300.0	NITRATE AS N	12	mg/L	0.2	
E300.0	NITRITE AS N	ND	mg/L	0.1	U
E300.0	SULFATE	310	mg/L	20	
E365.2	PHOSPHORUS	0.057	mg/L	0.05	
RSK175	ETHANE	ND	ug/L	2	U
RSK175	METHANE	ND	ug/L	1	U
RSK175	PROPANE	ND	ug/L	1	U
SM2320B	BICARBONATE ALKALINITY as CaCO3	210	mg/L	20	
SM2320B	CARBONATE ALKALINITY AS CaCO3	ND	mg/L	20	U
SM2320B	TOTAL ALKALINITY AS CaCO3	210	mg/L	20	
SM2510B	SPECIFIC CONDUCTIVITY	1317	UMHOS/CM	1	
SM2540C	TOTAL DISSOLVED SOLIDS	940	mg/L	40	
SM4500-H+ B	pH	7.53	SU	0.1	
SW8015	TEPH DIESEL RANGE ORGANICS	ND	mg/L	0.5	U
SW8260	BENZENE	ND	ug/L	1	U
SW8260	ETHYLBENZENE	ND	ug/L	1	U
SW8260	m+p-XYLENE	ND	ug/L	1	U
SW8260	o-XYLENE	ND	ug/L	1	U
SW8260	TOLUENE	ND	ug/L	1	U
SW8260	TVPH - Gasoline Range Organics	ND	ug/L	100	U

Sample ID: **534633** Sample Date: **8/15/2013** Matrix: **WATER** Lab: **ALS Lab Group (formerly F**

APPENDIX 5

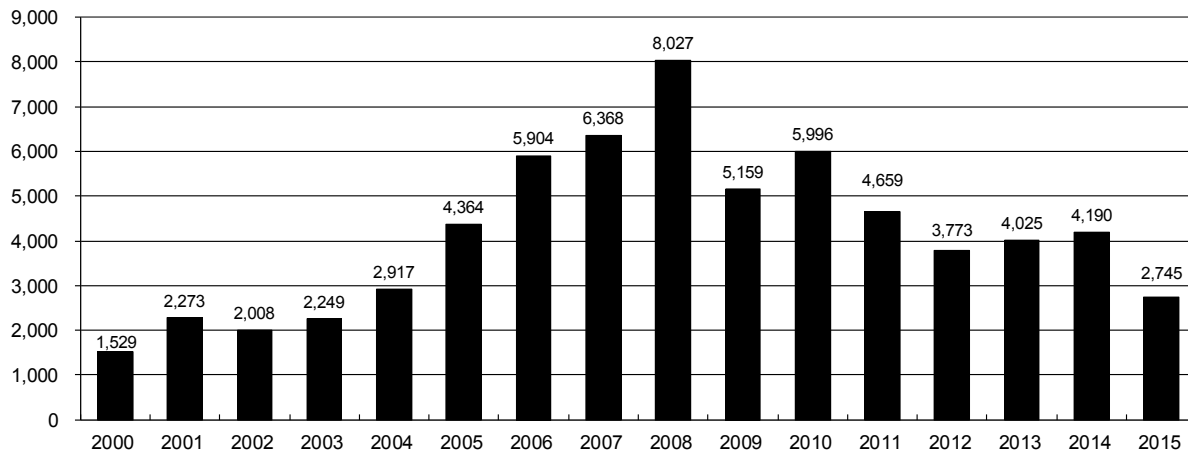
2015 Permit Statistics



Annual Drilling Permits by County as of December 1, 2015

County	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
ADAMS	38	28	9	26	39	34	37	89	51	35	21	8	40	40	51	74
ARAPAHOE	0	2	1	2	5	7	11	10	10	10	8	23	35	23	34	17
ARCHULETA	7	9	6	10	8	13	14	26	47	11	18	12	5	4	3	9
BACA	22	6	2	3	7	8	2	11	13	3	4	5	3	1	1	
BENT	2				5	3	8	1	1		5		2	1		
BOULDER	1	5	6	7	17	13	21	37	32	35	24	30	22			
BROOMFIELD			2	7		1	1		2	33	28	11	36		31	
CHEYENNE	3	3	3	3	3	10	21	15	33	12	13	16	31	50	26	6
COSTILLA																
CROWLEY																2
DELTA			7	4	5	10	9	2			4	3	6	1	2	
DENVER		3					19	25	24							
DOLORES				1	1	1	6	10	12	21	8	8	13	12	3	
EAGLE														1		
ELBERT	2						4			1		1	2	2	4	3
EL PASO										2	3	3	18	1	2	
FREMONT					1	3	2	4	14	13	22	14	11	2	8	1
GARFIELD	213	353	362	567	796	1,509	1,845	2,550	2,888	1,981	2,037	1,323	1,046	870	1,066	495
GRAND																
GUNNISON			5	10	1	9	19	7	10	12	4	3	11	9	20	25
HUERFANO	41	27	27		8	2			7		2	1	9	1	13	2
JACKSON	34	18	21	9	14	6	8	5	27	19	9	18	5	12	17	3
JEFFERSON	1						1	3	2					1		
KIOWA	11	18	2	4	2	1	11	9	26	7	16	17	17	12	5	3
KIT CARSON				1	3	5	4	4	13	7	3	2	6	1	2	
LA PLATA	127	156	104	162	102	115	235	251	328	298	191	99	71	32	87	98
LARIMER	2		1			1		5	46	12	41	8	13	2	4	28
LAS ANIMAS	268	400	259	180	332	413	500	362	303	88	92	85	11	2	1	
LINCOLN	2	2	1	6	3	4	1	2	58	44	48	31	36	87	129	24
LOGAN	4	7	3	3	6	13	17	14	5	9	17	8	27	4	5	
MESA	13	27	30	27	54	136	265	293	501	427	306	127	150	105	74	121
MOFFAT	35	52	62	63	63	60	120	68	57	51	53	93	88	44	54	10
MONTEZUMA	4		5	8	8	11	5	12	22	39	19	27	29	14	25	3
MONTROSE	1	3	2	4	2		1	3	3		1	1				
MORGAN	9	9	2	7	9	7	3	6	2	1	6	13	5	16	6	4
OTERO																
PARK										3	4	1				
PHILLIPS	1	2		7	13	17	12	69	82	45	64	112	56		11	2
PITKIN					1			1								1
PROWERS	2	5	4		7	5	7	5	8	1	3	1			1	
RIO BLANCO	89	187	105	179	154	161	360	321	477	348	441	109	117	167	121	104
RIO GRANDE	1	1		1					1	1			2		1	
ROUTT	20	13	1		4	6	9	8	4	2	3	10	4	12	4	9
SAGUACHE	2		2					2	1	2						
SAN MIGUEL	11	13	27	18	42	45	35	23	20	13	10	2	1		2	3
SEDGWICK				1	5	2	7	2	1	19	11	12	2		7	1
WASHINGTON	23	17	27	34	128	50	69	45	11	1	6	12	6	19	12	9
WELD	509	702	760	757	832	901	1,418	1,527	2,340	1,448	2,152	2,262	1,826	2,468	2,303	1,688
YUMA	31	205	160	138	237	782	797	541	545	105	299	148	11	9	53	2
TOTAL	1,529	2,273	2,008	2,249	2,917	4,364	5,904	6,368	8,027	5,159	5,996	4,659	3,773	4,025	4,190	2,745

ALL COUNTIES

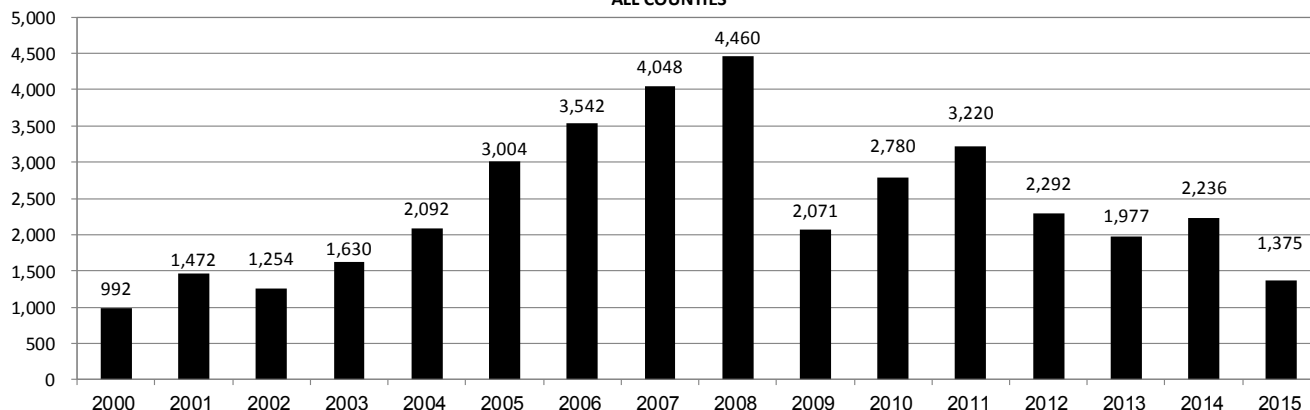




Annual Well Starts by County as of December 1, 2015

County	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
ADAMS	18	13	4	19	22	24	13	41	14	14	21	1	15	6	30	4
ARAPAHOE					6	1	5	2	1	1	3	9	9	25	21	
ARCHULETA	4	4	2	5	4	10	5	7	29	9	12	10	11		1	3
BACA	19	6	2	1	6	6	2	6	12		5	4	2	1		1
BENT	2				3	2	8	1	1			1	2			
BOULDER				2	5	11	9	14	25	16	13	7	14			
BROOMFIELD			2		1				10		21	11	5			
CHEYENNE	2	1	3	3		9	14	15	14	8	12	11	17	35	19	3
COSTILLA																
CROWLEY																2
DELTA				5	4	6	5	2			9	2	3			
DENVER		2					7	5	4							
DOLORES					2		2	13	6	2		1	5	10	4	
EAGLE														1		
EL PASO											2		5		1	
ELBERT	2					1										2
FREMONT					1	3	2	2	5	3	10	16	8	1	4	1
GARFIELD	190	251	245	417	585	799	1,005	1,304	1,689	765	905	878	495	391	362	164
GUNNISON			1		1	1	9	5	1	4	5	2	4	1	2	2
HUERFANO	25	14	19	3	6	2			2		2		2	1	4	1
JACKSON	24	2	4	10	10		3	3	12	1	8	7		7	6	
JEFFERSON								2								
KIOWA	8	16	2	4	2	1	7	7	2	5	15	14	10	12	3	2
KIT CARSON				1	1	6	2	1	14	3	1	1	3	1	2	
LA PLATA	99	135	118	110	103	104	108	179	199	131	67	54	3	10	36	31
LARIMER	1	1				1		4	8	1	28	2	10	4	1	9
LAS ANIMAS	202	286	205	221	296	384	413	326	222	14	7	78	1		1	
LINCOLN	2	2	1	5	2	2	1	2	18	11	14	21	23	42	41	11
LOGAN	4	6	3	3	2	11	12	12	3	7	3	9	13	4	6	
MESA	2	12	12	13	25	89	156	209	225	14	11	41	4	11	16	71
MOFFAT	18	23	25	28	19	40	60	42	26	18	15	33	25	27	3	6
MONTEZUMA	2	3	5	5	1	7	2	4	22	10	3	8	18	12	8	1
MONTROSE		3		2	1			1	2		1					
MORGAN	9	8	1	7	5	5	3	1	1	2	3	2	3	1	4	1
PARK											2					
PHILLIPS	1			6	10	11	4	35	18	2	42	130	48		9	
PROWERS	2	4	4		5	5	6	3	5	2	3	1				1
RIO BLANCO	51	82	47	83	92	95	107	95	204	118	107	72	53	37	42	17
RIO GRANDE														1		
ROUTT	5	12	1		1	6	3	2		2	1	2	4	2	2	
SAN MIGUEL	6	9	10	19	28	13	20	17	5	1	2	2			2	
SEDGWICK				1	2	1	1	5			3	8	3			
WASHINGTON	15	12	24	29	65	34	23	14	11	2	2	4	1	9	7	2
WELD	237	403	406	522	632	718	931	1,222	1,314	878	1,209	1,672	1,457	1,312	1,558	1,042
YUMA	42	162	108	106	144	597	593	445	336	27	213	106	16	13	39	
TOTAL	992	1,472	1,254	1,630	2,092	3,004	3,542	4,048	4,460	2,071	2,780	3,220	2,292	1,977	2,236	1,375

ALL COUNTIES





Active Wells by County and Status as of December 1, 2015

COUNTY	Drilling	Domestic	Injecting	Producing	Shut In	Temp Aband	Waiting on Completion	Active Storage	Total Active Wells
ADAMS	12		7	883	52	8	2	13	977
ARAPAHOE		1	2	148	8	9		43	211
ARCHULETA	2	5	1	101	17	13	6	1	146
BACA			16	119	31	5		55	226
BENT		1		29	7				37
BOULDER				301	12	1			314
BROOMFIELD				96					96
CHEYENNE	4		40	322	23	48	2		439
CROWLEY									
DELTA				4	13		1		18
DENVER			1	46	2		3		52
DOLORES	2		1	36	3	3	1		46
EL PASO	1	1				1			3
ELBERT	2			67	3	1			73
FREMONT	4	3		58	9	6			80
GARFIELD	193	5	43	10,583	104	77	25	1	11,031
GUNNISON	4		1	32	9	1	3		50
HUERFANO	2		1	35	4	6	1		49
JACKSON	1		30	111	38				180
JEFFERSON			2	1	1		1	1	6
KIOWA	1		10	106	10	2	2		131
KIT CARSON		1	2	12		3			18
LA PLATA	6	7	28	3,133	95	18	3	29	3,319
LARIMER	9	2	18	187	29	17	1		263
LAS ANIMAS		3	15	2,802	18	101	14	17	2,970
LINCOLN	16	1	7	93	14	7	1		139
LOGAN	10		16	113	43	29	3	10	224
MESA	57	1	6	889	88	15	23	9	1,088
MOFFAT	7		9	487	46	37	3		589
MONTEZUMA	2	2	6	121	35	12			178
MONTROSE						1			1
MORGAN	1		22	90	82	32		79	306
OURAY		2				1			3
PARK									
PHILLIPS			2	266	2	1	1		272
PITKIN								10	10
PROWERS	1			26	4				31
RIO BLANCO	24	3	293	2,305	175	89	14	2	2,905
ROUTT		2		33	7	3			45
SAN MIGUEL	1			109	15	4			129
SEDGWICK	2		1	14	3		2		22
WASHINGTON	7		24	402	30	7	3		473
WELD	959	1	47	21,276	324	44	34	3	22,688
YUMA	1	8	21	3,787	43	9	11	1	3,881
Totals	1,331	49	672	49,223	1,399	611	160	274	53,719

Note: The previously reported total of 4,569 shut-in wells as of October 1, 2015 had a typographical error; the correct total was 1,569.



Monthly Statistics as of December 1, 2015

Page 1 of 2

YEAR and MONTH	Baker - Hughes Rig Count	Permits										Well Spud Notices	Active Drilling Permits	Active Wells	Public Visits			
		Drilling		Recompletion		Injection		Pits		Locations					Data	Office	Internet	
		Rcvd	Apvd	Rcvd	Apvd	Rcvd	Apvd	Rcvd	Apvd	Rcvd	Authz							
2011 TOTAL		4,709	4,659	325	320	44	32	190	192	2,382	2,267	3,220			187	1,294	1,337,865	
2012 JAN	73	372	258	26	21	3	0	11	5	142	129	243	5,217	46,958	12	106	112,686	
FEB	70	370	382	23	27	7	5	21	9	160	129	230	5,173	47,128	16	114	105,857	
MAR	66	292	347	21	14	2	2	17	24	133	172	292	5,132	47,263	26	138	111,746	
APR	66	410	235	16	24	5	5	9	2	137	106	241	4,785	47,377	12	108	107,627	
MAY	66	491	506	23	16	3	1	6	2	105	131	211	4,885	47,533	20	123	109,802	
JUN	69	326	377	11	19	8	6	5	8	110	89	145	5,136	47,860	11	111	108,849	
JUL	66	237	276	9	14	3	2	5	2	97	103	183	5,152	48,173	13	102	114,195	
AUG	62	313	288	6	9	6	4	23	5	83	97	178	5,031	49,153	11	112	110,908	
SEP	61	252	256	1	5	5	2	4	1	81	77	161	4,960	49,230	11	89	106,114	
OCT	62	326	265	9	3	7	6	2	19	94	82	161	5,009	49,236	8	105	108,833	
NOV	56	271	323	5	8	6	6	2	4	109	97	142	5,000	49,989	10	119	120,586	
DEC	57	322	260	4	8	8	5	9	3	122	81	105	5,081	50,067	9	78	107,240	
2012 TOTAL		3,982	3,773	154	168	63	44	114	84	1,373	1,293	2,292			159	1,305	1,324,443	
2013 JAN	53	538	331	6	0	3	5	6	8	176	124	142	5,060	50,265	9	108	47,406	
FEB	56	260	455	10	5	2	3	4	11	91	141	138	5,250	50,372	7	102	40,649	
MAR	57	344	241	5	9	3	8	15	6	129	84	172	5,093	50,540	9	133	43,019	
APR	61	331	333	6	5	5	5	6	8	146	117	165	4,925	50,687	3	132	46,459	
MAY	61	350	342	8	6	6	6	10	7	106	142	162	5,110	50,810	3	123	45,215	
JUN	62	349	273	2	8	8	8	5	3	114	85	143	5,273	50,909	8	122	41,015	
JUL	68	864	304	11	4	9	2	9	5	218	91	161	5,070	51,091	7	154	45,558	
AUG	69	232	291	6	4	3	2	4	1	35	76	206	5,200	51,255	20	130	44,722	
SEP	69	212	362	9	5	10	9	3	19	56	109	166	5,185	51,407	5	105	41,256	
OCT	72	319	376	5	9	7	5	1	8	67	88	237	4,967	51,598	5	135	45,151	
NOV	69	346	353	4	13	7	4	2	27	67	85	162	5,141	51,711	12	119	38,903	
DEC	64	336	367	2	4	4	6	2	3	63	71	123	5,129	51,737	4	93	32,381	
2013 TOTAL		4,481	4,028	74	72	67	63	67	106	1,268	1,213	1,977			92	1,456	511,734	
2014 JAN	62	278	232	3	2	3	4	14	8	90	43	177	4,926	51,840	1	90	46,150	
FEB	61	284	297	6	4	1	1	3	1	91	94	150	5,051	51,847	12	113	43,408	
MAR	62	367	329	4	6	7	1	6	6	110	88	181	4,997	51,952	16	140	46,620	
APR	63	276	317	2	3	2	5	8	3	89	99	170	4,897	52,060	11	188	45,558	
MAY	65	458	383	2	2	3	1	6	7	83	94	178	4,923	52,202	18	131	42,365	
JUN	67	429	377	3	0	6	7	5	2	134	92	223	4,924	52,337	10	156	42,518	
JUL	69	272	446	2	5	3	11	8	5	97	126	181	4,955	52,431	7	166	45,481	
AUG	73	376	259	4	3	4	4	3	4	111	87	219	5,060	52,582	8	145	42,431	
SEP	76	412	304	2	3	3	1	20	1	116	81	205	5,006	52,694	14	175	43,577	
OCT	76	459	371	3	2	9	2	4	6	93	109	189	4,827	52,785	19	138	46,030	
NOV	73	326	479	5	2	5	4	4	0	54	103	175	5,171	52,947	8	96	39,583	
DEC	69	286	397	1	2	2	7	1	2	45	99	188	5,236	53,054	6	144	37,964	
2014 TOTAL		4,223	4,191	37	34	48	48	82	45	1,113	1,115	2,236			130	1,682	521,685	
2015 JAN	64	349	316	3	1	2	9	3	1	60	43	188	5,060	53,195	17	114	41,502	
FEB	49	324	161	3	2	5	6	9	0	73	28	115	4,750	53,309	4	117	38,245	
MAR	38	246	294	1	6	1	5	7	5	44	70	159	4,983	53,414	6	146	42,513	
APR	37	194	165	3	1	2	5	1	2	46	37	95	4,854	53,456	1	125	39,559	
MAY	39	324	190	1	4	2	6	8	0	41	44	107	4,632	53,535	5	113	unavailable	
JUN	38	327	281	4	1	0	5	2	1	52	49	134	4,726	53,608	5	138	unavailable	
JUL	38	373	250	4	2	2	1	0	0	57	48	118	4,663	53,706	7	145	26,975	
AUG	37	289	300	2	6	3	0	5	5	32	46	119	4,847	53,766	2	109	30,674	
SEP	33	242	312	3	1	1	7	0	3	59	49	103	4,953	53,806	4	146	31,642	
OCT	30	372	223	2	2	3	1	1	0	54	51	105	4,694	53,898	12	119	33,199	
NOV	31	190	254	6	2	4	3	1	0	21	49	116	4,765	53,719	7	105	29,112	
2015 TOTAL		2,668	2,269	24	24	18	44	35	17	464	414	1,138			51	1,153	251,110	

Abbreviation

Key:

Rcvd = Received, Apvd = Approved, Authz = Authorized



Oil and Gas Staff Report

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Monthly Statistics as of December 1, 2015

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YEAR and MONTH	Well Oper Change	Operators		Bonds					Hearings			Enforcement			Remediation Projects		Inspections		
		New	Inactive	Release Ind	Release Blnkt	Replace	Claim Ind	Claim Blnkt	Apps.	Orders	NOAVs	AOCs	OFVs	Cmplt	Spills	Rcvd	Comp	Wells	Locations
2011 TOTAL	6,743	33	31	79	44	43	4	4	403	349	230	10	19	247	527	726	536	12,394	-
2012 JAN	1,052	3	3	7	5	1	1	0	70	72	18	1	-	27	35	68	23	998	970
FEB	385	6	9	8	5	0	0	0	-	-	10	-	-	24	40	85	36	2,000	1,024
MAR	379	4	1	7	3	9	0	0	44	38	19	-	-	23	38	63	61	2,202	1,146
APR	478	4	2	10	3	2	0	0	80	59	11	-	-	19	35	26	99	1,700	929
MAY	526	3	1	4	0	3	0	0	43	50	14	2	-	23	32	27	122	2,630	1,701
JUN	1,270	3	4	3	3	4	0	0	-	-	5	-	-	35	39	46	98	1,435	1,091
JUL	499	5	0	1	4	5	0	0	63	50	15	-	-	16	24	45	33	1,323	1,076
AUG	301	6	5	2	8	0	1	0	67	54	24	3	2	21	28	127	33	1,904	1,432
SEP	834	0	4	4	5	2	1	0	-	-	5	-	-	14	13	30	36	1,120	845
OCT	485	1	2	9	1	0	0	0	30	36	6	1	-	13	44	116	37	1,397	1,017
NOV	523	6	4	12	8	7	0	0	85	37	16	2	-	10	44	26	44	1,331	829
DEC	958	6	2	3	1	0	0	0	-	-	14	-	-	19	30	31	19	1,031	610
2012 TOTAL	7,690	47	37	70	46	33	3	0	482	396	157	9	2	244	402	690	641	19,071	12,670
2013 JAN	653	3	5	12	2	0	0	0	48	75	15	4	-	21	40	31	45	1,622	789
FEB	289	4	2	6	3	2	0	0	41	35	11	2	-	15	30	42	90	1,044	615
MAR	354	1	3	2	2	1	0	0	54	67	16	2	-	11	25	65	29	1,968	1,149
APR	333	7	1	5	2	8	0	0	-	-	21	-	-	16	33	39	37	1,510	910
MAY	346	2	1	3	0	0	0	0	46	50	22	6	-	13	31	41	60	2,621	1,576
JUN	1,456	6	2	2	4	5	0	0	91	44	13	2	-	25	40	47	37	1,860	1,102
JUL	1,009	4	1	2	2	0	0	0	96	70	25	3	-	21	47	50	22	2,298	1,338
AUG	389	6	4	5	4	2	0	0	-	-	23	-	-	25	57	36	41	2,146	1,033
SEP	277	4	1	6	1	0	0	0	101	51	7	2	-	16	60	43	51	1,536	703
OCT	345	6	0	2	2	2	0	0	52	82	4	12	3	12	79	47	60	1,868	1,158
NOV	442	2	0	2	2	0	0	0	-	-	30	-	-	12	51	31	34	2,401	1,613
DEC	1,299	4	1	1	2	0	0	0	42	48	50	4	-	14	75	35	35	2,677	1,384
2013 TOTAL	7,192	49	21	48	26	20	0	0	571	522	237	37	3	201	568	507	541	23,551	13,370
2014 JAN	1,971	6	3	3	2	0	0	0	57	46	25	2	-	8	72	46	28	3,243	1,597
FEB	2,038	8	2	6	5	0	0	0	-	-	23	-	-	17	65	51	13	2,330	1,282
MAR	493	2	3	1	5	0	0	0	97	75	29	10	-	22	64	66	31	1,822	1,298
APR	313	5	2	6	4	1	0	0	74	64	17	8	1	20	66	47	59	2,651	1,715
MAY	509	5	1	3	3	5	0	0	-	-	12	-	-	13	78	50	42	2,437	1,571
JUN	1,011	5	2	7	4	1	0	1	95	90	14	6	1	16	74	44	50	3,209	1,717
JUL	336	2	1	5	3	1	0	0	96	96	11	6	-	12	64	60	59	3,071	1,536
AUG	452	6	1	2	4	0	0	0	-	-	8	-	-	31	63	32	58	2,788	1,682
SEP	378	4	1	1	2	0	0	0	73	63	13	7	1	18	63	39	50	2,587	1,616
OCT	886	8	1	0	2	0	1	0	80	75	12	3	1	13	78	78	36	3,886	1,914
NOV	475	2	4	8	4	5	0	0	-	-	6	-	-	15	72	27	59	3,156	1,458
DEC	1,402	1	1	0	2	0	0	0	126	89	9	1	-	58	91	56	17	3,028	1,596
2014 TOTAL	10,264	54	22	42	40	13	1	1	698	598	179	43	4	243	850	596	502	34,208	18,982
2015 JAN	700	2	3	2	3	0	0	0	76	64	15	2	1	36	82	38	58	2,491	1,246
FEB	556	5	2	2	3	1	0	0	-	-	10	-	-	22	43	34	64	2,667	1,382
MAR	177	5	2	5	2	4	2	0	72	72	33	1	1	42	72	60	93	3,469	1,738
APR	266	7	1	0	5	3	0	0	60	54	19	3	-	21	53	40	60	3,451	1,620
MAY	279	8	0	0	2	3	0	0	89	54	10	10	2	25	55	56	41	2,869	1,422
JUN	309	2	1	3	5	4	0	0	-	-	27	-	-	25	42	32	43	3,357	1,707
JUL	342	3	2	0	5	1	0	0	123	140	5	13	1	32	74	46	26	3,444	1,773
AUG	167	8	2	0	7	4	0	0	-	-	13	-	-	18	49	18	61	3,690	1,845
SEP	203	6	5	1	7	4	0	2	112	78	25	11	-	30	48	39	38	2,874	1,526
OCT	99	4	1	6	1	6	1	0	115	103	6	12	1	32	60	45	33	3,413	1,491
NOV	1	2	3	5	0	0	0	1	-	-	6	-	-	15	45	32	40	3,122	1,514
2015 TOTAL	2,999	46	18	13	39	24	2	2	532	462	157	40	5	251	518	363	484	28,312	14,259

Abbreviation Key: Ind = Individual, Blnkt = Blanket, Apps = Application for Hearing, NOAV = Notice of Alleged Violation, AOC = Administrative Order of Consent, OFV = Order Finding Violation, Cmplt = Complaint, Comp = Completed

APPENDIX 6

Spill Analysis by Year Since 1999

Colorado Oil and Gas Conservation Commission

Spill Analysis by Year 1999 – 3rd Qtr 2015

BBL = Barrels

Year	Spills	Oil Spilled (BBL)	Water Spilled (BBL)	Oil Produced (BBL)	% Produced Oil Spilled	Water Produced (BBL)	% Produced Water Spilled	Active Wells
1999	263	2,283	41,363	19,697,308	0.012%	230,129,910	0.018%	21,745
2000	254	3,579	22,540	20,021,361	0.018%	252,980,022	0.009%	22,228
2001	206	1,939	10,582	20,180,050	0.010%	266,289,023	0.004%	22,879
2002	193	3,200	57,842	20,572,255	0.016%	283,123,555	0.020%	23,711
2003	213	2,924	19,528	21,598,410	0.014%	302,799,323	0.006%	25,042
2004	222	4,005	37,095	22,570,782	0.018%	295,519,105	0.013%	26,968
2005	326	5,014	24,638	23,226,860	0.022%	347,043,321	0.007%	28,952
2006	336	2,605	33,443	24,494,695	0.011%	398,239,021	0.008%	31,096
2007	376	4,074	27,096	26,173,102	0.016%	393,701,268	0.007%	33,815
2008	408	3,195	71,959	29,927,915	0.011%	367,311,242	0.020%	39,944
2009	368	2,787	22,213	30,356,238	0.009%	359,330,218	0.006%	37,311
2010	499	3,279	33,647	32,976,051	0.010%	362,255,731	0.009%	41,010
2011	500	3,286	33,801	39,414,415	0.008%	344,483,466	0.010%	43,354
2012	406	4,503	14,678	49,444,167	0.009%	332,376,437	0.004%	46,835
2013	624	3,948	14,296	65,254,884	0.006%	326,829,136	0.004%	50,067
2014	777	2,441	17,857	95,182,862	0.003%	334,732,589	0.005%	51,737
2015	485	1,062	24,470	66,287,252	0.002%	188,073,093	0.013%	53,054