

**FY 2002-2003 REPORT TO THE  
WATER QUALITY CONTROL COMMISSION  
and  
WATER QUALITY CONTROL DIVISION  
of  
THE COLORADO DEPARTMENT OF  
PUBLIC HEALTH AND ENVIRONMENT**

**by  
THE COLORADO OIL AND GAS CONSERVATION COMMISSION**



**of  
THE DEPARTMENT OF NATURAL RESOURCES**

**IN ACCORDANCE  
WITH**

**THE AUGUST 28, 1990 MEMORANDUM OF AGREEMENT  
and  
THE IMPLEMENTING PROVISIONS OF SENATE BILL 181**

**NOVEMBER, 2003**

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### 1. 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 SB89-181, and is restated and clarified by a Memorandum of Agreement (MOA) between the agencies.

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

This twelfth annual report includes a summary of COGCC activity and changes in ground water protection programs that were made during the preceding year. Major issues concerning the implementation of water quality standards and classifications are also reported. Use of technical language and industry jargon is avoided where possible, as well as recitation of the COGCC statute and rules.

### 2. COGCC ORGANIZATION AND FUNCTIONS

#### Public Outreach and Communication

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

- The Monthly Staff Report is prepared for submittal to the COGCC Commissioners. It describes ongoing staff activities such as compliance and enforcement actions, environmental and landowner issues, and other topics relevant to the mission of the COGCC. The report is distributed widely to interested parties and it is posted on the COGCC website.
- A toll free telephone number (888-235-1101) to the Denver office has been established as a complaint hotline for citizen use.
- A total of 11 local public forums (LPF) have been held since October 1998, as provided for in Rule 508. These meetings are held so citizens can provide input to the COGCC regarding potential impacts to the environment and public health, safety, and welfare from the approval of applications to create drilling units (establish well spacing) or to increase well density within units. Two LPFs have been held in Yuma County, one in Las Animas County, two in Huerfano County, five in La Plata County, and one in Garfield County.
- Meetings are held in counties and areas where the oil and gas industry is active, particularly in areas where concerns ranging from potential impacts to public health, safety, and welfare to the economic effects of fluctuating commodity prices have been voiced.
- The Commission is committed to holding three of its 10 hearings outside Denver each year. We continue to be successful in securing funding for these trips as part of our annual budget. In FY 2002-2003 the COGCC held hearings in Glenwood Springs, Arvada, and Cortez.

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- The COGCC continues to solicit participation on all levels from "stakeholders" - those representing the oil and gas industry, local government, citizens, other agencies, agriculture, and the environmental community.
- The COGCC continues to expand our internet presence. In addition to being able to access oil and gas well data, users are able to access information regarding pits, spills/releases, and complaints on the web. Soon they will be able to access information regarding remediation projects too. Please visit our website at [www.oil-gas.state.co.us](http://www.oil-gas.state.co.us).

### COGCC Commissioners

Effective July 1, 2000, the geographical representation of the seven (7) Commissioners changed. Rather than representing each of the six (6) Congressional Districts and one (1) At-Large area, the statute now requires two (2) Commissioners be appointed from west of the continental divide. In addition, the five (5) other Commissioners are appointed taking into account the need for representation for areas with high levels of oil and gas activity or employment. The current seven (7) Commissioners have a wide range of experience and expertise in petroleum geology, petroleum engineering, farming, environmental sciences, and finance and operations. Biographical sketches of the COGCC Commissioners are included in Appendix 1.

### COGCC Staff

The COGCC has thirty-four (34) employees as shown on the organization chart included in Appendix 2. This number reflects the elimination of one (1) FTE data entry position by the Joint Budget Committee. COGCC staff still includes 15 engineers, field inspectors, and environmental protection specialists (EPS). One (1) of the engineers and five (5) of the field inspectors are located in field offices in Grand Junction, Parachute, Durango, Greeley, Sterling, and Trinidad, which helps to maximize their available field inspection time. The Parachute office was opened on August 17, 1998 in response to increased gas well drilling and urban development occurring along the I-70 corridor through the Piceance Basin.

### COGCC Environmental Staff

The Operations Unit includes the engineers, field inspectors, and environmental staff. The placement of these disciplines into one group has improved implementation of COGCC programs and cross training. Morris Bell is the Manager of the Operations Unit. The map included in Appendix 3 shows the geographical areas of responsibility assigned to the engineer/inspector and the environmental staff.

The COGCC environmental staff is comprised of three Environmental Protection Specialists (EPS) and the Environmental Supervisor, with professional experience and expertise in environmental issues associated with oil and gas operations, hydrogeology, and geology. We continue to handle questions, concerns, problems, programs, and issues relating to the oil and gas industry's impact on the environment, and public health safety and welfare. The environmental staff works closely with the COGCC engineering staff and in particular with the field

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inspectors. Incidents resulting in environmental impacts are referred to the environmental staff.

The primary responsibilities of the environmental staff are discussed below:

A. Spill/Release Response: Operators are obligated to report spills and releases that occur as a result of oil and gas operations. 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), and therefore, are subject to COGCC jurisdiction. Generally, impacts from these events are limited to soils and are relatively small in areal extent.

Spill response by the environmental staff includes onsite inspections, remediation oversight, review of reports and remediation plans, as well as 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 MRDB database and can be accessed via the COGCC website. There were approximately 178 reported spills and releases. In total, 140 spills and releases were resolved and/or remediated in FY 2002-2003.

B. Complaint Response: The COGCC responds diligently to complaints, which are received from individuals and other agencies. Complaints are tracked in the COGCC's MRDB database and can be accessed via the COGCC website. There were approximately 180 complaints filed and responded to in FY 2002-2003. In total, 147 complaints were resolved in FY 2002-2003. Often the complaints are from landowners, with concerns about alleged damage to their land or water wells. The environmental staff follows up where appropriate, taking samples when necessary. Operators often are required to perform additional investigation and remediation, as needed, to bring sites into compliance with soil and ground water standards.

C. Remediation Projects: Operators are required to remediate significant adverse environmental impacts that occur as a result of oil and gas activities. Situations requiring remediation often result from spills and releases of produced water and hydrocarbons discovered at the time of occurrence or during due diligence investigations, well pluggings, or pit closures. The environmental staff manages remediation projects by evaluating reports and plans, establishing cleanup standards, points of compliance, and other requirements for operators to meet. Remediation projects are tracked in a stand-alone database, but soon will be incorporated into COGCC's MRDB database. During FY 2002-2003, approximately 41 operators submitted approximately 75 new remediation plans for approval and approximately 45 remediation projects were closed. The environmental staff handled approximately 315 remediation projects during FY 2002-2003.

Where ground water has been impacted, operators are required to: mitigate 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 product"); remediate, establish points of compliance, and monitor contaminant levels.

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D. Pit Program: The "pit program" was a result of the May 1995 "points of compliance" rulemaking. The pit program required operators to:

- Inventory all pits, buried and partially buried tanks and vessels by 12/31/95;
- Test all the structures listed above to determine whether they leaked;
- Determine whether the structures listed above are located inside a Sensitive Area;
- Repair, replace, upgrade, or close those structures located within a Sensitive Area that leak by 12/31/97;
- Provide a written summary of the above activities by 12/31/97.

As a result of the program, a significant number of pits were closed in areas where there was a high potential for adverse impact to ground water. Many operators took advantage of the program, closing pits to eliminate discharges with potential impacts, performing closures using cost-effective methods, and reducing overall environmental liability. Also, leaking buried or partially buried concrete vaults, tanks and structures were removed, replaced and impacts remediated. Closures and cleanups are conducted under the oversight of COGCC staff.

During FY 2002-2003, COGCC staff approved permits for 295 new earthen pits and approved the closure of 73 pits, primarily in conjunction with plugging and abandonment of wells. Most of these new pits are located in Las Animas County and are associated with coalbed methane wells. Approximately 10,853 earthen pits are still used for disposal of produced water throughout the state.

E. Permitted Waste Management Facilities: The 900-Series rule modifications that became effective 12/31/97 included a change to the previous landfarm rule. The rule now applies to all non-commercial Centralized Exploration and Production (E&P) Waste Management Facilities and includes waste treatment methods such as large pits, thermal and centrifuge systems, or waste treatment for beneficial reuse, as well as landfarms. The Colorado Department of Public Health and Environment (CDPHE) HMMHW-SWM permits commercial E&P waste management facilities, while the COGCC permits non-commercial Centralized E&P Waste Management Facilities.

This change allows the operator greater flexibility in waste management methods, and creates a simple approach to regulation of these facilities. The rule requires operators to apply for an operating permit, and as part of the approval process, staff evaluates the proposed siting, operation, financial assurance, and preliminary closure plans. 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 that may be from more than one field or lease. These facilities are required to have financial assurance of \$50,000. The COGCC has permitted approximately 6 centralized landfarms and 3 centralized pits. Two centralized landfarms are located on federal lands and are not necessarily under the jurisdiction of the COGCC.

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Pits: The COGCC has permitted a number of new pits outside Sensitive Areas for the disposal of produced water by evaporation and percolation. Permits for unlined earthen pits are approved only when there will not be a significant impact to ground water and when there is no potential to impact surface water.

Landfarms: The COGCC has permitted 6 centralized landfarms to date. Each currently active landfarm has monitoring wells and/or sampling requirements. Adverse impacts to ground water have not been detected at any of those facilities that require ground water monitoring.

F. Beneficial Reuse of Produced Water: More than 90 percent of the water co-produced with oil and gas is disposed or used for enhanced recovery by underground injection. Most of the rest is disposed in evaporation and percolation pits. A small amount is discharged under CDPS permit as a waste and an even smaller amount is put to beneficial uses such as dust suppression on lease roads and emergency fire fighting. Three landowners in La Plata County have filed for and obtained the right from Water Court to use produced water for agricultural purposes.

Under the current drought conditions a number of entities are considering whether CBM water can be used to supplement dwindling water supplies:

- On April 30, 2002 Las Animas County made application to District Water Court Division 2 for the water rights to the produced water from over 1,500 CBM wells that is legally discharged under the state water quality standards and permits. The total dissolved solids (TDS) from the CBM wells in Las Animas County averages 2,500 mg/l. The Office of the State Engineer, private property owners, the Colorado Oil and Gas Association, and several towns have opposed this application. As of this date the County has not pursued any additional legal action.
- Baca County has asked for permission to use produced water for dust suppression on its county roads. This request is being reviewed.
- During 2002, small amounts of produced were used in the forest fire fighting efforts in La Plata County.

### Environmental Response Fund

The Severance Tax Trust Fund continues to be the source for the COGCC's \$400,000 Environmental Response Fund (ERF). During FY 2002-2003 this money was used to plug and abandon orphaned wells and to fund a number of projects related to environmental issues. Detailed descriptions of these are provided in Section 6.

ERF Projects proposed for FY 2003-2004 include:

- Plugging, abandoning, and reclamation of orphaned oil and gas wells and associated facilities in Baca, Denver, La Plata, Moffat, Montezuma, Rangely, Routt, Washington, Weld and Counties.
- Complaint and Spill Response.



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- Additional ground water sampling in the Piceance Basin.
- La Plata County ongoing seep study, and operation and maintenance of 3M monitoring wells.

### Data Management and Geographical Information Systems (GIS)

A major function of the COGCC is the management of records and data related to exploration and production of oil and gas resources, and potentially related impacts. Historically, the majority of these records and data were available to the public as paper records filed in the COGCC Public Room, located in the Denver office. The number of records and volume of data available through the COGCC continues to grow each year. In 1999, a new data system (Colorado Oil and Gas Information System [COGIS]) was developed. COGIS allows staff and Internet users to access COGCC data through a relational database and imaging system. Almost all entries from COGCC permit/reporting forms are stored in the database. Data pertaining to wells, spills, complaints, and pits are managed in the COGIS database system. In addition, tens of thousands of paper documents have been scanned, including a relatively complete set of geophysical well logs. Users are currently able to search the COGCC databases on the web, call up related scanned documents, and view plotted locations on a map.

To ensure that local governments are informed, an Internet application has been developed to allow the local government representatives to view new permits and other well information in their respective areas of concern.

The COGCC GIS Online Internet Map is also available. This map contains several GIS layers including oil/gas wells, facilities (such as pits), roads, cities, counties, geology, basins, and regulatory contacts, to name a few. New layers added this year include CDPHE Regulation 42 Specified Areas, and BLM Federal Unit Boundaries. The COGCC Spacing Order Layer is about 75% complete and should be finished within the year. In addition, area-specific spatial data has been added for the San Juan and Raton Basins. These data focus on oil and gas development issues related to water quality and methane seeps. When the user zooms into the San Juan Basin on the map, the Fruitland Coal outcrop, water sampling locations, and methane monitoring stations can be viewed. The Raton Basin data set includes: methane seep locations, coal mine boundaries, sampled water wells/springs, and samples gas wells. Various reports from the San Juan Basin and Raton Basin studies are available for download via the Internet. The raw data from the Raton Basin Baseline Study are also available for download.

There are several COGIS improvement projects that are underway or have recently been completed. We are currently developing applications on laptop computers that will allow the engineering and environmental staff to take the entire COGIS database and GIS Online Map System to the field for quick information queries and data input while conducting inspections. The database cleanup project is currently underway, to verify that accurate information is being stored in COGIS. This project should be completed during the 3<sup>rd</sup> quarter of this year and an imaging, indexing project has been completed.

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### Industry Services

The COGCC continues to fulfill its obligation to provide services to the industry mainly by providing information and assistance in complying with the COGCC rules and requirements, including our expanded website, GIS capabilities, and new computer system.

### Industry Compliance/Violations/Penalties

In FY 2002-2003, the COGCC found 21 operators in violation of rules and orders and assessed penalties totaling approximately \$48,250. Violations included:

- Failure to:
  - comply with approved Access and Transportation Plans,
  - locate a well the proper distance from a surface property line,
  - prevent unauthorized discharged,
  - notify and consult with a surface owner,
  - inject without authorization,
  - submit adequate financial assurance,
  - obtain approval for shut-in wells,
  - ensure mechanical integrity or plug and abandon wells,
  - properly plug and abandon wells.
  
- Lack of reporting.

### Underground Injection Control (UIC)

On May 28, 2003 the COGCC requested that the WQCC conduct a rulemaking hearing to consider "Limited Use and Quality" classifications and revised standards for ground water in certain oil and gas producing horizons within specified areas. The new ground water quality classifications and standards are to be considered by the WQCC at your rulemaking hearing on November 10, 2003. These rules will apply to the Morrow Formation in the eight fields in Cheyenne and Kit Carson Counties.

COGCC staff will continue 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 and that points of compliance are established.

### **3. COGCC COORDINATION WITH WQCD/WQCC**

The COGCC, WQCD, and WQCC continued our semi-annual meetings in FY 2002-2003, Martha Rudolph and Michael Klish are serving as the commissioner representatives of the WQCC and the COGCC, respectively.

### **4. LEGISLATIVE ACTIVITY**

There was no legislation affecting the COGCC in the 2003 session.

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### 5. RULEMAKING

Three rulemaking hearings have been held since the last report. The Commission increased the conservation levy, increased the time period for local governmental designees (LGD) to comment on Applications for Permits-to-Drill (ADPs), and provided for local governments automatically to obtain a hearing on significant issues related to public health, safety, and welfare, including the environment, that are unresolved on APDs. Several clarifying changes also were made to COGCC rules.

### 6. OIL & GAS EXPLORATION & PRODUCTION ACTIVITY IN COLORADO BY REGION/FIELD

There are approximately 25,000 active oil and gas wells in Colorado. These wells produce approximately 2.35 billion cubic feet (bcf) of natural gas and 54,000 barrels (bbls) of oil per day, with a total value of approximately \$3 billion dollars per year.

The activity of the oil and gas industry may be measured in part by the number of drilling and recompletion permits processed by the COGCC. This is shown on the charts in Appendix 4 labeled Monthly Breakout Statistics. In FY 2002-2003 the COGCC approved approximately 2,008 drilling permits for new wells and 174 recompletion permits for existing wells.

This section describes oil and gas activity and highlights COGCC studies, issues and concerns relating specifically to ground water by region. In each region there are remediation projects of various size and type in which impacted soils and/or ground water are being investigated or cleaned up by operators. All the projects are not described individually in this report. The COGCC environmental staff directs and monitors these projects, as described in Section 1.

#### SOUTHWEST COLORADO

##### Oil and Gas E&P Activity

Gas production has continued to increase in this area due to the continued development of coalbed methane wells. Drilling activity currently has leveled off with approximately 140 new wells drilled or existing wells recompleted per year. There are approximately 2,461 active wells in La Plata County. These well produce 1.2 bcf of natural gas per day. This is almost one-half of the total amount of natural gas produced in the entire State. There are also a total of approximately 304 wells oil, gas, and carbon dioxide wells in four other southwestern Colorado counties, including San Miguel, Delores, Montezuma, and Archuleta.

##### Public Involvement

###### COGCC Hearing

The June 2003 COGCC hearing was held in Cortez. The Commissioners also inspected field and monitoring operations in La Plata County.

###### La Plata County Gas and Oil Regulatory Team (GORT)

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The COGCC established the La Plata County Gas and Oil Regulatory Team (GORT) to provide a forum for meaningful dialogue between operators, La Plata County, the Southern Ute Indian Tribe, the Bureau of Land Management (BLM) and the COGCC. Members of this group continue to fund the ongoing monitoring of methane seeps along the Fruitland Coal outcrop, including \$10,000 of COGCC ERF money.

### **Ground Water and Other Environmental Issues**

#### XTO (formerly J.M. Huber) Development Plan

In 1998, J.M. Huber Corp. (Huber) applied to the COGCC for an additional well per spacing unit within an area of existing Fruitland coalbed methane wells. A condition for COGCC approval of this request was that Huber create and implement a Development Plan to address concerns regarding potential impacts to public health, safety, and welfare. This was the first instance where COGCC had required such a plan. Subsequently XTO Energy, Inc. (XTO) purchased these wells from Huber. Monitoring, testing, and reporting requirements are being met. XTO (formerly Huber) has collected 74 samples from the 20 water wells specified in the Development Plan. In addition, they have sampled 24 water wells in the Bellflower Subdivision as required by La Plata and they have collected 54 samples from 27 other water wells in response to requests by landowners.

#### Conditions for Optional Additional Coalbed Methane Wells

At the July 2000 hearing the COGCC approved the request by a number of operators for an order to allow the drilling of additional wells on certain drilling and spacing units in lands both north and south of the Ute Line. At the conclusion of the Public Issues Hearing, the COGCC found that additional conditions were necessary to protect the environment and public health, safety and welfare and approved the application by attaching a number of conditions, including extensive sampling of water wells. Selected water wells must be sampled prior to the drilling of an additional well and at least three more times, including within one (1) year, three (3) years, and six (6) years after completion..

As a result of COGCC Orders 112-156 and 112-157, operators have collected approximately 714 water samples from 430 water wells. The analytical results have been submitted to the COGCC. COGCC Staff are currently compiling, evaluating, and comparing the pre-drilling and post-drilling analytical results to determine whether current drilling activity is having an impact on ground water quality in La Plata County. A summary report will be prepared, distributed to interested parties, and made available on our website.

#### 3M Project

Methane gas has been observed seeping from the outcrop of the Fruitland Formation in many areas along the northern margin of the San Juan Basin, in southwestern Colorado. Some of these seeps were identified prior to the initial development of any Fruitland Coal wells; however, in places the intensity and areal extent of these seeps appears to have increased subsequent to coalbed methane (CBM) production. In addition, what appear to be new seeps have been identified in some areas. Gas seepage at the newly identified and expanding seeps could be linked to depressurization of the Fruitland coals near the outcrop.

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The COGCC and the US BLM funded the installation of a network of monitoring wells at four locations between the outcrop of the Fruitland Formation and downbasin production. The wells are equipped with transducers and dataloggers and will be used for the long term monitoring of pressure and water levels in the Fruitland Formation. A total of seven (7) wells, were completed and data are being collected. Pressure monitoring data from these wells are available on the COGCC website.

During FY 2002-2003, approximately \$33,000 in ERF money was used for the operation and maintenance of these wells, and report preparation.

### Phase III of the Fruitland Outcrop Seepage Study

Industry, La Plata County, BLM, and the COGCC continue to contribute money and/or staff for the ongoing evaluation, maintenance, and monitoring of the 140 permanent soil gas monitoring probes, six flux chambers, and one meteorological station. In addition to the survey techniques that have been used an aerial survey was made of one segment of the outcrop to test the viability of using infrared imagery technology. A draft annual report has just been released by our contractor and is currently being reviewed by COGCC staff.

One of the monitored locations has been the gas seeps in the Basin Creek drainage, which is located southwest of Durango. The seeps occur just down stream of the new Animas-La Plata project dam, so the flux chamber and several of the soil gas probes have had to be removed to accommodate construction activities. We are hopeful that once construction of the dam and associated facilities is complete we will be able to relocate our monitoring devices.

During FY 2002-2003, \$10,000 in ERF money was contributed to this project.

### Pine River Ranches Subdivision Methane Seepage

Monitoring of ground water conditions using existing monitoring wells continues by BP America, although the active mitigation efforts have been stopped. In addition, permanent soil gas monitoring probes, a gas flux chamber, and meteorological station have been installed as part of the Phase III – Fruitland Outcrop Seepage Study described above.

### Bradenhead Testing Program

COGCC and BLM continue to co-fund and share staff responsibility for ensuring that Bradenhead tests are conducted on all wells in La Plata County annually. COGCC or BLM personnel witness the tests on gas wells located in areas known to have methane in shallow ground water. Test results are evaluated to determine whether well casings are leaking. Since annual testing requirements were instituted, leaking casing has been detected in approximately 125 wells on tribal, federal, state, and fee land. Remediation of these conditions has been accomplished.

### Citizen Complaints Regarding Ground Water

COGCC received 6 complaints alleging impacts to water wells and other environmental damage from oil and gas activities. Upon investigation, COGCC staff did not find any evidence to support four of these allegations. At one location soils had been impacted and the former

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well pad had not properly reclaimed. The operator and landowner are currently working together to mitigate these impacts. At another location COGCC staff found indications that a water well has been impacted by hydrocarbons that are not E&P exempt waste. Staff has made a request to the WQCD to determine which implementing agency should oversee the investigation and remediation of these impacts.

During FY 2002-2003 approximately \$15,600 of ERF money was spent investigating these complaints.

### **Orphaned Wells**

During FY 2002-2003 approximately \$27,100 of ERF money and a \$30,000 bond claim was used to plug and abandon three (3) oil and gas wells that were located in Montezuma County:

- These wells had been abandoned by the original operator in the early 1990's, but had not been plugged. Proper plugging ensures that surface water and shallow fresh water aquifers in this area are protected from fluid migration in the boreholes.

## **NORTHWEST COLORADO**

### **Oil and Gas E&P Activity**

Northwest Colorado continues experience a high level of oil and gas activity, especially in Garfield (Mamm Creek, Rulliston, Grand Valley, and Parachute fields) and Rio Blanco Counties. Northwest Colorado drilling permits for FY 2002- 2003 accounted for approximately 40 percent of the total drilling permits in the state. The driving forces behind this active development continues to be the extensive natural gas reserves in the Piceance Basin, the gas sales market and overall higher natural gas prices, the change in COGCC rules allowing an increase in well density in the Rulison, Grand Valley, and Parachute Fields in Garfield County, a continuing interest in coalbed methane (CBM) potential throughout the Basin, and an expanding pipeline infrastructure that enables improved marketing of natural gas from the area.

### **Public Involvement**

#### The Northwest Colorado Oil and Gas Forum

The Northwest Colorado Oil and Gas Forum (NWCOGF) continue to hold meetings with a recent change to three meetings per year verses the former four times a year. Two meetings, winter and spring are now held coinciding with the State Legislative Session, and the third meeting is held in the fall. Additional meetings can be scheduled during the year, if necessary.

The NWCOGF is an important forum for the discussion of oil and gas issues and concerns at the local level. The participants include of the COGCC, other federal, state, and local government agencies, the oil and gas industry, and concerned landowners and citizens. Meetings are well attended.

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### Ground Water Issues

#### Water Well Impact Complaints

COGCC staff and contractors sampled 7 water wells during FY 2002-2003 in response to requests from the water users in Garfield County (4 users), Mesa County (2 users), and Rio Blanco County (1 user). Laboratory results indicated no impacts to water quality as a result of oil and gas operations.

During FY 2002-2003 approximately \$8,000 of ERF money was spent on these ground water investigations.

#### Horse Gulch Property – Moffat County

The Horse Gulch Property (HGP) consisted of two abandoned earthen petroleum waste disposal cells located along State Highway 317 and adjacent to the Williams Fork River. In 2001, the COGCC remove the petroleum hydrocarbon contaminated soils from the pits, backfilled the pits with clean soil, and reclaimed the property. As part of the remediation, the contaminated soils were taken to a temporary landfarm located in Craig for treatment to reduce the hydrocarbon levels. After a year of treatment, soil contamination levels were still above COGCC allowable concentration for petroleum hydrocarbons and in fall 2002, the COGCC removed and disposed of the soils in the Twin Landfill in Milner, Colorado.

During FY 2002-2003 approximately \$43,623 of ERF money was spent on this project.

#### Garfield County Underground Blowout (Goad Well Remediation)

In October of 2000, the COGCC and the US EPA both approved the Williams Production Company [formerly Barrett Resources] remediation system for the benzene, toluene, ethylbenzene, and xylenes (BTEX) contaminated ground water at the Goad residence located outside Rifle. The ground water contamination is located in the immediate vicinity of the Goad water well, which was affected by the underground blowout of the Barrett Resources RMV 108-4 gas well.

Treatment began in December 2000 and had continued since then, except for minor system shutdown for maintenance, until fall 2002, when decreasing water table levels due to the ongoing drought required the system to be shut down. System restart is dependent on local water table conditions which have remained low.

Through August 2002 approximately 5 million gallons of BTEX contaminated water has been treated at the surface via activated carbon and the treated water reinjected (gravity injection) into a well upgradient to the Goad water well, and outside of the BETX contaminated zone. Benzene concentrations in the recovery well (OW-08) have decreased from approximately 100 micrograms per liter ( $\mu\text{g/l}$ ) at system start-up to 4.6  $\mu\text{g/l}$  in Spring 2002; however, benzene concentration have increased (12  $\mu\text{g/l}$ , July 2003) since system shut down. The COGCC will require one additional year of sampling and analysis for the recovery well once the benzene concentrations fall below the WQCC standard (5  $\mu\text{g/l}$ ). At completion of the

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remedial action, the recovery well will be converted into a domestic water supply well for the Goad residence.

### Tow Creek Field – Routt County

The COGCC has completed the plugging, abandonment, and reclamation of the nine Allen Oil & Gas LLC (Allen Oil) Tow Creek wells in compliance with an August 20, 1999 COGCC Order. This order authorized the COGCC staff to claim the operator's bond for numerous violations of COGCC rules and regulations, unauthorized discharges of produced water onto the flood plain alluvium of the Yampa River, and failure to meet a benchmark compliance schedule. During well reclamation the COGCC uncovered petroleum hydrocarbon contamination above TPH standards in soils associated with the former Bradley No. 4 wellsite, located in the flood plain of the Yampa River. These contaminated soils were the result of a former production water disposal pit. Additional investigation and soils remediation was conducted in spring 2003 to remove and dispose of the impacted soils.

In 1999, Allen Oil filed suit in District Court seeking review of the Commission's order. The State Attorney Generals office filed for dismissal of the suit, and on April 24, 2002, the District Court Judge affirmed the Commission's order. Under appeal to the Colorado Court of Appeals (for reversing the dismissal of suit ruling) the appellate court ruled in favor of Allen Oil. Further court review of the District Court suit is ongoing. Additionally, in 2000, Allen Oil filed a lawsuit in Texas, against four of the O&G Commissioners, claiming a violation of Allen Oil's rights under the bond claim. The suit was subsequently transferred from Texas District to Colorado District court. The State Attorney Generals office filed for dismissal of this suit which ruled in favor of the State; however, Allen Oil has filed an appeal of the ruling in U.S. Court of Appeals (10<sup>th</sup> District) which has not yet ruled on the appeal.

During FY 2002-2003 approximately \$45,109 of ERF money was spent on this project.

### **Orphaned Wells**

During FY 2002-2003 approximately \$9,365 of ERF money was used to plug and abandon one (1) oil and gas well:

- The former plugged & abandoned (P&A) Terrell No. 1 well in Gunnison County was found to be improperly abandoned and leaking borehole water to Coal Creek (a tributary to the North Fork of the Gunnison River). The COGCC conducted a replugging of the former well. Proper plugging ensures that surface water and shallow fresh water aquifers in this area are protected from fluid migration in the boreholes.

### **Underground Injection Control (UIC)**

Site-specific ground water classifications of "Limited Use and Quality" and revised standards in certain oil and gas producing horizon (Middle Oil Sand of the Wasatch Formation) in the Hiawatha Field in Moffat County has been proposed by the COGCC and is scheduled for evaluation and rulemaking in 2004.



## WQCC ANNUAL REPORT FOR 2002-2003

### NORTHEAST COLORADO

#### Oil and Gas E&P Activity

COGCC Rule 318.A., adopted in 1998, allows operators to drill lower density spacing without a hearing for down spacing. This resulted in an increase of drilling permits in the Wattenberg Area of the D-J Basin, for deepening to the Dakota and J-Sand Formations, and for recompletions into the Codell and Niobrara Formations. Weld County, where the major part of the D-J Basin is located, accounted for approximately 38% of the total drilling permits in the State in 2002. Weld County had approximately 21% of the 2002 total gas production and 45% of the 2002 total oil production.

Smaller oil fields are located in other northeast Colorado counties. These include Adams, Arapahoe, Elbert, Logan, Morgan, Phillips, Sedgwick, and Yuma Counties. The production from these areas is primarily stripper well operations, where oil production is ten (10) barrels or less per day.

#### Public Involvement

The COGCC continues to receive and follow-up on complaints received from the Weld County Department of Public Health & Environment, Larimer County Environmental Advisory Board, Morgan County Office of Emergency Management, Northeast Colorado Health Department, other municipalities, and the public throughout northeastern Colorado.

#### CSU Extension Seminar

On February 11, 2003 the CSU Extension office conducted a continuing real estate education seminar in Fort Collins titled "Water, Land and Dreams: Getting to Know Rural properties". Approximately 160 real estate professionals attended the seminar. COGCC Deputy Director Brian Macke gave a presentation on oil and gas development in northeast Colorado and an overview oil and gas regulations in Colorado. COGCC Field Inspector Ed Binkley also attended and provided a discussion on enforcement in the field.

#### Leadership Weld County Presentation

COGCC Deputy Director Brian Macke attended the May 8, 2003 session on Natural Resources for Leadership Weld County in Greeley. Leadership Weld County is a multi-week annual training program for business and government leaders in Weld County. Approximately 30 people receive scholarships to attend the training each year. Mr. Macke gave a presentation on current issues regarding oil and gas development in Weld County and Colorado.

#### Ground Water Issues

In all cases where ground water was impacted, the operators were required to conduct a site investigation and perform appropriate remediation to comply with COGCC requirements. In addition, the COGCC continues to oversee the investigation and remediation of contaminated soil and ground water beneath gas plant and compressor station facilities throughout northeast Colorado.

## WQCC ANNUAL REPORT FOR 2002-2003

There were nine complaints alleging impacts to water wells in the northeastern portion of Colorado this year. Eight of these complaints involved gas present in water wells completed in the Laramie/Fox Hills aquifer. Upon investigation, COGCC staff determined that seven of the alleged impacts were not oil and gas related. After an extensive investigation, COGCC staff could not determine the source of the thermogenic gas present in the other two water well complaints. There are four Laramie/Fox Hills water wells with thermogenic gas where the source has been identified and remedial action is ongoing. Additionally, there is one Laramie/Fox Hills water well complaint involving thermogenic gas that is still under investigation.

Gas compositional and isotopic analytical data from the D-J Basin were assembled from previous complaints, COGCC files and other sources. Our database now contains analyses from approximately 67 oil/gas wells and 23 Laramie/Fox Hills water wells. This will enable COGCC staff to evaluate more fully future complaints involving gas in water wells.

Approximately \$20,140 of ERF money was spent investigating COGCC field inspections and citizen complaints in northeastern Colorado.

### **Surface Water Issues**

There were two spill/release events in which released fluids flowed into a surface water body. These were reported to the WQCD in accordance with our MOA. In all cases where surface water was impacted, the operators responded with appropriate emergency procedures and other measures to comply with COGCC and WQCD requirements.

#### Spill/Release to Surface Waters – Washington County

On 2/22/02, a spill/release event occurred that released approximately 36,000 barrels of produced water from a permitted earthen pit into the surface waters of an unnamed drainage at the Roderick Field in Washington County. The spill/release was the result of a failure of the pit walls and was not intentional. COGCC files indicate a Total Dissolved Solids (TDS) concentration of 3,230 parts per million (ppm). Producing wells were shut-in and pit usage was discontinued. A Notice of Alleged Violation (NOAV) was subsequently issued to McElvain Oil & Gas Properties. No significant environmental impacts were sustained.

Subsequently, operations at the subject site changed to Ritchie Exploration, Inc. The new operator applied for and was granted a Minimal Industrial Water Discharge Permit (Facility # COG-600493) from the WQCD with an effective date of 5/27/03. Based on this action, the NOAV was subsequently resolved.

### **Orphaned Wells and Sites**

Approximately \$30,265 of ERF money was used to restore and reclaim orphaned sites in northeastern Colorado. Projects included:

One (1) wellsite in Denver County; plugging/abandonment; proper plugging ensures that the shallow fresh water aquifers in this area are protected from fluid migration in the boreholes.

One (1) wellsite in Logan County; produced water pit remediation and site restoration.

## WQCC ANNUAL REPORT FOR 2002-2003

One (1) wellsite in Washington County; site restoration.

Two (2) sites in Weld County; site restoration of produced water impacted areas. One of these sites is at the Keota Field where there is approximately 10 acres of impacted soil in four separate areas.

### SOUTHEAST COLORADO

#### Oil and Gas E&P Activities

##### Raton Basin

Evergreen Production Company has a total of 1040 wells drilled or permitted in the Raton Basin. 981 of these are producing coal bed methane gas. There are approximately 59 wells that are either shut in or waiting on completion. Evergreen is the operator of six produced water injection wells.

Cedar Ridge LLC has drilled approximately 39 wells west of Aguilar. Two of the wells are stratigraphic tests and do not produce gas. Cedar Ridge is producing only 9 of the 39 wells. These 9 are in Huerfano County in section 21, Township 30 South, Range 66 West. The town of Aguilar is 18 miles east of the producing wells. The other 30 gas wells are currently shut in and have been shut in for two years. The produced water averages about 1,000 TDS, 802 bicarbonates, 387 sodium and 35 chloride. Water well values average 541 TDS, 300 bicarbonates, 40 sodium and less than 10 chloride.

Petroglyph Operating Co., Inc. has drilled approximately 46 gas wells and 3 monitor wells in Huerfano County. These gas wells are still being evaluated. Petroglyph is discharging all of its produced water under CDPHE permits. Produce water is also being applied to county roads for dust control.

XTO Production has 198 producing gas wells and 44 wells that are shut in, they have permitted 6 additional wells and 2 are waiting on completion. Williams Production was purchased by XTO Production of Houston.

#### **Ground Water Issues**

Eight water wells were sampled in response to complaints from landowners alleging impacts to their water wells or from landowners concerned about potential impacts. The analytical results and other data indicated that the alleged impacts were not oil and gas related. In addition the current water chemistry was determined and these data will be available for comparison, if in the future questions arise about whether water quality has been impacted by oil and gas activities.

Approximately \$7,000 in ERF money was used in responding to these complaints.

## WQCC ANNUAL REPORT FOR 2002-2003

### **Orphaned Wells**

During FY 2002-2003 approximately \$13,800 of ERF money and \$5,000 of a bond claim were used to plug and abandon two (2) oil and gas wells located in Baca County:

- The former wells had been abandoned by the operator, but had not been plugged. Proper plugging ensures that surface water and shallow fresh water aquifers in this area are protected from fluid migration in the boreholes.

### **Raton Basin Project**

The Raton Basin Project 2002-2003 is complete. One hundred water wells were sampled for the study. The samples have been analyzed for major cations and anions, as well as gas isotopes. This gives the COGCC baseline of ground water quality that will be used to help determine impacts from oil and gas activity, if any, to water wells in the Raton Basin. Fifty gas wells were also sampled and have been analyzed for the same parameters. The project data are available on the COGCC web site.

During FY 2002-2003 approximately \$21,000 of ERF money was used to evaluate the data and to prepare a final summary report.

### **Cheyenne and Dakota Aquifers Protection**

Placement of cement plugs across the Cheyenne and Dakota Aquifers is now a requirement for drilling permit approval in all areas in southeastern Colorado where these aquifers are present.

In FY 2002-2003 an enforcement action was taken against an operator who had not properly protected these aquifers. Approximately \$1,150 of ERF money was used to collect ground water quality data from water wells in support of this action.

## **APPENDIX 1**

# **COGCC COMMISSIONER BIOGRAPHIES**

# BIOGRAPHICAL SKETCHES OF COLORADO OIL & GAS CONSERVATION COMMISSIONERS

as of 09/23/2003

Tom Ann Casey is a fourth generation Coloradoan who has lived and worked in La Plata County for over 20 years. She earned a BA in Geology at Colorado College (1972) and an MS in Geology from Stanford University (1974). Ms. Casey's geological career spans over twenty-five years, mostly in the oil and gas industry, with recent emphasis on the coal gas play of the San Juan Basin. She has also worked on natural hazard studies and taught at Ft. Lewis College. She is a member of numerous professional societies, is a past President of the Four Corners Geological Society and has authored or edited various professional publications. She is an avid outdoor person and is currently working on environmental and geoscience education issues, pursuing personal interests and consulting.

Brian Cree is currently the Vice President of Finance and CFO for ZettaCore, Inc., a semiconductor company developing molecular memory technology. He earned a BA in Accounting from the University of Northern Iowa in 1985. Mr. Cree has extensive experience in the finance and operations related to the oil and gas industry. He served as the Executive Vice President, Chief Operating Officer and Director of Patina Oil & Gas Corporation from 1996 to 1999 and held similar positions with Gerrity Oil & Gas Corporation from 1992 through its merger with Patina. Mr. Cree held several other management and officer level positions at Gerrity and The Robert Gerrity Company between 1987 and 1992. Prior to that he held staff and supervisory level positions in the public accounting firm of Deloitte and Touche for two years.

Michael W. Klish is the Senior Environmental Scientist for WestWater Engineering. He is a member of the Society of Wetland Scientists and served as a representative for the U.S. Bureau of Land Management on numerous oil and gas drilling projects. He received his BS degree in Forest and Range Management in 1972 and his MS degree in Plant Ecology in 1977 from Colorado State University. Mr. Klish specializes in the integration of natural resource values into project design, revegetation and reclamation, environmental documentation and specialized site design and hydrology.

Peter M. Mueller is the Vice President and General Manager of Westport Resource Corporation's Northern Business Unit. He attended the University of Colorado, majoring in Economics, and earned a B.Sc. in Petroleum Engineering from the Colorado School of Mines in 1978. During his career of 25 years, Mr. Mueller has worked in management and/or staff positions in drilling, production, land, regulatory affairs, and gas management. He has worked for both majors and independents, including Amoco Production Company, Mobil Oil, Tenneco Oil Company, and Anadarko Petroleum. Mr.

Mueller is a member of the Society of Petroleum Engineers and the engineering honor society, Tau Beta Pi. He also serves on the Cardiac Care Board at Denver's Children's Hospital.

J. Thomas Reagan has over 45 years of experience as a senior corporate executive in the commercial banking and energy industries. He is currently Senior Vice President and Manager of Specialized Deposits at Wells Fargo Bank West in Denver. He earned his degree in Petroleum Engineering from the Colorado School of Mines in 1953, and graduated from the Stonier Graduate School of Banking at Rutgers University in 1972. Mr. Reagan, a Colorado Registered Professional Engineer, has held several positions with independent energy companies. He has served on numerous boards for petroleum and engineering related organizations as well as charitable organizations. Mr. Reagan is a member of various professional societies.

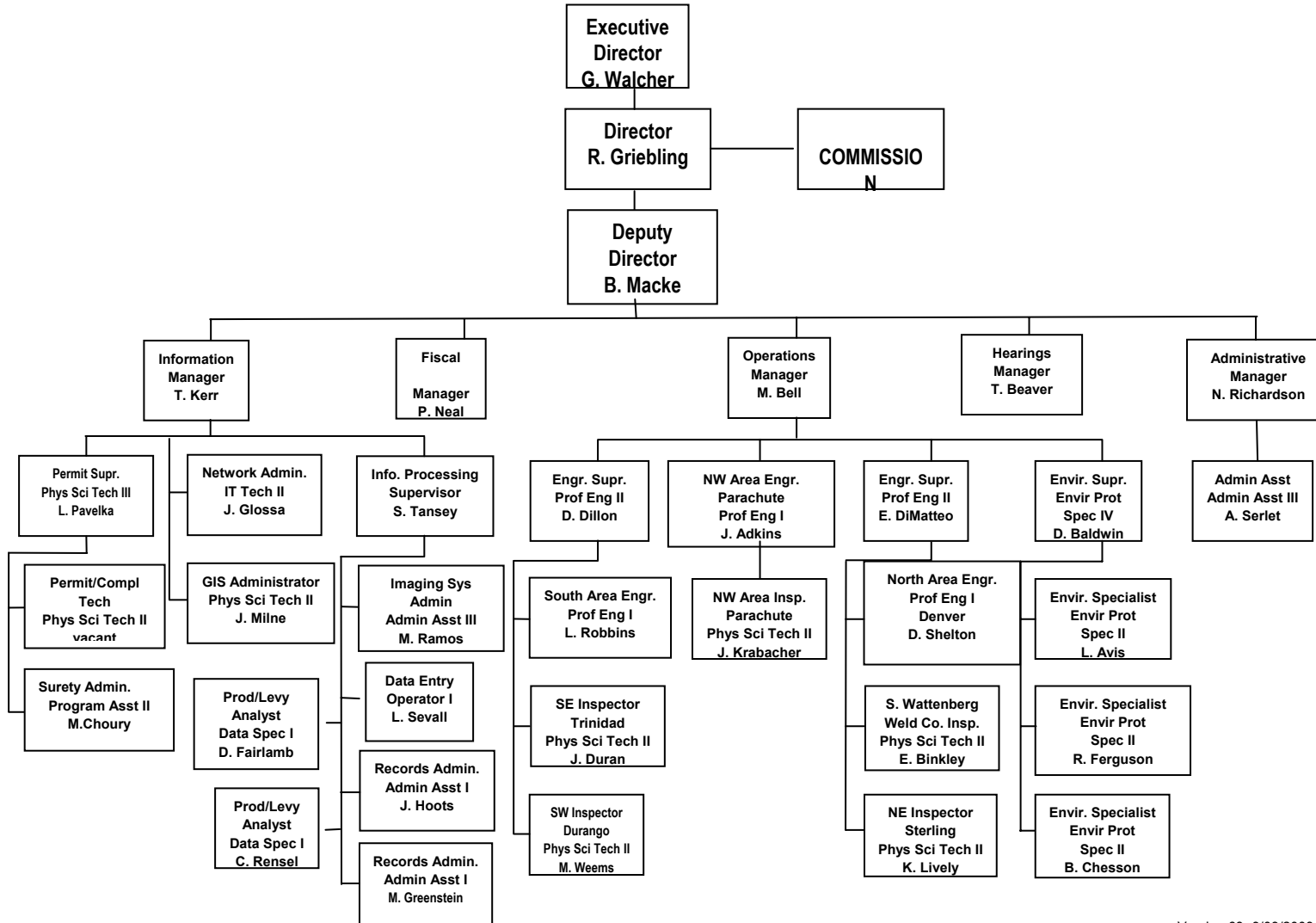
Lynn J. Shook is a partner with two sons in a 7500-acre family farm in Washington County, Colorado, where they produce wheat, corn, millet and sunflowers. Mr. Shook earned a BA degree from Colorado State College (University of Northern Colorado) in 1963. His major work was in Education with emphasis on History, Political Science, and Geography. After teaching history and government for twelve years in Castle Rock, Fort Morgan and Akron, he assumed the management of the family farm in 1975. Mr. Shook has been active in his political party, serving in various capacities including two terms as Washington County Chairman. He served on the 13th Judicial District Nominating Commission, was an eight year member of the Board of Directors of Colorado State Farm Bureau and Colorado Farm Bureau Mutual Insurance Company, is a member of the Customer Focus Group of the USDA Research Center in Akron, and is also a member of the Colorado Sunflower Administrative Committee.

## **APPENDIX 2**

### **COGCC STAFF ORGANIZATION CHART**



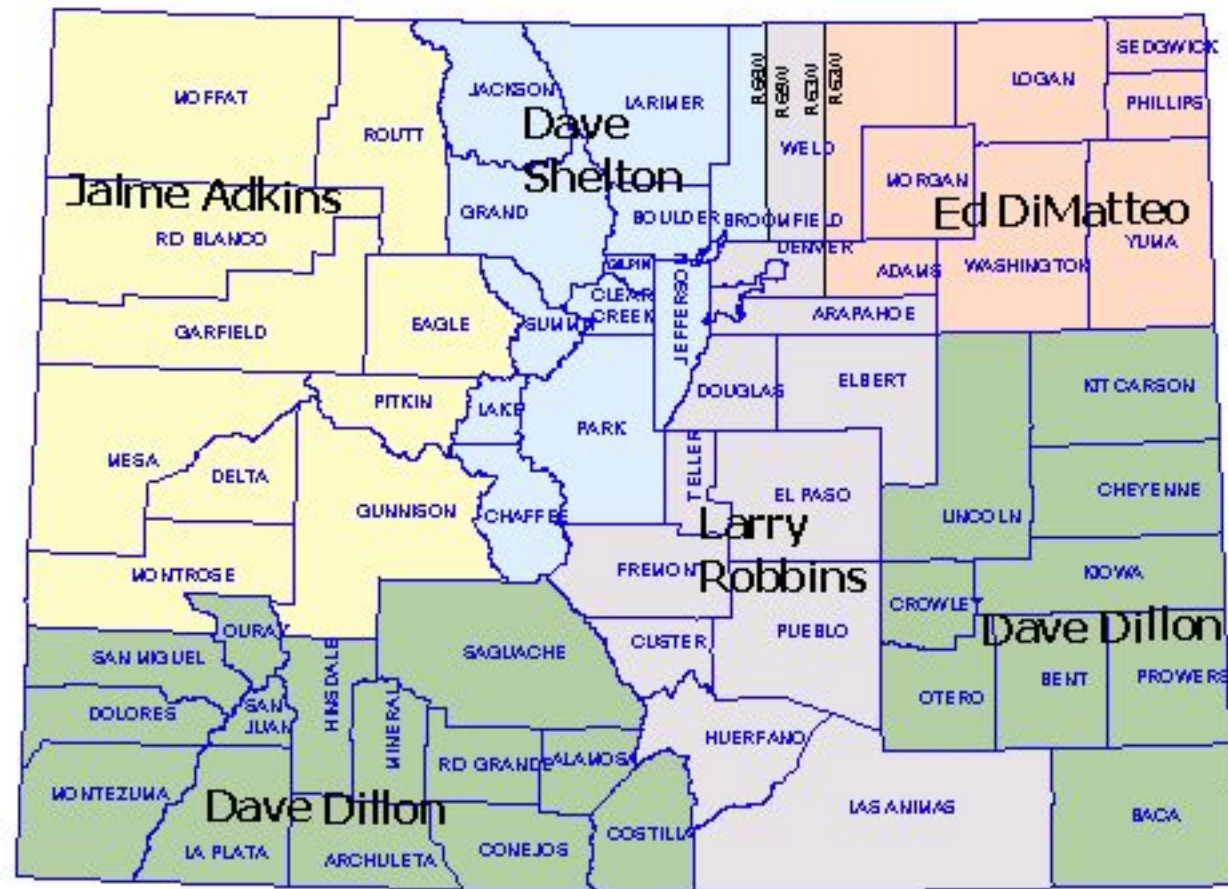
# COLORADO OIL & GAS CONSERVATION COMMISSION ORGANIZATION



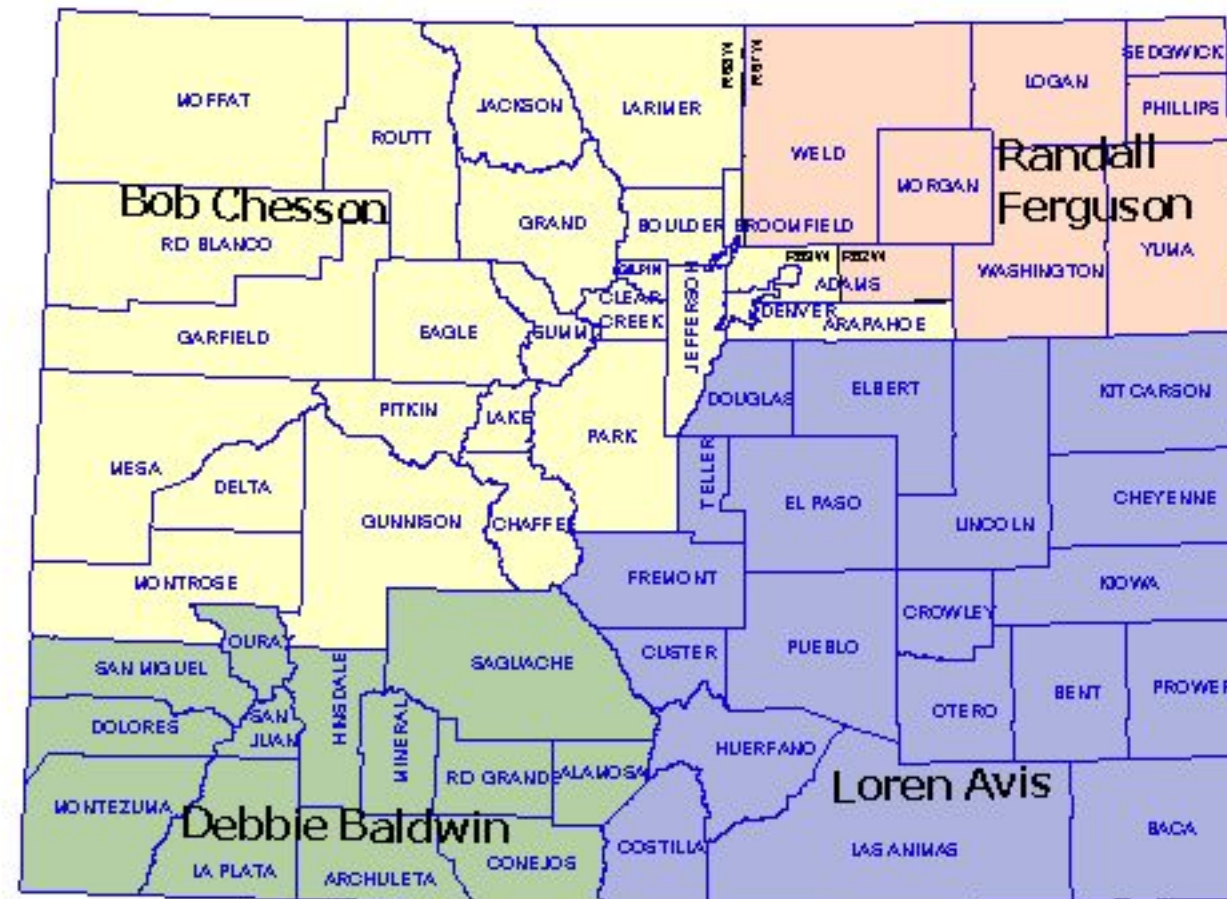
## **APPENDIX 3**

### **COGCC STAFF GEOGRAPHIC AREAS OF TECHNICAL RESPONSIBILITIES**

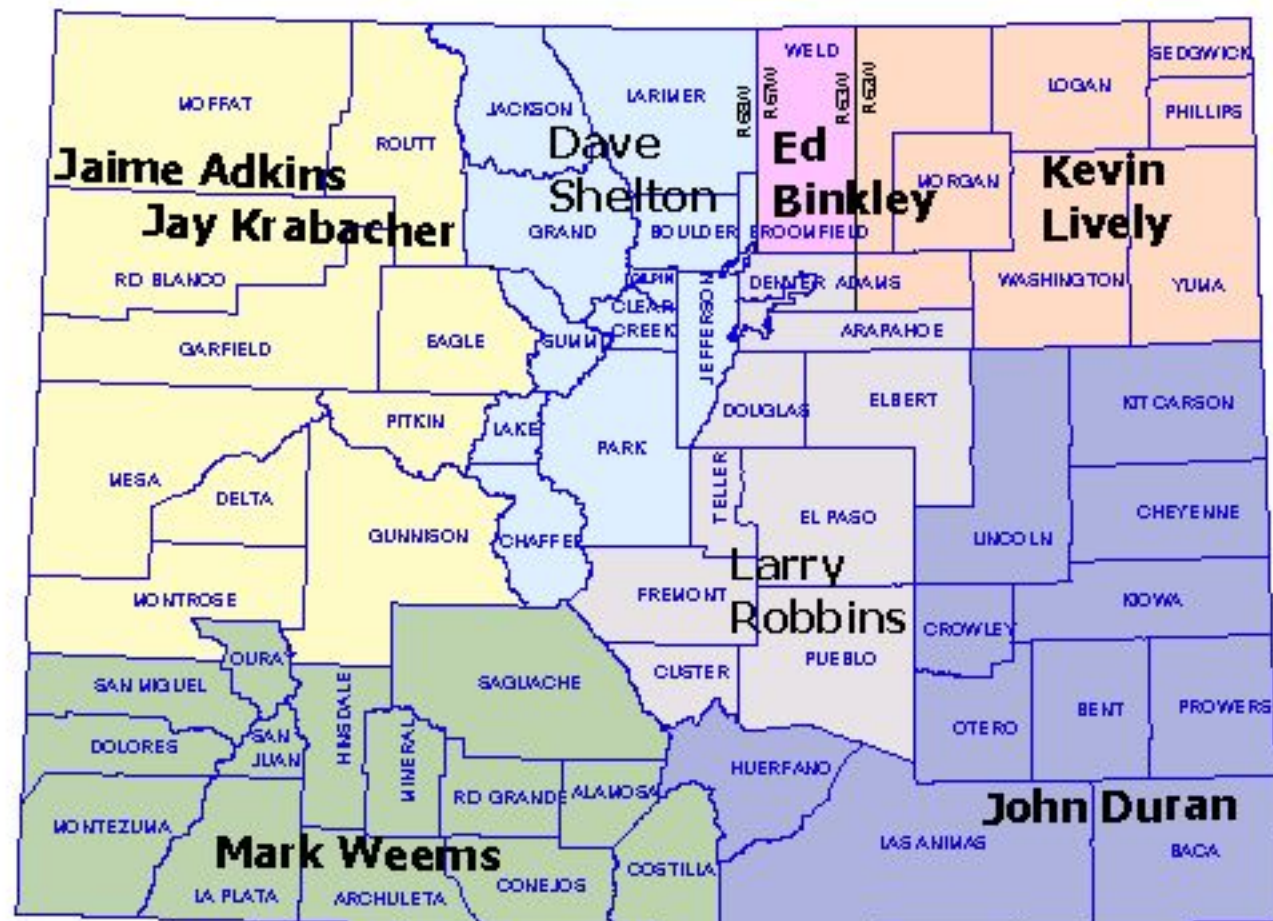




*ENGINEERING*



*ENVIRONMENTAL*



*FIELD OPERATIONS*



*PERMITS (APDs)*

**DENVER**

**Telephone: 303-894-2100**

**Fax: 303-894-2109**

Extension

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Baldwin	111
Chesson	112
Dillon	104
DiMatteo	106
Ferguson	118
Pavelka	116
Robbins	107
Shelton	108

**PARACHUTE**

**Telephone: 970-285-9000**

**Fax: 970-285-5659**

Adkins

Phone: 970-858-7521

Fax: 970-858-7521

Cell: 970-250-2440

Krabacher

Phone: 970-256-9000

Fax: 970-256-9000

Cell: 970-216-5749

**OTHER FIELD OFFICES**

Binkley

Phone: 970-506-9834

Fax: 970-506-9835

Cell: 970-380-2683

Lively

Phone: 970-522-6747

Fax: 970-521-5076

Cell: 970-380-0166

Duran

Phone: 719-846-4715

Fax: 719-846-4705

Cell: 719-688-2626

Weems

Phone: 970-259-4587

Fax: 970-259-4587

Cell: 970-749-0624



## **APPENDIX 4**

# **MONTHLY BREAKOUT OF DRILLING AND RECOMPLETION PERMITS**