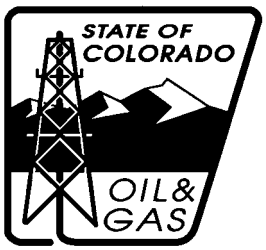
FY 2001-2002 REPORT TO THE

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 MEMORANDUM OF AGREEMENT
of
AUGUST 28, 1990

IMPLEMENTING PROVISIONS OF
SENATE BILL 181

SEPTEMBER, 2002

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WQCC ANNUAL REPORT FOR 2001-2002

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 eleventh 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 and is also distributed widely to interested parties. 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.

- 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 2001-2002 the COGCC held hearings in Greeley, Trinidad, and Durango.

- 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.

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-five (35) employees as shown on the organization chart included as Appendix 2. Five (5) of the 15 engineers, field inspectors, and environmental protection specialists (EPS) are located in field offices in Grand Junction, Parachute, Durango, Keensburg, Brush, 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 environmental staff is part of the Operations Unit, along the engineers and field inspectors. 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 environmental staff.

The COGCC environmental staff is comprised of three EPSs and the Environmental Supervisor, with expertise and professional experience in 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 inspectors. Incidents resulting in environmental impacts are referred to the environmental staff.

The primary responsibilities of the environmental staff are discussed below:

WQCC ANNUAL REPORT FOR 2001-2002

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 E&P waste exemption, 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. Spill reports can be accessed via the COGCC website. There were approximately 210 reported spills and releases. In total, 221 spills and releases were resolved and/or remediated in FY 2001-2002.

B. Complaint Response: The COGCC responds diligently to complaints, which are received from individuals and other agencies, and logs each into COGCC's MRDB database. Complaints can be accessed via the COGCC website. There were approximately 180 complaints filed and responded to in FY 2001-2002. In total, 186 complaints were resolved in FY 2001-2002. Often the complaints are from dissatisfied 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 2001-2002, approximately 24 operators submitted approximately 58 new remediation plans for approval and approximately 83 remediation projects were closed. The environmental staff is currently overseeing approximately 253 remediation projects.

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.

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 that COGCC staff considers sensitive, that is 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. COGCC staff approved permits for 275 new earthen pits. Most of these new pits are located in Las Animas County and are associated with coalbed methane wells. Approximately 10,698 earthen pits are still used for disposal of produced water throughout the state.

During FY 2001-2002, 112 pits were closed, primarily in conjunction with plugging and abandonment of wells. Also, leaking buried or partially buried concrete vaults, tanks and structures were removed, replaced and impacts remediated. These closures and cleanups are conducted under the oversight of COGCC staff. The process begins with approval of a Site Investigation and Remediation Workplan, Form 27 that operators are required to submit.

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) HMHWM-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 one to a few wells. These larger facilities handle wastes from many wells and likely 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.

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 or when there is no potential to directly 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. One landowner in La Plata County filed for and obtained the right from Water Court to use produced water for irrigation.

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 of the ground water produced from over 1,500 CBM wells that is legally discharged under the sate 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.

- Huerfano County has asked for and been given permission to use CBM water produced by wells owned by Petroglyph Operating for dust suppression on roads. The TDS of the produced water averages 850 mg/l. Huerfano County has also asked for permission to use CBM water to supplement domestic supplies for non-potable water uses. This request is being reviewed.

- Baca County has asked for permission to use produced water for dust suppression on its county roads. This request is being reviewed.

The COGCC has adopted a revision to Rule 907.c., to address produced water disposal and use of produced water as an alternate domestic water supply. The revised Rule became effective on December 30, 2000. The new rule is provided in Appendix 5.

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 2001-2002 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.

In addition, the General Assembly COGCC's Supplemental Budget Requests for FY 1990-2000 of $707,230 for a portion of the "3M Project", which is being conducted in La Plata County and for FY 2001-2002 of $234,635 for an extensive 2-year study in Las Animas County were approved. These projects will be discussed in more detail in Section 6.

ERF Projects proposed for FY 2002-2003 include:

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

Data Management and Geographical Information Systems (GIS)

A major function of the COGCC is the management of records and data relating 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 in the Public Room, located in the COGCC Denver office. The number of records and data available through the COGCC continues to grow each year. The COGCC switched to an updated relational database in 1999. As part of this effort, tens of thousands of paper documents have been scanned into a digital format, which is retrievable on a computer. Many of the scanned records are currently available over the Internet. The database cleanup project is underway. Our imaging, indexing project should be completed in September 2002. Geophysical well logs have also been scanned and are available via the Internet.

Data pertaining to Spills, Complaints, and Pits are managed in the new database system. Data pertaining to Remediation Projects is currently maintained in a stand-alone database, but will be incorporated in the new system. 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. In addition, area-specific spatial data has been added for the San Juan Basin to provide information associated with new COGCC orders 112-156 and 112-157. These data include: spaced lands, the Fruitland Coal/Pictured Cliffs contact with distance buffers, and sampled water wells. We will be adding a Raton Basin set of map layers containing the results of our comprehensive baseline investigation of that area. The COGCC oil and gas wells and facilities layers are updated daily and are available as downloads to outside GIS users. The spacing order layer is currently being developed and should be 75% complete by the end of FY 2002-2003. New functionality to the map includes a "redlining" tool and custom map building capabilities, using an "add/remove layers" tool. The COGCC staff can also access GIS Online via in Intranet system. GIS Online has proven to be a critical tool for permit review.

Over the past year, several exhibits have been prepared for COGCC public presentations using GIS. The GIS exhibits were presented as overhead transparencies and as inserts to PowerPoint presentations. In some cases, presentations were actually given using the Arcview GIS software. Hundreds of hard copy maps were easily produced and distributed as handouts for these public meetings.

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 2001-2002, the COGCC found 9 operators in violation of rules and orders and assessed penalties totaling approximately $35,000. Violations included:

- Failure to:
  - properly cement casing,
  - reclaim the land surface in a timely manner,
  - ensure E&P waste is properly managed,
  - prevent unauthorized access,
  - remove oil from pit,
  - report spills/releases,
  - submit adequate financial assurance,
  - obtain approval prior to work commencing,
  - notify surface owner prior to recompletion,
  - obtain approval prior to pit construction, and
  - ensure mechanical integrity or plug and abandon wells.

- Lack of reporting.

- Unauthorized discharge of produced water, unauthorized discharge of E&P waste.

Underground Injection Control (UIC)

Site-specific ground water classifications of “Limited Use and Quality” and revised standards were adopted by the WQCC on December 12, 2000. These new rules apply to specified areas for the Lyons Sandstone in Weld County, the Parkman Sandstone in Weld County, the Sussex Sandstone in Weld County, and the D and J Sandstones in Adams, Arapahoe, Morgan, Washington, and Weld Counties.

On March 4, 2002, the COGCC requested the WQCC to conduct a rulemaking hearing to consider "Limited Use and Quality" classifications and revised standards of 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 September 9, 2002. These rules will apply to the Lansing Formation in the Campo Field in Baca County.

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 2001-2002, Lori Satterfield, and Bruce Johnson, now Michael Klish serving as the commissioner representatives of the WQCC and the COGCC, respectively.

4. LEGISLATIVE ACTIVITY

The Department of Natural Resources proposed legislation for the 2001 session to address surface damages, property owner notification and dormant oil and gas interests. One bill passed requiring title companies to disclose to property buyers whether mineral rights have been severed, and if so, then the mineral owner has the legal right to enter and use the surface without permission. In addition, a bill was passed designating the COGCC as the monitoring agency for the closure of the Leyden Gas Storage Facility. A bill to change the make up of the Commissioners was introduced, but failed.

5. RULEMAKING

No rulemaking hearings have been held since the last report.

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

The relative 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 5 labeled Monthly Breakout of Drilling and Recompletion Permits.

This section describes the oil and gas E&P activity by region, and highlights COGCC studies, issues and concerns relating specifically to ground water in each. 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 of this report.

SOUTHWEST COLORADO

Oil and Gas E&P Activity

Gas production has continued to increase in this area due to the drilling activity that ended in 1992. Drilling activity currently has leveled off with approximately 140 new wells drilled or existing wells recompleted.

Public Involvement

COGCC Hearing

The June 2002 COGCC hearing was held in Durango. As part of a field trip, the Commissioners inspected two of the monitoring wells installed as part of the 3M Project and the Pine River Ranches area currently being monitored by bp America, formerly Amoco.

La Plata County Gas and Oil Regulatory Team (GORT)

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 $6,000 of COGCC - ERF money.

Ground Water and Other Environmental Issues

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 is the first instance where COGCC has required such a plan. Monitoring, testing, and reporting requirements are being met.

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 conditions. The conditions included:

- requirement for COGCC hearing before drilling permits can be issued for wells within 1½ miles of the outcrop of the contact between the Pictured Cliffs and the Fruitland Formations.

- water well sampling near proposed additional wells.
- identification and remediation of plugged and abandoned oil and gas wells that have the potential to act as conduits for gas migration
- preparation by operators of annual drilling plans
- notification to the Colorado Division of Wildlife of the locations of new wells
- submitting Emergency Preparedness Plans to the county
- post completion pressure build-up tests.
- onsite inspections of certain proposed locations prior to permit approval.

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.

COGCC staff developed the concept of the Monitoring, Mapping, and Modeling or "3M" project in the winter of 1998 and obtained approval for approximately $800,000 in Severance Tax funding from the General Assembly in the spring of 1999. As envisioned, the 3M project will provide the COGCC with the tools to document existing conditions and to track changes in water levels and formations pressures. This information will be used to project and to detect if and where changes in gas seepage from the Fruitland Formation occur, and to develop mitigation strategies.

The four technical components of the 3M Project include a detailed reservoir computer model, a detailed hydrologic computer model, hydrologic monitoring, and geologic mapping and subsurface correlations.

The SUIT, the US BLM, and the COGCC funded the development of a public domain CBM reservoir computer model. In addition, the operators provided vast amounts of well data for input to the model. The reservoir modeling effort is complete. The report, code, and input data are available on the COGCC website (www.oil-gas.state.co.us). The results of the reservoir modeling were considered during deliberations regarding increased well density in the San Juan Basin.

The SUIT and the COGCC funded the development of a comprehensive ground water model of the Fruitland Formation using Visual Modflow. In addition, industry and COGCC funded the collection of approximately 80 produced water samples for detailed chemical and isotopic analysis and for age dating. This information and chemical data already available from approximately 400 produced water samples were used in the hydrologic model. The hydrologic modeling effort is complete. The report and input data are available on the COGCC website (www.oil-gas.state.co.us).

The Colorado Geological Survey (CGS) has completed the detailed mapping of the entire

outcrop of the Fruitland Formation from the Ute line east to the La Plata County/Archuleta County line. Geologic cross sections from downbasin control up to the outcrop, maps, and the report are available from the CSG and on the COGCC website (www.oil-gas.state.co.us).

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. These data will be available soon on the COGCC website.

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. During FY 2001-2002, $6,000 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 an operator, 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 8 complaints alleging impacts to water wells from oil and gas activities. Upon investigation, COGCC staff could not find any evidence to support these allegations. Approximately $13,100 of ERF money was spent investigating these complaints.

NORTHWEST COLORADO

Oil and Gas E&P Activity

Northwest Colorado continues experience a high level of oil and gas activity, especially in Garfield and Rio Blanco Counties. Northwest Colorado drilling permits for year 2002 accounts for approximately 30 percent of the total drilling permits in the state. The driving forces behind the active development continues to be the extensive natural gas reserves, 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 Coal Bed Methane (CBM) potential throughout the Piceance Basin, and an expanding pipeline infrastructure that enables improved marketing of natural gas from the area. Interest in CBM potential has also been shown in the Grand Mesa area.

Public Involvement

The Northwest Colorado Oil and Gas Forum

The Northwest Colorado Oil and Gas Forum (NWCOGF) continues to hold meetings with a recent change to two longer meetings per year verses the former four times a year. Participants of the forum requested a reduction of meeting numbers due to the decrease in unresolved oil and gas issues and because of the time and effort that is devoted by the participants in traveling to the meetings. One meeting will now be held in the spring coinciding with the State Legislative Session and the other 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.

The spring 2002 meeting was held February 14 at the Rifle Town Hall. The next NWCOGF meeting is tentatively scheduled for September 12, 2002 in Rangely, Colorado from 10:00 a.m. to 2:00 p.m. at the Chevron Rangely Field Office. The forum is being held at Chevron staff's request in conjunction with a presentation and field tour of the Rangely Field operations.

Highlights of the February meeting included:

- A presentation was given on the Colorado Geological Survey Coal and Coalbed Methane educational interactive CD ROM;
- A discussion of upcoming Petroleum Technology and OSHA Certified Safety Training at Mesa State College in Grand Junction presented by the West Slope Chapter of the Colorado Oil and Gas Association;
- A presentation on Noxious Weed Control and Revegetation by Garfield County Noxious Weed Coordinator Steve Anthony;

- A Severance Tax Employee Reporting update provided by Jim Evans, Executive Director of the Associated Governments of Northwest Colorado;
- Brian Macke, COGCC's Deputy Director provided information about new COGCC Commissioner appointments

Ground Water Issues

Water Well Impact Complaints

COGCC staff and contractors sampled seven water wells during FY 2002 in response to requests from the water users in Garfield County. Laboratory results indicated no impacts to water quality as a result of oil and gas operations.

Approximately $5,094 of ERF money was spent on these ground water investigations during FY 2002.

Piceance Creek Basin Ground Water Quality Sampling, Phase III

In early Spring 2002, a COGCC contractor sampled 20 water wells in a three township area of Garfield County located south of the towns of Rifle and Silt. This sampling is a continuation of baseline ground water quality investigation for the Piceance Creek Basin that the COGCC has been conducting over the last five years. The focus of Phase III investigation was to supplement previously collected information from domestic water wells in an area of Garfield County which is undergoing both an increase in gas well drilling and an increase in rural residential development. Water well owners were contacted to obtain permission prior to sampling their wells. After receipt of the analytical reports by the COGCC, COGCC staff prepared a letter report to accompany each well sample report.

Approximately $13,523 of ERF money was spent on this ground water investigation during FY 2002.

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. System start-up was in December 2000 and has operated since that time on a continual basis, except for minor system shutdown for maintenance.

Through August 2002 approximately 5 million gallons of BTEX contaminated water have 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 (μg/l) at system start-up to 4.6 μg/l in the most recent sampling (May 2002). 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 μg/l). At completion of the

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 is in the final stages of 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. In early FY 2002, COGCC staff plugged and abandoned (P&A) the remaining State Lease and Bradley Lease wells (State #1, #2, #3, and #5 and the Bradley #2, #3, and #4), and removed and salvaged of the State Lease and Bradley Lease Tank Batteries. Final surface reclamation at both leases will be completed in fall 2002.

In 1999, Allen Oil filed suit in District Court seeking review of the Commission's order. The State Attorney Generals office has filed for dismissal of the suit and on April 24, 2002, the District Court Judge affirmed the Commission's order. Additionally, in late 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 has subsequently been transferred from Texas District to Colorado District court. The State Attorney Generals office has filed for dismissal of this suit; however, the court has not yet ruled on the dismissal and pre-trial/discovery matters are continuing.

Approximately $50,600 of ERF money will be spent on this project during FY 2003.

Whitlock Water Well – Moffat County

The Whitlock property is located approximately 2 miles south of Craig at 1115 Rainey Road near the location of a former (now removed) crude-oil load-out for the Buck Peak oil field. An unused domestic water well at the site contains crude oil within the well bore, which may be the result of releases/spill at the former load-out. In late fall 2001, the COGCC conducted a limited subsurface investigation to evaluate possible water table impact from crude oil on the Whitlock property. The results of the investigation were inconclusive and further investigations are in consideration.

Approximately $6,932 of ERF money was spent on this investigation during FY 2002.

Orphaned Wells

Approximately $122,000 of ERF money was used to plug and abandon seven oil and gas wells:

- Seven (7) Tow Creek wells in Routt County; proper plugging ensures that the shallow fresh water aquifers in this area are protected from fluid migration in the boreholes; proper site restoration (see above discussion for Tow Creek Field).

Underground Injection Control (UIC)

Site-specific ground water classifications of "Limited Use and Quality" and revised standards in certain oil and gas producing horizons (Morrison and Sundance Formations) in the Wilson Creek Field in Rio Blanco County were adopted by the WQCC on December 10, 2001.

NORTHEAST COLORADO

Oil and Gas E&P Activity

COGCC Rule 318.A., adopted on 4/27/98, 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 35% of the total drilling permits in the State in 2000 and approximately 33% of the total in 2001. Weld County accounted for approximately 41% of the total drilling permits in the State from 1993-1999. Weld County had approximately 18% of the 2000 total gas production and 36% of the 2000 total oil production. Additionally, Weld County had approximately 16% of the 2001 total gas production and 40% of the 2001 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.

Private Property / Oil and Gas Development Seminar

The Colorado Association of Soil Conservation Districts (CASCD) has held seminars in Fort Lupton (10/4/01), Brighton (2/21/02), and Evans (5/16/02) for surface owners and other interested citizens. The purpose of the seminars was to discuss various aspects of oil and gas development on lands in the area. In addition to other scheduled speakers, COGCC Deputy Director Brian Macke discussed reclamation, financial assurance bonding and other requirements. Various COGCC staff members assigned to these geographical areas were also in attendance to answer any questions or address any complaints.

Ground Water and Surface Water Issues

Several spills occurred 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 or 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.

There were seven complaints alleging impacts to water wells in the northeastern portion of Colorado this year. Upon investigation, COGCC staff determined that four of the alleged impacts were not oil and gas related. The three other alleged impacts and the Mountain View User's Association Well #2 are discussed below.

Approximately $18,025 of ERF money was spent investigating COGCC field inspections and citizen complaints in northeastern Colorado.

Mountain View Water User's Association Well #2

The COGCC received a complaint on 5/3/01 from the Mountain View Water User's Association (MVWUA). The MVWUA has three wells that supply approximately water to 128 households. The MVWUA #2 was originally drilled in 1965 and completed in the Laramie/Fox Hills aquifer.

COGCC staff conducted an initial investigation that included sampling the water and gas from the well and submitting for laboratory analyses. Additionally, gas samples were collected from three nearby oil/gas wells. Isotopic analyses indicated that the gas in the water well was thermogenic and closely matched J Sand gas production. No BTEX was detected in the water sample.

The operator of a nearby downgradient oil/gas well that produces from the J Sand indicated that a casing leak had been repaired during 2000. Based on an anomaly of the production history of this oil/gas well, COGCC required the operator to conduct a Mechanical Integrity Test (MIT). The well failed the MIT and a Notice of Alleged Violation (NOAV) was issued. The well was repaired and passed a subsequent MIT.

To determine if this well was the source of the gas in the MVWUA #2, COGCC staff began to monitor the flow rate of gas from the water well. The initial measurement was made on 8/14/01 and was coincidental with the casing repair to the nearby J Sand well. Calculations indicated a flow rate of 5.77 thousand cubic feet per day (mcfpd). A gas meter was eventually installed on the vent piping on 9/15/01. A second NOAV was issued for the impact to ground water. The meter was last inspected on 7/29/02 indicated a flow rate of 0.584 mcfpd. The meter is checked twice a week by the operator and plotted on a chart to insure the continuing decrease in the flow rate. Results are periodically submitted to the COGCC as a condition of the approved remediation workplan.

In addition, gas samples were collected from three nearby water wells completed in the Laramie/Fox Hills aquifer and located upgradient to the MVWUA #2. Laboratory analyses of the samples from these wells indicated "biogenic" gas. Biogenic methane gas occurs in most near-surface environments and is the principal product of the decomposition of buried organic material. In Weld County many of the coal zones in the Laramie/Fox Hills formation contain biogenic methane gas. The gas produced from oil/gas wells is "thermogenic" methane gas. Thermogenic gas is formed by the thermal breakdown of organic material in rocks resulting from

high temperatures created by deep burial.

Arndt Water Well

The COGCC received a complaint on 12/27/01 from Cindy Arndt regarding gas in the water from their well. The water well was drilled in 1995 and completed in the Laramie/Fox Hills aquifer.

COGCC staff conducted an initial investigation that included sampling the water and gas from the well and submitting for laboratory analyses. Additionally, gas samples were collected from three nearby oil/gas wells. Isotopic analyses indicated that the gas in the water well was thermogenic and closely matched J Sand gas production. No BTEX was detected in the water sample. Subsequently, gas samples were also collected from an additional four oil/gas wells and a "bradenhead" sample from a previously sampled oil/gas well. The bradenhead is the annular space between the surface and production casing.

A nearby downgradient oil/gas well was identified as the source of the gas in the Arndt water well. A seal leak in the wellhead assembly was subsequently repaired. The operator has taken measures to supply the affected household with potable water and is facilitating a connection to the local public water supply. Additionally, the operator has applied for and was granted a Minimal Industrial Water Discharge Permit (Facility # COG-600411) from the WQCD. Well water is being pumped into a storage tank where the water is "de-gassed" prior to discharge. A meter was installed to monitor the gas flow rate that has averaged approximately 1.8 mcfpd since mid-June of 2002. Gas flow rates prior to pumping were minimally measurable.

Eskildsen Water Wells

The COGCC received a complaint on from Art Eskildsen regarding gas in the water from his well and from the Bonnie Eskildsen well on adjacent property. Both water wells are completed in the Laramie/Fox Hills aquifer.

The initial investigation included sampling the water and gas from the Art Eskildsen water well and submitting for laboratory analyses. Isotopic analyses indicated that the gas in the water well had both biogenic and thermogenic characteristics.

A nearby downgradient oil/gas well was identified as a potential source of the gas in both water wells. The oil/gas well had a casing leak that has been repaired since this complaint was initiated. The operator has taken measures to provide potable water to the affected households. Additionally, the operator has installed a storage tank adjacent to each well in order to "de-gas" the water prior to other non-consumptive domestic uses. A meter was installed on each well to monitor the gas flow rate. However, flow rates are minimally measurable.

Additional gas samples have recently been collected from both water wells for analyses and laboratory results are pending. The investigation is ongoing.

Santagata Water Well

The COGCC received a complaint on 5/10/02 from Marille Santagata regarding the quality of water from her well. The well was drilled in 1987 and is completed in the Laramie/Fox Hills aquifer. The complaint was initiated as a result of a tubing leak in an adjacent Class II injection well.

The initial investigation included sampling the well water and submitting for analyses. Laboratory results did not indicate any adverse impacts relating to oil and gas operations. However, gas was observed during the water sampling. Subsequently, COGCC staff returned and collected a gas sample for isotopic analyses. Recent results indicate that the gas is thermogenic and closely matches J Sand gas production. The investigation is ongoing.

Surface Water Discharge – Washington County

On 9/11/01 COGCC staff observed an unauthorized discharge of produced water from an earthen pit through discharge piping and into the surface waters of an unnamed drainage in the Lindon Field in Washington County. The discharge piping was present as a result of an expired discharge permit from the WQCD. Laboratory analyses indicated a Total Dissolved Solids (TDS) concentration of 1,200 micrograms per liter (μg/l) and non-detectable BTEX concentrations. Upon notification, the operator discontinued the discharge immediately.

A Notice of Alleged Violation (NOAV) was subsequently issued to Al Ward & Son. This was followed by an Administrative Order by Consent (AOC) which recommended a fine of $6,000. The AOC was reviewed and approved by COGCC and WQCD staff. Al Ward & Son signed the AOC and paid the fine amount. The discharge piping was removed as a required abatement measure. COGCC staff will periodically inspect the site to determine if continuing violations are occurring.

Surface Water Discharge – Washington County

On 11/14/01 COGCC staff observed an unauthorized discharge of produced water from an earthen pit into the surface waters of an unnamed drainage in the Abbott Field in Washington County. The discharge was the result of seepage in the pit wall and was not intentional. Laboratory analyses indicated a Total Dissolved Solids (TDS) concentration of 1,570 micrograms per liter (μg/l) and non-detectable BTEX concentrations. Upon notification, the operator discontinued using the pit.

A Notice of Alleged Violation (NOAV) was subsequently issued to Diamond Operating, Inc. The operator applied for and was granted a Minimal Industrial Water Discharge Permit (Facility # COG-600403) from the WQCD with an effective date of 12/19/01. Based on this action, the NOAV was subsequently resolved.

Orphaned Wells and Sites

COGCC staff restored 3 wellsites with $37,677 of ERF money. One other restoration project at the Keota Field in Weld County is ongoing and included laboratory analyses and reclamation costs for an additional $17,785. Projects also included:

Two (2) wellsites in Adams County; plugging/abandonment and site restoration; proper plugging ensures that the shallow fresh water aquifers in this area are protected from fluid migration in the boreholes.

One (1) wellsite in Washington County; plugging/abandonment, produced water pit remediation and site restoration; proper plugging ensures that the shallow fresh water aquifers in this area are protected from fluid migration in the boreholes.

SOUTHEAST COLORADO

Oil and Gas E&P Activities

Raton Basin

Evergreen has approximately 1126 gas wells producing or permitted in the Raton Basin. Evergreen is the operator of all of J.M. Huber Corporations gas wells in Huerfano County. Huber had drilled approximately twelve gas wells southwest of Walsenburg.

Cedar Ridge LLC has drilled approximately seventeen gas wells west of Aguilar. The majority of the wells are in Las Animas County; a few are in Huerfano County. The gas wells drilled by Cedar Ridge are currently shut in. The produced water averages about 1000 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 twenty-three gas 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.

Williams Production has 56 producing gas wells and 48 wells that are shut in, they have permitted 168 additional wells. Williams Production purchased all of the properties previously operated by KLT.

The COGCC, Evergreen, and the Department of Local Affairs funded a water feasibility study. The purpose of the study was to evaluate alternative water supplies for the extreme southeast portion of the Raton Basin in Colorado. This area is just west of Trinidad in Long Canyon, Madrid Canyon, and Widow Woman Canyon. There are a number of water wells that have been completed in the Raton Coals; gas companies have completed gas wells in the same coals. A number of alternatives were proposed. The only viable alternative was to use the City of Trinidad water-supply system. Evergreen has installed a water-vending site near the town of Valdez. The site provides city water to residence for their cisterns.

The Raton Basin Project 2001-2002 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 a baseline to help determine the impact, 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 will be available on the COGCC web site in the near future.

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.

APPENDIX 1

COGCC COMMISSIONER BIOGRAPHIES

BIOGRAPHICAL SKETCHES OF COLORADO OIL & GAS CONSERVATION COMMISSIONERS

As of 02/05/02

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) and is a geologist with an oil and gas exploration and production company. Ms. Casey's geological career spans over twenty-five years, mostly in the oil and gas industry, with experience including field, office, well-site, natural hazard, teaching and consulting work. 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.

Brian Cree has extensive experience in the finance and operations related to the oil and gas industry. He earned a BA in Accounting from the University of Northern Iowa in 1985. 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 over a nine-year period. Prior to that he held staff and supervisory level positions in the public accounting firm of Deloitte and Touche for two years. Mr. Cree is currently pursuing business interests outside of the oil and gas industry.

Michael W. Klish is the Senior Environmental Scientist for an engineering consulting company. 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 Senior Director, Oil and Gas Services, for an engineering consulting firm. 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 23 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.

Adran "Abe" Abner Phillips is an independent geologist who formerly served as president of Coors Energy Company from 1979 to 1982 in Denver. He earned his BS degree in Geology from the University of Oklahoma in 1949. Mr. Phillips is a member of the American Association of Petroleum Geologists, Independent Petroleum Association of America and past President and Land Committee chair for the Independent Petroleum Association of Mountain States. His vast experience includes over 30 years as a geologist and manager with Exxon in several domestic and international locations. He has been active in numerous professional organizations.

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.

Stephen A. Sonnenberg has served on the Commission since November 1997. Dr. Sonnenberg is a petroleum geologist for an oil and gas exploration and production company. He earned BS (1974) and MS (1975) degrees in Geology from Texas A&M University and a Ph.D. (1981) degree in Geology from the Colorado School of Mines. During his career of over 20 years, he was principal of the geologic consulting firm, Sonnenberg & Associates, an exploration geologist at Bass Enterprises Production Company and an exploration and development geologist at Exxon Company, USA, as well as an Adjunct Associate Professor in the Department of Geology and Geophysics at the Colorado School of Mines. Dr. Sonnenberg has served as president or chairman of several professional societies, holds professional registration and certifications, has authored 38 professional publications, and has received numerous professional awards. He has obtained certification from national professional organizations as a professional geologist, petroleum geologist and professional earth scientist.

APPENDIX 2

COGCC STAFF ORGANIZATION CHART

APPENDIX 3

COGCC STAFF
GEOGRAPHIC AREAS OF
TECHNICAL RESPONSIBILITIES

APPENDIX 4

COGCC RULE 907.c.

The COGCC adopted a revision to Rule 907.c., to address produced water disposal and use of produced water as an alternate domestic water supply. The revised Rule became effective December 30, 2000. The new language appears in **CAP BOLD.**

c. Produced water.

(1) Treatment of produced water. Produced water shall be treated prior to placement in a production pit to prevent crude oil and condensate from entering the pit.

(2) Produced water disposal. Produced water may be disposed as follows:

A. Injection into a Class II well permitted in accordance with Rule 325.;

B. Evaporation/percolation in a properly permitted lined or unlined pit;

C. Disposal at permitted commercial facilities; ~~or~~

D. Disposal by roadspreading on lease roads outside sensitive areas for produced waters with less than 5,000 mg/l TDS when authorized by the surface owner. Roadspreading shall not result in pooling or runoff of produced waters and the adjacent soils shall meet the allowable concentrations in Table 910-1**; OR**

E. DISCHARGING INTO STATE WATERS, IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE WATER QUALITY CONTROL DIVISION ("WQCD"). PRODUCED WATER DISCHARGED PURSUANT TO THIS SUBSECTION (2)(E) MAY BE PUT TO BENEFICIAL USE IN ACCORDANCE WITH APPLICABLE STATE STATUTES AND REGULATIONS GOVERNING THE USE AND ADMINISTRATION OF WATER.

(3) Produced water reuse and recycling. Produced water may be reused for enhanced recovery, drilling, and other uses in a manner consistent with existing water rights and in consideration of water quality standards and classifications established by the WQCC for waters of the state, or any point of compliance established by the Director pursuant to Rule 324D.

(4). MITIGATION. WATER PRODUCED DURING OPERATION OF AN OIL OR GAS WELL MAY BE USED TO PROVIDE AN ALTERNATE DOMESTIC WATER SUPPLY TO SURFACE OWNERS WITHIN THE OIL OR GAS FIELD, IN ACCORDANCE WITH ALL APPLICABLE LAWS, INCLUDING, BUT NOT LIMITED TO, OBTAINING THE NECCESARY APPROVALS FROM THE WQCD FOR CONSTRUCTING A NEW "WATERWORKS," AS DEFINED BY

SECTION 25-1-107(1)(X)(II)(A), C.R.S. ANY PRODUCED WATER NOT SO USED SHALL BE DISPOSED OF IN ACCORDANCE WITH SUBSECTION (2) OR (3). PROVISION OF PRODUCED WATER FOR DOMESTIC USE WITHIN THE MEANING OF THIS SUBSECTION (4) SHALL NOT CONSTITUTE AN ADMISSION BY THE OPERATOR THAT THE WELL IS DEWATERING OR IMPACTING ANY EXISTING WATER WELL. THE WATER PRODUCED SHALL BE TO THE BENEFIT OF THE SURFACE OWNERS WITHIN THE OIL AND GAS FIELD AND MAY NOT BE SOLD FOR PROFIT OR TRADED.

APPENDIX 5

MONTHLY BREAKOUT OF DRILLING AND RECOMPLETION PERMITS