



CO L O R A D O

**Oil & Gas Conservation
Commission**

Department of Natural Resources

Final Reclamation Inspection and Implementation Program: A Status Report to the Commission

Matthew J. Lepore
Director
December 2015
COGCC – 9183

Table of Contents

EXECUTIVE SUMMARY	2
CHAPTER 1: Introduction.....	4
CHAPTER 2: Strengths, Weaknesses, Opportunities, and Threats Analysis.....	5
2.1 Strengths.....	5
2.2 Weaknesses	6
2.3 Opportunities.....	7
2.4 Threats	7
CHAPTER 3: Data Analysis and Regulatory Review.....	10
3.1 Data Review Process.....	10
3.2 Analysis of the Commission’s Reclamation Rules	16
CHAPTER 4: Recommended Action Plan	27
4.1. Action One: Develop Database Reports and GIS Tools.....	27
4.2 Action Two: Reduce Wells Awaiting Final Reclamation Inspection	27
4.3 Action Three: Additional Operator Guidance / Outreach	28
4.4 Action Four: Complete Data Management Projects.....	28
APPENDIX A: Data Quality Issues	29
APPENDIX B: History of COGCC Reclamation Rules.....	31
APPENDIX C: Rule 1001.c: Reclamation Variances and Waivers Guidance Document.....	42
APPENDIX D: 2006 Notice to Operators Setting Conductor Pipe.....	42

EXECUTIVE SUMMARY

An analysis of the 98,223 wells within the jurisdiction of the Colorado Oil and Gas Conservation Commission (“COGCC” or “Commission”) showed that a total of 45,007 wells have become eligible for final reclamation, meaning the wells have been plugged and abandoned, were drilled but immediately abandoned without production (i.e., dry and abandoned wells), or were permitted but never drilled (i.e., Abandoned Locations). Of these, 26,322 wells (58%) have passed a final reclamation inspection and are considered closed. The remaining 18,685 wells are in different stages of the final reclamation process and are awaiting a passing final reclamation inspection. This Reclamation Report proposes steps to prioritize final reclamation inspections for these wells to reduce the number awaiting final inspection as efficiently as possible.

The Commission first adopted reclamation rules in 1977 and significantly revised these rules in 1996 and again in 2008. COGCC staff conducted a comparative analysis of COGCC’s reclamation rules with other state oil and gas regulatory agencies’, the Colorado Division of Reclamation, Mining, and Safety’s, and the federal Bureau of Land Management’s rules. Staff’s analysis shows that the Commission’s rules are comparatively rigorous and comprehensive.

After analyzing the Commission’s reclamation rules and the status of wells awaiting a passing final reclamation inspection, staff concludes minor clarification of a few rules would be beneficial, but overall the existing rules are robust and sufficient to ensure proper reclamation of lands disturbed by oil and gas operations. Additionally, the COGCC Field Inspection Unit has developed a plan to improve efficiency within the reclamation program by using data reports and GIS tools identified during preparation of this Reclamation Report.

COGCC staff recommend the following action items:

Action Item	Detail
Expand and improve database reports and GIS tools to improve final reclamation inspection efficiency.	Existing database and GIS tools can be expanded and improved to allow the Field Inspection Unit to prioritize final reclamation inspections and improve overall efficiency of the reclamation program.
Strategically reduce the number of wells awaiting a final reclamation inspection.	Abandoned Locations comprise almost 6,800 of the 18,685 wells awaiting a final reclamation inspection. These locations are less likely to require actual reclamation work, and can be inspected and potentially closed by any member of the Field Inspection Unit. COGCC Reclamation Specialists will focus their efforts on the remaining 12,000 dry and abandoned or plugged and abandoned wells. Staff will develop specific goals to reduce the number of wells “awaiting final reclamation inspection and will provide annual status reports to the Commission starting in 2016.
Perform additional operator outreach and develop appropriate guidance documents.	COGCC staff will develop a process flow and standard operating procedures to fully document the interim and final reclamation processes. Staff will develop additional guidance documents to clarify staff’s interpretation of requirements in existing reclamation rules. Staff will update the 2006 “Conductor Setting Notice to Operators.” Staff will collaborate with the regulated community and other stakeholders to develop these documents. Staff has set a goal of September 2016 to complete these documents.
Finalize on-going data management projects.	Staff has started data clean-up projects to address data issues identified during this review. Staff intends to retain a contractor to assist with portions of this project. Finishing these data projects will assist staff to prioritize inspections.

CHAPTER 1: Introduction

During its May 2015 Hearing the Colorado Oil and Gas Conservation Commission (“Commission” or “COGCC”) asked COGCC staff to conduct a detailed review of the agency’s current reclamation program. In particular, the Commission asked staff to identify the number of oil and gas wells or locations in Colorado that are eligible for, but have not yet completed, final reclamation. The Commission also asked staff to evaluate existing Commission reclamation rules and compare the Commission’s rules to other states’ rules. Finally, the Commission asked staff to report on its findings, including recommendations to address any issues identified during its review.

COGCC staff analyzed the reclamation program’s strengths and weaknesses and identified opportunities and threats (SWOT analysis). Next, staff conducted an extensive analysis of the reclamation status of all wells included in COGCC’s regulatory database. In addition, staff reviewed current and past COGCC reclamation rules and compared the current rules to other state and federal oil and gas regulatory agencies’ reclamation rules and best practices. Finally, staff is reviewing historic paper well files to improve well status information in the electronic database. Completing this “data clean-up” will improve the detail and accuracy of well information in the database, which in turn will help staff prioritize final reclamation inspections.

This “Final Reclamation Inspection and Implementation Program: A Status Report to the Commission” (“Reclamation Inspection Report”) presents the COGCC’s staff’s findings and recommendations following its thorough review of Commission reclamation rules and comprehensive analysis of the reclamation status of all wells within the COGCC regulatory database.

CHAPTER 2: Strengths, Weaknesses, Opportunities, and Threats Analysis

Staff conducted a “Strengths, Weaknesses, Opportunities, and Threats Analysis” to guide its review and evaluation of the COGCC’s reclamation data, rules, and policies. In the SWOT analysis, a program’s strengths are characteristics that give the program an advantage and weaknesses are characteristics that place the program at a disadvantage. Opportunities are elements of the reclamation program that staff can exploit to its advantage, and threats are elements that may contribute to program inefficiencies if not specifically addressed.

2.1 Strengths

Field Inspection Unit Structure

COGCC field inspectors within the Field Inspection Unit (“FIU”) live and work in specific geographic areas, to which they are assigned based on well density, topographical conditions, and access constraints. This structure improves the Unit’s efficiency and effectiveness, and is an identified strength of the COGCC’s reclamation program. Supervisors oversee the work of three to eight inspectors, perform data quality review, and conduct ongoing training. The FIU has also developed a data quality program that includes a full time quality assurance professional. Elements of the FIU’s quality assurance program include developing standard operating procedures, creating guidance documents, extensive staff training, and updating the field inspection report form as required to ensure consistent data collection.

Reclamation Staff Expertise

The FIU now has six full-time reclamation specialists, who have extensive education, training and experience in reclamation and vegetation science. For example, reclamation specialists have specialized training and certification in storm water protection inspections, technical grass identification, noxious weed identification, commercial application of pesticides, and regional-specific vegetation monitoring. Four of these six positions have been added since 2014, showing the recent expansion of this group.

Collaboration between the FIU and other Work Units

The FIU interacts closely with other COGCC work units and these collaborative relationships benefit the reclamation program. Specifically, collaborative relationships with the Technical Services Group allows for the creation of key reclamation tools and reports; collaborative relationships with the Oil and Gas Location Assessment Group

ensure appropriate site specific reclamation conditions of approval are placed on permits; and collaborative relationships with the Engineering Group ensure appropriate plugging of wells and removal of equipment prior to reclamation.

Expansive Regulatory Framework

Staff compared the Commission's reclamation rules to those of other western state and federal oil and gas regulatory agencies and found the Commission's rules to be comprehensive and robust, both comparatively and in absolute terms. A full discussion of this rule comparison is included in Chapter 3.

Database and GIS Mapping Capabilities

COGCC field inspectors are equipped with laptop computers that synchronize with, and have real-time internet access to, the "best-in-class" Colorado Oil and Gas Information Systems (COGIS) database and the Commission's interactive geographic information system-based map. These technologies allow field inspectors to perform data queries, generate reports, and use GIS well data to guide an efficient and effective inspection process. These IT tools are being adapted to improve reclamation specialists' ability to focus on higher priority locations, including sensitive wildlife areas such as sage grouse habitat areas, locations near surface water supplies, or areas with highly erosive soils.

2.2 Weaknesses

Data Quality

Data quality issues, such as missing data, data entry errors, and vague information provided on historical inspection reports, have resulted from the transitions between different inspection forms, new or revised processes, inconsistent training, and an insufficient emphasis on quality control and quality assurance in years past.

The agency has completed or started several data management projects to improve data, to scan hard copy data into the well files, and to perform data cleanup. However, the reclamation data still has potential for error. Various data quality issues related to changes in field forms and databases are discussed in Appendix A.

Lack of Regulatory and Policy Clarity

In a few, specific instances the Commission's reclamation rules or policies contain imprecise terms, ambiguities, or have been interpreted and applied differently at times. These flaws have resulted in some unintended consequences for the reclamation program. Staff's recommendations include developing guidance documents or notices to operators to clarify the Commission's interpretation and expectations for some of these rules or policies.

Recent Increase in Number of Wells Eligible for a Final Reclamation Inspection

The number of Wells eligible for final reclamation that have not yet passed a final reclamation inspection has increased substantially since 2009. Staff has identified several interrelated factors that are contributing to the increase. The number of requests by surface owners to waive interim or final reclamation requirements has increased recently. The number of requests to abandon a location is also increasing. Addressing either of these situations is particularly time-consuming for the reclamation staff. In addition, the Field Inspection Unit must prioritize its inspections based on a number of factors, including citizen complaints, site construction, and areas of high activity. These priorities have sometimes taken precedence over reclamation inspections. However, as noted, four full-time reclamation specialists have been added to the FIU since 2014 and these employees will be focused exclusively on reclamation inspections.

2.3 Opportunities

On-going Development of Guidance Documents and Policy Review

Compliance outreach has always been a priority for Commission staff. In the last year, staff has developed and distributed 10 compliance guidance documents, with more expected to be developed and released throughout 2016. Staff will continue its on-going efforts to provide clarity, consistency, and certainty regarding its rules, including reclamation requirements, to the oil and gas industry. In addition to guidance documents and other policy statements, staff is potentially available to meet with operators onsite or to provide training at regularly scheduled events.

COGCC Staff Outreach to Stakeholders

COGCC staff performs outreach to various stakeholders to discuss reclamation related issues. For example, COGCC staff has met with Local Government weed managers to discuss an outbreak of a noxious weed in two counties. Through COGCC staff working with the oil and gas operators and the county weed managers, the outbreak was linked to certified weed free mulch infestation that went unrecognized. Additionally, COGCC staff has met with surface owners to discuss reclamation rules and surface owner rights related to reclamation.

2.4 Threats

Surface Owner Waiver and Variance of Specified Reclamation Requirements

Commission Rule 1001.c. allows an operator to receive a waiver or variance from reclamation rules if the operator can demonstrate (1) compliance with such rules is not necessary to protect the public health, safety, and welfare, including environmental

impacts and (2) the operator has entered into an agreement with the surface owner regarding topsoil protection and reclamation. Rule 1001.c. has been interpreted inconsistently by staff over time, leading to confusion within the regulated community about both the requirements for securing the waiver or variance and the scope of the waiver or variance. Staff has recently issued a guidance document that details the requirements and process, which should lead to greater consistency in staff's interpretation and implementation of the rule as well as in operator's understanding of the rule's requirements.

Conductor Setting Notice to Operators

In 2006, the COGCC issued a Notice to Operators (NTO) that allowed an operator to build a multi-well location by setting only conductor pipe for multiple wells, but with only one active APD (well permit) on the location. The NTO did not have sufficient reporting requirements to ensure timely reclamation of the location if additional wells were not drilled within a specified time. As a result, many large locations built for multiple wells are not being timely reclaimed, even when it has become clear that the operator has no plans to drill additional wells on the location.

Reduced Operator Cash Flows and Capital Spending

The price of oil has fallen sharply in the past year and the price of natural gas has been significantly off historic highs since 2009. Low commodity prices present a threat that operators will delay reclamation work to preserve capital.

New Patterns of Oil and Gas Development

With the advent of directional and horizontal well development, oil and gas locations are growing in size. Existing locations are sometimes used for oil and gas activities other than simply drilling wells, such as staging areas for remote completions of wells on nearby pads. As a result, it may take over a year to drill and complete all wells on a single location. These recent patterns of development may delay the start of reclamation work.

Reclamation Specialists within the Regulated Community

Reclamation is a specialized skill set requiring direct experience to ensure it is done correctly. At times, the COGCC has noted that regulated community staff performing reclamation activities do not have this specialized skill set, which can contribute to insufficient reclamation.

Ambiguity of some Reclamation Rules

A few of COGCC's reclamation rules are ambiguous and, thus, subject to differing interpretations by the regulator and regulated community. This frequently leads to disagreement about the scope of required reclamation and delays in completing that work. Staff has recently developed and released guidance documents detailing reclamation requirements and processes intended to clarify the requirements and reduce this threat.

CHAPTER 3: Data Analysis and Regulatory Review

3.1 Data Review Process

COGCC staff conducted a series of database queries to determine the current status of all wells within the COGIS database; to quantify the total number of wells that have become eligible for final reclamation; and to pinpoint the number of wells that are eligible but have not yet passed a final reclamation inspection.

Total Statewide Well Count

Staff first ascertained the total number of “Wells” tracked within the COGIS database. “Wells” is defined to include historical boreholes that pre-date the Commission and were drilled without a drilling permit; drilling permits issued, but for which no well was ever drilled (“Abandoned Locations”); active drilling permits, on which a well has not been but may still be drilled; and permitted wells that were drilled. This total Well count includes Wells with Tribal ownership of the mineral estate, the surface estate or both, and federal surface ownership. The COGCC does not have overall jurisdiction over surface reclamation for these Wells.

As of July 2015, there are 107,796 total Wells tracked in COGIS. Of these, 9,572 Wells are located on federal surface or Tribal surface, or have Tribal mineral ownership. The remaining 98,223 Wells are within COGCC’s jurisdiction.

COGCC Jurisdictional Wells

Staff divided the 98,223 Wells into seven time periods, as listed in Table 3-1. These time periods correspond roughly to changes in the Commission’s reclamation rules, and were useful for understanding historic trends with respect to when wells become eligible for final reclamation and which time periods experienced rapid rates of development.

Table 3-1: Wells Put into Service by Time Period

Period	New Wells	Cumulative Wells	Change in Cumulative (Period Over Period %)
1950 and Before	1,095	1,095	
1951-1967	12,300	13,395	1123%
1968-1977	9,551	22,946	71%
1978-1984	11,592	34,538	51%
1985-1996	14,702	49,240	43%
1997-2008	25,851	75,091	53%
2009 and After	23,132	98,223	31%

Wells Eligible to Final Reclamation

Of the 98,223 Wells under COGCC jurisdiction, 45,007 have become eligible for final reclamation based on their Well status. A Well is eligible for final reclamation when it is within one of the following three Well statuses:

1. Abandoned Locations (AL) – Wells that were permitted but were never drilled.
2. Dry and Abandoned (DA) – Wells that were drilled but were immediately abandoned without production.
3. Plugged and Abandoned (PA) – Wells that were drilled, produced for a time period, and then were abandoned.

The status of each of these 45,007 Wells sorted by time period is shown in Table 3-2 by Well status and time period. There were comparatively large numbers of Dry and Abandoned Wells between 1951 and 1977. Abandoned Location Wells increased sharply after 2009, which corresponds to an increase in permitting of multi-well locations on which some or all of the planned wells were never drilled.

Table 3-2: Status of Wells Subject to Final Reclamation Separated by Time Period

Period¹	Abandoned Location	Dry and Abandoned	Plugged and Abandoned	Total
1950 and Before	43	308	96	447
1951-1967	248	6,496	1,618	8,362
1968-1977	335	4,231	1,403	5,969
1978-1984	647	3,473	1,000	5,120
1985-1996	1,804	3,226	3,252	8,282
1997-2008	2,545	1,985	3,581	8,111
2009 and After	6,105	185	2,331	8,621
Unknown				95
Total	11,727	19,904	13,281	45,007

Notes:

¹Period intervals chosen to match years in which regulatory authority was similar.

Inspection Status for Wells Eligible for Final Reclamation

All Wells that are eligible for final reclamation must be inspected by COGCC staff and, to be considered closed, must pass a final reclamation inspection. Of the 45,007 Wells eligible for final reclamation, 26,322 (58%) have passed a final reclamation inspection and are, therefore, closed.

The remaining 18,685 Wells (42%) are in various stages of final reclamation and the inspection process but, to date, have not passed a final reclamation inspection (see Table 3-3). Staff's reclamation specialists will focus on these 18,685 Wells in the next few years in an effort to close those that meet the final reclamation standards and to encourage operators to complete final reclamation at those where additional work is required.

Table 3-3: Wells Eligible for Final Reclamation with Status

Status	# of Wells
Wells Eligible for Final Reclamation	45,007
Eligible Wells that Passed Final Reclamation Inspection	26,322
Eligible Wells without Passing Final Reclamation Inspection	18,685

Status of Wells Awaiting a Passing Final Reclamation Inspection

As noted, only Abandoned Locations, Dry and Abandoned Wells, or Plugged and Abandoned Wells are eligible for final reclamation. Staff has analyzed the 18,685 Wells eligible for final reclamation that have not yet passed a final reclamation inspection to determine the status of each Well.

Table 3-4: Status of Wells Awaiting a Passing Final Reclamation Inspection

Well Status	Wells	Percent
Abandoned Location (AL)	6,766	36%
Other (Not AL)		
Drilled and Abandoned	6,741	36%
Plugged and Abandoned	5,178	28%
Subtotal, Other (Not AL)	11,919	64%
Total	18,685	100%

Abandoned Locations

Of the Wells awaiting a passing final reclamation inspection, 6,766 (36%) are Abandoned Locations. Because a well was never actually drilled, Abandoned Locations have been a low priority for COGCC reclamation inspections. In some cases, an Abandoned Location can be a multi-well pad that was permitted for many wells, but on which only one well was actually completed. In these cases, final reclamation is not required because other producing wells exist on the disturbed area. Table 3-2 above shows the request for AL status has increased dramatically since 2009.

If no well was drilled on an Abandoned Location, or only one well was drilled on a multi-well pad, little or no actual surface reclamation may be required. Consequently, all field inspectors, not just the reclamation specialists, will be assigned to inspect Abandoned Locations awaiting a passing final reclamation inspection. The field inspectors will be able to easily verify whether these Wells are, in fact, Abandoned Locations where no additional land was disturbed or if these are multi-well pads with existing producing wells. In those cases, the field inspectors will issue a passing final reclamation report to close out these locations.

Dry and Abandoned and Plugged and Abandoned Locations

The remaining 11,919 Wells (64%) that require a passing final reclamation inspection are DA or PA Wells. These are Wells where drilling occurred but the site has not received a passing final reclamation inspection. Reclamation Specialists will focus their attention on these Wells. Table 3-5 breaks out the inspection status of these Wells, which will help staff prioritize reclamation inspections.

Table 3-5: Inspection Status of DA/PA Wells

Reclamation Status	Wells	Percent
Failed Last Inspection	2,165	18%
Interim Reclamation Phase	370	3%
Not Inspected Since Status Change	1,709	14%
No Record of Inspection	7,675	64%
Total	11,919	100%

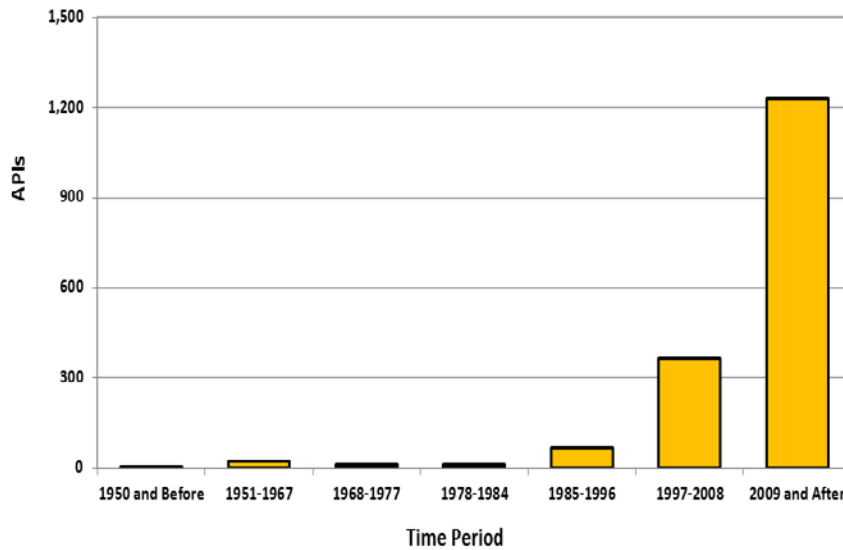
Failed Last Inspection and Interim Reclamation Phase

2,535 Wells (21%) either failed their most recent final reclamation inspection or were deemed to be in an interim reclamation phase. These sites will generally be re-inspected between one to three years after a failing final reclamation inspection. Oil and gas Wells could fail a final reclamation inspection for a variety of reasons such as the site was not reclaimed, vegetation did not meet standards, or the site was not property re-contoured.

Not Inspected Since Status Change

A total of 1,709 Wells (14%) have a status of “Not Inspected Since Status Change.” (See Figure 3-1). Since 2009, several Wells changed from shut-in status to Plugged and Abandoned status. Once the Well becomes PA, final reclamation must commence; however, establishing vegetation sufficient to pass a final reclamation inspection frequently takes two to five years.

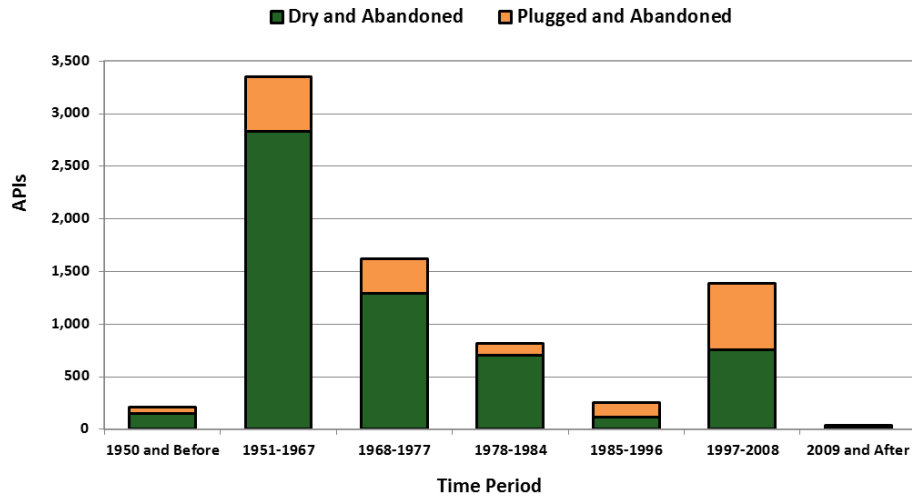
Figure 3-1: "Not Inspected Since Status Change"- 1,709 APIs



No Record of Inspection

Drilled and Abandoned and Plugged and Abandoned comprise the largest group of Wells that have not passed a final reclamation inspection is those with no identifiable record of final reclamation inspection in the database. This accounts for a total of 7,675 Wells (64%) of these 11,919 Wells. The age and well profile of this group is shown in Figure 3-2 showing a large majority are from Wells drilled between 1951 and 1977.

Figure 3-2: No Record of Inspection Wells



3.2 Analysis of the Commission’s Reclamation Rules

History of the Commission’s Reclamation Rules

The history of the Commission’s reclamation rules is briefly summarized in Table 3-6 below. Major changes to reclamation rules are highlighted in green. Appendix B contains a more complete history of the Commission’s reclamation rules.

Table 3-6: History of COGCC Reclamation Rules

Year	History of COGCC Reclamation Rules
1952	COGCC established the first rules for oil and gas with no specific mention to reclamation or restoration.
1977	The bonding section of the rules were updated to address "restoring the land".
1986	The general drilling rules were amended to require reclamation of locations after well abandonment and put a six month timeframe after a well was plugged.
1993	New rule sections were added in the 300 series setting requirements for both the interim and final reclamation. Additionally, the Wattenberg special area rules were created.
1996	A major change to the reclamation rules by creating the 1000 series.
1996 to 2007	A few minor wording changes were made to the 1000 series rules. A full list of these changes is in Appendix B.
2008	Significant changes were made to the reclamation rules. These revisions are listed in Appendix B.

Comparative Analysis of COGCC Reclamation Rules

COGCC staff compared current COGCC reclamation rules with those of other state oil and gas regulatory agencies, the federal Bureau of Land management (BLM), and the Colorado Division of Reclamation Mining and Safety (DRMS). Staff reviewed each agency's reclamation requirements and contacted individual agencies for clarification as needed. Table 3-7 summarizes selected elements from each agency's reclamation rules.

COGCC staff concludes that the Commission's reclamation rules are relatively rigorous and comprehensive compared to those of other state oil and gas regulatory agencies, BLM, and the DRMS. The Commission's current reclamation rules contain sufficient detail to lead to successful reclamation outcomes provided the Commission has personnel (primarily reclamation specialists, field inspectors, data analysts, and GIS analysts) and IT support (support for FIU lap top computers, and development, maintenance and updating of the Field Inspection Form) to inspect, implement and enforce the rules.

Table 3-7: Agency Reclamation Standards Comparison

Policy Standard	COGCC Colorado Oil & Gas Conservation Commission	BLM Bureau of Land Management	WOGCC Wyoming Oil & Gas Conservation Commission	NMOCD New Mexico Oil Conservation Division	MBOGC Montana Board of Oil & Gas Conservation	OCC Oklahoma Corporation Commission Oil & Gas Div.	KCC Kansas Corporation Commission Oil & Gas Div.	CDRMS Colorado Division of Reclamation Mining & Safety
Bonding Reclamation/Plugging	Required \$10,000 - \$20,000/well	Required \$10,000 Minimum	Required \$10,000 - \$20,000/well	Required \$5,000 - \$10,000/well + \$1/ft.	Required \$1500 - \$10,000/well	Required Financial Statement + \$25,000	Required \$.75 times the total aggregate depth	Required Determined by Division Actual Cost
Reclamation Plan	Not required	Required	Not required	Not required	Not required	Not required Referred to for facilities	Not required Referred to for facilities	Required
Top soil salvage and protection	Required	Required	Referred to but not specified	Required for pits	No	Required for pits but not roads or pads	No	Required
Soil De-compaction	Required	Referred to but not specified	No	No	No	No	No	Required
Interim Reclamation Timeline	3mo. Cropland 6mo. Non Cropland	6 months	1 year	1 st favorable growing season	1 year	No	No	1 st favorable growing season
Pit Reclamation Requirements	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Not Applicable
Final Reclamation Timeline	3mo. Cropland 12mo. Non Cropland	6 months	1 year	As early as practicable	As soon as Weather Permits	180 days	No	1 st favorable growing season
Seed Mix	Surface Owner or NRCS Approved	Surface Owner or Agency approved	Surface owner Request or Pre-existing	50% Native Plant species	Appropriate Seeds	No	No	Must Meet Criteria
Weed Management	Required	Required	No	No	No	No	No	Required

Table 3-7: Agency Reclamation Standards Comparison, cont.

Policy Standard	COGCC Colorado Oil & Gas Conservation Commission	BLM Bureau of Land Management	WOGCC Wyoming Oil & Gas Conservation Commission	NMOCD New Mexico Oil Conservation Division	MBOGC Montana Board of Oil & Gas Conservation	OCC Oklahoma Corporation Commission Oil & Gas Div.	KCC Kansas Corporation Commission Oil & Gas Div.	CDRMS Colorado Division of Reclamation Mining & Safety
Stormwater Management	Required	Required	No	Referred to	No	Referred to but not specified	No	Required
Reclamation /Revegetation Monitoring	No	Required by individual regions	No	No	No	No	No	No
Vegetation threshold comparison to reference area	80% Plant Cover	Density sufficient to control erosion	No	70% Plant Cover	Previous productive capability	No	No	90% Plant Cover
Variance/Waiver of Reclamation	Yes Director approval only. Operator must enter into an agreement with surface owner and demonstrate compliance with such reclamation rules is not necessary to protect public health, safety, and welfare, including environmental impacts.	Yes BLM Approval may make a request but must demonstrate reclamation within intent of the Order, entirely up to BLM discretion and once decision made not appealable.	Yes Supervisor Approval All state lands will be reseeded. Requires a signed notarized agreement with surface owner to take responsibility for the site.	Yes Div. District Office Approval Must demonstrate that the proposed alternative provides equal or better prevention of erosion, and protection of fresh water, public health and the environment. Requires signed surface owner. wavier	Yes Board Approval only. Surface owner signed agreement.	Yes Waiver from Surface Owner	No	No

Opportunities to Improve the Commission's Reclamation Rules

Staff has identified a few specific instances in which the Commission's reclamation rules contain ambiguities or gaps in the scope of the rule, or where interpretation of a rule's requirements has been inconsistent over time. These factors have contributed, in varying degrees, to: uncertainty in the regulated community about some rule requirements or procedures; delays in commencing final reclamation, particularly on multi-well pads on the Western Slope with approved APDs where only a portion of the wells have been drilled or, in some cases, no wells were drilled; and difficulty in pursuing enforcement actions related to reclamation issues.

Commission staff believes uncertainty in, and inconsistent interpretation of some rules, can be remedied to a significant degree by issuing guidance documents that articulate the Commission's interpretation of these rules. To this end, staff recently published a guidance document concerning Rule 1001.c., which potentially allows a variance from specified interim or final reclamation requirements under certain conditions. Staff met with the regulated community several times to discuss staff's interpretation of the rule's requirements during development of the guidance document. Staff also published guidance documents on stormwater management and Rule 603.f, which may impact final reclamation requirements.

Another gap in the Commission's reclamation requirements resulted from an unintended consequence of a specific COGCC policy – the Conductor Setting Notice to Operators – which allowed operators to build large, multi-well pads and install conductor casing but not actually drill wells on the pad. The Conductor setting NTO did not clearly state when interim or final reclamation must commence if no (or only some) of the planned and approved wells are drilled. Because this is a policy document and not a rule, Commission staff intends to notify the regulated community that this NTO will be updated to better address final reclamation for these sites.

In a few cases, staff believes that some reclamation rules eventually should be amended to clean up ambiguities or provide additional detail. Such changes would improve the Commission's overall reclamation rules, but staff does not consider these changes to be "structural" in nature. Rather, they can generally be considered fine tuning of an otherwise comparatively robust regulatory regime.

A discussion of several specific rules or issues identified by staff as candidates for clarification through guidance or potential amendment follows.

Topsoil Protection

The Oil and Gas Conservation Act specifically requires the Commission to protect topsoil disturbed by oil and gas activities. C.R.S. §34-60-106.(12). The Commission adopted implementing rules to protect topsoil in 1996, which have been modified over the years and are currently included in Rules 1001.a., 1002.b., and 1002.c. Rule 1001.a. specifically states protection of topsoil is required. However, the current topsoil rules lack clarity in certain respects.

- As written, Rule 1002.b. could be interpreted to apply only when topsoil has been excavated. This creates uncertainty regarding applicability of the rule if an operator covers the topsoil with other fill material without removing or segregating the topsoil. Covering the topsoil in place with several feet of material can severely compromise and damage the topsoil. This creates a potential conflict with Rule 1001.a, which has a broad requirement to protect topsoil.
- Rule 1002.b. does not restrict oil and gas operations being constructed directly on the topsoil without protections from compaction, leaks, or spills that can negatively impact the topsoil.
- Rule 1002.b. is not clear that a portion of topsoil must remain stockpiled for final reclamation. In many cases, all of the stockpiled topsoil is used during interim reclamation.
- Rules 1002.b. and 1002.c. are not clear regarding whether excavated topsoil must remain on location until it is used to reclaim that location. Consequently, operators sometimes move excavated topsoil to a different location. Not returning excavated topsoil to its original location may not be equitable from an ecological standpoint.
- Allowing topsoil to be moved offsite makes it difficult for COGCC inspectors to evaluate whether the topsoil is properly segregated and managed for weeds as required by Rule 1002.c.

A guidance document or an eventual clean up rulemaking could address the above issues.

Surface Owner Waiver of 1000-Series Rules

Rule 1001.c. allows an operator to receive a waiver or variance from reclamation rules if the operator can demonstrate (1) compliance with such rules is not necessary to protect

the public health, safety, and welfare, including environmental impacts and (2) the operator has entered into an agreement with the surface owner regarding topsoil protection and reclamation.

Historically the scope of the waiver allowed under Rule 1001.c. has not been interpreted or implemented consistently, either by staff or the regulated community. In addition, a written agreement with the surface owner is not required by the rule, and the scope and detail of such agreements has varied widely. When a waiver is requested, tension can arise between a surface owner's right to use their land as they wish and the Commission's obligation to ensure that oil and gas operations are properly reclaimed. Often, COGCC receives a variance request after an operator has received an "action required" reclamation inspection report, which casts suspicion on the motives for the variance request. The rule does not allow COGCC staff to assess cumulative impacts if several of these waivers are submitted in the same general area, nor does it adequately take into account local land use codes. Finally, even if the specified reclamation rules are waived, stormwater management controls may still be necessary, and this requirement is frequently overlooked.

Staff recently prepared and released a new guidance document (see Appendix C) detailing the requirements and process for obtaining a surface owner waiver under Rule 1001.c. Staff worked extensively with the regulated community to develop the guidance, in a process that was mutually beneficial. Over the next several months staff will evaluate whether the guidance leads to more complete information to support waiver requests and more consistent implementation of the rule. If staff concludes the issues persist, the Commission may wish to consider amending the rule.

Interim Reclamation -- Areas No Longer in Use

Rule 1003.b. addresses the operator's basic interim reclamation obligations. The rule states:

"All disturbed areas affected by drilling or subsequent operations, except areas reasonably needed for production operations or for subsequent drilling operations to be commenced within twelve (12) months, shall be reclaimed as early and as nearly as practicable to their original condition or their final land use as designated by the surface owner and shall be maintained to control dust and minimize erosion to the extent practicable." (emphasis supplied).

The term "all disturbed areas affected by drilling or subsequent operations" does not specifically include completion operations. COGCC staff interprets "subsequent operations" to include completion operations.

The term “reasonably needed” is subject to interpretation and large differences of opinion about what is reasonably needed can arise. In some basins, operators prefer larger areas for workover operations, and the frequency of workover operations can vary greatly. These factors make it difficult for staff to establish and enforce a consistent standard for interim reclamation.

The term “subsequent drilling operations to be commenced within twelve (12) months” has proved to be ambiguous. First, it is unclear when the 12 months starts to run. Additionally, operators may initially have plans for subsequent drilling or completion operations within 12 months, but those plans get extended into the “next” 12 months. It is difficult for COGCC staff to verify whether these plans are firm and reasonable. In some cases, serial extensions of the 12 months period have led to delays in commencing interim and final reclamation of several years.

More recently, several operators have begun delaying well completion operations for extended periods of time due to low commodity prices. Although Rule 1003.b. requires interim reclamation to begin within six months of drilling or subsequent operations ending, it may not make sense to require interim reclamation knowing the pad will need to be rebuilt to conduct completion operations within two years.

Staff will prepare a guidance document in collaboration with the regulated community and other stakeholders in an effort to clarify staff’s interpretation of the ambiguous terms. Alternatively, the Commission can consider a “clean-up” rulemaking to address the issues noted.

Restoration and Re-Vegetation

Rule 1003.e. and Rule 1003.e.(2) have a seeming inconsistency regarding the required timing for revegetation. Rule 1003.e. states: “*When a well is completed for production, all disturbed areas no longer needed will be restored and re-vegetated as soon as possible.*” Rule 1003.e.(2) states “*The disturbed area then shall be reseeded in the first favorable season following rig demobilization.*”

This inconsistency gives rise to two issues:

- More than 95% of wells in Colorado are hydraulically fractured so conducting interim reclamation shortly after rig demobilization may not be efficient.
- The language “*first favorable season*” refers to the ecological planting season and has been misinterpreted at times by operators.

A guidance document might address these issues, but a clean-up rulemaking to remove

or change “rig demobilization” in rule 1003.e.(3) and address delayed completion operations may be the best long term solution.

Rule 1003.e. (2) and 1004. d. – Compacted or Built On

Rules 1003.e.(2) and 1004.d. contain a standard for determining when interim and final reclamation are complete. These rules state that reclamation is considered complete when disturbed areas have been “...built upon, compacted, covered, paved, or otherwise stabilized in such a way as to minimize erosion to the extent practicable, or a uniform vegetative cover...” These rules are contradictory to the requirement that sites be “re-vegetated as soon as practicable” and could be interpreted differently. For example, it could be interpreted that re-vegetation is not required as long as an oil and gas location is covered and stabilized with gravel. The COGCC interprets the “compacted, covered, or paved” language to address only the production areas in the Rule 1003 language and areas that have a completed waiver for a new land use (e.g. a subdivision) in the Rule 1004 language.

A guidance document clarifying staff’s interpretation of these rules could address this issue.

Fencing

Absent an agreement with the surface owner, an operator is not allowed to fence an area undergoing interim or final reclamation. Disturbances to the area undergoing reclamation, such as livestock grazing or surface owner activities, may increase the time required to complete reclamation. If necessary to promote reclamation, operators should have the ability to fence their locations.

Given the current rights of surface owner, it is not likely that this concern can be addressed by the COGCC but it is noted here for reference.

Rule 1003.a. – Debris Removal

The requirement to remove debris and waste materials in Rule 1003.a. applies only to the operator’s equipment and waste materials. Neither the Commission nor the operator can require a surface owner who uses an Oil and Gas Location to store personal equipment and supplies, or dispose of household waste materials to remove the material as long as such material is not constituting a safety issue related to oil and gas operations. These materials can interfere with reclamation activities and can create a habitat for weeds.

This issue could be addressed by the surface owner waiver guidance document

described above.

Rules 1003.f. and 1004.e. – Weed Management

Weed management is an important part of successful reclamation as weeds can prevent or delay perennial growth. However, COGCC Rules 1003.f. and 1004.e. only require noxious weeds to be controlled; this seems inconsistent with Rule 1004.a., which requires all weeds to be removed. Non-noxious weeds or invasive species can impede or delay re-vegetation in the reclamation areas, create safety issues, and infest adjoining lands.

This issue could be addressed through a guidance document describing how all weeds or undesirable species can prevent or delay successful reclamation, and that weeds do not count toward required revegetation standards. While a guidance document cannot mandate action, clarifying expectations and articulating the benefits of managing non-noxious weeds might incent operators to do so proactively. An alternative would be to change Rules 1003.f. and 1004.e. to include non-noxious weeds or revisit the intent of Rule 603.f. related to weeds.

Rule 1004 – Triggers for Commencing Final Reclamation of Well Sites and Associated Production Facilities

Rule 1004 clearly requires final reclamation to commence “upon the plugging and abandonment of the well.” However, the rule is silent regarding whether or when final reclamation should commence in circumstances where drilling activity has ceased or never occurred. For example:

- Rule 1004 does not specify when final reclamation must commence or provide a timeline for completion when an operator permits either a Well (Form 2) or an Oil and Gas Location (Form 2A) and disturbs the land, but does not drill a Well. This has led operators to assert that they are not required to commence final reclamation in this circumstance.
- Rule 1004.c.(4) – “Final reclamation threshold for release of financial assurance - Sundry Notice Form 4” – does not specify the information an operator must provide to COGCC when seeking release of financial assurance upon completion of final reclamation. Consequently, operators frequently ask for their bond to be released prematurely, or without providing information sufficient for COGCC to determine whether final reclamation has been completed. At times this has required staff to meet onsite and explain the reclamation requirements in greater detail. Completing final reclamation is inevitably delayed in these cases.

- The current rules do not specify that Abandoned Locations are subject to requirements in Rule 1004.a. to complete specified reclamation activities within 3 months of abandonment on crop land with within 12 months on non-crop land.

A guidance document clarifying staff's interpretation of the scope of the final reclamation requirements could address these issues. The language in Rule 1004.a. stating: "Well locations, access roads and associated facilities shall be reclaimed" provides support for applying the final reclamation requirements in the circumstances described.

Monitoring Ongoing Reclamation Efforts

One of the main purposes for monitoring ongoing reclamation activities on oil and gas locations is to ensure positive progress is being made towards the reclamation goals and requirements. Monitoring has many benefits including early detection of issues, acceleration of the reclamation when issues are addressed right away, identification of weed issues detrimental to reclamation goals, identification of failed seeding, and identification of stormwater issues that need repair. If operators conducted timely monitoring by experienced personnel, then reclamation success could potentially be improved.

2006 Conductor Setting Notice to Operators

In 2006, the COGCC issued a Notice to Operators (NTO) allowing a multi-well location to be built and held with only conductor pipe set for one well on the location or an active drilling permit. See Appendix D. The NTO did not have sufficient reporting requirements to ensure timely reclamation if additional drilling did not occur during a set time period. Consequently, many large pads built for multiple wells, but on which only a single well (if any) has actually been drilled, have not been reclaimed. This is particularly true in western Colorado.

COGCC staff is in the process of a significant revision of and update to this NTO. Staff will commence stakeholder meetings after this report has been reviewed by the Commission.

CHAPTER 4: Recommended Action Plan

Based on the analysis performed, Commission staff recommends a four-part action plan to enhance the effectiveness of the COGCC reclamation program.

4.1. Action One: Develop Database Reports and GIS Tools

The database and GIS tools available to Reclamation Specialists should be expanded and improved by developing additional database tools similar to those used by the Field Inspection Unit. This will increase efficiency in prioritizing, planning and organizing reclamation inspections. The goal is to complete development of these tools by June 2016.

4.2 Action Two: Reduce Wells Awaiting Final Reclamation Inspection

Several factors have combined to contribute to the current number of wells awaiting a final reclamation inspection. These factors include a historical lack of reclamation specialists, the increased rate of drilling, ongoing orphaned well reclamation projects, the sheer number of Abandoned Locations, giving priority to responding to citizen complaints, and complexities associated with reclamation and waiver requests.

Staff believes the COGCC now has the personnel and other resources necessary to reverse the historic trend and begin to reduce the number of wells awaiting a final reclamation inspection. Details of staff's plan include:

DA and PA Wells

With a newly hired team of six, the reclamation group will focus on the current 11,919 DA and PA Wells that require a passing final reclamation inspection. The focus will begin on the Wells plugged since 1996.

Abandoned Location Wells

Since these Wells were never drilled and, in many instances, the location was not disturbed the entire Field Inspection Unit will work to inspect the 6,766 Abandoned Location wells that require a passing final reclamation inspection. We anticipate that field inspectors will be able to pass many of these locations for final reclamation without further action required. From July 2015 to November 2015, the FIU inspected 1,397 of these 6,766 wells (21%), of which 92% passed the final reclamation inspection.

Time Frame and Reporting

Staff recommends the above actions proceed immediately and continue through calendar year 2016. Staff will update the Commission on its progress at the last regularly scheduled hearing in 2016. Staff's update will identify successes as well as additional challenges.

4.3 Action Three: Additional Operator Guidance / Outreach

Commission staff will fully document the interim and final reclamation processes through guidance documents or standard operating procedures to address the opportunities for improvement identified in this Reclamation Report. Furthermore, staff will update the 2006 "Conductor Setting NTO" to better address reclamation. Guidance documents and NTOs will be developed in collaboration with the regulated community and other stakeholders. Staff recommends that required guidance documents, SOPs, and NTO updates be completed by end of September 2016.

If the issues identified do not show substantial improvement as a result of the additional guidance and outreach, staff and the Commission should consider revisions to the reclamation rules as discussed in this Reclamation Report.

4.4 Action Four: Complete Data Management Projects

Multiple data clean-up projects were either started prior to this review or were started to address data issues found during this review (see Appendix A). These projects should be completed to improve the accuracy of historical data in the database. It is recommended that the Reclamation group retain a contractor to help with these projects and that they all be completed by the end of 2017.

APPENDIX A: Data Quality Issues

Data Management Projects

Data quality was a challenge in defining and developing this review. Inspection data and processes have changed throughout the seven defined time intervals, introducing a risk of erroneous results when comparing data across these time periods. The most challenging data quality issues include the following:

- Relatively few field inspections were documented in writing prior to 1985 evidenced by the fact that only 106 inspections were entered into the database by that year.
- Evidence of some data incompatibility issues when the COGCC migrated the hand written inspection reports into the electronic database.
- Prior to 2012, permits were processed manually and the actual date of permit approval may or may not have been documented.
- Data review found the following issues:
 - Inspection forms with incomplete information making it hard to determine if final reclamation passed.
 - Wells that were not released from final reclamation because a field on the old manual inspection form was not circled or a field not checked even though the comments indicated the well passed final reclamation.
 - Inspector entered the wrong well API number in the system.

With the advent of a formal inspection form in 1983, the data became easier to store, manage, and analyze and overall the agency's investment in better inspection form data management systems over recent years has allowed the agency to keep pace with regulatory needs.

The COGCC conducts ongoing data management and cleanup projects. During this review new data projects additional projects were identified and are ongoing. Table A-1 is a list of the major data clean-up projects undertaken by the COGCC.

Table A-1: COGCC Data Cleanup Projects

Project	Project Description
Data Migration Project	An agency wide project that occurred in 1999 where all paper well documents, including field inspection forms, were scanned in COGIS. Older field inspections are listed in the "INSP" section as "HISTORICAL MIGRATION".
"White Inspections"	In 2013 and 2014, field staff manually reviewed well files for the 11,000 wells, at the time, where the system indicated no inspection report. Final reclamation inspection reports were found for 4,000 of these wells. Many of these reports had a field inspection report listed as "Correspondence".
Review of Failed Reclamation Inspections	Interns are currently reviewing all failed final reclamation inspections to determine if there are instances where the inspection occurred too soon and reclamation was in progress per established rules.
Review of Overall Satisfactory Inspections	Staff is currently reviewing some of the inspection reports listed as overall satisfactory (Green color) to determine if final reclamation was included and passed but inappropriately marked on the inspection report. If inappropriately marked, then the report should have been blue color. This includes abandoned locations.

APPENDIX B: History of COGCC Reclamation Rules

1977

1977 - November 22 - 1R-17 - Addendum

The first mention of restoring surface lands back to original condition at the beginning of the oil and gas lease was included in rule 304 for bonding requirements. The transcript from the 1977 hearing reveals that these rules were adopted unanimously with virtually no discussion. Rules 304.b.1 and 304.b.2 language was unchanged until 1996.

“304.b. Except where a bond in satisfactory form has been filed by the owner in accordance with State, Federal or Indian lease requirements, and evidence has been furnished to the Director that such bond had been filed with and approved by the appropriate agency, the Commission, prior to commencement of operations, in instances in which the owner of the surface is not a party to the oil and gas lease, shall require from the lessee a good and sufficient bond payable to the State of Colorado, conditioned that:

(1) Upon completion of drilling operations, such surface owner shall be paid for unreasonable crop losses or land damage resulting from use of the premises by the lessee 1

(2) Upon abandonment of the well, the surface of the land shall be restored as nearly as possible, to its condition at the beginning of the lease, or in accordance with a written agreement of the owner of the surface of such land.”

1977 - 1R-74

The following definition was also added in 1977:

“PLUGGING AND ABANDONMENT shall mean the cementing of a well, the removal of its associated production facilities, the removal or abandonment in-place of its flowline, and the remediation and reclamation of the wellsite.”

1978

A surface bond dollar amount was added to rule 304. At this time there was a form 3 for the plugging of the well bond and an additional form 3A for a separate reclamation bond for surface reclamation was added.

Rule Footnotes

“304. House Bill No. 1491, passed by the 1977 Colorado Legislature, amended 34-60-106 CRS 1973, Additional Powers of the Commission, states that the Commission shall require the furnishing of reasonable security by lessees of land for the drilling of oil and gas wells, in instances in which the owner of the surface of lands so leased was not a party to such lease, to protect such owner from unreasonable crop losses or land damage from use of the premises by said lessee. This necessitated an addition to Rule No. 304. It was determined that bonds in the amounts stated therein would be sufficient for this purpose, and this change will also necessitate an additional bond form, OGCC Form 3A.”

1984

1984 - 1R-24

Language pertaining to reclamation of centralized disposal facilities and a \$50,000 bond requirement was added to rule 304 bonding requirements.

“304. c. All operators of central disposal facilities as defined in Rule 124, unless otherwise exempted by Rule 325, shall file with the Commission a good and sufficient bond in the amount of \$50,000, payable to the State of Colorado, conditioned that the facility upon abandonment shall be reclaimed and all materials deposited therein shall be removed.”

1986

1986 - 1R-34

Rule 304. b. language was slightly modified to include a statement that prior to entering the site with heavy equipment the operator must negotiate with the land owner for payment. Additionally, language concerning reclamation was added to rule 317.p, General Drilling Rules. In addition, language concerning reclamation was added to rule 319, Abandonment.

“304.b. “Prior to entering the site with heavy equipment, the operator shall negotiate with the surface owner for the payment of any damages which may be caused by the drilling operation. In instances in which the owner of the surface is not a party to the oil and gas lease, or a party to a surface damage agreement, except where a bond in satisfactory form has been filed by the owner in accordance with State, Federal or Indian lease requirements, and evidence has been furnished to the Director that such bond had been filed with and approved by the appropriate agency, the Commission, prior to approval of the commencement of operations, shall require from the lessee a good and sufficient bond payable to the State of Colorado, conditioned that.”

317.p- "If the well is abandoned, the surface must be reclaimed, all pits filled and all debris removed."

319.a.(8)-"Upon abandonment all pits, mouse and rat holes and cellars shall be backfilled, debris and surface equipment removed and the location graded as soon as weather and pit conditions will permit; however, all such reclamation work shall be completed within six (6) months of plugging a well. The Director may grant an extension to this time if unusual circumstances are encountered but every reasonable effort shall be made to complete reclamation before the next local growing season."

1993

1993 - 1R-54

Rule 319.a.(8) was changed to rule 317.a.(8). In addition 317.d was added requiring that wells without mechanical integrity to be repaired or plugged and abandoned and reclaimed. Rules 317.q. and 317.r. required final reclamation and restoration and interim reclamation respectively. Additionally, the Wattenberg special area rules series 1000 rules were added that applied to northwestern Adams, eastern Boulder, northeastern Jefferson, southeastern Larimer, and southern Weld counties. Many of Wattenberg rules pertained to reclamation. For instance, the 1003 rules dealt with site preparation regarding segregation of topsoil and subsoils while the 1004 rules dealt with alleviation of compaction and seedbed preparation. The 802 rule language was added so that operators would minimize the disturbance impacts to surface lands and would ultimately minimize the amount and type of future reclamation/restoration.

317. ABANDONMENT

317.a.(8): "Upon abandonment, all pits, mouse and rat holes and cellars shall be backfilled, debris and surface equipment removed and the location graded as soon as weather and pit conditions will permit; however, all such reclamation work shall be completed within six (6) months of plugging a well. The Director may grant an extension to this time if unusual circumstances are encountered but every reasonable effort shall be made to complete reclamation before the next local growing season."

317. d.: "All wells shall maintain mechanical integrity. All wells which lack mechanical integrity shall be repaired or plugged and abandoned within six (6) months of failing a mechanical integrity test or of a determination through any other means that the well lacks mechanical integrity, and the well site reclaimed in accordance with Rule 317.a.(8). All injection wells which fail a mechanical integrity test, or which are determined through any other means to lack mechanical integrity, shall be shut-in immediately."

317.p.:*"If the well is abandoned, the surface must be reclaimed, all pits filled and all debris removed."*

317.q. *"Final site reclamation and restoration shall take place as soon as conditions reasonably permit, following the completion of drilling and completion operations, or reentry operations, and all the materials and equipment associated with the drilling, reentry or completion operations including, but not limited to, concrete, sack bentonite and other drilling mud additives, sand, plastic, pipe, cable, and other waste materials shall be removed. The burning or burial of such material on the premises is subject to the Colorado Air Quality Control Act, Section 25-7-101, C.R.S., The State Hazardous Waste Laws, Article 15 of Title 25, C.R.S., and the State Solid Waste Laws, Article 20 of Title 30, C.R.S. or regulations promulgated pursuant to said statutes. In addition, material may be burned or buried on the premises only with the prior written consent of the surface owner, and with prior written notice to the surface tenant."*

317.r. *"Interim site maintenance and soil stabilization of drilling locations shall take place during operations as conditions permit. Drilling locations shall be restored to their original conditions or to the size necessary for a normal producing location insofar as is practicable as soon as site conditions reasonably permit following the completion of drilling and completion operations or reentry operations but in no event later than six (6) months after said completion, unless the Director extends the six (6) month period because of conditions outside the control of the operator. Upon any such extension, the Director shall notify the affected surface owner and surface tenant thereof. The operator shall notify the surface owner and surface tenant, not less than seven (7) days before any final site reclamation and restoration is to take place and when it is to occur. The party primarily responsible for such reclamation shall be the operator, unless the surface owner, by written notification to the Director, assumes such primary responsibility, in which case, this rule shall be enforceable against such surface owner. The party responsible for such reclamation shall consult with the local district of the state soil conservation service, the surface owner and the surface tenant with respect to the proposed reclamation operations including any special aspects thereof."*

WATTENBERG SPECIAL AREA RULES

1001. INTRODUCTION

"These rules apply only to lands within the designated area which includes northwestern Adams, eastern Boulder, northeastern Jefferson, southeastern Larimer, and southern Weld counties, as more fully described in Appendix A ("Subject Lands")."

1002. NOTICE AND CONSULTATION

“The following guidelines and procedures shall apply to each oil and gas well for which a permit to drill under Rule 303. is applied for on or after the effective date and which is to be located within the boundaries of subject lands:”

a. “Thirty Day Notice. Before any person may commence operations for the drilling or reentry of any well, such person shall evidence their intention to conduct such operations by posting written notice of intent to drill on the property for purpose of notifying any surface tenant or lessee, and by giving the surface owner and local governmental designee written notice thereof in accordance with this paragraph. Such notice is hereinafter referred to as the “thirty day (30) notice.” In determining the identity of surface owner for the purpose of giving the thirty day (30) notice, the local county tax records may be relied upon. Surface owner shall be responsible for notifying any tenant farmer, lessee, or other party (“tenant”) that may own or have an interest in any crops or surface improvements that may be affected by the proposed operation. The thirty day (30) notice shall be in writing, shall be sent by first-class mail, postage prepaid, and including a certificate of mailing reflecting the name and address of the person to whom the notice is sent and date of mailing or hand-delivered and signed for. The thirty day (30) notice shall give the estimated date that operations with heavy equipment are to commence. The thirty-day (30) time period shall commence on the date of mailing or hand delivery. Included with the thirty day (30) notice shall be the following:”

- (1) “The name and phone number of the operator and the name of the individual representing the operator who can be contacted by the surface owner and local governmental designee concerning the proposed oil and gas operations and especially the location of such operations.*
- (2) A return addressed, postage prepaid postcard on which the surface owner may request his or her preference with respect to the consultation provided for in these rules.*
- (3) A legal description (or plat) indicating the area under the commission’s rules or orders within which the proposed well is proposed to be located.*
- (4) If known at the time the notice is given, the thirty day notice • shall describe by diagram the proposed location and dimensions of the drill site, location of the well, production facilities, pipelines, roads and other areas to be used for petroleum operations. The thirty day notice shall be posted and sent in accordance with this paragraph a. not more than one hundred eighty (180) days and not less than thirty (30) days prior to commencement of operations with heavy equipment.”*

b. “Additional notice requirements for irrigated cropland Notice during irrigation season. If a well is to be drilled upon irrigated crop lands between March 1 and October 31, the operator, in addition to meeting the consultation requirements of Rule 1002.g. below, shall

contact the surface owner or designated agent at least fourteen (14) days prior to commencement of surface activities by the operator and arrange to coordinate drilling operations to avoid unreasonable interference with irrigation plans and activities."

c. "Subsequent well operations. Before any person may commence subsequent well operations said person shall evidence their intention to conduct such operations by giving the surface owner notice in accordance with this paragraph c. For purposes of this paragraph c., "subsequent well operations" shall mean those operations that materially impact areas beyond the existing access road, production site or well site for any well, including operations such as re-fracturing the well, but not including changing pumps or other routine service work. In determining the identity of surface owner for the purpose of giving such notice, the local county tax records may be relied upon. Such notice shall be in writing, shall be posted on the property, and shall be sent by first class mail and including a certificate of mailing reflecting the name and address of the person to whom the notice is sent and date of mailing, or hand-delivered and signed for. The notice shall give the estimated date that subsequent well operations are to commence and shall be sent and posted not more than thirty (30) days and not less than seven 171 days prior to commencement of subsequent operations. In the event subsequent operations are located upon irrigated crop lands and the recompletion operations are to take place between March 1 and October 31, the provisions of Rule 1002 b(2). of this rule shall also apply. d. Drill site reclamation notice. Not less than seven (7) days before any final reclamation is to take place, the operator shall notify the surface owner that such is to occur, and when it is to occur. The operator shall consult with surface owner concerning the proposed reclamation operations including any special considerations relating thereto."

e. "Form 2 approval. Unless a waiver is granted under Rule 1002 f. below, the Director shall not approve or deny the Form 2 (Application for Permit-to Drill under Rule 303.) for the well described in the thirty day notice prior to the expiration of the seven (7) day period provided for in Rule 303.d. nor prior to the expiration of the thirty day (30) minimum notice period provided for in Rule 1002.a. above. Each operator submitting a Form 2 shall add to it a copy of the thirty day (30) notice and certificate of mailing to the surface owner and local governmental designee, and a verified attachment indicating the date that the said thirty day (30) period will expire."

f. "Waiver of notice. The Director may, upon request of the operator, waive the notice period provided for in Rule 1002.a., b., c., and d. above and approve or deny the Form 2, but only in the event that the operator files an affidavit and demonstrates therein to the Director's satisfaction that on the date the affidavit is filed one of the following circumstances apply to the well referenced in the Form 2: (1) The operator has the right or obligation under the terms of an existing contract to drill the well and that the operator owns a leasehold estate or

has a right to acquire a leasehold estate under said contract which will be terminated or lost unless the waiver is granted . (2) The operator can demonstrate a violation of correlative rights; or (3) The surface owner or local governmental designee, as appropriate, have waived, expressly in writing, any or all notice requirements of these rules."

g. "Consultation requirement. In locating roads, production facilities and well sites and in making the determinations required under Rule 802.(a) and (b), the operator shall consult in good faith with the surface owner if so requested. Surface owner shall be responsible for notifying any tenant that may be affected by the proposed operation. The surface owner may designate an agent with whom the operator shall consult. The following rules shall govern such consultations:"

(1) "The consultation with the surface owner/agent shall occur at a convenient time mutually agreed to by the parties, but not less than seven (7) days prior to the commencement of operations with heavy equipment upon the lands of the surface owner."

(2) "When consulting with the surface owner/agent, the operator shall furnish a diagram describing the proposed drilling location and dimensions of the drill site, locations of the well, production facilities, pipelines, roads and other areas to be used for petroleum operations, if not previously furnished to such surface owner/agent or if different from what was 1003. previously furnished."

(3) "The purpose of such good faith consultation requirement is to allow the party being consulted to offer comments to the operator regarding preferred locations and timing for the construction of these production facilities, roads and well sites."

(4) "In making its final decision concerning the location and timing of construction of such road, production facilities and well sites, the operator shall have due regard for preferences concerning such locations as expressed by the surface owner/agent during the consultation. "Due regard" shall mean the consideration of reasonable requests by the surface owner/agent to move such locations in order to minimize inconvenience to then existing surface uses. "Due regard" shall not mean that the operator shall be required to accept locations or time schedules which would unreasonably increase the operator's cost of operations, which would require the operator to compromise its geological and geophysical interpretations in connection with well site location, which would require the siting of roads, facilities and well sites in violation of applicable rules and orders of the commission or which would result in the operator losing or forfeiting its fair opportunity to drill and develop its mineral resources."

SITE PREPARATION

a. *“Fencing. Each drill site and access thereto shall be fenced to ensure that vehicles and other equipment and personnel moving to and from the drill site remain within a defined roadway or path and to avoid unnecessary surface disturbance and to prevent the intrusion of livestock upon the drill site. This requirement shall not apply if it has been waived in writing by the surface owner.”*

b. *“Soil removal and segregation. During all excavation operations occurring after the effective date, the operator shall use the appropriate USDA Soil Conservation Service approved soil survey(s) to determine the separate soil horizons. The A, E, B, & CR horizons shall be stockpiled separately from one another and clearly marked to facilitate proper reclamation. In addition, when segregating topsoil and subsoils, the operator shall rely on apparent changes in physical characteristics such as color, texture, density and consistency. If the drill site is fenced, all excavated soils shall be stockpiled within such fenced area. All soils, stockpiled or otherwise, shall be protected from degradation due to contamination, compaction and wind and water erosion, and all surface and underground water resources associated with the premises shall be protected from contamination during well drilling and completion, or subsequent operations.”*

1004.

c. *Reserve pit use*

(1) *“When using unlined earthen pits, water used for drilling shall be of comparable or better quality than locally available irrigation water.”*

(2) *“Flowback fluids. Completion fluids with salinities ten percent (10%1 greater than that of waters used for local irrigation purposes, or that are available locally, shall not be disposed of in unlined earthen pits, but shall be disposed of in accordance with Rules 322.a. and 323.”*

RECLAMATION

a. "Pit closure. All areas affected by operations shall be reclaimed as near as practicable to their original conditions (excluding areas reasonably needed for production operations during continuance of such operations) as soon as conditions permit following the completion of well drilling or subsequent operations, but no later than three (3) months after said completion. The Director may extend said three (3) month period due to conditions beyond the control of the operator. Prior to applying for any such extension, the operator shall notify the affected surface owner. The Director shall consult with the surface owner regarding any special circumstances which might affect reclamation prior to granting any such extension."

(1) I "All drilling waste, except cuttings, shall be removed from the reserve pit and disposed of properly in accordance with Rule 315.q. Drilling fluids will be removed from pit and disposed of properly as soon as possible. Cuttings shall be spread evenly across the bottom of the entire reserve pit. The bottom of the pit shall be ripped and mixed to sufficient depth to eliminate impermeable barriers."

(2) . "Pit shall be allowed to dry adequately and then backfilled according to soil segregation plan. If subsidence occurs, the land shall be re-leveled to as close to original contour as possible."

b. "Drill site reclamation. The party responsible for drill site reclamation shall be the operator. The operator shall give notice in accordance with."

Rule 1002.d.

"Compaction alleviation. The operator shall assume the entire site has been compacted. When possible, the operator shall rip the soil to a depth of one and one-half (1 1 /21 times the depth of the compacted zone when the soil moisture is below thirty-five percent (35%) of field capacity, but in no case shall ripping be less than eighteen (18) inches ."

1002. *"When soil moisture is higher than thirty five percent (35%) additional passes and follow-up may be needed to properly restore original soil conditions."*

(2) "Seedbed preparation. All excavated subsoil and topsoil shall be replaced in their original relative positions and contour prior to excavation and shall be tilled adequately to reestablish a proper seedbed. If perennial vegetation was present prior to the aforesaid operations and destroyed by such operations, such vegetation shall be reestablished by the operator to its original condition prior to such operations following USDA Soil Conservation Service

standards and specifications for "range seeding" and "critical area treatment" or as per surface owner specifications. The goal of such activities shall be to reclaim promptly the affected area to its productivity level prior to the oil and gas operations."

c. Flow lines.

(1) "All buried steel lines shall be wrapped and/or coated and protected to prevent corrosion."

(2) "When lines cross a cultivated field, operator shall segregate topsoil while trenching flow lines. Lines shall be backfilled and water packed prior to topsoil replacement. Efforts shall be made to run pipelines parallel to crop irrigation rows. The surface owner may expressly waive in writing the requirements of this paragraph (2)."

802. GENERAL

a. "In order to minimize the amount and type of future reclamation, restoration and other disturbances to existing drainage patterns, drilling sites shall be constructed, production sites shall be located and constructed, and access roads shall be located and constructed so as to avoid unnecessary removal of trees, alteration of other natural features, and removal of excessive amounts of surface materials."

b. "Existing roads shall be used to the greatest extent practicable in order to minimize the land areas devoted to the oil and gas drilling or production site. Where feasible and practicable, roads shall be routed to compliment other land usage."

1994

1994 – 1R-76

Amendments were made to rule 1001.

1996

1996 - 1R-69 – 1R-70

Comprehensive reclamation 1000 series regulations were implemented for the entire State. They included many of the concepts and language seen in the Wattenberg Special Area rules listed above and the Wattenberg rules were therefore removed.

1997

1997 - 1R-74 & 1R-75

Amendments were made to the site preparation Rule 1002, interim reclamation rule 1003, and final reclamation of well sites and associated production facilities rule 1004. The major change was related to the timing of reclamation, which was changed from 6 months for all wells sites to 3 months for cropland and 12 months for non-crop land.

1997 - 1R-75:

Amendments were made to site preparation.

1998

1998 - 1R-85:

Amendments were made to rule 1002, site preparation and rule 1003, interim reclamation.

2001

2001 - 1R-90:

Amendments were made to rule 1004, final reclamation of well sites and associated production facilities.

2002

2002 - 1R-91

Amendments were made to rule 1003, interim reclamation.

2003

2003 - 1R-92

Amendments were made to rule 1004, final reclamation of well sites and associated production facilities.

1R-106

Amendments were made to rules 1001, 1002, 1003, and 1004.

2008

Significant changes were made to the reclamation rules and these are the rules that currently exist.

APPENDIX C: Rule 1001.c: Reclamation Variances and Waivers Guidance Document

The most current version of this guidance document can be found at the below link.

<http://cogcc.state.co.us/documents/reg/OpGuidance/Rule%201001%20c%20Reclamation%20Waiver%20Variances%20Guidance%2010-4.pdf>

APPENDIX D: 2006 Notice to Operators Setting Conductor Pipe

The most current version of this 2006 notice to operators can be found at the below link.

<http://cogcc.state.co.us/documents/reg/Policies/Conductor%20Pipe%20NTO.pdf>