

Surface  
A&D Group  
Wattenberg Land Department

February 2014

*Energizing the World,  
Bettering People's Lives®*



# Creating Opportunity in a Changing Environment

## Agenda

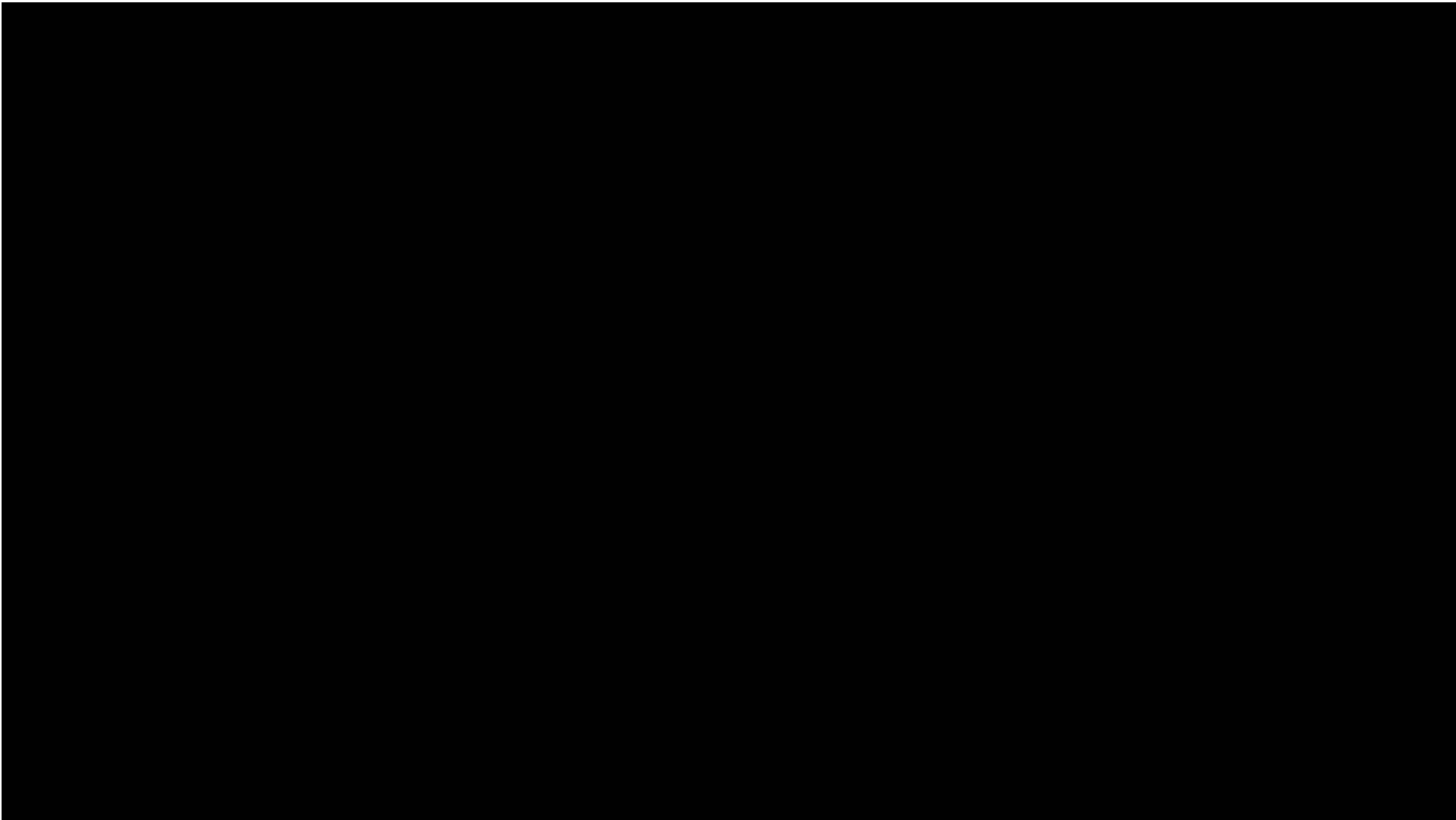
Chad Repko

Introduction video into Wattenberg Oil and Gas Operations.

Why Collaboration and Forward Planning are the keys to successful Oil and Gas operations.

- Brief History of the Wattenberg Field
- Increasing Oil and Gas Production / Population
- Overview of the Surface Use Agreement the Importance of it.
- What has Changed?

# **Wattenberg Field**



# Brief History of the Wattenberg Field:



Sources:

*An Overview and Development History of Wattenberg Field*, John H. Ladd, HS Resources, Inc.  
[www.ourdocuments.gov](http://www.ourdocuments.gov)

- 1862 Homestead Act – Granted heads of families 160 acres of surveyed public land for filing fee and five years of continuous residence.
- 1862 Pacific Railroad Act – Railroad and Telegraph line from Missouri River to Pacific Ocean

- 1950's Exploration begins in Permian Lyons Formation.
- 1970 J-Sand discovered by Amoco and Vessels Oil and Gas.

- 1981 Energy Oil discovers the Codell > Small development boom.
- Mid 1980s oil and gas prices collapse.
- Late 1980s Oil and Gas prices begin coming back / Tight Gas-Sand Tax Credits Federal Government  
**Gerrity, Snyder, Martin Exploration,**  
Prima, Basin Exploration, HS Resources.

- 1991 Amoco Farmout of Codell to HS Resources and **Snyder** > 4 year Boom.
- 1998 Colorado Oil and Gas Conservation Commission – Revised Spacing Unit.  
**Allowed Development of Multiple Horizons in one wellbore.**  
**Did so w/out increasing impact on surface owners – High Value Agricultural Acreage.**



- **December 2008 Oil Prices Collapse to \$40 BBL / February 12, 2014 WTI \$99.94 BBL**
- **October 2009 EOG HZ Jake Well IP of 1,750 BBL Per Day:  
Begin Transition from Old World to New World**
- 2010 Noble Energy, Inc. Gemini Well
- 2013 Noble Energy, Inc. / Anadarko Land Exchange 100,000 Acres

**CONSERVATION COMMISSION**

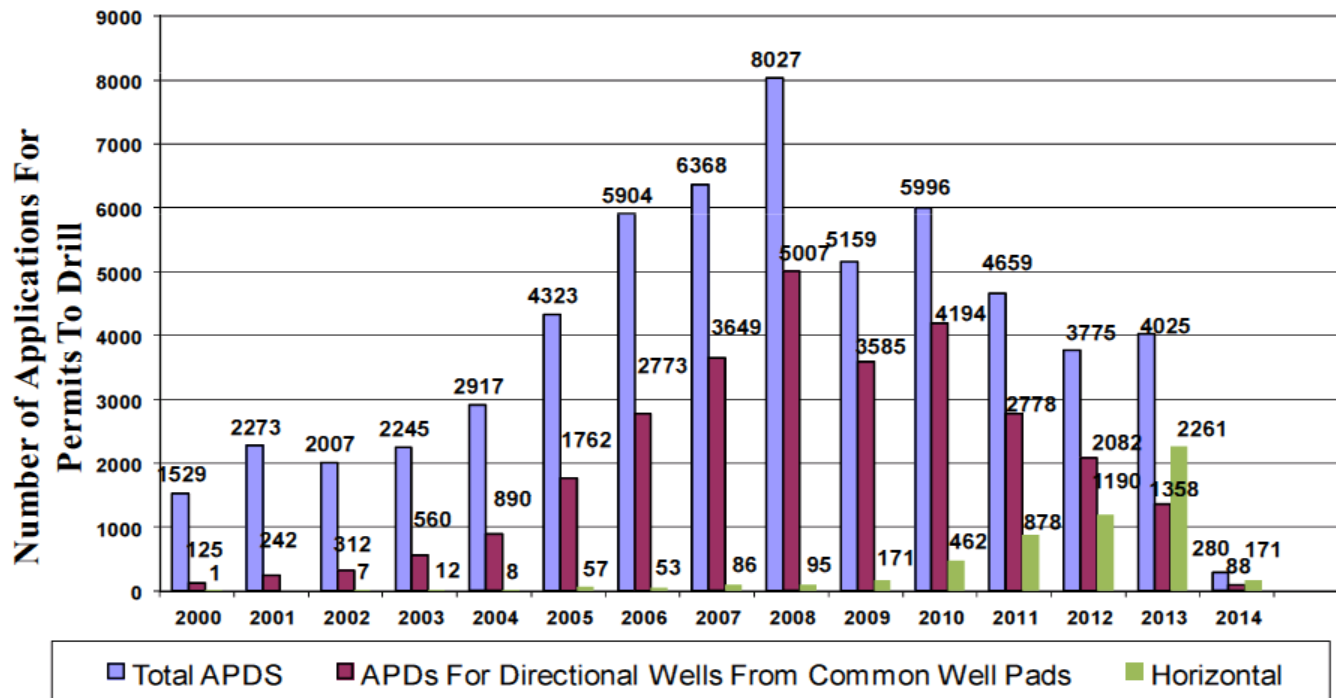
**COLORADO**

**WEEKLY & MONTHLY**

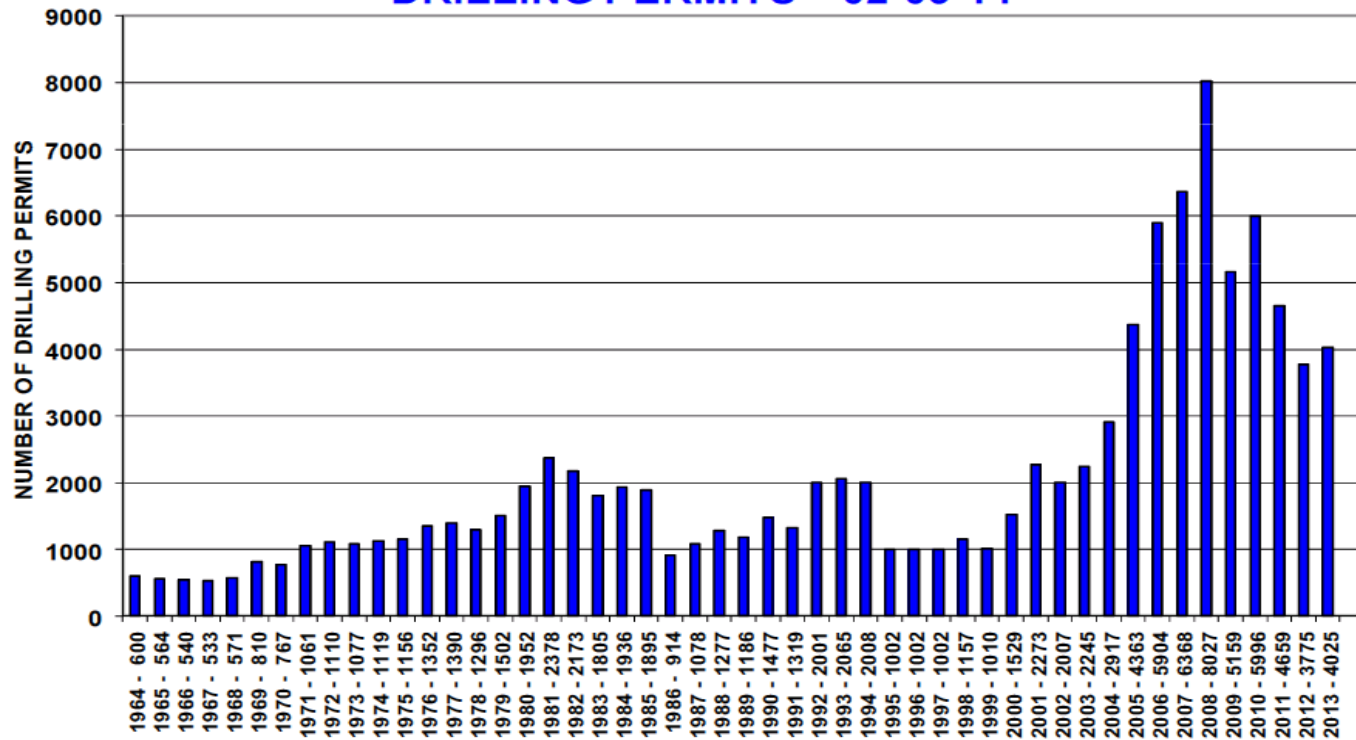
**OIL & GAS STATISTICS**

**02-05-14– visit our website: [www.colorado.gov/cogcc](http://www.colorado.gov/cogcc)**

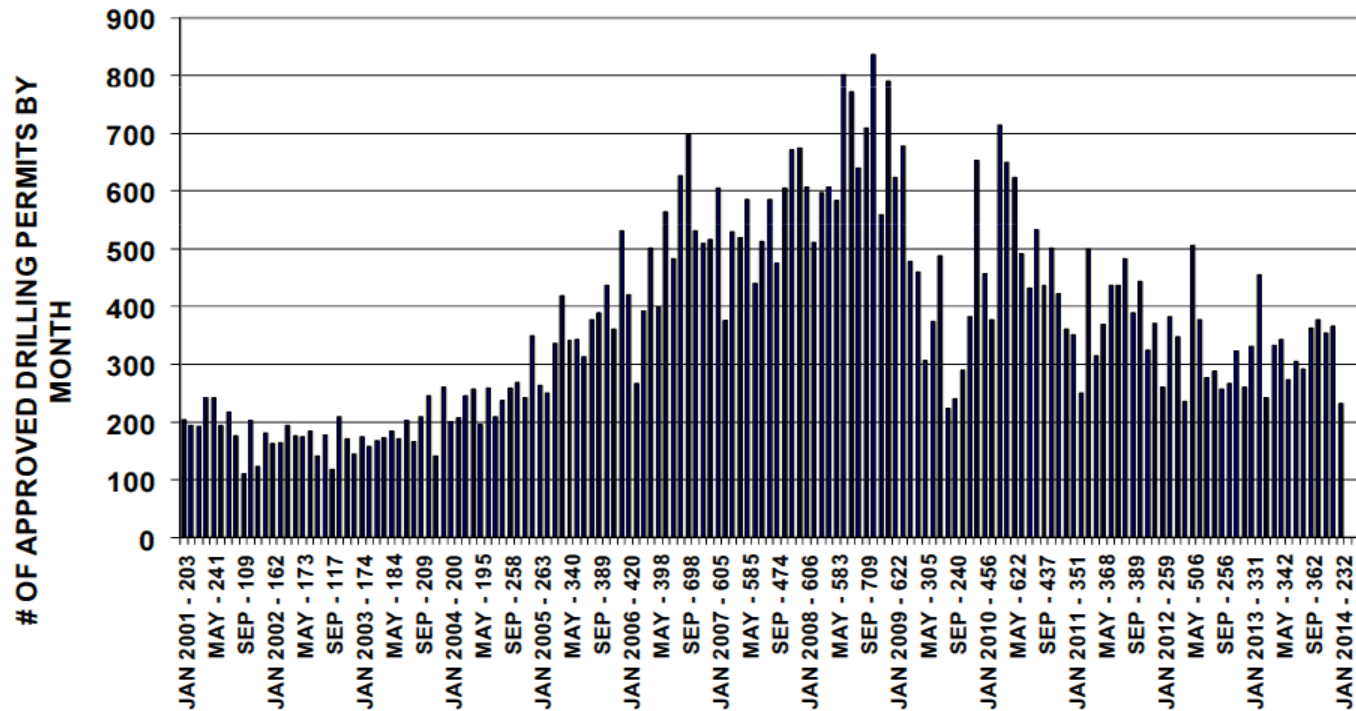
# **Number of Oil and Gas Well Permits For Wells Drilled Directionally & Horizontally From Common Well Pads in Colorado 02-05-14**



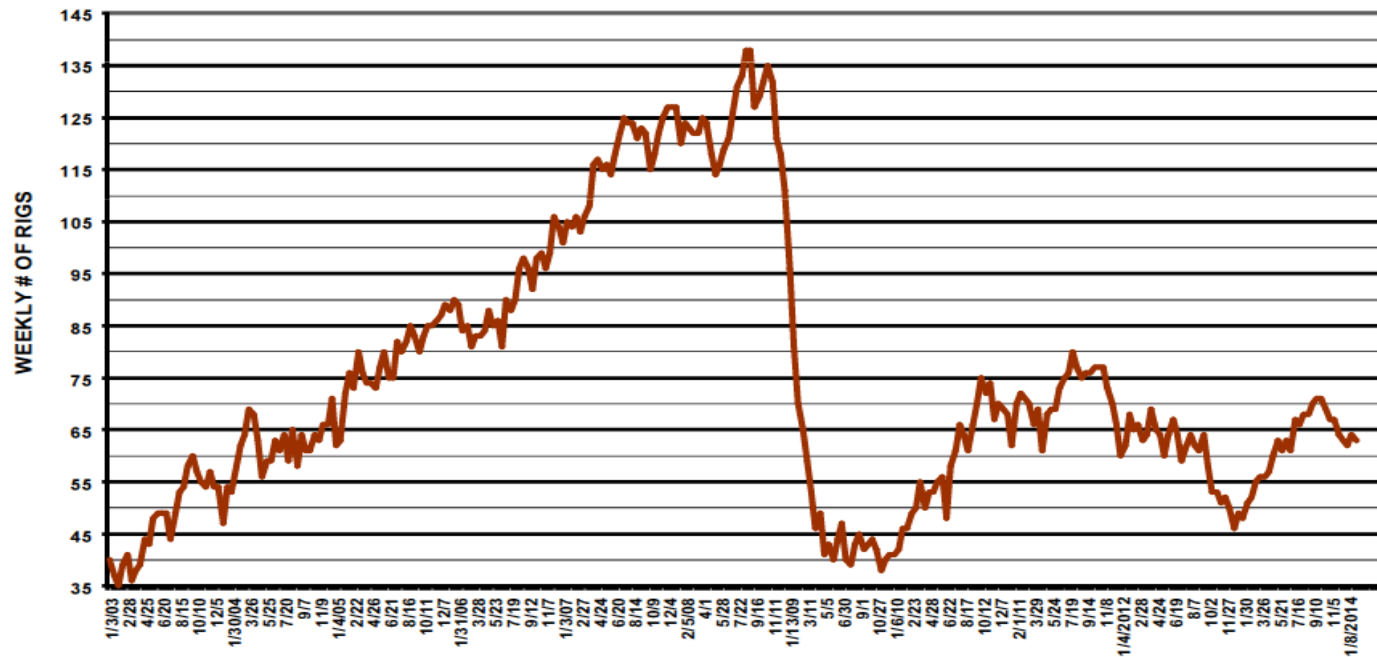
## HISTORIC ANNUAL COLORADO DRILLING PERMITS 02-05-14



# **COLORADO MONTHLY APPROVED DRILLING PERMITS** as of 02-05-14



**TOTAL DRILLING RIGS RUNNING  
IN COLORADO EVERY OTHER WEEK IN 2003-2014**  
(Based on Data in: through 4/30/03, PI/Dwights Drilling Wire -- after 4/30/03, Anderson Reports  
Weekly Rig Status Report)





# 2000 Monthly Oil Produced by County

10/9/2010

COUNTY	January	February	March	April	May	June	July	August	September	October	November	December	Total
ADAMS	51,517	51,905	54,172	53,721	51,638	50,347	52,465	52,149	54,030	56,132	54,593	55,225	637,894
ARAPAHOE	6,078	7,217	7,222	6,509	6,850	6,667	6,337	5,529	7,299	7,799	6,959	6,271	80,737
ARCHULETA	310	316	310	253	257	352	339	340	329	289	192	215	3,502
BACA	15,336	10,763	14,483	14,908	14,949	13,602	13,440	13,074	12,730	13,637	13,341	14,110	164,373
BENT	22	33	48	14	0	37	20	2	0	58	22	0	256
BOULDER	10,938	9,937	9,657	9,582	8,462	8,662	7,351	6,974	7,604	9,695	9,043	8,779	106,684
BROOMFIELD	5,378	4,475	5,007	4,420	3,972	3,469	3,070	2,998	3,743	4,021	3,743	3,359	47,655
CHEYENNE	216,619	203,634	224,656	215,285	225,657	218,115	212,468	219,366	219,670	221,608	208,304	205,498	2,590,880
DELTA	0	0	0	0	0	0	0	0	0	0	0	0	0
DENVER	3,527	2,993	3,196	2,688	2,764	2,631	2,473	2,304	2,081	2,165	1,832	1,695	30,349
DOLORES	9,645	8,701	8,630	9,245	7,757	6,667	7,562	7,239	7,536	6,862	4,484	7,623	91,951
ELBERT	5,322	5,941	7,170	6,193	6,260	5,887	6,087	5,256	5,466	5,505	4,440	4,794	68,321
FREMONT	989	1,258	1,301	1,413	1,433	953	693	766	1,198	1,048	911	823	12,786
GARFIELD	12,620	10,116	12,950	11,904	12,215	10,210	12,997	12,988	13,069	12,485	13,525	12,510	147,589
GUNNISON	0	0	0	0	0	0	0	178	0	0	0	0	178
HUERFANO	0	0	0	0	0	0	0	0	0	0	0	0	0
JACKSON	10,669	9,333	9,604	9,972	8,322	8,323	9,663	10,755	9,695	12,990	12,487	13,422	125,235
KIOWA	13,280	14,045	18,450	19,835	20,561	18,224	18,455	17,485	22,218	25,955	24,740	24,562	237,810
KIT CARSON	4,043	4,508	4,011	4,227	4,900	4,739	3,831	3,746	3,880	4,382	3,858	3,211	49,336
LA PLATA	2,839	2,602	2,176	3,024	2,645	2,806	3,050	2,744	3,063	3,503	3,490	2,921	34,863
LARIMER	11,115	9,620	11,091	11,412	11,596	11,372	11,918	11,235	10,437	10,971	11,071	9,617	131,455
LAS ANIMAS	0	0	0	0	0	0	0	0	0	0	0	0	0
LINCOLN	6,704	6,956	7,346	7,017	5,418	6,722	6,331	5,942	6,481	7,645	6,751	7,490	80,803
LOGAN	17,849	17,590	19,211	19,426	18,137	16,755	17,312	17,637	19,643	20,144	19,932	18,210	221,846
MESA	70	227	375	380	229	233	178	224	480	581	331	136	3,444
MOFFAT	30,120	28,682	29,107	30,905	29,828	29,292	31,639	26,115	26,747	28,968	28,284	27,366	347,053
MONTEZUMA	24,056	22,631	22,111	17,213	20,445	19,954	22,417	23,445	21,662	29,117	27,560	29,315	279,926
MONTROSE	0	0	0	0	0	0	0	0	0	0	0	0	0
MORGAN	7,389	7,782	7,234	8,445	9,274	8,998	9,199	8,370	8,675	9,761	8,927	9,962	104,016
PHILLIPS	0	0	0	0	0	0	0	0	0	0	0	0	0
PROWERS	452	344	368	398	259	330	368	363	354	401	242	257	4,136
RIO BLANCO	550,040	520,243	564,431	559,280	569,217	535,938	550,203	543,325	529,499	534,133	520,084	539,127	6,515,520
ROUTT	5,655	5,715	5,979	6,131	6,491	6,101	6,422	5,946	4,347	5,440	5,242	6,183	69,652
SAN MIGUEL	231	159	115	125	78	73	501	984	1,349	1,376	692	600	6,283
SEDGWICK	0	163	221	94	176	166	165	132	158	177	149	158	1,759
WASHINGTON	60,282	57,153	60,263	58,926	60,501	61,670	62,633	61,641	61,185	64,321	60,768	59,803	729,146
WELD	608,500	564,401	604,887	589,660	608,533	566,457	563,866	576,450	552,782	634,098	596,268	608,597	7,074,499
YUMA	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL BBL	1,591,595	1,589,443	1,715,782	1,682,605	1,718,824	1,625,752	1,643,453	1,645,702	1,617,410	1,735,267	1,652,265	1,681,839	19,999,937



# 2009 Monthly Oil Produced by County

10/11/2010

COUNTY	January	February	March	April	May	June	July	August	September	October	November	December	Total
ADAMS	28,601	28,743	32,293	28,092	32,753	32,120	28,042	31,461	30,829	31,577	31,255	28,241	364,007
ARAPAHOE	4,581	4,985	5,252	4,911	5,553	4,522	4,610	4,383	4,883	4,619	4,178	3,550	56,027
ARCHULETA	0	360	50	43	44	28	30	30	30	20	30	43	708
BACA	4,915	4,616	3,293	4,351	3,446	4,111	3,806	5,054	4,945	2,878	4,011	4,353	49,779
BENT	30	23	28	97	87	42	41	73	61	74	0	40	596
BOULDER	17,891	15,812	15,838	16,996	20,551	20,553	19,284	18,087	16,493	15,916	17,034	16,312	210,767
BROOMFIELD	5,747	4,965	4,804	4,199	4,090	3,726	3,462	3,686	3,071	3,105	3,255	2,957	47,067
CHEYENNE	125,883	114,964	120,988	117,917	69,417	118,408	118,456	122,169	118,045	120,224	117,359	116,998	1,380,828
DELTA	0	0	0	0	0	5	1	1	0	0	0	0	7
DENVER	1,777	1,739	1,878	1,926	1,951	1,725	1,928	1,708	1,853	1,870	1,914	1,641	21,910
DOLORES	3,328	2,639	1,291	1,374	1,765	2,238	3,897	4,250	3,478	2,900	2,833	3,245	33,238
ELBERT	3,146	2,981	2,907	3,254	3,293	3,075	3,013	3,053	3,076	3,066	2,919	2,689	36,472
FREMONT	4,920	5,312	5,227	5,535	5,133	4,901	4,884	4,897	5,912	7,520	10,017	16,494	80,752
GARFIELD	171,133	165,585	177,810	169,599	175,617	167,268	165,121	156,712	147,465	158,620	164,102	157,998	1,977,030
GUNNISON	113	115	143	134	107	117	130	120	0	124	130	123	1,356
HUERFANO	0	0	0	0	0	0	0	0	0	0	0	0	0
JACKSON	18,573	20,964	15,799	14,345	15,180	16,364	15,115	12,662	10,896	9,657	10,694	12,157	172,406
JEFFERSON	0	0	0	0	0	0	398	175	0	208	187	0	968
KIOWA	11,683	9,990	10,940	10,532	9,154	10,451	10,706	10,837	11,607	10,506	12,649	14,846	133,901
KIT CARSON	888	693	797	925	1,067	872	1,006	927	713	691	979	853	10,411
LA PLATA	2,469	2,401	1,175	2,431	2,657	2,651	2,814	2,622	2,392	2,292	2,810	2,051	28,765
LARIMER	9,696	8,673	11,475	9,918	9,920	8,837	9,822	9,780	9,915	5,840	5,615	10,308	109,799
LAS ANIMAS	0	0	0	0	0	0	0	0	0	0	0	0	0
LINCOLN	10,347	11,208	9,942	12,078	21,438	29,302	29,413	27,555	28,006	20,785	23,102	18,594	241,770
LOGAN	21,153	18,201	19,795	17,450	10,402	16,945	17,531	18,114	16,890	17,975	17,999	18,650	211,105
MESA	12,767	13,430	6,005	11,287	10,057	9,608	8,330	7,942	7,507	7,226	7,465	6,235	107,859
MOFFAT	21,993	23,031	24,376	23,977	24,670	23,599	22,624	26,517	23,801	24,471	23,546	22,803	285,408
MONTEZUMA	15,796	13,901	14,648	15,031	13,734	13,830	11,941	15,147	14,091	13,606	13,443	12,713	167,881
MONTROSE	0	0	0	0	0	0	0	0	0	0	0	0	0
MORGAN	8,272	7,474	7,831	7,226	6,810	5,737	6,645	6,134	5,276	5,361	6,818	7,816	81,400
PHILLIPS	0	0	0	0	0	0	0	0	0	0	0	0	0
PROWERS	1,421	1,493	1,156	1,058	1,502	1,353	1,285	1,253	1,193	1,141	1,221	1,212	15,288
RIO BLANCO	439,485	401,893	423,450	415,384	420,101	412,991	431,543	422,322	399,797	415,051	390,269	406,800	4,979,086
ROUTT	3,860	3,188	3,229	3,405	6,112	5,704	5,793	4,205	2,977	2,825	5,675	6,212	53,185
SAN MIGUEL	261	506	285	295	242	183	188	38	250	755	263	105	3,371
SEDGWICK	0	0	0	0	0	0	0	0	0	70	65	84	219
WASHINGTON	48,635	43,426	45,933	49,295	47,043	43,019	44,659	45,091	42,724	45,128	42,597	40,803	538,353
WELD	1,537,783	1,417,515	1,601,710	1,414,434	1,493,882	1,478,303	1,471,486	1,517,927	1,475,790	1,471,043	1,502,462	1,448,520	17,830,885
YUMA	375	365	332	386	356	332	293	215	648	490	543	585	4,920



## **Weld County Increasing Population**

- 2000 Census Weld County, Colorado  
Total Population 180,936
- 2010 Census Weld County, Colorado  
Total Population 252,825
- **Increase of 71,889 people or a 39.731% increase in population over ten year period.**

## **Homestead Act (1849-1865)**

(Beginning of “Land Time”)

The **Homestead Act** was a United States Federal law that gave an applicant freehold title to 160 acres (one quarter section) of undeveloped land outside of the original 13 colonies. The new law required three steps: file an application, improve the land, and file for deed of title.



# Chain of Title Severed Estates

United States Government issues a Patent to Jed Clampit the original homesteader for 100% of the surface and 100% mineral estate associated with a 160 acre quarter section.

Original homesteader, Jed Clampit reserves the minerals and conveys surface to his Nephew Jethro Bodine. **(Severed & Dominant Mineral Estate)**

Mineral Owner



Surface Owner



# SUA: Damage Agreement– drilling a well

In the meantime . . .

Jed Clampit leases his oil and gas rights to Noble Energy, Inc. and Noble proposes to drill a well on Jethro's surface

Mineral  
Royalty Owner



Oil and Gas Mineral  
Leasehold Owner



“Lessee shall have the **right of ingress and egress (entry and exit)** along with the right to conduct such operations on the leased premises as may be reasonably necessary for such purposes, including but not limited to geophysical operations, the drilling of wells, and the construction and use of roads, canals, pipelines, tanks, water wells, disposal wells, injection wells, pits, electric and telephone lines, power stations, and other facilities deemed necessary by Lessee to discover, produce, store, treat and/or transport production.”

Surface Owner



# **Accommodation Doctrine**

**Colorado Supreme Court decision Gerrity v. Magness - 946 P.2d 913 (Colo. 1997).**

**Generally States: The severed mineral owner's right of access includes the rights of ingress, egress, exploration, and surface usage as are reasonably necessary to the successful exploitation of the mineral interest.**

**HB 1252 Codification Reasonable Accommodation (Colo. 2007)**

**Requires oil and gas operators to conduct operations in a manner that accommodates surface owner by minimizing intrusion upon and damage to the surface by selecting alternative locations for wells, roads, pipelines or production facilities or employing alternative means of operation that prevent, reduce or mitigate impacts of operations on surface where such alternatives are technologically sound, economically practicable and reasonably available to the operations.**

# SUA: Damage Agreement– drilling a well

## General Process COGCC

Mineral  
Royalty Owner

Oil and Gas Mineral  
Leasehold Owner

Surface Owner



Notice of operations

Onsite Consultation



SUA to Settle Reasonable  
and Customary Damages

Or

Drill under the COGCC  
Bonding Requirements

# Reasons for entering into Damage Agreement for the drilling of a well

Mineral Leasehold Owner



- Define the scope of operations proposed
- Obtain a release of the \$25K Bonding requirement with the COGCC and any damages that are reasonable and customary to the proposed operation
- Certainty that COGCC Permit application with the will not be contested
- Promotes stewardship and land owner relations  
99.9% success rate for securing Damage Agreements

Surface Owner



- Define the scope of the proposed operation, including reclamation, in relation to the existing surface use.
- Commitment from Noble to pay for any damages that may be a result of unusual damages IE: crop loss, without having to apply for reimbursements under the COGCC Bond.

# SUA: Developer Agreement-proposed surface development plan

In the meantime . . . . .

Jethro Bodine signs an option contract to sell its surface estate to a housing developer who wants to place a high density residential housing development over the surface of the 160 acre parcel

Surface Owner



Housing Developer



Mineral Owners

**ne noble energy**



Notice of Surface  
Development  
to Mineral Estate Owners in  
accordance with State Statute  
and Local Planning  
Commission Regulations

Send Objection Letter to  
Local Government



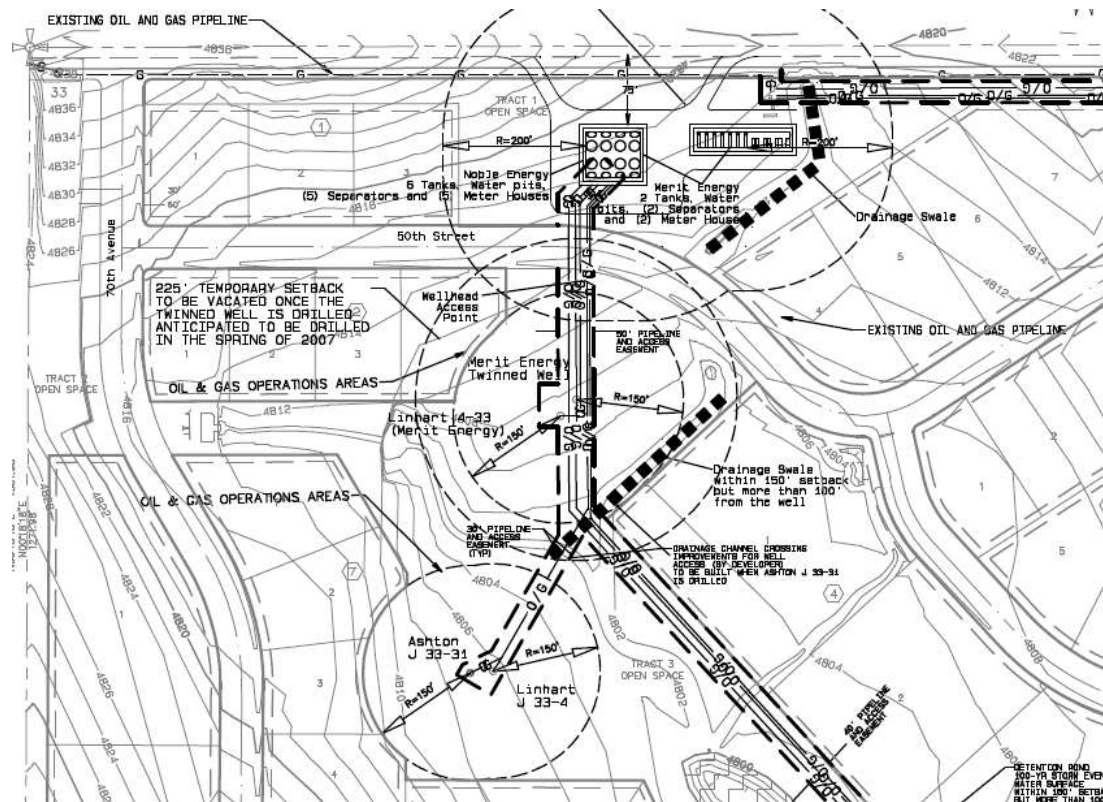
# **Colorado Revised Statute 24-65.5**

Streamlined procedure for:

- providing notice to owners of mineral interests concerning impending surface development
- facilitate the negotiation of a surface use agreement providing for the joint use of the surface and a mechanism for resolution if an agreement is not reached
- include local governments in the process without creating additional liability

## Reasons for a Developer Agreement (SUA)

- Preservation of exclusive and non-exclusive oil and gas operations easements (“OGOAs”) for wells, production facilities, access, flow lines and sales lines that are translated onto a Developer’s final development plat.



# **Reasons for a Developer Agreement (SUA)**

Recording developer's final subdivision plat and Developer SUA acts as a form of notice to perspective property owners.



# Reasons for a Developer Agreement (SUA)

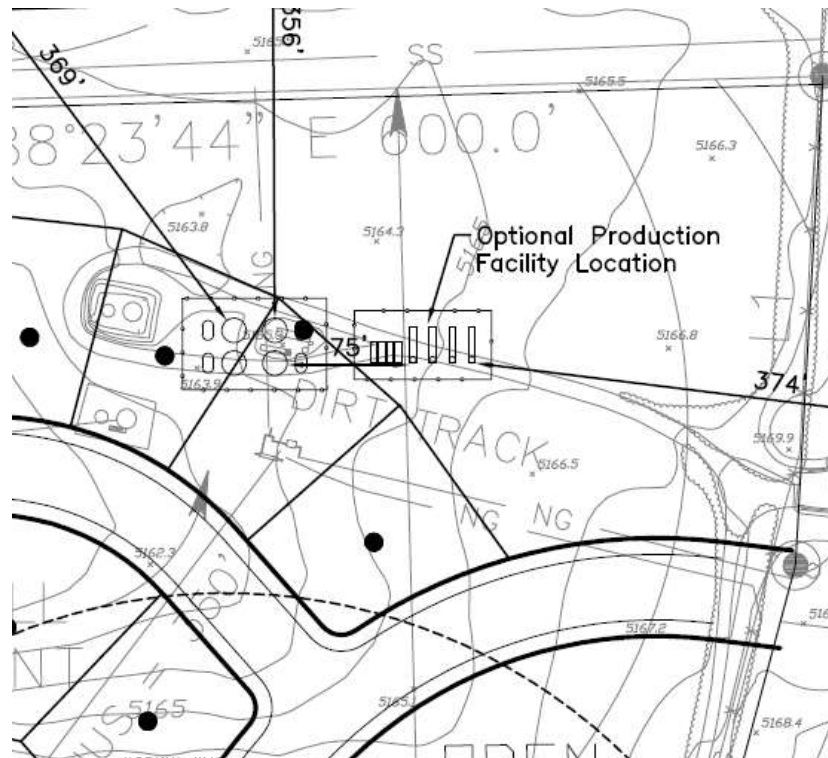
Provides for setback and property line waivers in accordance with COGCC regulations.





# Reasons for a Developer Agreement (SUA)

At the developer's expense, allows for the relocation of existing production facilities, flow lines, sales lines and access roads as they relate to the proposed development plat.



# **Reasons for a Developer Agreement (SUA)**

Requires that developer's make payment or provide assurance of payment for incremental directional drilling dollars related to wells that Noble would normally drill vertically in the instance that wells are consolidated to a single drill pad.



# What has Changed?

## Paradigm Shift

### Conventional Drilling to Horizontal Drilling

Horizontal technology has dramatically changed the nature of how Industry approaches Surface Use and Surface Use Agreements

- Multi-well pads
- EcoNodes (Production Facilities)
- Central Processing Facilities (CPF)  
(EcoNodes flowing into CPFs to reduce overall footprint)

Horizontal Drilling  
Foot Print



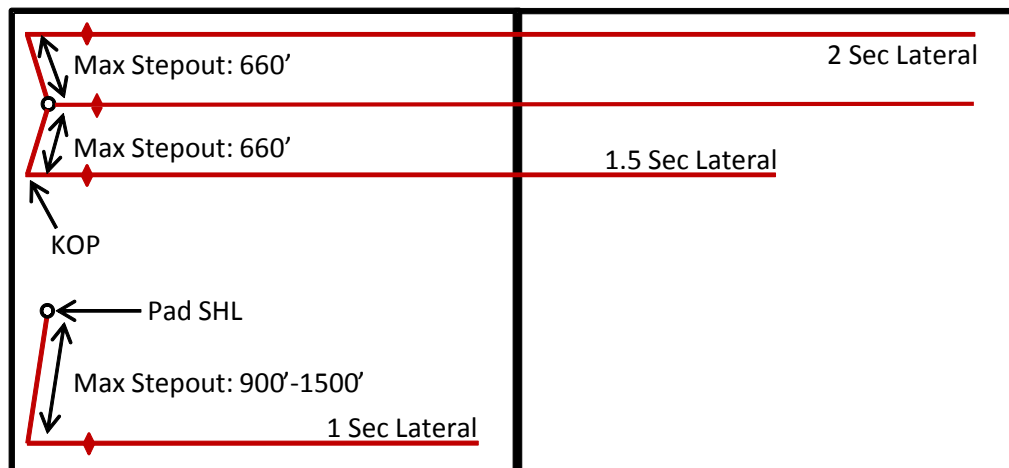
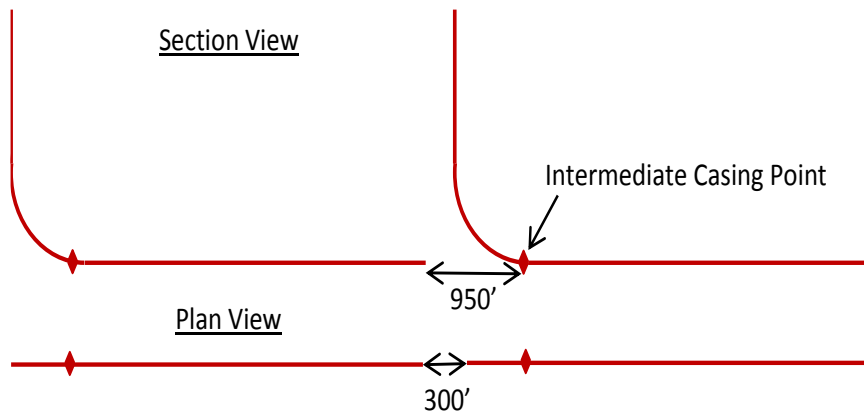
Conventional Drilling  
Foot Print

Example of surface impacts over three sections.

# What has changed?

## Physical Constraints of Horizontal Drilling

Toe-Heel Scenario, Stepout and 2:1 Ratio





# What has changed?

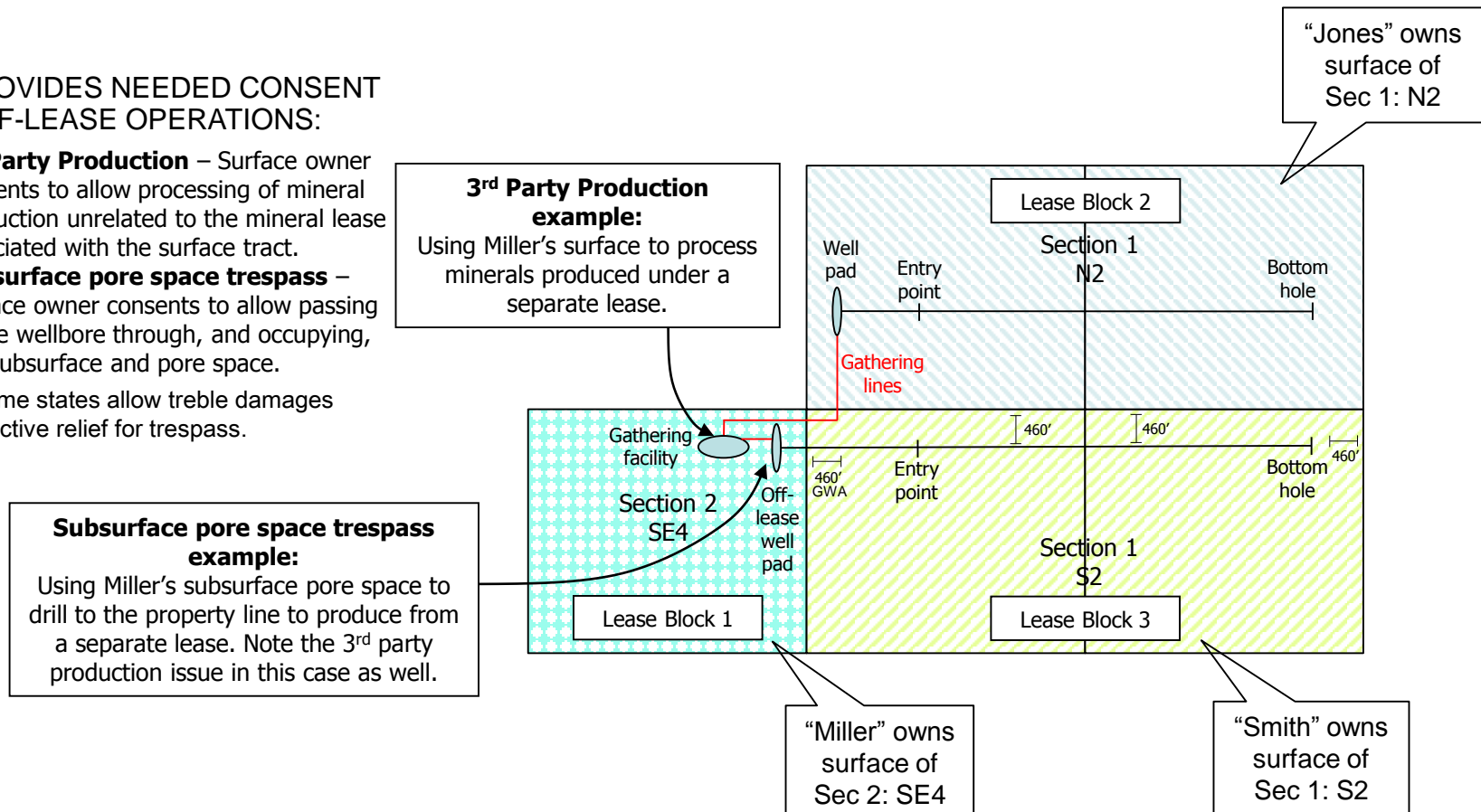
## THE PLAYING FIELD HAS CHANGED

**Two issues particular to horizontal and directional drilling** can only be addressed by execution of an SUA with the surface owner.

### SUA PROVIDES NEEDED CONSENT FOR OFF-LEASE OPERATIONS:

- 1) **3<sup>rd</sup> Party Production** – Surface owner consents to allow processing of mineral production unrelated to the mineral lease associated with the surface tract.
- 2) **Subsurface pore space trespass** – Surface owner consents to allow passing of the wellbore through, and occupying, the subsurface and pore space.

Note: Some states allow treble damages and injunctive relief for trespass.



# What has changed?

## COGCC Setback Regulations (Strongest in the Nation)

Safety Setback – 603.a  
**From 150' or 1.5 times the  
derrick to 200'**

500' statewide setback from  
ALL Building Units -- 604.a.(1)  
**Up from current 150'**  
**statewide and 350' in high  
density**

1,000' from "High Occupancy  
Building" (Schools, churches,  
nursing facilities, hospitals,  
jails, child care center) --  
604.a.(3)  
**Up from current 350'**

350' from "Designated Outside  
Activity Areas" – 604.a.(4)



# What has changed?

## **Protecting Capital Investment Ahead of Drilling by way of Collaboration and Planning**

- Exclusive OGOAs and/or Real Estate Purchases  
(express easement not enough)
- Setback buffers
- Location waivers, consents
- Public Notice
- Best Management Practices
  - Sound Walls
  - Landscaping buffers

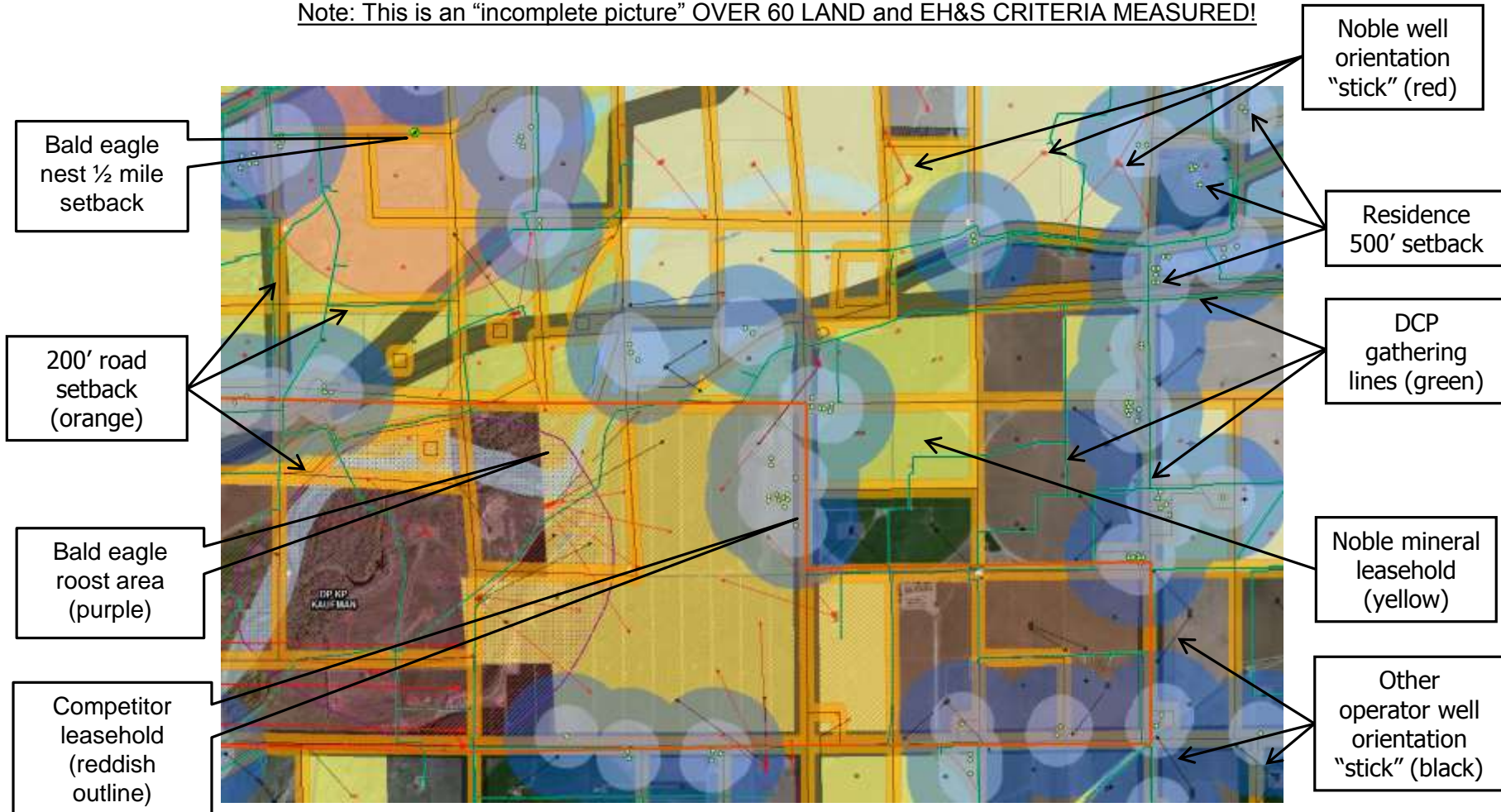


# What has Changed?

## Forward Planning

SURFACE PLANNING – A NEW APPROACH – CONSTRAINTS ANALYSIS EXAMPLE

Note: This is an “incomplete picture” OVER 60 LAND and EH&S CRITERIA MEASURED!



# **References**

## Websites:

[http://en.wikipedia.org/wiki/Homestead\\_Act](http://en.wikipedia.org/wiki/Homestead_Act)

<http://caselaw.lp.findlaw.com/scripts/getcase.pl?court=co&vol=2003app%5C3819&invol=1>

[www.LexisNexis\(TM\) CD.htm\](http://www.LexisNexis(TM).CD.htm)

<http://maps2.merrick.com/website/weld/viewer.htm?Title=Weld%20County%2C%20Colorado>