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# **WATER WATCH ALLIANCE**

## ***Homepage***

***April 4, 2008***



***Figure 1. Baca National Wildlife Refuge (BNWR) Wetlands and Sangre de Cristo***

***Mountains***



**Figure 2. San Luis Valley and proposed Lexam drill area on BNWR (red rectangle in upper right).**

**The Great Sand Dunes National Park and Preserve is to immediate right of BNWR.**

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*I have always told people that the San Luis Valley is more than a home to me. It is a spiritual place unlike any other on earth.*

*Senator Ken Salazar,*

*Colorado*

**WATER WATCH ALLIANCE (WWA) IS A NON-PROFIT ORGANIZATION OF VOLUNTEERS DEDICATED TO**



PROTECTING THE WATER AND ENVIRONMENT OF THE BEAUTIFUL AND PRISTINE **SAN LUIS VALLEY** OF SOUTHERN COLORADO FROM REMOVAL AND CONTAMINATION BY GAS DRILLING.

We believe the best way to protect our spectacular, unique, and sacred home is to ensure that the **San Luis Valley** remains a **NO-GO (No Gas and Oil) Zone** in perpetuity. There is great potential for production of **solar, wind, geothermal** and other forms of **renewable energy** in our Valley. Local production of clean, green energy makes more economic and ecological sense than continued reliance on fossil fuels, which come with unacceptable environmental and social costs. We are convinced that, while people of today and future generations can live without natural gas, we cannot survive without sources of **clean water for drinking, for agriculture, for municipal and industrial uses, and for natural ecosystems**.

We (**WWA**) formed in August, 2006, when our **Crestone/Baca community** learned that a Canadian company, **Lexam Explorations, Inc.** ([www.lexamexplorations.com](http://www.lexamexplorations.com)), had recently applied for permits to drill **two 14,000' gas test wells** on the newly-formed **Baca National Wildlife Refuge (BNWR)**. Our initial goal was to research the potential impacts of gas mining and suggest "**Best Management Practices**" recommendations for the **BNWR**. Many of our recommendations were subsequently written into the drilling permits issued by the **Colorado Oil and Gas Conservation Commission (COGCC)**, ([www.fws.gov/alamosa/BacaNWR.html](http://www.fws.gov/alamosa/BacaNWR.html)). Our next objective was to begin educating others in our community and region about the potential impacts of gas drilling here. We organized two showings of the film, "**A Land Out of Time**," ([www.alandoutoftime.com](http://www.alandoutoftime.com)) that shows the alarming scope and scale of oil and gas drilling which has escalated dramatically throughout the Rocky Mountains since 2001. At these well-attended events, we shared what we had learned with our local community.

Based on the documented impacts of **oil and gas drilling and production** elsewhere in the Rocky Mountains we are convinced that full-scale production in the **San Luis Valley** would be entirely **incompatible** with the values and the qualities of our local environment that brought us here and that we hold sacred. And it is completely incompatible with the mission of the newly-formed **Baca National Wildlife Refuge**. We feel it is our responsibility as **citizens and stewards** of this unique and sacred place to protect the health and quality of our air and water, our communities, the natural ecosystems, and the profound silence that is so essential for the **many spiritual groups and retreat centers** that have come here.

### **Priceless Aquifer**

The primary goal of **Water Watch Alliance (WWA)** is to protect the quality and quantity of water in the **San Luis Valley**; many believe that our aquifers are the **largest underground reservoir of clean water in North America, with at least 140 million acre-feet (or 45+ trillion gallons) of recoverable water (Pearl, 1974) worth over \$700 billion**. This vast reservoir of groundwater forms the headwaters of the **Rio Grande River**, which is the primary source of water for over **10 million people in the Rio Grande Basin** and is allocated to three states (Colorado, New Mexico, and Texas) as well as Mexico under **international and interstate agreements**. **San Luis Valley aquifer** water is all the more priceless because it occurs in true desert on the edge of one of the **driest regions in the U.S.** As human populations continue to grow in the **American Southwest**, this water will be even more essential for the future survival of human communities and natural ecosystems.

Whereas **Lexam** and their much larger partner, **Conoco-Phillips**, aim to extract potentially **billions of dollars worth of natural gas** beneath our Valley floor, we feel it is our responsibility to protect the **exponentially more valuable** fresh water stored in the aquifers beneath our Valley. Thus, in order to preserve and protect this **priceless aquifer** as well as our **pristine and sacred natural environment** for the benefit of **current and future generations**, it is our mission to maintain this sacred place in perpetuity as a **NO-GO Zone**.

We are particularly concerned that since Bush/Cheney took the White House, they have given carte blanche to the oil and gas to expand into all areas of the Rocky Mountain West that have potential for gas or oil development. Essentially, Colorado, Wyoming, New Mexico, Utah, Montana, and North Dakota, with some of the most spectacular scenery in the world, have become "a national sacrifice zone." To quote Tim Westby (High Country News, 9/27/99) in an article about coal-bed methane gas drilling in the Powder River Basin of Wyoming, ***"To get the gas (out of the Powder River Basin, Wyoming), underground aquifers above the coal bed must be dewatered."***

There have been two previous attempts to take ground water from the San Luis Valley and sell it at great profit (between \$5000 and \$12,000/acre-foot) to the Denver area. These attempts were by **Canadian Maurice Strong of AWDI (American Water Development, Inc.) in the 1980's** and by local rancher **Gary Boyce (Stockman's Water, Inc.) in the 1990's**. In a pending court case which local water officials have dubbed **"AWDI-3,"** Boyce is now challenging the Colorado State Water Engineers ruling that limits extraction and exportation of our aquifer water. This case is now in the Colorado Supreme Court. If Boyce is successful in this suit, it is possible that **export of gas underlying the San Luis Valley could proceed in conjunction with export of our groundwater**. If this occurred, there would be wholesale poisoning of the soil, land, air, and water as well as upset of delicate ecological balance that has evolved here over millions of years.

## History and Accomplishments of Water Watch Alliance (4/3/08):

**1)** In the fall of 2006, four of us spent a day with Peggy Utesch of the **Grand Valley Citizen's Alliance** ([www.gvca.org](http://www.gvca.org)) in the **Rifle/Silt area** of Colorado. We toured many gas wells, learned of the adverse health impacts of **EnCana's** gas drilling on local human communities and ecosystems, and began accumulating resources and publications describing impacts of gas drilling impacts throughout the West ([Archives-2: My Articles and Reports Related to Proposed Gas Drilling](#)).

**2)** We toured the **Baca National Wildlife Refuge (BNWR)** with its Director, Ron Garcia. One of our members, Lisa Cyriaks, was the official contact between our community and Ron during the process of formulating "best management practices recommendations" for the refuge.

**3)** We wrote and submitted **"Best Management Practices"** recommendations for the BNWR (Best Management Practices Recommendations to BNWR - 11/9/06). Most of these were subsequently written into the permits for Wells #5 and 6 granted by the **Colorado Oil and Gas Conservation Commission (COGCC)**.

**4)** We organized two community showings of the film, **"A Land Out of Time,"** ([www.alandoutoftime.com](http://www.alandoutoftime.com)) in Crestone. At these events, we educated local citizens on the geological context and potential impacts of gas drilling. For this event, we distributed a list of **"Talking Points"** which we wrote and also prepared graphics, including **geological cross-sections** of the Valley ([Geology of the San Luis Valley: What priceless treasures are buried here? Figure 1. San Luis Val](#)).

**5)** In cooperation with the **San Luis Valley Ecosystem Council** ([www.slvec.org](http://www.slvec.org)), we sent out a fund-raising letter in December, 2006, that netted \$8700 in local contributions. Of this, \$3500 was spent on retaining environmental lawyers, **Brad Bartlett and Travis Stills, of the Energy Minerals Law Center in Durango, Colorado**. These lawyers subsequently brought suit against the **BNWR** for failing to initiate a **NEPA (National Environmental Policy Act)** process, as mandated by federal law (NEPA and The Draft Environmental Assessment Figure 1. Gateway to the new Baca National Wildlife Refu).

6) This lawsuit has now forced the **BNWR** to (belatedly) initiate an **Environmental Assessment/Scoping Process** as a preliminary step in fulfilling the **NEPA** process (**NEPA and The Draft Environmental Assessment Figure 1. Gateway to the new Baca National Wildlife Refu**). It is noteworthy that by allowing the well-permitting process to go forward prior to completing a **NEPA** process and also by actually preparing a 47-page draft document entitled: "**Negotiated Operating Plan for Conducting Hydrocarbon Exploration and Development Activities on the Baca National Wildlife Refuge**" Prepared By: U.S. Fish and Wildlife Service and Lexam Explorations (U.S.A.) Inc. (March, 2007), the **BNWR was out of compliance with federal law.**

7) We have contacted appropriate politicians (**Senator Salazar, Congressman Salazar, Colorado Rep. Gail Scharz, etc.**), lobbying them on behalf of protecting our community and **supporting green, renewable energy** development in our region. (**Congressman John Salazar and Governor Ritter are apparently now committed to this clean, green energy strategy; and Salazar recently issued a special report on 21st Century New Energy Solutions.**)

8) Based on consulting with an environmental expert in the oil and gas industry, we developed a list of **Bullet points and Actions/Tasks** for our group and community that are designed to protect our area from drilling. (**Archives-2: My Articles and Reports Related to Proposed Gas Drilling**)

9) We are researching potential impacts of **coalbed methane gas (CBM)** production (**CBM- Coal-Bed Methane Gas Figure 1. Map of major gas producing basins in southern Colorado.**) as well as the complex series of **water laws and compacts that govern use of water within the Rio Grande Basin (Rio Grande Basin and San Luis Valley Aquifer: Figure 1. Location of Rio Grande River and Rio Grande)**. To us, it seems criminally negligent, perhaps insane, to allow the deliberate contamination of the upper headwaters of the **Rio Grande drainage system**, as this water is a primary source of municipal and agricultural water for three states (**Colorado, New Mexico, and Texas**) as well as **Mexico**, and its use is governed by treaties such as the **Rio Grande Compact**.

10) We are trying to cooperate with two other local groups, the **San Luis Valley Ecosystem Council (SLVEC, www.slvec.org)** and the relatively new San Luis Valley Citizen's Alliance (SLVCA [www.slvca.org](http://www.slvca.org)) that are now also working on this issue, despite the fact that the groups have not always cooperated ( ). Hopefully, our cause will be advanced by the activities of each of these groups. However, **WWA** seems to be the only one of the three groups completely committed to a **NO-GO** (No Gas and Oil Drilling) outcome. Although each group can contribute, **WWA** has unique strengths, including 1) it has the **longest history of involvement with the issue**, 2) its membership includes **Dr. Eric Karlstrom**, with over 30 years of experience as a physical and environmental geographer, c) Dr. Karlstrom has assembled a library of resource materials regarding this issue, d) **WWA** has access to information and advice from an environmental consultant in the oil and gas business.

11) On January 18, 2008, the **BNWR** released the Draft **Environmental Assessment (EA)**. The Draft **EA** was prepared by **ENRI**, a private consulting group paid by **Lexam**. Thus, it comes as no surprise to us that the draft **EA** recommends that Lexam's proposed drilling should go forward. This **EA** then is what is called a **FONSI (Findings of No Significant Impact)**. To suggest that drilling three 14,000 foot exploratory gas wells through sensitive wetlands and into one of the continents largest and most valuable aquifers is preposterous. In order to come to this conclusion, **ENRI** (and the **BNWR**) had to ignore and wish away many, many **significant impacts**, including **potential groundwater contamination, air pollution, noise pollution, light pollution, damage to sensitive riparian ecosystems, damage to archaeological sites and sacred areas of modern Native Americans, and damage to our Crestone/Baca community as well as to the Great Sand Dunes National Park and Preserve.** Thus,

we at **WWA** have been involved, along with the other local groups, in efforts to critique this very weak and self-serving draft EA and force the **BNWR** to follow the law and conduct a full-blown **Environmental Impact Statement (EIS)**, which will require an additional year or two of studies ([NEPA and The Draft Environmental Assessment](#) Figure 1. Gateway to the new Baca National Wildlife Refu).

**12) In February, 2008**, this website was posted by **Dr. Eric Karlstrom**, Professor of Geography, of **Water Watch Alliance**. This site will be revised and updated as needed.

**13) Water Watch Alliance has issued a press release (Water Watch Alliance Press Releases) and an open letter to Governor Bill Ritter Archives-My letters to Officials Regarding Lexam's Proposed "Drill-play" ;** requesting that he place a moratorium on gas exploration activities until a full EIS, a GGP (Comprehensive Conservation Plan) can be completed by the BNWR, and detailed water studies are conducted on the San Luis Valley aquifers, are completed.

**14) Dr. Karlstrom has given several radio interviews, two at Salida's KHEN , one at KRZA, and one with Peter Boyles (KHOW) in Denver (Archive-3: Audio interview with Dr. Eric Karlstrom with Melodee Hallet of KHEN's Truth Quest (2/5/08).**

**15) An article by Eric Karlstrom, "Baca residents fight drilling in wildlife refuge," appeared in April, 2008 issue of Colorado Central Magazine (www.cozine.com) (Newspaper articles)**

### **Recommended Actions/Tasks To Stop the Lexam/Conoco-Philips "Drillplay"**

During the past year and a half, we at **Water Watch Alliance**, have learned a lot. However, we are still not sure whether this current "**drillplay**" is motivated by **Lexam's** desire to mine: **1) gas and oil, 2) water, or 3) the American taxpayer**. Regarding the potential for gas and oil, it should be noted that San Luis Valley is the northern extension of the **Rio Grande Rift**, which is one of five major rifts in the world, and that there is no significant production of oil and gas in any of them. Although many exploration wells have been drilled to depths of over two miles in the **Rio Grande Rift** to the south, there have been no big finds of gas and oil. However, **Lexam** claims that test wells they drilled in 1995 on what is now the **Great Sand Dunes National Park** had "**oil shows**." And water quality studies in the Valley show a "**methane band**" in Valley wells where methane gas is detectable in water samples in deep wells east of Mosca. But is there enough oil and gas to commercially viable? This is still a big question. But we know that the nearby **San Juan, Raton and Picaeance Basins** are major producers of gas and oil and therefore consider the possibility that there could be significant amounts of gas/oil here also. Regarding **water**, there were two major attempts to export water from the huge and priceless San Luis Valley aquifers to the Denver area in the 1980's and 1990's. At present, however, a complex set of water laws would make it very difficult to export this water. The third alternative is that **Lexam** could decide to sell the mineral rights under the **BNWR** to the surface owner (U.S. government), if there is an attractive offer.

However, because we know that gas and oil mining in the rest of the Rocky Mountains is now having tremendously adverse impacts, we must take the threat of gas/oil exploration drilling here very seriously. a knowledgeable **environmental consultant with the gas and oil industry** has given us the following advice:

**1) Oil and gas industry people talk to each other. Based on what our "insider" has heard: Lexam thinks they have hit the jackpot, that this is a massive field, and that this is a great investment. They know exactly what they are going to find and where they are going to find it.**

2) Once the two or three exploratory wells are drilled and they hit gas, this is their proof that is gas here. They will publish their findings and then Conoco-Philips will come in with lots of money and put in lots more gas wells. The Colorado Oil and Gas Conservation Commission (COGCC) will then "cookie cutter" permit and approve all future proposed wells. It will be a "land rush."

3) Lexam could really be looking for *Coal-Bed Methane (CBM) Gas*. They've been talking about this. CBM gas is more valuable and quite a bit messier than natural gas- which is also very messy.

4) At the very least, the BNWR should get a reprimand for not originally following the NEPA (National Environmental Policy Act) process. This has set a very bad precedent. It shows their attitude. We (WWA) and other groups should go after the Department of Interior for this, as they've already broken federal laws by allowing this to go forward without a NEPA process.

5) We need an independent third party to do the environmental assessment. The contractors (archaeologists, ENSR, etc.) paid by Lexam are just doing "damage control," trying to protect Lexam's interests.

#### **BE VOCAL!**

6) Our 'insider contacts' advise us that once they get their foot in the door with those first wells there will be no stopping them. Hence, we need to have massive demonstrations, protests, invite famous people who have an interest in our area (like Richard Gere and Shirley MacLean) to help our cause, etc. Get famous musicians like Willie Nelson, Paul Winter, Peter Rowan, etc. to give a benefit concert. Get lots of press. Get lots of people who are ready to protest on the ground. Get Native Americans groups involved as much as possible. Go after the Department of the Interior. Go public. Whine. Delay. *Envision 10,000 gas wells on the new Baca Wildlife National Refuge* (that's one for every 10 acres). Get coverage by National Geographic, Mother Jones, NRDC.

7). Look at who the owners of the local land are. Look at the land titles maps. Find out what is the evacuation time and what are the evacuation routes if there is an accident and people are poisoned.

8) Get massive petitions to our Senators, Congressmen, etc. Perhaps get these signatures at Boulder/Denver REI stores, etc.) Submit it as a group. Go to Denver, talk to newspapers, radios, have a horseback ride. Get hundreds to camp on the land- with press coverage. This needs to be common knowledge. Get university students and campuses involved.

#### **Contact Information**

If you are interested in receiving more information about this issue and/or are interested in contributing funds or ideas to this important cause, please contact:

***Water Watch Alliance, P.O. Box 653, Crestone, Colorado, 81131 or Dr. Eric Karlstrom, (erickarlstrom@fairpoint.net or [www.WaterWatchAlliance@gmail.com](http://www.WaterWatchAlliance@gmail.com)).***

Or please write your concerns in a letter and send multiple copies to:

**Governor Bill Ritter:** Address: 136 State Capitol, Denver, CO 80203-1729. Phone: 800-283-7215 or 303-866-2471. fax- 303-866-2003. Email: [www.Colorado.gov](http://www.Colorado.gov)

**Senator Ken Salazar:** Address: 702 Hart Senate Office Building, Washington, D.C. 20519. Washington, D.C. Phone- 202-224-5852, fax 202-228-5036. Alamosa office: phone: 719-587-0096, fax: 719-587-5137. Denver office: toll free phone 866-455-9866, phone 303-455-7600, fax-303- 455-8851. Email: [salazar.senate.gov/contact/email.cfm](mailto:salazar.senate.gov/contact/email.cfm)

**Senator Wayne Allard:** Address: 525 Dirksen Senate Office Building, Washington, D.C., 20519. Washington, D.C.: phone- 202-224-5941, fax- 202-224-6471. Denver office: phone- 303-220-7414, fax- 303-220-8126. Email: [allard.senate.gov/](mailto:allard.senate.gov/)

**U.S. Representative John Salazar:** (Washington, D.C.)- 202-225-4761, fax- 202-226-9669. Address: 1531 Longworth House Office Building, Washington, D.C. 20515. Phone Alamosa office: 609 Main Street, Alamosa, CO 81101; phone- 719-587-5105, fax- 719-587-5137. Email: [house.gov/salazar/contact.shtml](http://house.gov/salazar/contact.shtml)

**State Senator Gail Schartz:** Address: 200 E. Colfax, Denver, CO 8023. Capitol phone: 303-866-4871. Email: [gail.schwartz.senate@state.co.us](mailto:gail.schwartz.senate@state.co.us)

**State Representative Tom Massey (R- Dist. 60)** Address: 200 E. Colfax, Denver, CO 80203. Capitol phone: 303-866-2747, 303-866-2346. Email: [tom.massey.house@state.co.us](mailto:tom.massey.house@state.co.us)

**Saguache County Commissioners:** Saguache County, P.O. Box 655, Saguache, CO. Phone: 719-655-2231, fax- 719-655-2365.

- 1) **Linda Joseph:** phone- 719-256-5003, Email: [sagcomlj@centurytel.net](mailto:sagcomlj@centurytel.net)
- 2). **Sam Pace:** 719-256-4660
- 3) **Michael J. Spearman:** 719-754-2486

**Department of Wildlife:** Wendy Wallis. Phone: 303-291-7208. Email: [wendy.wallis@state.co.us](mailto:wendy.wallis@state.co.us)

**U.S. Fish & Wildlife Service:** Mike Blenden, Baca National Wildlife Refuge, Alamosa/Monte Vista National Wildlife Refuge Complex, 8249 Emperius Road, Alamosa, CO 81101. Phone: 719-589-4021. Email: [Baca\\_EA@fws.gov](mailto:Baca_EA@fws.gov)

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***Thanks for your interest in this important issue. Please help us by writing letters, contributing, or anything else you can think of. (Dr. Eric Karlstrom, Professor of Geography, webmaster)***

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## *Why We Believe the San Luis Valley Must Remain a **NO-GO (No Gas and Oil drilling) Zone!***



*Figure 1. Wetlands in the Baca National Wildlife Refuge; Sangre de Cristo Mountains in background.*



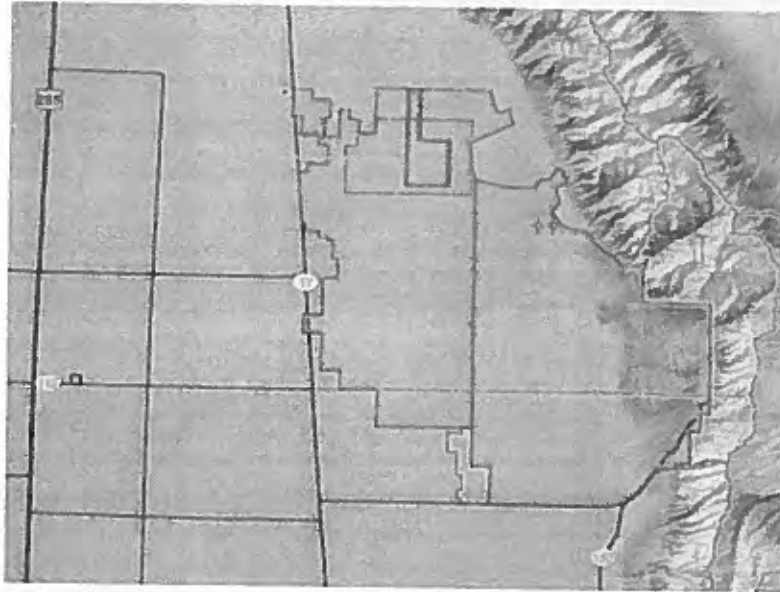
*Figure 2. Sand dunes in The Great Sand Dunes National Park and the Sangre de Cristo Mountains.*



*I have always told people that the San Luis Valley is more than home to me. It is a spiritual place unlike any other on earth.*

*Dunes)*

*Senator Ken Salazar (Valley of the*



*Figure 3. Proposed Lexam/Concoco-Phillips project area on Baca National Wildlife Refuge (green dotted line). Baca #1 and #2 wells are on The Great Sand Dunes National Park and Preserve. Baca Grande community is immediately north of Great Sand Dunes National Park and east of "Project Area."*

## Our Spectacular and Unique San Luis Valley

We volunteers of **Water Watch Alliance (WWA)** and residents of the **San Luis Valley** know that **this valley is unique, sacred, and irreplaceable**. There is no other place like this in all the world. It is amongst North America's **highest and largest agricultural valleys**, with elevations ranging from 7,500 to over 8,000 feet. Although it is true desert that gets less than 8 inches of precipitation a year, the **San Luis Valley** is underlain by perhaps the **largest reservoir of fresh groundwater in North America**. Our abundant groundwater gives rise to many ephemeral **lakes, wetlands, springs and flowing wells** that support considerable **irrigation** in the valley. The valley is surrounded by spectacular, alpine mountains. The rugged, spectacular **Sangre de Cristo Range** on the east side of the valley includes nine peaks over 14,000' and 36 peaks over 13,000' elevation. The **San Juan Mountains** to the west include unique volcanic formations, as seen in **Penitente Canyon** (a favorite of expert rock climbers) and the **Wheeler Geologic Area**. The **San Luis Valley** is home to almost every kind of **wildlife** in the west (including elk, mule deer, antelope) and has numerous **natural hot springs**. It has a herd of **buffalo**. It contains the most spectacular and **highest sand dunes** in North America in the **Great Sand Dunes National Park and Preserve**. Just east of the Sand Dunes National Park are some of the **oldest archaeological sites** in North America, dating back **some 11,500 years**. Indeed, archaeological sites in the Valley probably span virtually all the nearly **500 generations** from the time of the **Paleoindians** to the present. For **Native Americans**, including the Puebloan, Ute and Navajo tribes, **this valley is the world's single most sacred place** and **Mt. Blanca** is the most sacred mountain. And over the last few decades, numerous Tibetan Buddhists and Tibetan masters have come to live in this valley because because of it's pristine qualities and profound silence.



*Figure 4. Challenger Peak from the Baca Grande community.*

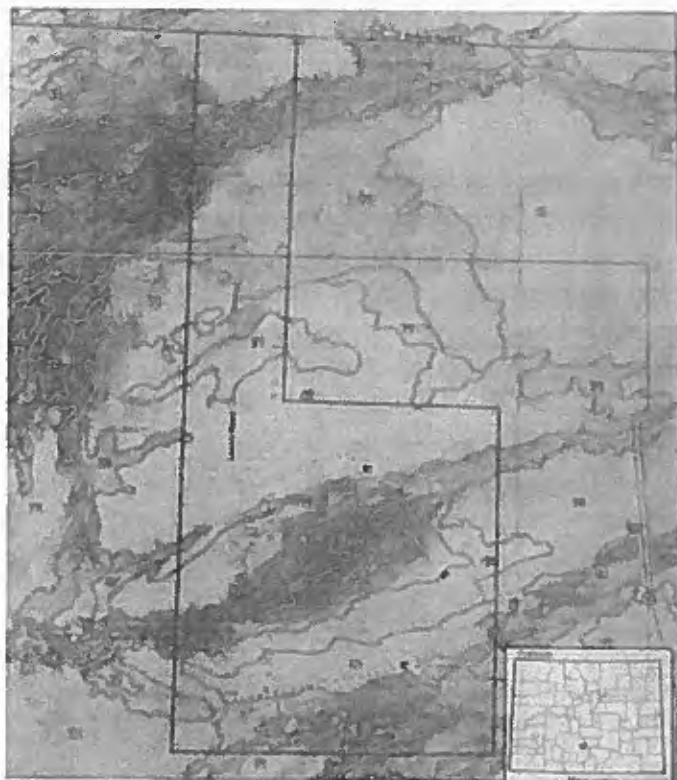
Today, however, two giant energy corporations, **Lexam Explorations, Inc.** and **Conoco-Phillips**, are planning to drill three 14,000 foot exploratory gas wells on Colorado's newly-formed **Baca National Wildlife Refuge (BNWR)**. The three proposed wells are located on sensitive wetlands within 2 miles of the **Crestone/Baca community** and the new **Great Sand Dunes National Park and Preserve** (Figure 3). **Lexam** officials believe there is potential for discovering billions of dollars worth of natural gas in the **San Luis Valley**. Their seismic studies show **San Luis Basin** geological formations are "remarkably similar" to those of the nearby **San Juan and Raton Basins**, about 100 miles to the southwest and 60 miles to the southeast, respectively ([www.lexamexplorations.com](http://www.lexamexplorations.com)). (However, whereas the surrounding basins are **Laramide structures**, the **San Luis Basin** is part of the much younger **Rio Grande Rift** and hence, is geologically quite different, see page 3). The **San Juan and Raton Basins** have already produced **trillions of cubic feet (tcfs) of natural gas**; and most production there is from **coal-bed methane (CBM) gas**, which is significantly messier and more polluting to mine than "conventional" natural gas. Thus, if Mesozoic source rocks are preserved in the **San Luis Valley**, as **Lexam/Conoco-Phillips** hope, there is a significant possibility that formations in the **San Luis Valley** would also contain **coal beds** yielding **CBM gas**.

Although **Lexam** acquired the **mineral rights beneath the BNWR** through a series of suspicious deals (see **WWA Page 2**), we are certain the **wealth of the "surface estate" and water resources** in our **San Luis Valley** far exceed that of any conceivable amount of gas or oil that could be recovered here. Indeed, it is impossible to place a monetary value on the aesthetic beauty and majesty of the "surface estate" here and of the **freshwater aquifer** that underlies the **San Luis Valley**. This aquifer is considered **one of the largest freshwater aquifers in North America**. Because gas drilling operations here would contaminate our air and water and would destroy the pristine quality of our "surface estate," we are convinced that protecting the special values and qualities that drew us to this special place requires that we say **NO-GO (NO Gas and Oil)** drilling operations should be allowed to destroy our pristine and beautiful **San Luis Valley**!

## **What would be the effects of major gas operations in the San Luis Valley if Lexam's exploratory wells "hit" natural gas?**

**1) Contamination of the priceless aquifers.** The **BNWR** overlies one of North America's largest and most valuable freshwater aquifers. This aquifer includes an estimated **140+ million acre-feet of water** (Pearl, 1974) that is potentially worth many **hundreds of billions of dollars**! Surface and subsurface water in the northern **San**

**Luis Valley** feeds the **Rio Grande River**, which is allocated to three states (**Colorado, New Mexico, and Texas**) as well as **Mexico** under the terms of the **Rio Grande Compact**. **Lexam** is proposing to drill its three first wells (Wells 5, 6, and 7) directly over **sensitive wetlands** where the **Willow, Spanish and Cottonwood Creeks** widen onto the Valley floor:



*Figure 5. Location of proposed Lexam wells (#5, 6, and 7) adjacent to Willow, Spanish and Cottonwood Creeks (dark colored areas) on the Baca National Wildlife Refuge. (From soils map in the Draft EA.)*

For this reason, and based on the track record of **gas** drilling activities elsewhere, there is a virtual certainty that the processes of drilling, **hydraulic fracturing**, "**cavitation**," **pumping "produced" water** out of the **aquifers**, as well as **seepage and evaporation from toxic surface ponds**, would contaminate both surface water and the aquifer. Contamination of the aquifer could have profound negative impacts on agriculture in the valley as well as downstream users throughout the **Rio Grande Basin**.

## Toxic Contamination

According to **Dr. Theo Colborn** of **TEDX (The Endocrine Disruption Exchange)**, ([www.endocrinedisruption.org](http://www.endocrinedisruption.org)), of the **245 the chemical compounds** commonly used in drilling and hydraulic fracturing, **91% have adverse health effects** and there is no information on the other 9%. **Fracturing operations** may require up to a **million gallons of fluid per well** (Gwen Eifle, **Oil and Gas Accountability Project**, or **OGAP**, 2005, [www.ogap.org](http://www.ogap.org)). Some of the most toxic chemicals include **B-TEX (benzene, toluene, ethylbenzene and xylene)** which are **carcinogenic**, as well as **methane, diesel fuel, hydrogen sulfide, heavy metals, VOCs (volatile organic compounds), formaldehyde and PAHs** (Colborn, 1997). Many of these chemicals have been found in contaminated wells and in grab samples for air quality near gas wells in Colorado and elsewhere in the west (**OGAP**, 2005).

According to **OGAP's** Gwen Lachelt, due to the current industry-friendly administration, every chemical used is considered propriety by the gas and oil drilling industry and **this industry is now legally exempt from following the Clean Water Act** and other laws that limit and regulate use of toxic chemicals in the U.S. Drillers also use **propylene glycol** (an antifreeze) on well pads. When ingested, this chemical is fatal for animals. Hence, pad areas always need to be fenced. However, in practice, they typically are not fenced (**OGAP, 2005**). Even **closed-loop drilling systems utilize open evaporation pits**, which often contaminate surface water, poison creatures, and add toxic pollutants to the air.

The **Colorado Oil and Gas Conservation Commission (COGCC)** has issued permits to **Lexam** specifying that they only need to use **double concrete casing** for the upper 3000' of the 14,000' wells. Clearly, there is great potential for contamination of the confined aquifer if the well hits gas and oil and if the casing leaks in the future. If coal-beds are encountered and **Coal-Bed Methane (CBM) gas** is extracted, contamination of the aquifer becomes a certainty. It is well-known that cement casings lose their integrity over time and can become a source of groundwater contamination for decades and centuries (**OGAP, 2005**). It is also commonly known that **one quart of oil can contaminate up to 250,000 gallons of water**. In addition, methane gas itself is toxin and includes benzene, a known carcinogenic. In addition, when methane concentrations in water are **10mg/l or higher**, that water is **ignitable** and can cause houses and other structures to explode. Thus, the bare **minimum of protection of the aquifer** would require **double concrete casing** extending the entire depth of any well from source to surface- as well as a complete ban on production of **CBM gas** and the use of "**cavitation**" and **hydraulic fracturing** enhancement techniques.

Water from the **Rio Grande River** is allocated to three states (Colorado, New Mexico, and Texas) and Mexico. Because of the aridity of the **Rio Grande Basin**, the recent drought has seriously exacerbated water shortages in these basin states. Hence, the potential degradation of water in our **San Luis Valley aquifers** could severely affect the quality of surface water available to downstream users in the future. Thus, we hope that the **Rio Grande Water Conservation District**, ranchers, and other downstream stake holders will become more involved in this issue in order to help protect their water supplies in the future.

**At present, there is no statutory regulation in Colorado that requires gas or oil companies to pay for damage they do to aquifers.**

**2) Air pollution.** The chemicals used in natural gas development are dangerous to the health of humans, animals, and plants who happen to live near the drilling operations. Emissions from drilling pads emit **carcinogenic toxic chemicals** into surrounding public lands and communities. **Ground-level ozone** is the #1 cause of asthma and causes degenerative health problems for humans, wildlife, plants, and agricultural crops. It is heavier than air and sinks into low-lying areas. Because ground-level ozone is produced at every gas well pad, each well needs a special permit to exceed air quality standards required by the state and U.S. government. In fact, the air pollution emitted at each pad would exceed the minimum air quality standards set by the **Clean Air Act**. In addition, after gas comes to the surface, a dehydrator is used to separate the gas from the **condensate**. This process involves a complex of **volatile carcinogens (VOC or volatile organic compounds)**, most notably **B-TEX**, which includes **ethyl benzene, xylene, and toluene and fracking fluids**. In addition, **PM-10** (airborne particulate matter less than 10 microns in diameter) has serious negative impacts on human health and crops.

In order to monitor air quality in the **BNWR**, it would be necessary to coordinate monitoring activities with many agencies, including the **Colorado Air Quality Control Commission, Colorado Water Quality Control Commission, Colorado Division of Wildlife, Local county weed programs, Bureau of Land Management, and Saguache**

**County.** Preliminary baseline studies on present air quality would also have to be made prior to any drilling activity whatsoever. A Colorado Bill (2004) limits ground level ozone that comes off condensate tanks Colorado Air Quality Commission).

## A Laundry List for Chemical Warfare

**3) Health Concerns.** Based on analyses of data reported in **Chemicals Used in Natural Gas Development**, Dr. Theo Colborn found that **49% of the chemicals used can cause skin/sensory organ toxicity, 47% can cause respiratory problems, 47% are neurotoxins, 43% are gastro-intestinal/liver toxicants, 38% are kidney toxicants, 33% are carcinogenic, 29% are cardio/vascular/blood toxicants, 27% are immune system toxicants, 25% are developmental toxicants, and 13% are endocrine disruptors.** And **20% are biocide products that kill all life.** Of the 13% chemicals that are soluble in water, **72% are neurotoxins, 61% are gastro-intestinal/liver toxicants, 61% are reproductive toxicants, 61% are skin and sensory organ toxicants, 56% are respiratory toxicants, 50% are kidney toxicants, 39% are cardiovascular toxicants, 28% are endocrine disruptors, and 22% are wildlife toxicants.** And of the chemicals used that vaporize, **66% are neurotoxins, 60% are gastro-intestinal/liver toxicants, 52% are respiratory toxicants, 45% are kidney toxicants, 43% are reproductive toxicants, 37% are cardiovascular/blood toxicants, 33% are carcinogens, 27% are immuno-toxicants, 14% are endocrine disruptors, and 4% are wildlife toxicants** ([www.endocrinedisruption.org](http://www.endocrinedisruption.org)). Indeed, Professor Clay Bridgeford, an ex-military man living in Crestone, Colorado, remarked that the chemicals used amount to **"a laundry list for chemical warfare."**

**4) Impacts upon wildlife.** Rare flora and fauna in the San Luis Valley, some found nowhere else in the world, include, the **Great Sand Dunes tiger beetle, the giant sand treader cricket, the Rio Grande cutthroat trout, the southwestern willow flycatcher, and the slender spiderflower.** Other species found in the area include the bald eagle, sandhill crane, pronghorn antelope, elk, mule deer, bighorn sheep, mountain goats, mountain lion and black bear. Full-scale gas development entails production facilities would require the construction of staging areas, airstrips, drill pads, and hundreds of miles of pipelines and roads. **The Wilderness Society** notes: "These developments fragment wildlife habitat into increasingly smaller and less usable areas, until animals can no longer survive in these areas at all" (**Too Wild To Drill, Executive Summary, The Wilderness Society**).

Wildlife biologists consider the newly-formed **Great Sand Dunes National Park and Preserve** to be a **B-1 Site**. This means that as a critical habitat for rare and threatened species, **it is irreplaceable.** There are six or seven endemic species of insects that are found in this Park that are found nowhere else in the world. These insects are there because of the sand. And the sand is there because of the water in the Valley aquifers. And the **Great Sand Dunes National Park** is located **within 2 miles** of where Laramie wants to drill their exploratory wells. There are 30 B-1 sites in Colorado. Although there are no sites listed as **B-1** in the **Baca National Wildlife Refuge**, there are many, many sites classified as **B-2 and B-3**, which also constitute critical habitat and which need federal protection.

**5) Noise, light, and dust pollution.** The proposed drill sites are located about 1.5 to 2 miles west of the Baca residential community, and hence, would produce significant noise, light, and dust pollution that would degrade the quality of life for members of the Baca community as well as the wildlife habitats on the **BNWR**. In addition, heavy truck traffic associated with various aspects of the operation would significantly increase noise and dust. Compressor stations, if built, would produce noise as loud as a jet airliner "24-7" (24 hours a day, 7 days a week). Crestone/Baca includes many spiritual groups and individuals who have moved here because of the pristine beauty of nature and the profound silence that the area affords. These spiritual groups would be adversely impacted by the drilling operations, in particular.

**6) Damage to local roads due to use of heavy vehicles.** We can expect that heavy traffic by heavy vehicles would result in damage to local roads and an increase in traffic accidents. Would **Lexam** or **Conoco-Philips** pay for the damage their operation causes to our existing infrastructure?

**7) Infrastructure requirements.** There is currently no infrastructure in the **San Luis Valley** or the **BNWR** that would support gas production. Building such an infrastructure would require construction of **gas pipelines, gas compressors, innumerable gas well pads, extra roads**, etc. The synergistic effects of these operations would significantly degrade the pristine quality and quality of life in the **San Luis Valley** and would certainly destroy the **BNWR** as a pristine and protected habitat for wildlife. Oil spills, truck crashes and highway deaths resulting from those crashes would be highly likely.

**8) Boom-town effects.** If **Lexam** were to strike gas, we could expect a suite of highly disruptive "**boom-town effects**" would accompany the gas boom. Other communities which have been subjected to this process have experienced varying degrees of **chaos, social upheaval, negative impacts on schools, emergency services, crime rates, increased use of drugs and alcohol**, etc. And typically, after gas companies create problems, local tax payers have to pay the cost of the damages, road repair, etc. This pattern repeats in many ways, with local communities paying for extra schools, roads, etc. that the gas industry requires in order to function. Meanwhile, what percentage of profits are shared with local counties and communities? Often, little to none.

**9) Damage to local cultural, spiritual and native American values.** The **NEPA (National Environmental Policy Act)** process requires that the **US Fish and Wildlife Service** try to understand the cultural values of the Crestone/Baca community. Our community is comprised of numerous spiritual communities and individuals committed to the preservation of pristine nature, developing sustainable living models, and pursuing spiritual retreat in one of the world's truly magnificent natural settings. Every fall, Crestone sponsors an energy fair, which displays alternative and renewable means of creating energy. And the Baca community has become home to many international spiritual centers and spiritual masters of various faiths including Carmelite Catholics, Zen Buddhist, Tibetan Buddhists, Hindus, and others. These diverse cultures, faiths, and retreat centers provide the sanctuary and retreat opportunities that both residents and visitors seek.

The **San Luis Valley** itself has long been acknowledged as one of the **great spiritual centers of the world**. It is commonly claimed that since pre-historic times when several Native American nations would gather in this "**Bloodless Valley**," bloodshed between peoples was not permitted. And Mount Blanca, at the southern end of the Valley, is one of the four sacred mountains of creation for Hopi, other Puebloan, and Navajo Indians. In practice, both the San Luis Valley and Mount Blanca are recognized as cultural/spiritual sites of great importance to numerous Native American groups.

Finally, we believe that our cultural identity, our "**sense of place**," and the continued health and integrity of our human and natural ecosystems is far more important than the potential for short-term, windfall profits on the Toronto stock exchange that **Lexam** covets. In practice, these "**wild-cat**" **speculators** seek not only to exploit and exhaust (gas and water?) resources that make up our "**commons**," they also mine their own investors. Like most foreign corporations, they have no commitment to the future of our community or our environment. And the fact that they are from Canada means they have little or no understanding of or regard for the values of our community. To us, **national security** or "**homeland security**" means protecting our clean air and water, our healthy environment and communities, safe neighborhoods, healthy food, etc. Certainly, our idea of prosperity is not compatible with a quick "**wild-cat**" gas play. And we also believe than any exploratory drilling on the **BNWR** is completely incompatible with the mission of that wildlife refuge.

**10) Problem of accidents and limited access.** Our Crestone/Baca community has the serious problem of **very limited access**. There is only one road in and out of our community- the County T road. If there were an accident or fire associated with gas operations, there could be a real disaster here. Therefore, Lexam should not be allowed to drill on the **BNWR** until alternative escape routes have been identified and engineered for our community.

**11) Threats to archaeological sites on the BNWR.** World-class **archaeological sites** dating back some **11,500 years** have been found on the nearby **Great Sand Dunes National Park and Preserve**. And since pre-historic peoples typically camped near seasonal wetlands and local water sources, which are extremely abundant on the **BNWR**, there are probably countless archaeological sites and artifacts on the **BNWR** that have not yet been discovered, recorded and catalogued. These sites need to be protected for posterity, not destroyed for short-term greed and profit.

## **One Inspector for Every 3,625 Wells!!**

**12) Inadequacy of inspections.** Whereas the number of oil and gas wells in Colorado has climbed 30% to 29,000 since 2000, **COGCC** inspections have not kept pace. The state has just 8 inspectors, or only one for every 3,625 wells! Therefore, we believe that there would be no responsible monitoring of any exploratory or production gas wells.

Peggy Utesch, a member of the **Grand Valley Citizen's Alliance** in Garfield County, stated: "We know that every day there are accidents and incidents in the field- just look at the commissioner's reports." Based on the track record of the **COGCC**, we at **WWA** do not believe they have the capability to adequately monitor drilling activities on the **BNWR**.

**13) Absurdity of \$10,000 (or even \$10 million) bond.** Given the potential value of water stored in **San Luis Valley aquifers (probably in the hundreds of trillions of dollars!)**, a more adequate bonding amount might be \$100 trillion. The amount now posted (\$10,000) is a cruel and sick joke. Even a bond of \$100 trillion would be inadequate. Once the water is contaminated, it is unusable.

**14) All this for one or two weeks of electricity and space heating for America?!** If comparisons with other magnificent areas in our Rocky Mountain West are extended to this region, it is most probable that the potential total amount of gas that could be recovered here might be less than the U.S. consumers of electricity would go through in two weeks! Are we willing to sell off the future well being and prosperity of the over **10 million people** in the **Rio Grande Basin** who depend upon the purity and abundance of water in the headwaters of the **Rio Grande Basin** for **two weeks worth of electricity**?

## **References**

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## *Background on Lexam's "drillplay" on the Baca National Wildlife Refuge (BNWR)*



*Figure 1. Buffalo in wetlands west of Great Sand Dunes National Park*



*Figure 2. Location of San Luis Valley and Rio Grande Watershed in south-central Colorado*



## ***Plans for Another 22,812 Wells in Colorado Alone!***

### **The "BIG PICTURE:" Radical Increases in Gas Drilling Throughout the Rocky Mountains**

To understand what is happening here, we need to look at the larger context of Lexam's "drillplay." There is currently a **"land rush"** by oil and gas companies on **federal lands in the Rocky Mountain region** that has been going on ever since President George W. Bush signed **Executive Order 13212** in 2001. The horrific scope of this **"land grab"** and the determined and heroic efforts of local citizens to protect their homes and landscapes is portrayed in the excellent video, **"A Land Out of Time"** ([www.alandoutoftime.com](http://www.alandoutoftime.com)).

Although federal law mandates that federal lands should serve **"multiple uses"**, a series of decisions and rulings of the **Bush administration** has given gas and oil drillers the priority and dominant use of our public lands. The **Wilderness Society Executive Summary** notes that there are some places where it is appropriate to drill, if done at the right pace and with appropriate practices. However, there are currently **36 million acres of public lands under lease for oil and gas development** and **over 63,000 producing oil and gas wells on public lands**. The **Wilderness Society's BLM Action Center** concludes that the government plans to **double this number to over 118,730 producing wells** within the next 15 to 20 years, mainly in the **Rocky Mountain states of Colorado, Wyoming, Montana, New Mexico, and Utah**. According to this study, there are **PLANS FOR ANOTHER 22,802 WELLS IN COLORADO ALONE!**

Oil and gas is the single richest industry in the world, worth over **\$1 trillion/year**. Over **2 million oil and gas wells** have been drilled in the U.S. As of 2002, there were a total of about **520,000 producing oil wells** and **360,000 producing gas wells** here. That number is expected to double by 2012. The **San Juan Basin of New Mexico** has over **18,000 wells**, with the **Bureau of Land Management (BLM)** proposing an additional 12,500 wells in just one portion of the Basin.

By some estimates, at least half of the natural gas that can be produced in the U.S. has already been burned. Because consumption has outpaced production, the nation now imports over 15% of the natural gas it uses. As supplies dwindle and demand soars, prices have also soared; **natural gas prices skyrocketed 400% in the year 2000 alone (the year that ENRON made a killing by creating artificial gas shortages in California)** (see the excellent movie: **ENRON: The Smartest Guys in the Room** for an inside glimpse of how corporate greed and criminality can run amok, [www.magpictures.com](http://www.magpictures.com)). The federal government is now providing huge subsidies to the gas extraction industry. However, natural gas, this supposedly cheap, abundant, and "clean" fuel of choice, has become extremely expensive both in terms of dollars and damage to communities and to the environment. We are now reaping the consequences of a **failed and corrupt national energy policy** which places greater priority on **corporate profit-taking** than on the well-being of the citizens and land that government is supposed to protect.

Along with the boom in gas and oil, comes a **vast grid of associated infrastructure: wells, well pads, roads, power line and pipeline corridors, waste water impoundments, evaporation ponds, compressor stations, processing plants, and other facilities**. This development is now adversely affecting public and private lands, water resources, crops and soils, air quality, and property values. The impacts on people, communities, and the environment are often dismissed as **"collateral damage"** by the

present administration as well as by the federal and state regulatory agencies involved in the permitting process (Kuipers and Associates, 2005). As a matter of fairness, when an oil or gas company's actions result in expensive damages to land, water supplies, and other natural resources, the burden of cleanup should be born by the company, not taxpayers or landowners. However, companies typically cut corners in the exploration, production, and cleanup phases of their operations in order to maximize their profits by "externalizing" their losses, i.e., letting the taxpayers pay to clean up the mess they leave behind.

### State-Supported Monopoly

Peggy Utesch of the **Grand Valley Citizen's Alliance** notes that, generally speaking, citizen groups can't hope to sue oil and gas companies because all the laws are in their favor, based on over 100 years of legal precedents. In fact, we are dealing with an entrenched system of **state-supported monopoly cartels** that goes back to the beginning of the oil industry, when **John D. Rockefeller** gained control of 90% of the oil industry by 1880 (Wasserman, 1994). When the state uses its power to protect the interests of private profiteers over those of its citizens, the form of government shifts from that of democracy to that of **corporateocracy, i.e., fascism**.

On May 18, 2001, **former oil-man and President George W. Bush** signed **Executive Order 13212 (Actions to Expedite Energy Related Projects)** which ordered all government agencies to "expedite" new oil, gas, and coal projects. At the same time, the Bush administration drastically cut funding to federal agencies and regulatory agencies, so they are now **too short-staffed and under-funded to enforce the existing laws that regulate industry** and protect communities and the environment. Peggy Utesch of **GVCA** notes that a study showed that 90% of the changes local people wanted to see regarding the oil and gas industry were already in the existing rules and laws, but these laws were not currently being enforced. For example, typically, federal agencies now pull people off of inspection duties so they can concentrate on issuing more oil and gas permits. And due to lack of staff, it is physically impossible for regulatory agencies to do the amount of inspecting that is needed and required. The **Colorado Oil and Natural Gas Conservation Commission (COGCC)** is issuing the highest number of new permits for oil and gas wells ever- **5400 in 2006 vs. 2917 in 2004**. Colorado now has about 30,000 active wells and another 40,000 that have been plugged and abandoned.

### The "LOCAL PICTURE:" Lexam's "Drillplay" on the Baca National Wildlife Refuge: Whose Shambala?

Just as there is something absolutely unique and special about our **San Luis Valley** area, it seems that some very unique circumstances surround this current **Lexam "drillplay."** Here is some background information help understand it:

- 1) Lexam Explorations Inc. (Lexam)** is a Toronto, Canada-based, exploration company that incorporated in **1983**. It changed its name from **Challenger Gold** to **Lexam** when it went public.
- 2) Lexam's** management team, headed by **Canadian Rob McEwen**, former CEO (and current largest shareholder) of Canada's **Goldcorp Inc.** and now head of **U.S. Gold**, oversaw development of Red Lake Mine, Canada's largest and richest gold mine.
- 3) Lexam purchased 50% of the hard mineral rights from Baca Minerals in 1987** and the other 50% of the oil and gas rights on the **Luis Maria Baca Grant No. 4** from **Newhall Land and Farming Company** for **\$1 million**. It acquired the additional 25% of the oil and gas rights from the **Baca Corporation (Fallaron)** in **1996** from **Gary Boyce** for **\$1 million**. **Lexam** also owns various interests in varying percentages of the hard mineral and oil and gas rights on land to the north and west of the new

**Baca National Wildlife Refuge (BNWR).** The remaining 25% of oil and gas rights on the property is owned by **ConocoPhillips**, which is now drilling on the **Arctic National Wildlife Refuge (ANWAR).**

**4) Lexam** acquired surface access and use by 'fee simple ownership' and a **Surface Use Agreement** with **American Water Development, Inc. (AWDI)** in 1992 for \$1 million. This agreement is a 20-year paid-up lease that is binding on surface owners who may be successors in ownership to **AWDI**. This agreement can be extended if there is production on the property.

#### **Who and what is AWDI?**

To answer that question, we need to consider some **related "deals."** **AWDI** was set up by Canadian billionaire, **Maurice Strong**, in order to make billions from selling the water underneath the **Baca Grande ranch** to the Denver area. Strong first became involved with the 132,000-acre **Luis Maria Baca Ranch #4** in **1978** when he became director of the **Arizona-Colorado Land and Cattle Company, AZL** in 1978. This agribusiness conglomerate owned a series of other companies active in feed lots, land, oil and gas, engineering, a commodities trading house and a bank. And one of their properties was the **Baca Grande Ranch**. Interestingly, **AZL** invited Strong to be one of its Directors before he even owned any shares in the company. Over the next seven years **AZL** was traded back and forth by numerous international corporations. In 1985, Strong's First Colorado Corporation purchased the **Baca Grande ranch** and in 1986 he created **American Water Development, Inc. (AWDI)** to pump and transport **San Luis Valley** water to the Denver area. It was **Strong** who severed the mineral rights from the surface rights on the **Luis Maria Baca Ranch # 4**. His **AWDI** scheme was defeated by a coalition of local citizens, ranchers and environmentalists in the late 1980's, and the surface and mineral rights of the **Baca Ranch** have subsequently each changed hands several times.

**5) Again, Lexam Explorations, Inc.** purchased their interest in the mineral rights from **Baca Minerals (Maurice Strong again?)** and the **Newhall Land and Farming Company** in **1987**. Canadian **Rob McEwen, CEO of Goldcorp**, purchased **Goldcorp's** 49.8% share of **Lexam** in 2005 for \$400,000 (Canadian), or **2 cents a share**. The last quarterly financial statement shows that **Lexam** is now worth \$12 million. When **The Nature Conservancy** acquired the **Baca Ranch** from Gary Boyce's **Fallaron Corporation** in 1998, and again, when the **U.S. government** acquired the **Baca Ranch** from **The Nature Conservancy** several years later for about **\$34 million**, it is reported that the **mineral rights of the Baca Ranch** could have been purchased for as little as **\$1 million**. Why didn't **The Nature Conservancy** or the **U.S. government** acquire the mineral rights along with the surface title when they could have been purchased them for only \$1 million? Local Crestone/Baca citizens tried to find this out by accessing the pertinent sale documents through the **Freedom of Information Act**. However, we have not been allowed to view these documents. Hence, the question must be asked: **Is there a secret government-corporate plan to control the mineral and/or water resources on the BNWR? UNTIL THESE ISSUES ARE RESOLVED IN A TRANSPARENT WAY, DRILLING MUST NOT GO FORWARD ON THE BNWR.**

Most of what is now the 92,000-acre **BNWR** was part of the 132,000-acre **Maria Luis Baca #4 Ranch**, which was one property of the agri-business conglomerate, **Arizona-Colorado Land and Cattle Company, AZL**. Again, Canadian billionaire **Maurice Strong** first was involved with the property in **1978** when **AZL** rolled out the red carpet for him so that he could help them solve their little problem, which was that the majority of shares were owned by Saudi sheik, billionaire, and arms, gold, and drugs dealer, **Adnan Khashoggi**. **Khashoggi** had purchased major shares of the **Arizona-Colorado Land and Cattle Company** in **1973**. (Incidentally, **Khashoggi's** career was started by the **Bin Laden** family, he had strong connections with **British Intelligence** and he was associated with the **drugs/arms deals** of the

**Iran-Contra scandal** in the 1980's\*).

**Strong** wears many hats: Canadian industrialist, "environmentalist," and globalist. He was a trustee of **The Rockefeller Foundation** and **The Aspen Institute**, has, at various times, been Vice President of **Dome Petroleum**, President of **Power Corporation**, head of **Petro-Canada**, **Hydro Canada**, **Ajax Petroleum Ltd.**, **Alberta Gas Company**, **Ontario Hydro** (North America's largest utility), **Canada Development Investment Corporation**, **Baca Petroleum Corporation**, **Baca Resources Ltd.**, **MF Strong Management**, **International Energy Development Corporation**, and most relevant to this issue, **American Water Development, Inc (AWDI)**, the company that tried unsuccessfully to export billions of dollars worth of water from the **San Luis Valley** to the Denver area in the 1980's. A more complete bio for Strong can be accessed through the bio presented by **The Project for the Exposure of Hidden Institutions** under their article, "**The People with the Endless Bios.**" Although Strong's bio is truly endless, one can see several key associations and themes run through his career ([www.pehi.eu/organizations/introduction/PEHI\\_Maurice\\_F\\_Strong\\_bio.htm](http://www.pehi.eu/organizations/introduction/PEHI_Maurice_F_Strong_bio.htm)). **Maurice Strong** also founded and headed the **Canadian International Development Agency (CIDA)**, an agent of the British Crown, was first Director of the **U.N. Energy Program**, chaired Canada's **International Development Research Centre (INRC)** and the **Canada Development Investment Corporation**.

### **Cloak of Green?**

It is extremely noteworthy that **Strong**, as well as being one of the world's wealthiest and most influential businessmen, has also been one of the most powerful men in the **United Nations**. He was its undersecretary-general of the U.N. and Secretary General of the Stockholm Conference on the Human Environment (**Earth Summit I**) in 1972 and the **Rio Earth Summit II** in Rio de Janeiro in 1992. He was the first director of the **United Nations Environmental Programme (UNEP)**, and served on the **U.N.'s World Commission on Environment and Development**, as well as the U.N.-funded **Commission on Global Governance**. **Strong** also served on the Boards of **International Union for the Conservation of Nature (IUCN)**, the **Club of Rome**, the **World Resources Institute (WRI)**, and the **World Wide Fund for Nature** in Switzerland, the **International Union for the Conservation of Nature and Natural Resources** in Switzerland, and the **Aspen Institute**, all of which are international NGO's that have developed and advanced the **global, one-world government agenda** since the early 1970's. **Strong**, who was appointed by **Canadian Prime Minister Brian Mulroney** to the **Privy Council of Canada**, was also involved in a huge scheme, called the **GRAND Canal**, to divert water from Canada to the United States ([www.discoveryvancouver.com/forum/topic.asp?TOPIC\\_ID=131262](http://www.discoveryvancouver.com/forum/topic.asp?TOPIC_ID=131262)). According to author Glen Kealey, one of the main purposes of this planned water diversion was to create a giant **Chicago-Winnipeg food cartel**, which was to be managed from **Strong's Baca Ranch** here. Although this plan was never realized, it also was never cancelled. According to Kealey, some version of it could surface again, as the present political and economic climate under **NAFTA/Free Trade agreements** make the project more viable.

**Strong** recently cut his ties with the **UN** after being associated with various **UN scandals and conflicts of interest**, such as the **oil-for-food program** and his secret dealings with **North Korea** ([www.foxnews.com/story0,2933,250789,00.html](http://www.foxnews.com/story0,2933,250789,00.html)). And he is being sued by San Diego class-action shark **Milberg Weiss** for dumping his shares of **Molten Metal Technology** at around \$31/share a month prior to the stock's October, 1996 collapse (two years later they were worth 13 cents/share.). Due to **Strong's** and **Molten Metal's** ties with presidential candidate **Al Gore**, this issue has surfaced in Senate hearings on corrupt campaign financing (**FORBES**, Jan. 22, 1996 and Apr. 21, 1997).

In "**Maurice Strong: The New Guy in your Future!**" ([www.sovereignty.net/p/sd/strong.html](http://www.sovereignty.net/p/sd/strong.html)), Henry Lamb stated: "After establishing **UNEP (the United Nations Environmental Program)** and setting its agenda, Strong returned to Canada where he resumed chairmanship of both **Petro-Canada** and the **IDRC (International Development Research Center)**. He was introduced to Scott Spangler, who ran a Texas company called **ProChemCo**. Strong's partnership, **Stronat**, bought **ProChemCo**, and changed the name to **Procor**, which immediately entered into a complex \$10 million deal to acquire **AZL**, also known as the **Arizona-Colorado Land and Cattle Company**. **AZL's** major stockholder was **Adnan Khashoggi**. In the end, **AZL** acquired **Procor**, but **Strong** landed in **control of the conglomerate that owned feed lots, land, gas and oil interests, engineering firms, and 200,000 acres** which included the **Baca Ranch** in Colorado. Amid this multi-national deal making, Strong became **President of the World Wildlife Fund (WWF)**, a post he held until 1981."

And **Strong** was one of a small group of capitalists who "**opened up**" **China** for exploitation by western corporations. Canadian Senator Jack Austin, President of **Canada-China Business Council** stated: "The Canada-China Council was organized in 1978, at the very beginning of the Den Xiaoping economic reform period. It was organized by a group of leaders, Paul Desmarais Sr., **Maurice Strong**, Paul Lin, and one or two others, to begin the development of a commercial relationship with China."

In 1988, **Maurice Strong** and his Danish wife, **Hanne**, created the **Manitou Foundation** in the **Crestone/Baca community**. Seed money for the Manitou Foundation came from Laurance Rockefeller (\$100,000), Robert O. Anderson, Director of ARCO (\$20,000), sale of Strong's shares of AWDI (\$1.2 million), and from a charity set up to support Strong's (Rio Earth) Summit office (\$21,500). Hanne likes to relate the story that in 1978, a mystic informed them that "the Baca would become the center for a new planetary order which would evolve from the economic collapse and environmental catastrophes that would sweep the world in the years to come." Supposedly, this prediction inspired Hanne, through the Manitou Foundation, to donate substantial and beautiful tracts of land from their Baca Ranch to numerous spiritual groups from around the world. Land and buildings once owned by the **Aspen Institute** were donated to the **Crestone Mountain Zen Center**, run by Baker Roshi. According to the **PEHI website**, their website read: "In the mid 1990's, **Manitou** and specialists of the **Conservation Fund**, with generous support of **Laurance Rockefeller** and the Jackson Hole Preserve, devoted several years to extensive studies of **Manitou's** mountain properties, culminating in the creation of the **Manitou Habitat Conservation Plan (MHCP)**." Perhaps to help fulfill the mystic's purported prediction of 1978(?), **Hanne Strong** has developed plans for a **Solar Eco-Village** sited along the western border of the **Baca Grande** subdivision. Interestingly, this area is located within a mile and half of the Lexam's proposed drilling.

Thus, we see some very confusing, disturbing, and recurrent patterns here. **Maurice Strong** has consistently used his insider business connections to personally profit from international development projects which often are disguised as environmentally beneficial. Simultaneously, he has been able to shape the rules and terms of global environmental policies through his influence in and behind-the-scenes control of the **United Nations**. Even a cursory look at his career reveals considerable corruption and conflicts of interest. As chairman and principle shareholder of **Arizona-Colorado Land and Cattle Company**, **Strong** was sued for allegedly hyping the stock ahead of a merger that eventually failed. As head of **AWDI (American Water Development, Inc.)**, **Strong** made an unsuccessful bid to export the water from **San Luis Valley** aquifers to the Front Range. As Secretary-General of the 1992 **UN Conference on "Environment and Development"** in Rio de Janeiro, **Strong** helped draft and usher into completion "**The Earth Charter**" and "**Agenda 21**," both of which were adopted at the **1992 Rio Summit**. Though **Agenda**

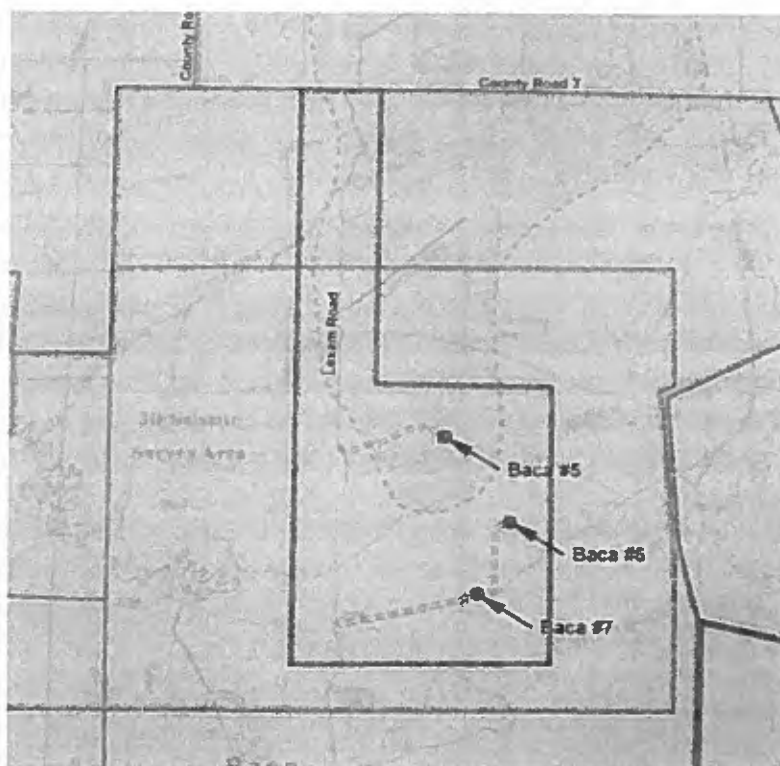
21 purports to protect the environment, it is in reality a way to secure control of natural resources for the benefit of a small group of extremely rich individuals

(<http://www.freedom21santacruz.net/site/article.php?sis=443>). Elaine Dewar, author of **"Cloak of Green"** (1995), states: **"I was beginning to understand that the Rio (Earth) Summit was part of a Rockefeller-envisioned Global Governance Agenda that dated back before World War II."** In conclusion, even this cursory look at **Maurice Strong's** career reveals that he is a central player in a global elite that includes the (multi-billionaire) **Rothschild, Rockefeller, Bin Laden, and Bush families**, has links to various **intelligence agencies**, and virtually controls the **United Nations**. Some of our **Crestone/Baca** locals have stated that **Hanne** has told them she believes **Lexam** is really after the water. Of course, it is hard to know for sure. But it may be inferred on the basis of his past record that **Maurice Strong** may retain an interest in the water and minerals of the **San Luis Valley** and may be in communication with **Lexam CEO, Rob McEwen**.

Abraham Lincoln best described **democracy** as **"government of the people, by the people and for the people."** Democracy requires that elected officials and non-elected officials such as **Maurice Strong** conduct their affairs in a transparent and legal manner for the benefit of all the people. By contrast, a government run for the benefit of corporations and a small wealthy elite is a **"corpocracy,"** or the more familiar term; **"fascism."** The twisted, convoluted and often secret land deals that has lead to **Lexam's** acquisition of mineral rights on the BNWR and its present **"drillplay"** seem to indicate government/corporate collusion typical of a **"corpocracy."** Alas, this pattern is typical and populist writer Jim Hightower (**Thieves in High Places: They've Stolen Our Country and It's Time to Take it Back**) now refers to our present system as a **"kleptocracy"** (rule by thieves.)

### **What's Happening Now on the LEXAM/BNWR "Drillplay:"**

**Lexam** has now been granted permits from the **Colorado Oil and Gas Conservation Commission (COGCC)** to drill on **The Baca National Wildlife Refuge** in the deepest part of the **San Luis Basin** in an area that has never been drilled. And **Lexam** has now applied for an additional permit to drill an additional well (Well #7), which is located directly on the Spanish Creek/Cottonwood Creek wetlands.



**Figure 3. Location of Lexam's proposed three exploratory wells on the BNWR.**



**Figure 4. Location of proposed Lexam wells immediately next to streams/riparian zones.**

**Lexam** spent about \$1.4 million to conduct **3-D seismic survey** in 2006 and plans to spend another approximately \$10 million on drilling the three exploratory wells (slated for early 2008 or as soon as possible). It is important to note that whereas **Lexam** owns the subsurface mineral rights and the **U.S. government (BNWR)** owns the surface and some water rights, the state of Colorado owns most of the rights to the huge reservoir of groundwater in the confined aquifer.

### **Summary History of Lexam's "Crestone Prospect" ([www.lexamexplorations.com](http://www.lexamexplorations.com))**

**1)** Conventional geological wisdom until the early 1990's (**WWA page 3 of this website**) was that the eastern part of the **San Luis Basin (the Baca Graben)** was underlain by about 4 km of **Tertiary and Quaternary alluvial fill overlying Precambrian bedrock**. Hence, it was then thought that there were **no Mesozoic "source or reservoir rocks"** in this area because regional uplift and folding and faulting during the **Laramide Orogeny** resulted in more erosion than deposition of sediments during the **Mesozoic Era**.

**2)** In 1992 and 1993, however, **Challenger Gold** drilled a number of exploratory wells and got "**strong shows of oil**" in 27 drillholes. **Cretaceous Mancos Shale and Dakota Group and Jurassic Morrison Formation (Mesozoic)** rocks were identified in outcrop and in 17 shallow drillholes. **Mancos Shale** is thought to be an excellent **source rock** and **Dakota Sandstone** is thought to be an excellent **reservoir rock** because it is sufficiently porous (15-21%) to hold commercial quantities of gas and oil.

**3)** In 1995, **Lexam** drilled the **Baca #1 and Baca #2 wells** and claims to have confirmed the presence of the **Cretaceous section** on the Deadman Creek block. The strongest shows of oil were in **Baca #2 well at 6,620 feet in the Tertiary Sante Fe Formation**, as well as in the **Mancos Shale and in Precambrian gneiss**.

**4)** In 1996, **Lexam** acquired 20 miles of seismic data and 221 gravity data points, which, they claim, strongly supported the presence of a **thick Cretaceous to Jurassic section in the Baca Graben**. Integrating this seismic data with previous seismic data, their consulting geologists delineated a large structural closure (**the Crestone Prospect**) **at 7000 to 12,000 feet**, with both trap types present.

**5)** In 1998, **SONAT** acquired 31 miles of 2D seismic data over the Crestone Prospect which, Lexam claims, also confirms closure of Crestone structures.

**6)** In 1999, **SONAT** relinquished its option agreement on this seismic data with **Lexam**.

**7)** In 1999 – 2000, **Lexam** acquired and reinterpreted seismic line CF-8402 that suggested gas in Tertiary sediments above the **Crestone Prospect**.

**8)** In 2002-2004, **Petro-Hunt** acquired, processed and interpreted another 60 miles of 2D seismic data in 2004 and bought and reinterpreted another 50 miles of **Chevron** 2D seismic data. **Petro-Hunt** relinquished this option to **Lexam** in December, 2004.

**9)** In March 2005, **Lexam** purchased this seismic data for \$419,000, which indicated that "closure" (i.e., a trap) is better defined for the Crestone East block than the Crestone West block.

**10)** Today, **Lexam's** primary targets are the **Crestone East (4060 acres)** and **Crestone West (6,945 acres)** prospects located in NW quadrant of "**their property,**" i.e., the **Baca National Wildlife Refuge**. In addition, at Pole Creek (SE part of Baca Land Grant), a shallow 1.3-acre oil target is present in land overseen by the **Great Sand Dunes National Park and Preserve**.

**11)** **WGM Consultants** from Toronto\* believe that the **Baca Graben** contains **Mesozoic rocks about 3000 feet thick at depths of 7000 to 17,000 feet**. Two types of **structural traps** have been mapped seismically: **closed-structure anticlines** and **rotated fault blocks close to the margin of the basin**. **WGM** notes that all basins surrounding the **San Luis Basin** with Cretaceous rocks at depth (over 8000



feet) have significant oil and gas accumulations. These include the **San Juan, D-J, Raton, and Piceance Basins**. (The San Juan Basin has produced over **25 trillion cubic feet - or tcf- of gas**.)

**12) Lexam** is hoping that **over 100 and up to 550 square miles of the Crestone sub-basin contains a 2000 to 3000 ft. thick package of Cretaceous rocks at depths of 7000 to 17,000 feet**.

\* You have to wonder why **Lexam** did not use local consultants.....

\*\* You have to wonder why **Sonata** and **Petro-Hunt** sold their seismic data if the results were so promising.

\*\*\* Also note the list of players includes **AWDI (Maurice Strong), the Baca Corporation (Gary Boyce), Baca Minerals, Petro-Hunt, Chevron, SONAT, Conoco-Phillips, The Nature Conservancy, and the Federal Government (USFWS)**

### **What We Could Expect If LEXAM Strikes Gas: The Life Cycle of a Gas Well**

Physical exploration for natural gas involves drilling of "**wildcat wells**" to determine both the location and size of potential deposits. Upon discovery of an economically viable field, a "**full field development**" plan is implemented with **spacing of wells** and other production concerns set out in a variety of **corporate, local, state and federal proceedings**. Spacing of gas wells in some parts of Colorado as close as **one well for each 10 acres**. The gas field is then developed site-by-site with the **drilling of production wells**. **Pipelines, treatment facilities, compression stations, and a variety of other production infrastructure facilities** are constructed at the well site to extract the raw oil and gas, separate the saleable materials, prepare for transporting the oil and gas to market, and **dispose of wastes and by-products**. **Gathering pipelines** lead to **centralized field facilities** for further treatment, **compression and waste disposal**. From there, **transportation pipelines** are used to ship oil and gas products. The field is operated for decades with daily maintenance checks and frequent construction work required to keep these industrial facilities operating. Production data is constantly gathered during the full field development and can lead to changes in well-spacing and operations requirements. However, little data is gathered on the environmental impacts of production, treatment and transportation.

Eventually, gas sources are drained and fall below profitable flow levels. The wells are then "**abandoned**." The abandonment phase includes plugging wells, removing infrastructure, and, in theory, returning the land back to the condition that existed before full field development. Since each of these phases can have detrimental impacts on the surrounding environment, the ability to return the land and water to the condition before full field development is still a theory that has not been proven on the ground. "**Plugging and abandonment**" is an industry term that refers to the stage at which a well becomes uneconomic to operate and is therefore abandoned. Once production ends, the well is **capped**. This involves placing cement plugs into the wellbore and at the surface. Abandoned wells are the source of numerous water well contaminations.

### **Orphan Wells**

Instead of properly plugging and abandoning wells, many companies just walk away from uneconomic wells by selling them to undercapitalized corporations near the end of the profitable stages of the life-cycle of the well. These are termed "**orphan wells**" and become the responsibility of the federal agency and ultimately that of the taxpayer. In a survey completed by the **BLM** in 2001, it was reported that dozens of orphaned wells have been left behind on Western public lands, leaving everyday taxpayers on the hook to clean up industry's mess. Current bonding requirements are inadequate to ensure that orphaned wells are properly plugged and abandoned.

Although a typical **"play"** is about 30 years, most gas comes out in the first 5 to 7 years. The big companies take the best and leave, then smaller companies come in to take the rest and leave, often without cleaning up the mess because it's cheaper. The taxpayers then pay to clean up the abandoned equipment, separator units that have to be moved, soils that need reclaiming and ground that needs reseeding, etc..

## References

Darin, Thomas and Stills, Travis. Preserving our Public Lands: A Citizens Guide to Understanding and Participating in Oil and Gas Decisions Affecting our Public Lands. "The Life Cycle of an Oil or Gas Well"

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## *Rio Grande Basin and San Luis Valley Aquifer:*



***Figure 1. Location of Rio Grande River and Rio Grande drainage basin.***

***Whiskey's for drinking and water's for fighting about.***

**Mark Twain**

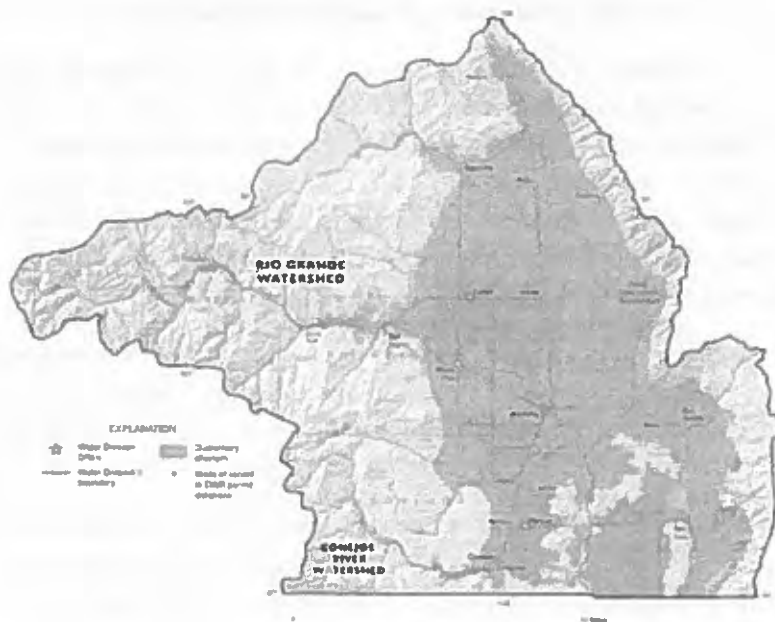
## The Rio Grande River and Rio Grande Basin

The **Rio Grande River** heads up in the eastern San Juan Mountains of southern Colorado and flows nearly **2000 miles to the Gulf of Mexico**). Since its waters are utilized by three states and Mexico, the **Rio Grande** is considered an **interstate** and **international stream**. The **Rio Grande Basin** includes an area of over 350,000 square miles. The **Rio Grande River** supplies drinking water for about **10 million people** in a **semi-arid region**. Approximately 98% of the precipitation that falls in this region evaporates! Rio Grande waters also are used for agricultural, recreational, hydropower, and industrial purposes. The principle use water throughout the Rio Grande Basin is for **irrigation**. Major population centers along the Rio Grande include Albuquerque, Sante Fe, Las Cruces, Rio Rancho, Los Lunas and Belen, New Mexico, El Paso, Texas, and Juarez, Mexico. Population growth of about 150% is expected to occur in this region between now and 2030. to the Gulf of Mexico at Brownsville, Texas. It is the **second longest river in the U.S.** and for **2/3 of its length it forms the boundary between the U.S. and Mexico** (from El Paso, Texas/Ciudad Juarez, Mexico to the

The U.S. and Mexico share the waters of the **Rio Grande** under a series of agreements administered by the **Joint US-Mexico Boundary and Water Commission**. The most important of these agreements were signed in 1906 and 1944. Use of the **Rio Grande River** in the US is regulated by the **Rio Grande Compact of 1938** ([wrri.nmsu.edu/wrdis/compacts/Rio-Grande-Compact.pdf](http://wrri.nmsu.edu/wrdis/compacts/Rio-Grande-Compact.pdf)), an interstate compact between Colorado, New Mexico and Texas. However, Rio Grande River water is **over-appropriated**, that is, there are more users for the water than there is water in the river. Thus, in 2001, Congress appropriated funds to support the the Rio Grande Initiative ([riogrande.tamu.edu/background.php](http://riogrande.tamu.edu/background.php)). Because of the dual effects of drought and overuse, the section from El Paso downstream through Ojinaga was recently named "**The Forgotten River.**" And in the summer of 2001, for the first time in recorded history, the Rio Grande failed to empty into the Gulf of Mexico. In 2006, the river once again started intermittently reaching the Gulf of Mexico. However, ecologists fear that unless rainfall returns to normal levels during the next few years and strict water conservation measures are adopted by communities along the river, the **Rio Grande River may soon become extinct**.

The Colorado portion of the **Rio Grande Basin** includes about 8,000 square miles and makes up **Colorado Water Division 3 (Figure 2)**.





**Figure 2. Upper Rio Grande Watershed (Colorado Water Division 3) and the San Luis Valley**

The **Upper Rio Grande River**, with a drainage area of about 35,000 miles, flows through the **San Luis Valley**, an open, almost treeless, intermontane basin bounded by the **San Juan Mountains** on the west and the **Sangre de Cristo Mountains** on the east. The **San Luis Valley** is 90 miles from north to south and 50 miles from east to west. Average elevation of the **San Luis Valley** is 7512 to 8000 feet. Although the mountainous areas may have average annual precipitation over 40 inches, **mean annual precipitation** in the San Luis Valley ranges from only **7 to 10 inches**, and hence, it is **true desert**. The northern portion of the basin (approximately 2,700 square miles) coincides with the "**Closed Basin**," an **internally drained area** that includes about two-thirds of the San Luis Valley. **Irrigated agriculture** is the largest water user in the basin and consumes about 85-90% of water used. The approximately **600,000 acres under irrigation** are supplied by **conjunctive use of both surface and groundwater**. Major crops are potatoes, barley, vegetables, and alfalfa. Most irrigation water comes from managed recharge and pumping of unconfined-aquifer wells. An average of **2 million acre-feet** of water is used annually in the basin, of which **800,000 acre-feet is from groundwater sources**. About **3,500 of the 6,500 wells** in the basin with greater than **50 gallons per minute (gpm)** capacity are now in use (Colorado Water Conservation Board, 2002).

The **Upper Rio Grande** has a longer history of water shortages and disputes, and of treaties and decrees and compacts to settle those disputes than any other river in the Southwest. A severe water shortage in Mexico, Texas and southern new Mexico in the 1890's was attributed to mainly to increasing development and use of water for irrigation in the **San Luis Valley** during the preceding decade. This water shortage, which also could have reflected below average precipitation, was responsible for the "**embargo**" of 1896 and also for the **Rio Grande Convention of 1906 "embargo"** was an order from the US Secretary of the Interior which prevented further irrigation development of any magnitude in the **Rio Grande Basin** in Colorado and New Mexico; it was not lifted until 1925. Under terms of the treaty of 1906, the US guaranteed an annual delivery in perpetuity of **60,000 acre feet** of water in the Rio Grande at the head of the Mexican Canal near El Paso, Texas. In keeping with the ongoing concern over water in the Upper Rio Grande, long records of streamflow are available for many places along the main stem and its

principle tributaries. However, **the data concerning groundwater supplies are extremely meager.**

Administration of water in the upper **Rio Grande Basin** is governed by **Colorado state law** and by the **Rio Grande Compact**. The **Rio Grande Compact of 1938** establishes Colorado's obligation to ensure deliveries of water at the New Mexico state line and New Mexico's obligation to assure deliveries of water at the Elephant Butte Reservoir. As salinity has long been a major water-quality problem throughout the Rio Grande Basin, the compact also sets a **minimum water quality standards**: for example, **sodium ions** and **total dissolved solids** in the water must not exceed 45% and 350 ppm, respectively. The **Rio Grande Compact Commission** in El Paso, Texas, administers the terms of the Compact.

It is important to note that in all parts of the basin, the natural streamflow has been modified by man to such an extent that there are few places where streamflow can be computed reliably from existing hydrologic records. These modifications include changes in diversion, reservoir storage, irrigated acreage, drainage of surface water, changes in vegetation cover, and changes in groundwater storage.

The upper **Rio Grande Basin** is one of 9 areas in Colorado covered by "**roundtables**." Representatives of several stake-holder groups attend regular meetings of the (Upper) **Rio Grande Basin Roundtable** meetings. These include **Ray Wright**, who represents the basin on the statewide Roundtable, **Mike Gibson**, chairman of the basin roundtable, **Steve Van Deveer**, manager of the **Rio Grande Water Conservation District**, **John Sanderson**, of **The Nature Conservancy**, and representatives of the **San Luis Valley Wetlands Focus Area Committee**.

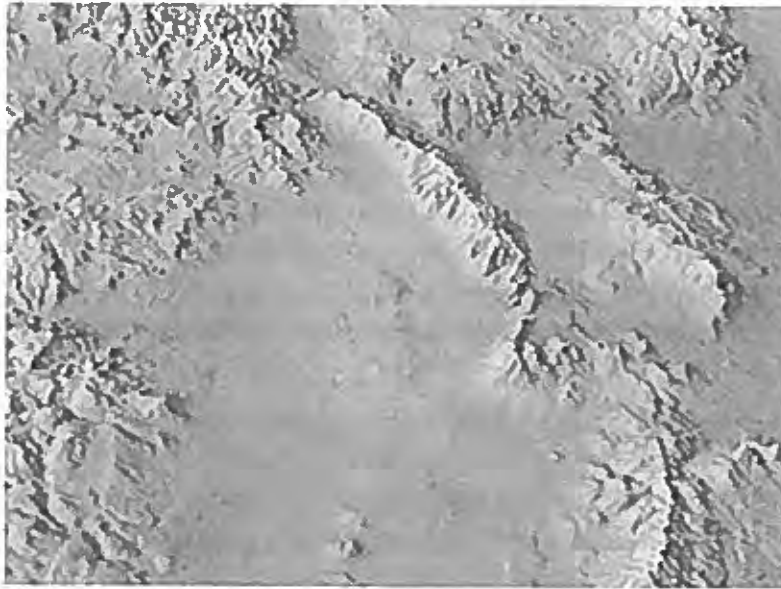
### **Streamflow facts**

Average total basin inflow of native water is about **1,576,000 acre feet**, with another approximately 4,000 acre-feet of imported water. Total basin outflow was **278,000 acre-feet in 1970 and 325,000 acre-feet in 1993**. In 1992, irrigated acreage was 452,700 acres and water loss due to irrigation consumptive use and associated consumptive reservoir and conveyance losses were 617,000 acre-feet. Irrigation in the lower reaches of the Rio Grande has caused elevated dissolved salts and suspended sediment concentrations.

Usually by mid-July native flows in all of the basin streams have dropped to the point that only the most senior water rights have water available to them. Then, reservoir releases provide supplemental water. The Rio Grande and Conejos Rivers are on call year-round from water rights calls and/or the **Rio Grande Compact**.

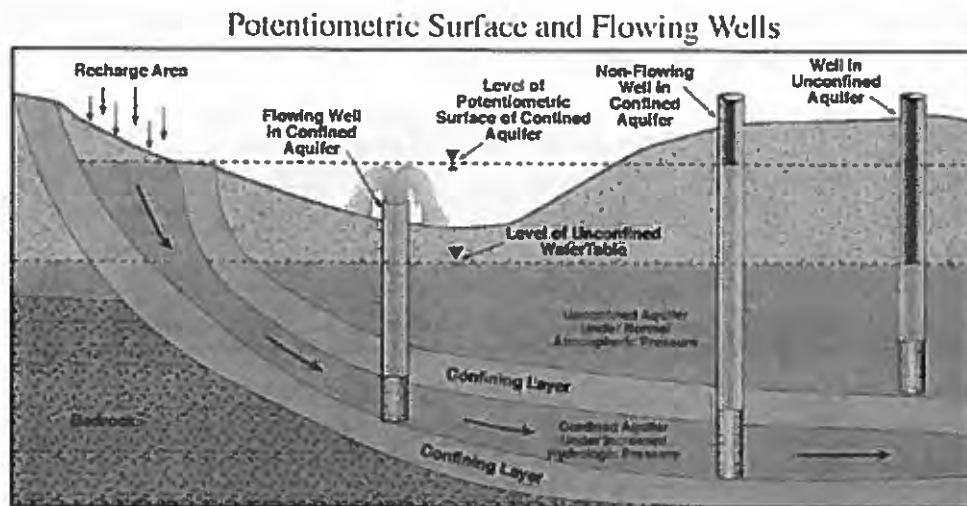
About **18% of the annual flow** delivered from Colorado to downstream users comes from the **Franklin Eddy Canal**, a **42-mile canal** on the east side of the San Luis Valley that is fed by some 160 high-capacity, unconfined aquifer wells and delivers water to the Rio Grande River to the south. The Franklin Eddy Canal is maintained by the **Bureau of Reclamation**.

In the San Luis Valley, there are 133 instream flow segments (totalling about 971 stream miles in the basin) and 48 lakes with decreed natural lake levels (**Figure 3**). It is the responsibility of **The Colorado Water Conservation Board (CWCB)** to "protect the natural environment to a reasonable degree."



**Figure 3.** The "Closed Basin" of the Upper Rio Grande Basin is dotted with some 48 lakes under the present climate regime.

## Aquifer Facts- Who Owns The Water?



**Figure 4.** Schematic diagram showing water table, an unconfined aquifer, a confined aquifer, wells, and potentiometric surface (level to which water would rise by the force of hydraulic pressure in a confined aquifer).

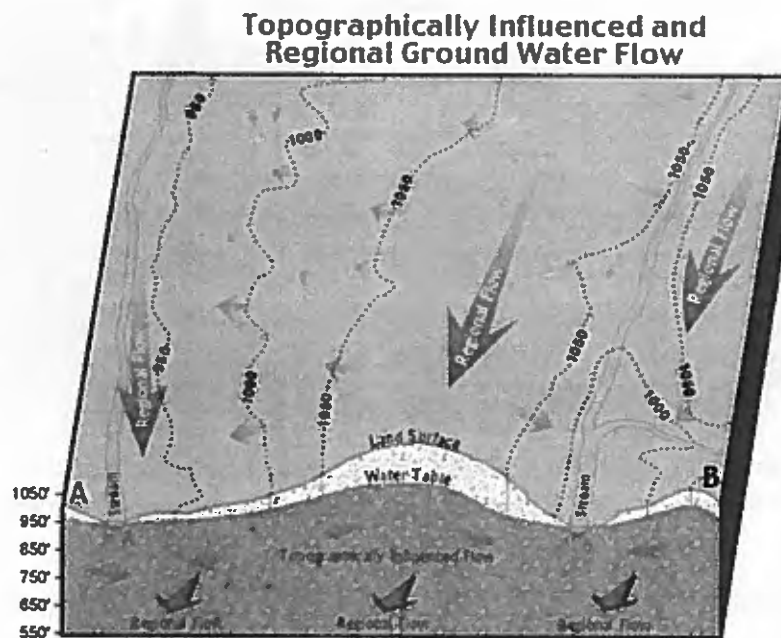
The **unconfined aquifer** occurs in the upper 40 to approximately 180 feet of unconsolidated alluvial sands and gravels. Here, **concentration of dissolved solids ranges from 52 to 13,800 mg/l**, with the high values due to over-irrigation and concentration of salts and alkali near the surface. A **blue clay** layer forms its base, such as shown in **Figure 4**. The **blue clay** consists of lacustrine clays of **Lake Alamosa** (dating about 3.7 Ma to 440 ka) and is found at depths ranging from 10' to 1000'. Beneath the **BNWR** and the **Baca Grande community**, the **blue clay** occurs at depths of greater than 100' to greater than 130'. This **unconfined aquifer** yields **up to 1,500 gallons per minute (gpm)** on the west side of the valley and **50 to 700 gpm** in the central and eastern parts of the valley. The water is

generally potable, but nitrate, sodium and dissolved salts are unacceptably high in local areas of the central part of the valley due to waterlogging of the soil from excessive irrigation.

The **confined aquifer** is thought to be 500 to about 14,000 feet thick. Thickness of potable water averages about **2,000 feet** across most of the **San Luis Valley**, where concentrations of dissolved solids range from 70 to 437 mg/l. So the quality of confined aquifer groundwater is typically much greater than that of the unconfined aquifer (where tds range from 52 to 13,800 mg/l). At about 2200' the water is too briny for agricultural use or drinking water. The confined aquifer occurs in alluvial sands and gravels in its upper portion and sandstone and fractured volcanic rock in its deeper portions. Yields of from **50 to over 3,000 gpm** in the southern and western parts of the valley are typically acceptable for potable use. Although hydrologists typically use a model postulating five blue clay layers (aquitards), geologists speculate there may more like 30 in the San Luis Basin.

Right now, it is said that the State of Colorado owns most of the water rights to the confined aquifer. However, two recent court cases could have a large effect on how groundwater in the SLV is utilized and by whom. In **Water Court Case #04CW24** (1972), the **Colorado State Engineer** has determined that the confined aquifer is now fully appropriated and placed a **moratorium** on new water appropriations from non-exempt **confined aquifer wells** since 1972 and on non-exempt **unconfined aquifer wells** since 1982. However, **Gary Boyce of Stockman's Water, Inc.** is now challenging these laws in the Colorado Supreme Court in what may be a (third) attempt to **export water from the confined aquifer** to the Denver area. Local water officials refer to this water play as "AWDI-3". The other pertinent, pending water case is **Water Court Case 04CW35**, in which the new **Great Sand Dunes National Park and Preserve** is trying to claim dominion over all unallocated water under the National Park.

Water in aquifers moves and mixes. One must assume the general flow of subsurface water in the unconfined aquifer is downhill and toward the south as per **Figure 5**.



**Figure 5. Regional flowlines of aquifers, based on gradient and hydraulic pressure.**

One must also assume that basin-fill sediments that form the **aquifer systems** in the **San Luis Valley** are



hydraulically interconnected with each other as well as with the alluvium of the Rio Grande and its tributaries in the valley.

## ***Does the "Closed Basin" constitute the headwaters of Rio Grande River? Lake Alamosa says yes!***

Certainly, over time, the "Closed Basin" forms the headwaters of the Rio Grande drainage basin as shown in Figure 2. Indeed, between about 3.7 Ma (million years ago) and 440 ka (thousand years ago) most of the San Luis Valley was under Lake Alamosa, and this lake drained to the south into the Rio Grande River. According to Dr. Mike Machette of the U.S. Geological Survey, geomorphological features, including shorelines, spits, lagoons and barrier islands in the San Luis Hills, indicate that a basalt lava flow blocked the south-flowing Rio Grande River, impounding water in the San Luis Valley to form Lake Alamosa. This lake was three times the size of modern Lake Powell, extending north to south about 62 miles (from the present Mineral Hot Springs to La Jara) and 25 miles east to west (from Blanca to Monte Vista) (Figure 6).



**Figure 6. Lake Alamosa (3.7 Ma to 450 ka) in the Upper Rio Grande Drainage Basin**

<http://www.nps.gov/grsa/naturescience/sanddunes.htm>

Lake Alamosa was 150 to 200 feet deep and spilled into the Rio Grande River to the south until about 450,000 years ago, when it finally drained completely into the Rio Grande Canyon, causing canyon-incision to the south. Thus, we see that for most of the past approximately 4+ million years, the San Luis Valley has formed the headwaters of the Rio Grande River system. Machette also noted that whereas most hydrologists recognize about 5 "blue clay layers" in San Luis Valley sediments, there are probably more like 30 separate clay layers (aquicludes) in the valley.

## **Water Quality and Quantity**

As noted above, the quantity of recoverable (potable water) in the San Luis Valley has been estimated at over 140 million acre feet (Pearl, 1974). The quality of water in the San Luis Valley is generally excellent, except where overuse of irrigation has caused buildup of salts and alkali. However, Evelyn Veehill of the Sangre de Cristo Lab in Alamosa notes that extremely high levels of methane gas

are commonly encountered in water samples from the **confined aquifer** in wells between Alamosa and Moffat on the east side of Highway 17. The **Draft EA** also reports readings of between about **7 and 26 mg/l of methane** in water samples in 10 of 21 wells for which data are available. Vehill notes that water with about **10 mg/l** is considered **ignitable** and that samples with **20 mg/l** are considered **saturated with methane**. Above that level, machines cannot measure the amount of methane accurately and samples must be diluted in order to get accurate readings.

Vehill also notes that for water to be safe for drinking it should have **no odor, color, smell, or taste**. **Methane concentrations** need to be near zero. Water with high levels of methane, by contrast, appears to foam like beer and is often gold in color. Ms. Vehill notes that in about 2003, a brand new house between Alamosa and Mosca exploded and was destroyed after methane that had accumulated in its plumbing ignited. She also noted that a number of families in the Mosca area heat their homes from the gas that comes along with their water!

## Current Drought Conditions

Analysis of snowpacks in the Rio Grande Basin on April 1, 2006 indicate snowpack ranged from 69% of average in the Upper Rio Grande Basin to only 9% in the Jemez Basin. Spring runoff forecasts for April, 2006 called for about 30% of normal streamflow response to this melting snowpack. Between relatively wet years of 1995 and 2005 were nine years of **consecutive drought**.

The **Rio Grande silvery minnow** is a species of fish living in the Rio Grande River which is on the **endangered species list**. Its historic range was from Espanola, New Mexico to the mouth of the Rio Grande in the Gulf of Mexico. Threats to the silvery minnow include prolonged flow diversions, channelization and regulation of river flow to provide water for irrigation; **diminished water quality caused by municipal, industrial and agricultural discharges**; and competition or predation by introduced non-native fish species.

## Riparian Areas and Endangered Species

Western riparian areas and wetlands have great significance as wildlife habitat because of the arid climates in which they are found. Although riparian areas comprise a relatively small percentage of the land in the Southwest, over 70% of all species inhabiting the region, as well as many migratory species such as birds, depend on riparian habitats. Although Western riparian areas typically have a greater significance than wetlands and riparian areas elsewhere in the US, riparian areas in the West often do not qualify as wetlands for purposes of regulation under the **Clean Water Act**. Recent estimates are that some **riparian areas have declined by as much as 90 to 95% in the West**.

Because the **silvery minnow is listed as an endangered species**, the **US Fish and Wildlife Service** is charged with maintaining in-stream flows if necessary to protect it. How ironic then, that in letting the Lexam drilling project go forward, the **Baca National Wildlife Refuge** is allowing both the reduction in quality and quantity of surface waters that feed the **Rio Grande River**. In addition, the pumping of vast quantities of saline, sodic water from the confined aquifer would further poisoning surface water in the headwaters of the **Rio Grande River**.

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Pearl, R.H., 1974, Geology of Ground Water Resources in Colorado. Denver: Colorado Geological Survey, Department of Natural

Resources.

## Water Stake-Holders

**Rio Grande Water Conservation District:** Steve Van Diveer, 10900 E. US Highway 160, Alamosa, CO 81101. Phone: 719-589-6301, fax- 719-589-4331. Saguache County Director: David Graham, Vice President: George Whitten, Jr.

**Rio Grande Compact Commisison:** Honorable Patrick R. Gordon, Rio Grande Compact Commissioner, P.O. Box 1917, El Paso, TX 79950, phone 915-834-7075. Legal: Prescilla Hubenak, Office of the Attorney General, P.O. Box 12548, Austin, TX 78711, phone: 512-463-2012.

**Middle Rio Grande Conservancy District:** Public Information Officer, Dennis Domizalski, 505-247-0234x 1342, 1931 Second St. SW, Albuquerque, NM 87102, Mailing Address: P.O. Box 581, Albuquerque, NM 87103, or David Gensler, Hydrologist, 505-247-0234 ext. 1361.

**U.S. Bureau of Reclamation, Upper Colorado Regional Office;** Ella Mae Herrera, 10900 Highway 60 East, Alamosa, CO, 81101, 719-589-5855, 125 South State Street, Room 6107, Salt Lake City, UT 84138-1147 (801-524-36030, Albuquerque Area Office, 555 Broadway NE Suite 100, Albuquerque, NM, 87102-2352 (505-462-3540), Western Colorado Area Office, 2764 Compass Drive Suite 106, Grand Junction, CO, 81506, Grand Junction, CO 81506 (970-248-0600).

**Colorado Water Conservation Board:** 1313 Sherman St., Room 721, Denver, CO, 80203, 303-866-3441.

**State of Colorado- Division of Water Resources: (Division III)-** P.O. Box 269 301 Murphy Drive, Alamosa, CO 81101, 719-589-6683.

## Geology of the San Luis Valley:

*What priceless treasures are buried here?*

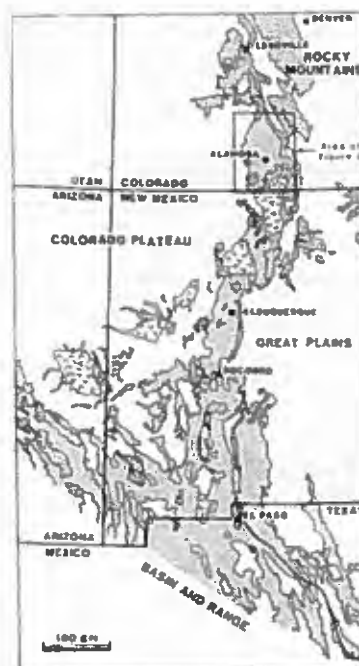


Figure 1. Location map of the Rio Grande rift. Stippled pattern represents Tertiary and Quaternary cinder cone-related basins. "V" pattern represents late Tertiary and Quaternary volcanic rocks. Short-dashed pattern represents Precambrian rocks in the core of Late Cretaceous to Tertiary basement-cored uplifts. Unconformities represent areas not directly related to Rio Grande rift extensional structures. (After Hildridge and others, 1964.)

**Figure 1. San Luis Valley and Rio Grande Rift.**

### The San Luis Valley and Rio Grande Rift

The **San Luis Valley** is part of the **Rio Grande Rift** system that extends from central Colorado southward through New Mexico, Texas, and into northern Mexico (**Figure 1**). The rift began to form about **28 million years ago** during the Oligocene Period when a large **graben** began to sink along deep bounding faults (**Figure 2**). Geologic cross-sections through the valley indicate two major half-grabens, including the **Baca Graben** to the east and the **Monte Vista Graben** to the west (**Figure 2**). These **half-grabens** are filled with some 10,000 to



- 1000

☐

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250 to 65 million years ago).

2). Most or all of any sediments deposited during the Mesozoic were probably eroded and removed during regional uplift during the **Laramide Orogeny (between 65 to 50 million years ago; Brister and Chapin, 1994).**

3) Rifting began about 28 million years ago simultaneously with the outpouring of volcanic rocks in the San Juan Mountains. Geologic cross-sections by Brister and Greis (1994) and Tweto (1979) (**Figures 3-a and 3-b**) show the major geologic structures as well as the estimated ages of sediments and rock formations in the northern **San Luis Basin**.

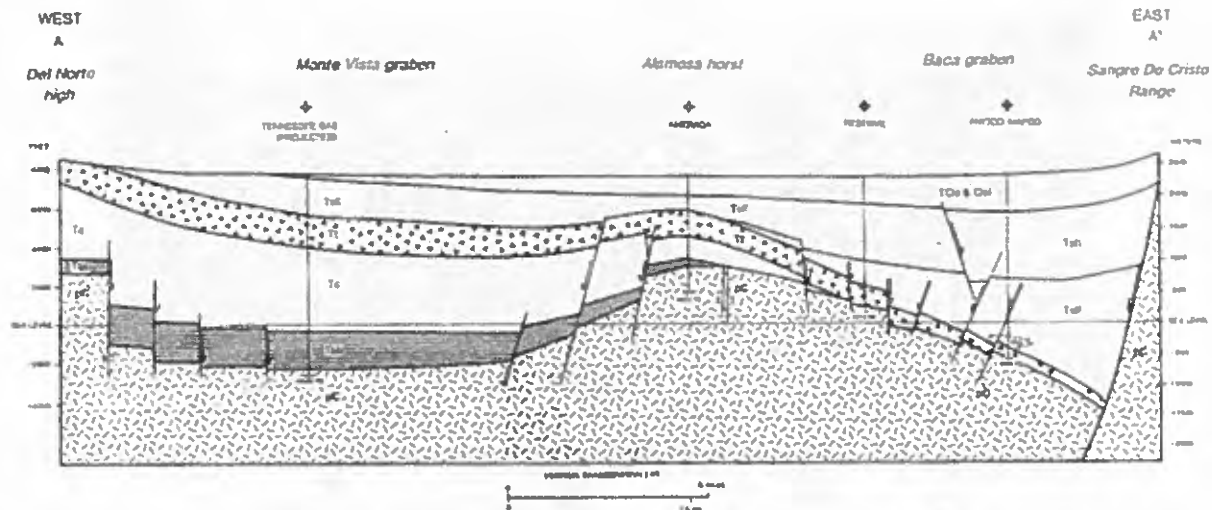
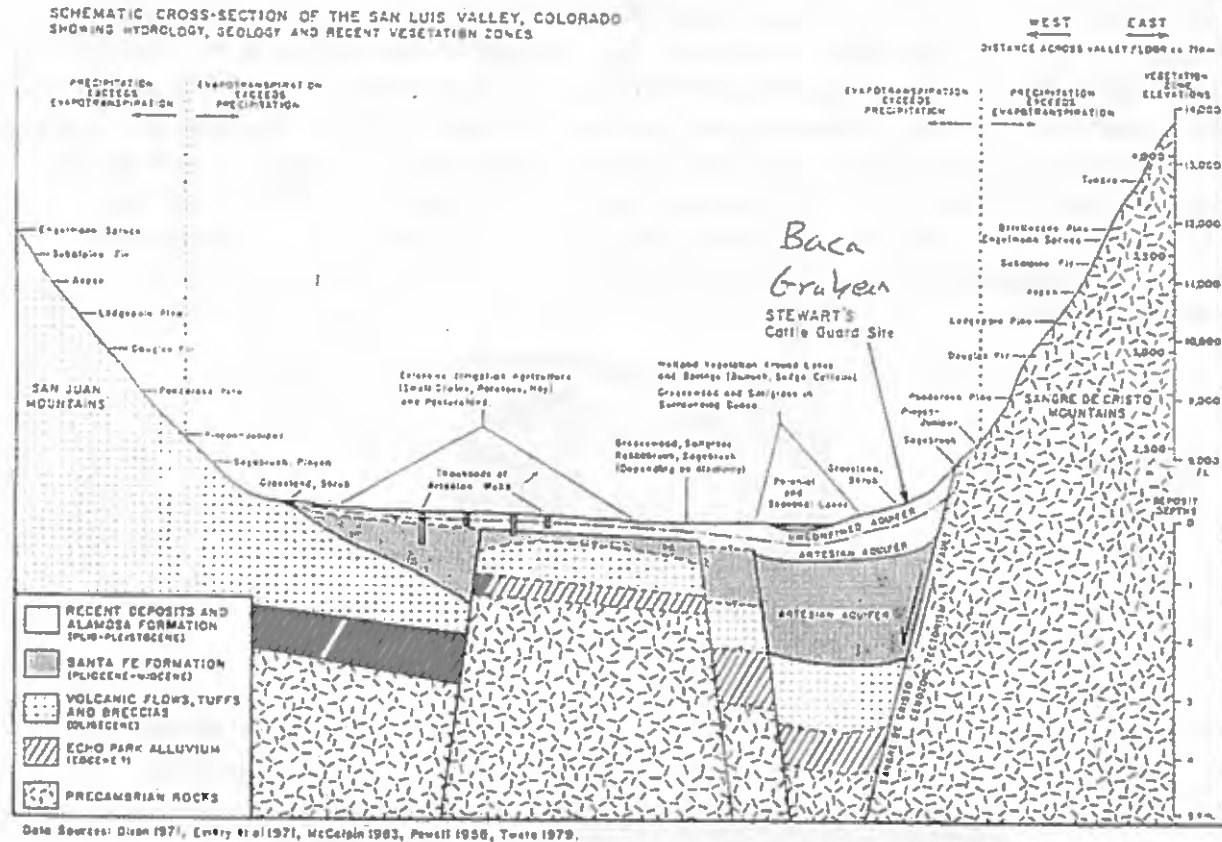


Figure 2. Interpretive cross section A-A' across the San Luis Basin; location of section indicated in Figure 3. Symbols: TQa and Qal, Alamosa Formation (Plio-Pleistocene) and Quaternary alluvium; Tstf, lower Santa Fe Group (Mio-Pliocene); Tl, ash-flow tuffs of San Juan volcanic field (Oligocene); Tc, Conejos Formation and equivalents (Oligocene); Tbh, Blanco Basin Formation (Eocene); pC, granite-gneiss basement (Precambrian); TD, total depth. Figure modified from Greis and Brister (1989).

**Figure 3-a. Geological Interpretation of Brister and Greis (1989)**



**Figure 2. Schematic cross-section of the San Luis Valley.**

**Figure 3-b. Geological cross-section by Tweto (1979)**

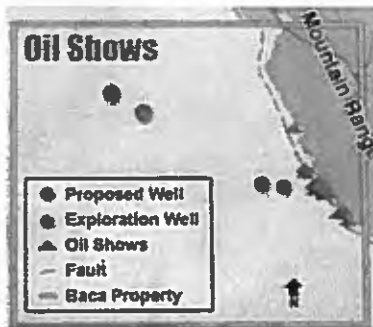
4) Thus, **basin fill in the Baca Graben consists mainly of upper Oligocene to middle Pleistocene sediments (up to 5.6 km thick)**, comprised of mudstones and coarse lithic sandstones and conglomerates, that overlie Precambrian bedrock (Chapin and Cather, 1994; Kluth and Schaftenaar, 1994, Brister and Greis, 1994; Brister and McIntosh, 2004). These conclusions are based on seismic, gravity, and well data, as well radiometric dating and geologic mapping.

Again, none of the geological experts recognize the presence of **Mesozoic hydrocarbon source rocks in San Luis Basin**. Furthermore, Kluth and Schaftenaar (1994) conclude the angle of the (east) bounding fault of the Baca Graben is about 60°, with 45° as an absolute minimum angle.

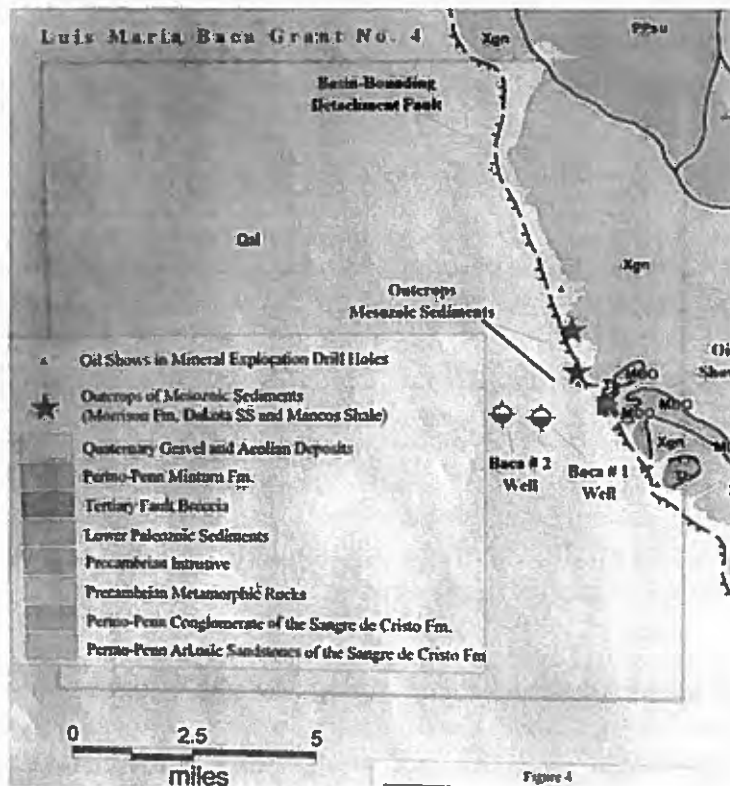
Another piece of evidence suggesting **no commercially significant amounts of hydrocarbons** are present is that **samples of gases in hydrothermal waters at local hot springs do not show significant quantities of hydrogen sulfide or organic molecules associated with fossil fuels**. (Drs. Karl Karlstrom and Laura Crossie, Department of Geology, University of New Mexico, personal communication, 2008).

## Lexam's (Different) Story

In contrast with all other geologists, **Lexam Explorations, Inc.'s geologist, Thomas Watkins**, authored a 7-page report postulating that **Mesozoic source rocks** are abundant in the **San Luis Basin**. This paper has not gone through the standard scientific review process; i.e., it has not been checked, evaluated, and verified by other scientists. Nonetheless, Watkins justifies his conclusions based on re-interpretation of seismic data in addition to well data acquired in 1992 and 1993. Hoey et al. (2006) indicate that "live oil" was encountered in 27 mineral exploration holes drilled in 1992 and 1993. These "oil shows" were supposedly present in a "concealed seep" in a four-mile stretch along the eastern margin of the basin (Figures 4, 5 and 6).



**Figure 4. Location of "oil shows" (green triangles), Baca #1 and #2 wells (red circles) and proposed well locations (green circles) (from Lexam website).**



**Figure 5. "Oil shows" (green triangles) along Sangre de Cristo fault along eastern edge of San Luis Basin.**



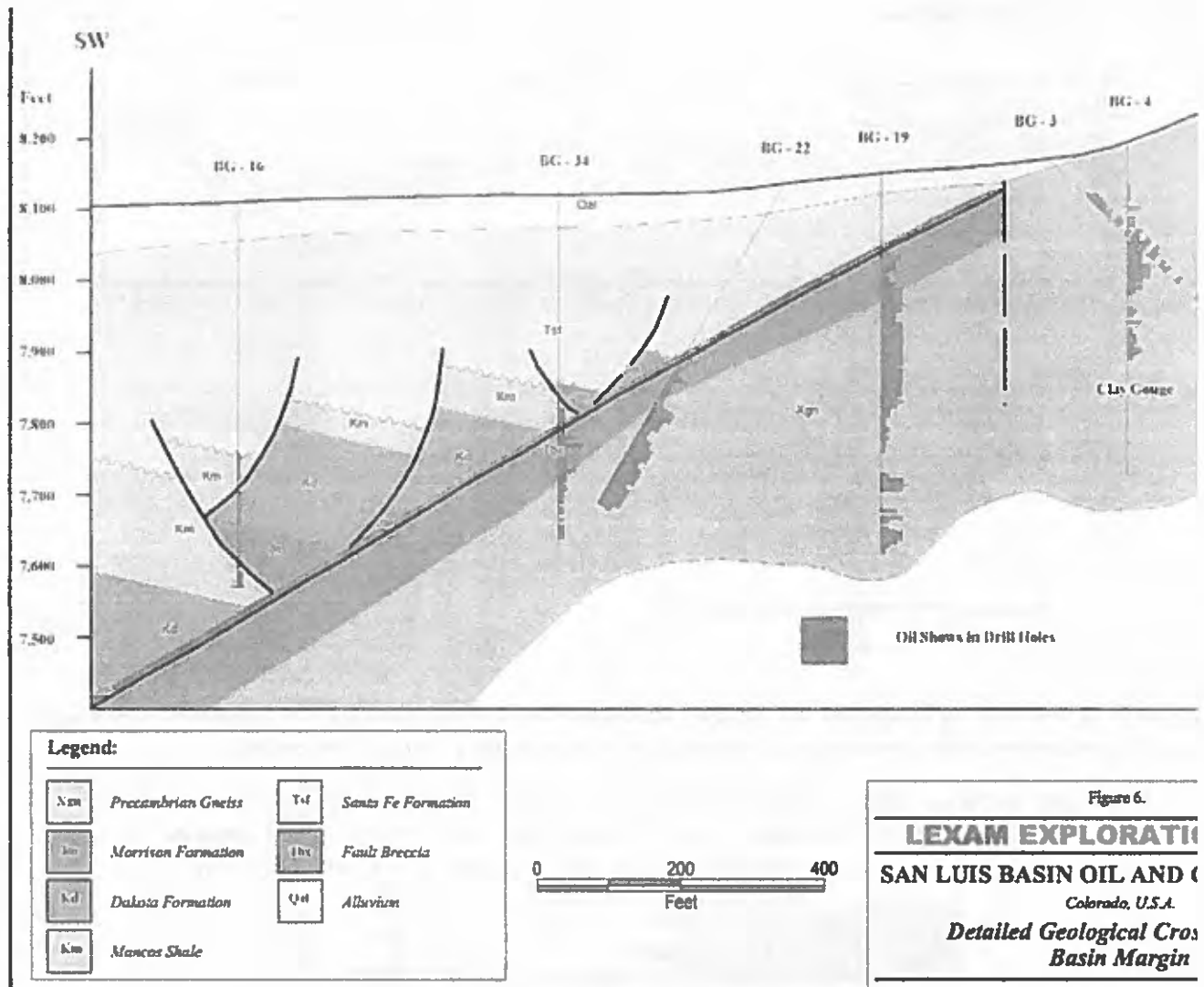
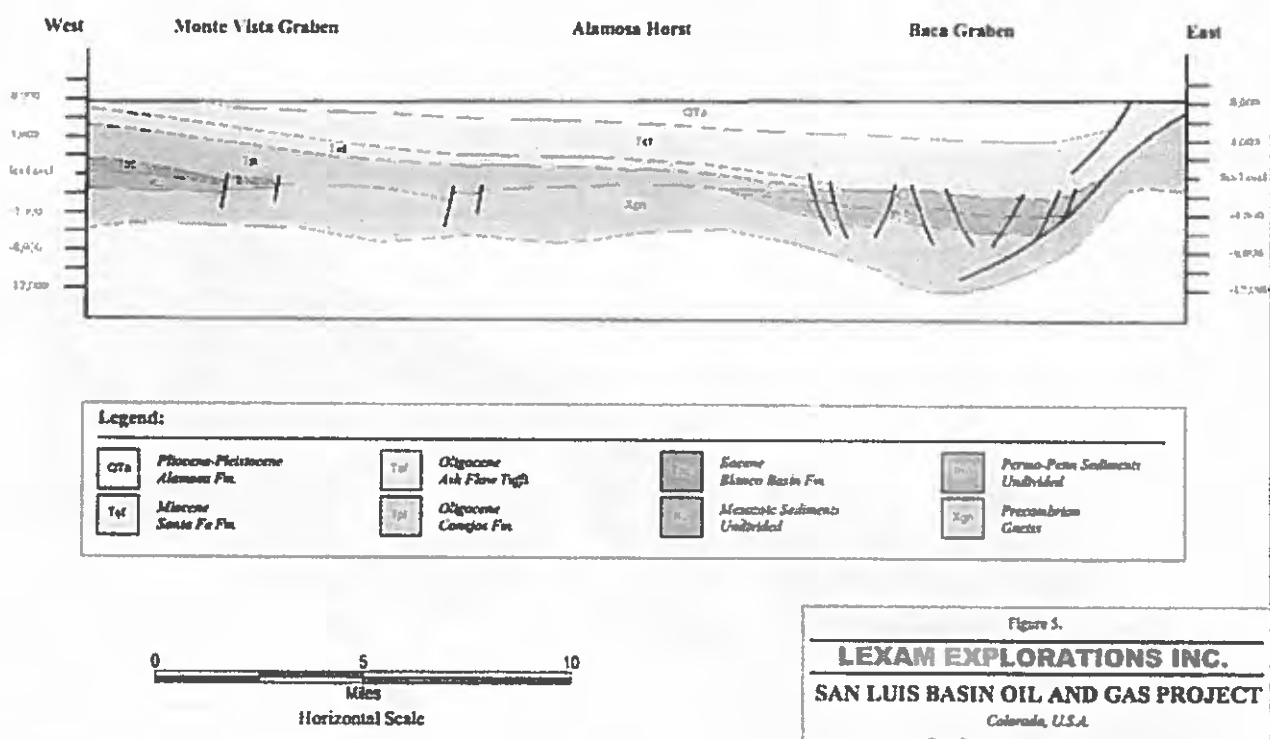


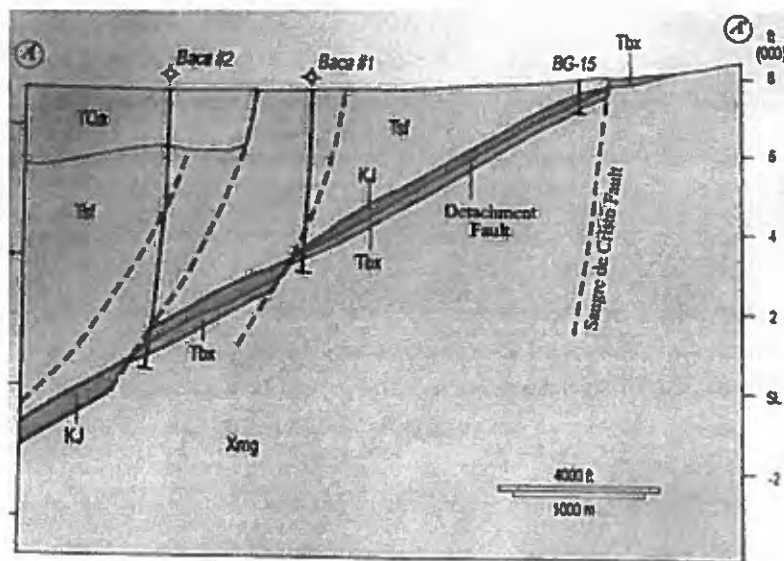
Figure 6. Lexam's (Hoey et al., 2006) interpretation of sub-surface stratigraphy based on six test wells (BG 3, 4, 16, 19, 22, and 34). Note: "oil shows" in drill holes (green color), rotated fault blocks, and supposed presence of Mancos Shale, Dakota Sandstone, and the Morrison Formation.

Watkin's/Lexam's geologic interpretation differs significantly from all other geologists in that they show **Mesozoic source rocks** along **rotated blocks** in the hanging wall of a **low-angle (25 to 30°) normal fault** that forms the (eastern) margin of the **San Luis Basin** (Figures 6 and 7).



**Figure 7. Lexam's (Hoey, et al., 2006) geologic cross-section of the northern San Luis Valley, showing the presence of Mesozoic sedimentary rocks (in green)**

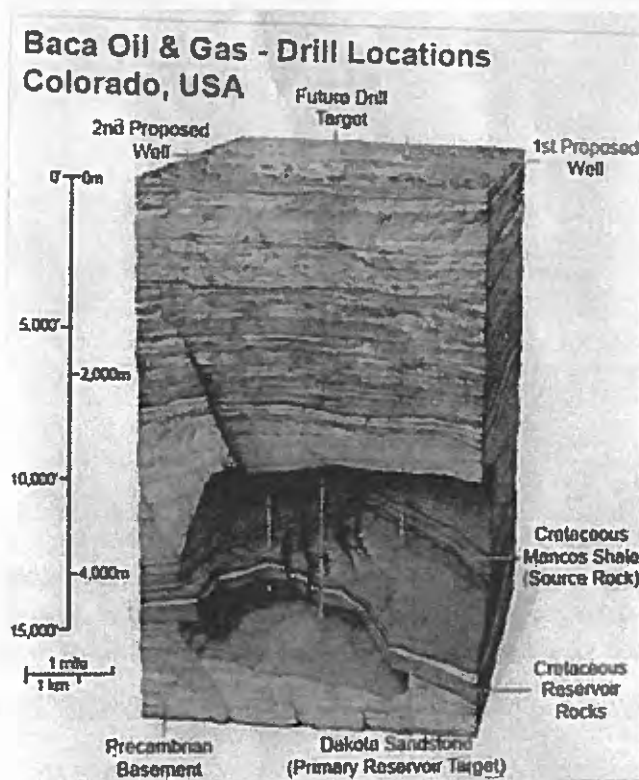
Note that Watkins (2005) claims that Baca #1 and #2 Wells (7000+' and 5000' deep) encountered Mancos Shale and traces of oil (**Figure 8**). The strongest "oil shows" were supposedly present in a 350' section of **Baca #2 Well** starting at 6620' (2000 m).



**Figure 8. Lexam's interpretation of stratigraphy, faults based on Baca wells #1 and #2.**

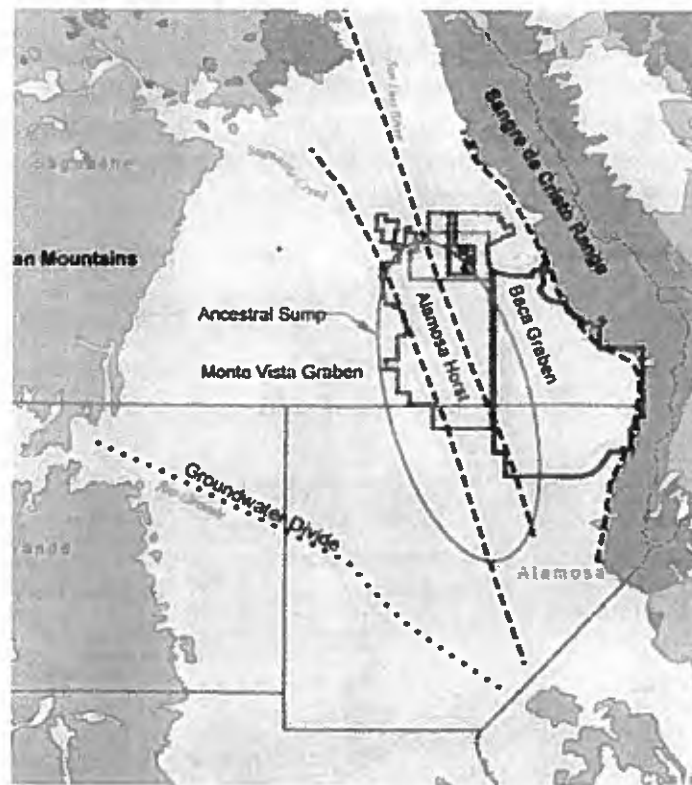
Although Watkin's paper has not gone through the accepted scientific peer-review process, it

nonetheless provides the scientific basis for the report prepared by Toronto-based consulting group, **Watts, Griiffiths and McQuat** (Hoey, et al., 2006) that **Lexam** is using to justify its drilling program and fund-raising efforts. As of January, 2008, **Lexam's** website ([www.lexamexplorations.com](http://www.lexamexplorations.com)) indicates their recent **3-D seismic survey** suggests their target **Mesozoic rocks (Dakota Sandstone and Mancos Shale, Figure 9)** occur at the base of the pile of sedimentary rocks near 14,000 foot depth.



**Figure 9. Interpretation of stratigraphy under proposed wells #5 and #6 based on seismic data.**

According to the geological map published in the Draft EA (Figure 10), the **Baca Graben** extends underneath virtually the entire area of **The Great Sand Dunes National Park and Preserve** and the **Baca Grande community**:



**Figure 10. General Geology as in the Draft Environmental Assessment. Note they extend the Baca Graben east to the mountain front and that it includes the Baca Grande community as well the Great Sand Dunes National Park and Preserve.**

## **Whose Interpretation Should We Believe? Could This Be A Water Play in Disguise?**

Given the wide departure of **Watkins'/Lexam's** interpretation from that of all other geologists and given the proprietary nature of the data on which Watkins bases his claims, one has to wonder and speculate:

- 1) Is this interpretation "science by assertion" and based only on "cartographic evidence," or**
- 2) Could Lexam's drilling program really be aimed at exploiting the priceless water resource along the lines of previous "water-development" plans of the recent past? or**
- 3) Might Lexam really be angling for a lucrative federal buy-out of their mineral rights. Or,**
- 4) Alternatively, if their geologic interpretations prove correct and there are commercial quantities of natural gas present here, would Lexam and/or Conoco-Philips quickly add other wells all over the San Luis Valley, including our Baca Grande community and The Great Sand Dunes National Park and Preserve?**

Certainly, much of Lexam's interpretation is based on claims of "**oil shows**" in test wells. Are they real or conjured? Based on the proprietary nature of information gathered by the oil

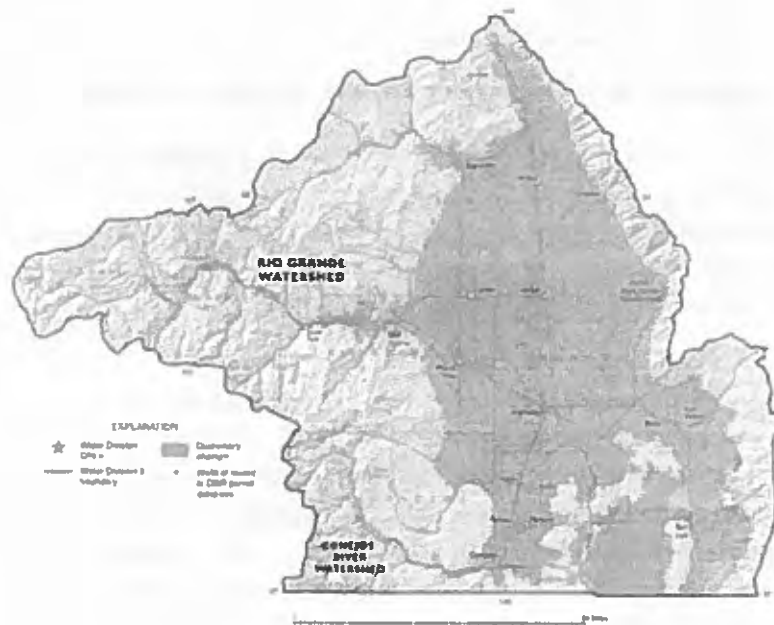
and gas industry, it is difficult to know for sure.

### **NORTH AMERICA'S LARGEST BODY OF UNTAPPED, CLEAN WATER?!**

Regardless of which geological interpretation is correct, **Lexam's** drilling of **three 14,000' exploratory wells** could directly and adversely affect the quality and quantity of groundwater in the **San Luis Valley aquifers**. **Natural gas, oil, and drilling fluids** each can contaminate precious groundwater. While we do not know if there are commercial quantities of gas or oil in the valley, we can be more certain that a vast reservoir of groundwater is here and is priceless.

Geologic/hydrologic studies from the mid-1970's conclude that sediments underlying the **San Luis Valley** contain one of the largest freshwater aquifers in North America. Indeed, the **confined aquifer** here is estimated to hold **140+ million acre-feet of recoverable water that is worth an estimated 770+ trillion dollars!** Indeed, this may be **the largest untapped aquifer in North America!** The still-pristine and unspoiled **San Luis Valley** itself is the world's largest and highest alpine agricultural valley. The Valley itself is about **8,000 square miles**, or about 122 miles long and 74 miles wide. The only surface water leaving the **San Luis Basin** is the **Rio Grande River**, which is fed by streams from the **Sangre de Cristo Mountains** and the **San Juan Mountains**.

Groundwater in the **unconfined** and **confined aquifers** is separated by an impermeable layer of clay. The **unconfined aquifer** consists of the upper 40 to 180 feet of groundwater that feeds directly into the **Rio Grande River**. **Rio Grande River** water, the only surface water that leaves the Valley (**Figures 1 and 2**), is allocated to three states (**Colorado, New Mexico, and Texas**) and **Mexico** under the terms of the **Rio Grande Compact**. The much more massive **confined aquifer**, which is under artesian pressure and extends downward thousands of feet, actually probably consists of between 30 and hundreds of separate but connected aquifers. It may be inferred that there is mixing of the **unconfined** and **confined aquifer waters** in some places and under some climatic regimes.



**Figure 12. Upper portion of the Rio Grande Basin, including the Closed Basin of southern Colorado (from the Ground Water Atlas of Colorado).**

As described in **WWA Page 2**, two decades ago, Canadian Maurice Strong, of **American Water Development, Inc. (AWDI)**, attempted to reap billions of dollars in profits by exporting the groundwater of the **confined aquifer** to the Denver area. After this plan was defeated by local ranchers and environmentalists, local entrepreneur Gary Boyce proposed a similar plan. Boyce planned to charge **\$5000 per acre foot**. **At this price, the value of water from this aquifer could be on the order of \$700+ billion!** Thus, it is clear that the potential value of potable water stored in the **San Luis Valley** far exceeds any potential, short-term bonanza of natural gas. And the tragedy and criminality of starting a full-scale gas production operation in this Valley is that such an operation would almost certainly contaminate the aquifer. Then this enormous sub-surface pool of fresh water would then not be available to future generations.

This groundwater provides water for agriculture, for communities, and for wildlife and future generations will depend on it. Water from the unconfined aquifer is within 7 feet of the surface in some locations in a highly permeable sandy soil. Any surface disturbance or spill due to drilling operations has the potential to impact the groundwater quality adversely. Thus, contamination of this **unconfined surface aquifer** could mean the loss of our **groundwater resource** for generations. In addition, it could have very negative impacts on **downstream users** of the **Rio Grande River** in New Mexico, Texas, and Mexico, all of which have treaty rights to surface water, which is affected and supplied by the much larger quantity of groundwater in the **confined and unconfined aquifers** here.

Certainly, more specific information regarding groundwater flow directions is needed. The interconnection and interaction between surface water (streams and wetlands) and the unconfined and confined aquifers also needs to be evaluated. Specifically, more data is needed on the potential impacts of drilling on each of these interrelated parts of the surface

water/groundwater system. Thus, a thorough evaluation of the groundwater system and a full **Environmental Impact Study (EIS)** should be completed before any drilling at all is allowed. **Lexam's** drill play on the newly-formed **Baca National Wildlife Refuge** is indeed a special situation, wherein a federally-owned area set aside for the protection of the area's unique and fragile ecosystem, has a privately-held mineral right. At federal sites where significant impacts anticipated, the **National Environmental Policy Act (NEPA)** require that a full **Environmental Impact Statement (EIS)** be conducted.

## Conclusions

**In conclusion, groundwater, not natural gas, is the San Luis Valley's most precious resource.** It supports our lives and livelihoods. It is essential for the survival and well-being of future generations. Its ownership and use is regulated by a complex set of laws involving several basin states as well as Mexico. Thus, it seems common sense that the **water rights and surface-owner rights (especially those of a federally-protected Wildlife Refuge)** should be given higher priority than a **speculative mineral right** owned by a **foreign corporation**. And the potential contamination (or potential theft by secretive and perhaps illegal tactics) of this vast reservoir of groundwater is an unacceptable risk which should preclude any drilling in this sensitive area for perpetuity.

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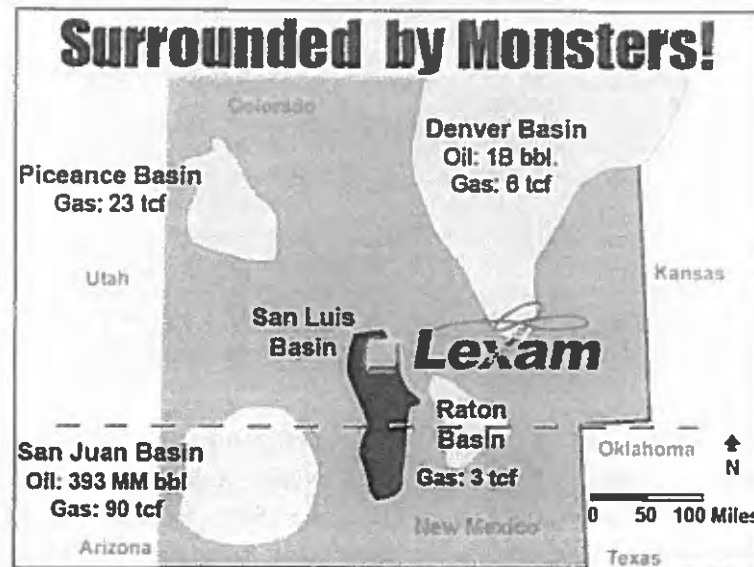
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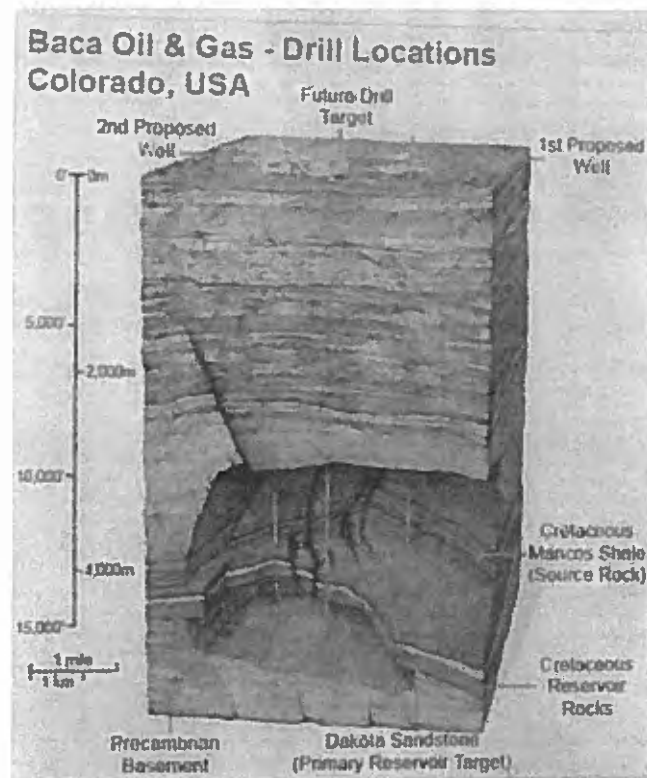


## CBM- Coal-Bed Methane Gas



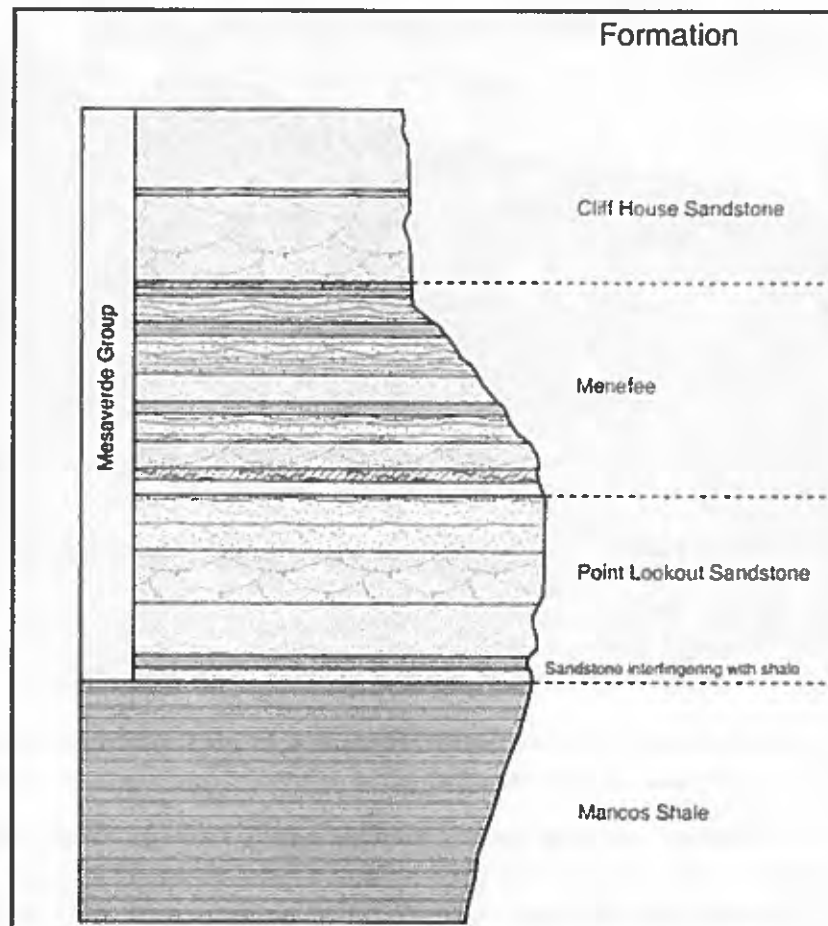
*Figure 1. Map of major gas producing basins in southern Colorado.*

In their July, 2007 press release, **Lexam** states that their 3-D seismic survey confirms the presence of **Cretaceous-age source and reservoir rocks** for hydrocarbons (natural gas) over the entire 16,000 acre area they surveyed. They report that total prospect area is 2,180 acres in size and the two priority targets are estimated to be located 14,000 feet below the surface. They further state that the **Cretaceous-aged Dakota Sandstone** is the primary target (**Figure 2**).



**Figure 2.** Lexam's cross-section of valley sediments based on 3-D seismic data. The buff-colored unit near the base of the section is designated as Dakota Sandstone (reservoir rock) and the green-colored rock above it is shown as Mancos Shale (source rock). Upper Cretaceous coalbed formations overlying the Mancos Shale are not designated in the Figure. Proposed drill locations in pristine wetlands are at the top of the section.

Lexam consulting geologist, Thomas A. Watkins, also identified Cretaceous-aged **Mancos Shale** and **Jurassic Morrison Formation**. Both Lexam's recent press release and the earlier geological report suggest that Lexam's target is "conventional natural gas". However, the nearby **Raton Basin** (60 miles to the southeast), **San Juan Basin** (100 miles to the southwest), and **Piceance Basin** (about 100 miles to the northwest) are currently producing extensive amounts of coalbed methane (CBM) gas from Upper Cretaceous-aged coalbeds that overlie the Mancos Shale and Dakota Sandstone (Figure 3).

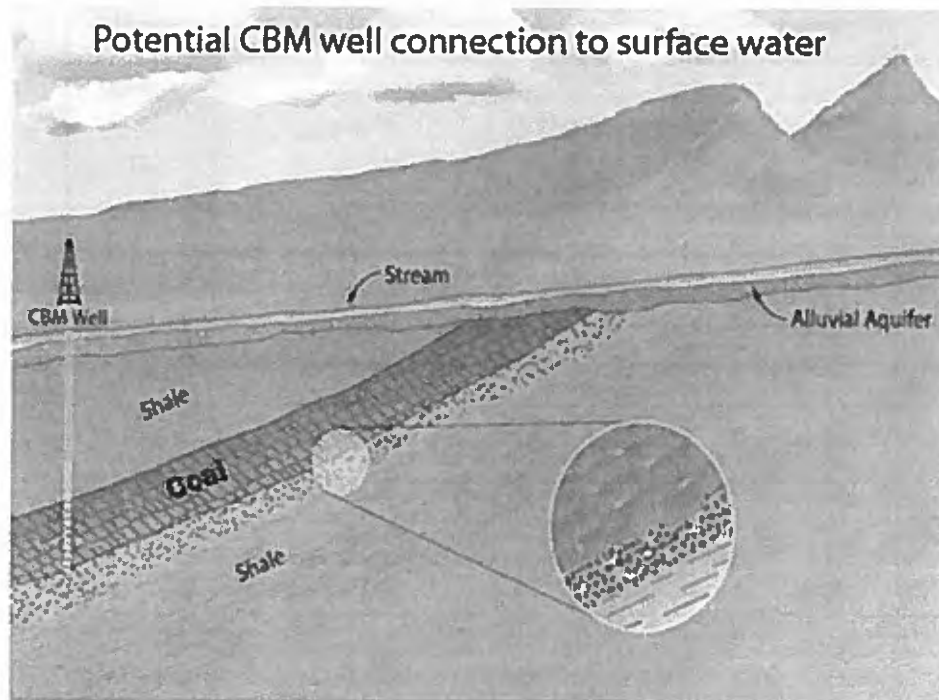


**Figure 3. Stratigraphic column of geologic formations in the San Juan Basin, showing that coalbeds in the Menefee Formation of the Mesa Verde Group overlie the Mancos Shale.**

Thus, we must ask the question: Is **Lexam** also hoping to find **coalbed methane (CBM) gas** in their drilling plan?

## **Coalbed Methane (CBM) vs. "Conventional" Gas**

**Coal-bed methane (CBM) gas** is gas that comes from coal deposits underground. Natural gas is stored along with water in cracks and micropores in the coal. To extract the gas, **enormous quantities of water** must first be pumped out ("**produced**") from wells. In 1998 (the last year for which statistics are available), over **597 million gallons of water** were "**produced**" from the Las Animas County methane wells in the **Raton Basin** in southern Colorado. A single well can require the "**production**" (removal) of as much as **a million gallons of water**. "**Produced**" water is typically **highly saline and sodic** and, if discharged at the surface, normally renders nearby agricultural lands infertile (**Figure 4**).



**Figure 4. Schematic diagram of coal-bed methane gas well and coal bed in San Juan Basin. In the San Luis Basin, the aquifer extends throughout the entire section.**

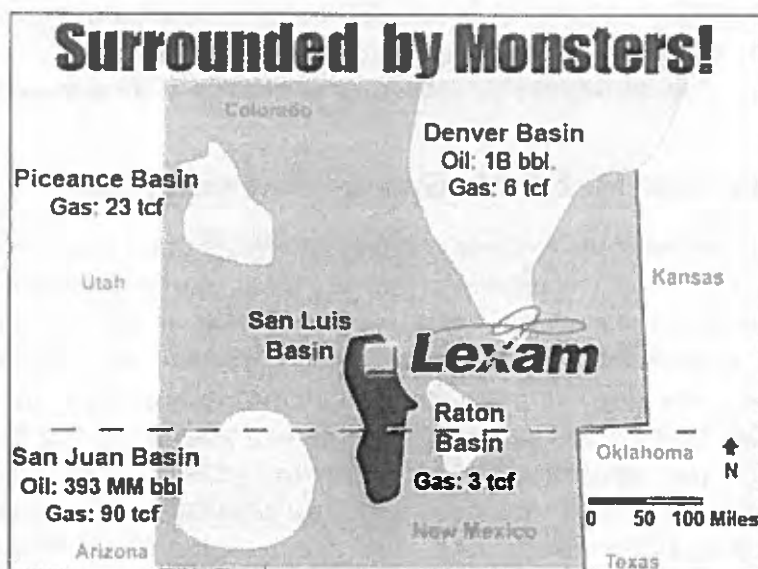
In Colorado, "conventional" oil and gas reservoir rocks include the Cretaceous-aged **Dakota, Point Lookout, Cliff House, and Pictured Cliffs Sandstones**. The "source rocks" are thought to be the **Lewis and Mancos** marine shales, each several thousand feet thick. Coalbeds, considered "unconventional" reservoirs, are found in the **Fruitland and Menefee Formations** in the **San Juan Basin (Figure 3)** and in the stratigraphically-equivalent **Vermejo and Raton Formations** in the **Raton Basin**. Coalbeds act as both source and reservoir rocks for methane gas. All of these formations are **Upper Cretaceous** in age and thus, overlie and are younger than the **Mancos Shale and Dakota Group sandstone**.

Certainly, it is clear that very extensive **CBM** reserves are located in basins quite near to the **San Luis Valley**. Schwochow (1997) and Nelson (1999) make the following estimates of the **largest coalbed methane reserves** in the contiguous U.S.

### **Location CBM Reserves (Trillions of cubic feet or tcf)**

Green River Basin, Utah	134
<b>Piceance Basin, Colorado</b>	99
<b>San Juan Basin, Colorado</b>	90
Northern Appalachian Basin	61
Powder River Basin, Wyoming	39
Black Warrior Basin,	20-23
Western Washington Basin	24
Illinois Basin	21
<b>Raton Basin, Colorado</b>	10

Thus, the San Luis Valley is surrounded by three of the largest CBM gas-producing basins in the United States (**Piceance, San Juan, and Raton Basins**). **NO WONDER THAT LEXAM BOASTS TO ITS POTENTIAL INVESTORS THAT THE SAN LUIS VALLEY IS "SURROUNDED BY MONSTERS!"** (Figure 1, below).



**Figure 1. Location of San Luis Basin in relation to massive gas fields (INCLUDING COAL-BED METHANE GAS) in southern Colorado and northern New Mexico**

However, there are very important geologic differences between the **San Juan, Piceance, and Raton Basins**, which are broad basins formed by folding and crustal compression during the Laramide Orogeny (about 80 to 50 Ma) and the **San Luis Basin**, which formed during much more recent crustal extension and rifting about 28 Ma (Geology of the San Luis Valley: What priceless treasures are buried here? Figure 1. San Luis Val). Indeed, the Laramide basins are much more likely to contain extensive expanses of source and host rocks for hydrocarbons.

The **San Juan Basin** is a much larger feature that includes 4 million acres (about 6700 square miles) and is about 270 miles wide. Including production of both **conventional natural gas** and **CBM**, it is the second largest natural gas reservoir in the U.S. Estimates indicate the gas-in-place in the coalbeds exceeds the gas in conventional reservoirs. In the **San Juan Basin**, **CBM** is estimated to include **50 trillion standard cubic feet (Tscf)** in the **Fruitland Formation** with another **34 Tscf** in the **Menefee Formation**. There is an estimated **13 Tcf of CBM gas** left in NW New Mexico alone. The main producing formations are the **Dakota, Mesa Verde, Pictured Cliffs Formations** and the **Fruitland coal**. Currently, about 65% of the total production of the **San Juan Basin** is **CBM from the Fruitland coal**.

Although one can understand why **Lexam** would want to compare the **San Luis Basin** with adjacent basins in order to attract investors, this is not a fair comparison, geologically speaking. The **San Juan, Raton, Piceance, and Denver Basins** are all broad **Laramide**

basins that formed by major crustal shortening (compression) and folding during the **Laramide Orogeny** about 65 to 50 million years ago. In these basins, great thicknesses of **Cretaceous sediments** were buried more or less intact during downwarping of the earth's crust. By contrast, the **San Luis Basin** is much narrower and was formed via crustal extension, block-faulting, and rifting about 28 million years ago. Geologists believe that during **Laramide** times, this part of Colorado was well above sea level. Hence, Cretaceous marine sediments were probably never deposited here in any significant thicknesses. This is a very important distinction because it means that **Mesozoic source rocks** for hydrocarbons are probably not present in commercial quantities in the **San Luis Basin**. BUT.... if Mesozoic rocks are present here, why not **Upper Cretaceous coalbeds** and **coal-bed methane gas** too?

## Why Mining Coal-Bed Methane Gas Is So Polluting?

The ability of **coalbed reservoirs** to store methane depends upon reservoir pressure, composition and rank of the coal, micropore structure, molecular properties of the adsorbed gas constituents, and reservoir temperature. **CBM** wells are drilled using techniques similar to those used for drilling conventional wells, but completion practices and the method of reservoir evaluation are different. Because the methods used ("**cavitation**," **hydraulic fracturing**, and removing "**production water**") all can result in increased mixing of hydrocarbons with aquifer water, "**the BLM has adopted COGCC order No. 112-61, which requires that the production casing of all coal-bed methane wells be cemented from producing horizon to surface by grout circulation methods.**" This is done in order to attempt to minimize or preclude the inter-zonal flow of fluids between producing horizons and aquifers within the casing annulus.

Again, both enhancement methods of mining **CBM gas** involve moving fluids or gases through target formations under high pressure. Thus, both methods result in enlargement of the actual well and thus, increased potential for the **mixing of hydrocarbons with groundwater** and hence, **contamination of the aquifer**: 1) The "**cavitation method**" creates a cavity in the targeted coal seams by altering the velocity of the gas escaping from the coal reservoir. This effectively enlarges the original well bore. 2) **Hydraulic fracturing** of rock is accomplished by pumping **fracture-inducing fluids** **fracture-sustaining material** under high pressure through pipe perforations in the coal bed. This essentially causes **mini-earthquakes** in the ground. and

**These mini-earthquakes could possibly trigger movement along the much larger Sangre de Cristo fault system located along the eastern margin of the San Luis Valley within about 10 miles of the proposed drilling sites.** Past earthquakes in this area have been on the order of magnitude 7.0. Geological work here has established that the periodicity for approximately 7.0 earthquakes in this region is about 8,000 years. Unfortunately, the last such earthquake occurred 8,000 years ago (McCalprin, 1982). If a mini-earthquake were to trigger movement along the larger fault, there could be serious and devastating consequences.

Since methane is stored (adsorbed) on micropores of the coal, and storage is a function of pressure (the higher the pressure the greater the storage potential), production of coal gas requires reduction of water pressure within the coalbeds. This pressure reduction frees

states for the depleted water supply. Randy Woock, of the Raton Range, states: "The water taken from the coalbed is often injected back into the ground at a deep level, but can also be dissolved in evaporation pits. The frequently low quality of the water is an environmental concern, and landowners at the meeting voiced concern about it mixing with the tributary waters in the basin that are utilized by humans, crops, and livestock."



## ***Photos of Gas Drilling:***

**"Fly 30 miles in any direction in the Rocky Mountain West, and you see oil and gas drilling rigs and wells and the network of roads that accompany them. It's out of control."**

**Bruce Gordon, pilot**



***Aerial view of Jonah Basin, near Pinedale, Wyoming***



***Drill rig in operation***





***Fowler gas well, Alabama***



***Well flaring on well behind homes.***



***Flaring Pit.***



***Drilling water discharge from Wyoming well.***



***Aerial View of a coal bed methane drill rig***



***Surface oil slick***



***Aerial view of Waste Pit.***



***Aerial View of Coal-bed Methane Pilot well, Mat-su Valley***



***Morgan Flare Pit***

***Gas Drilling Operations and Destruction in the Silt Area, Colorado  
(by EnCana, a Canadian company):***

***We know that every day there are accidents in the field. Just look at the COGC  
Commissions' reports.***

***Peggy Utesch, Grand Valley Citizen's Alliance, New Castle,  
Colorado***



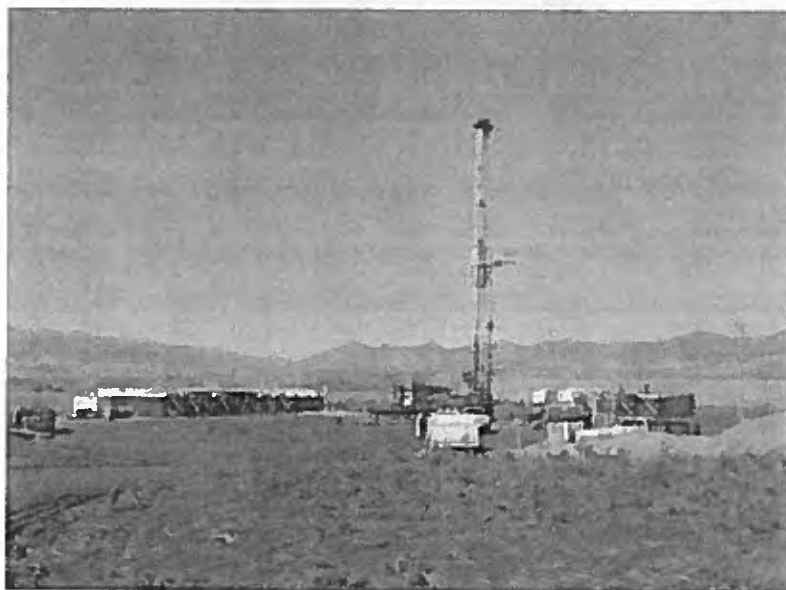
***Pockmarked (lunar-type) landscape south of Silt, Colorado.***



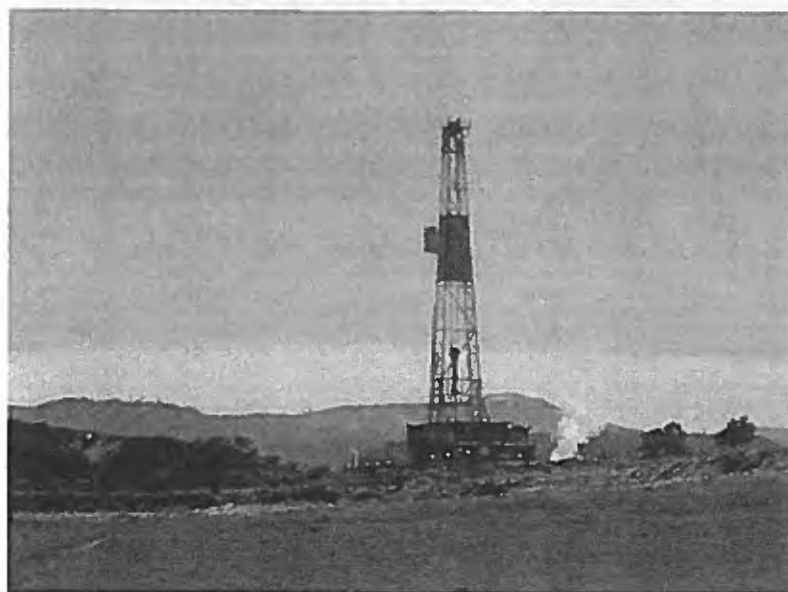
***GMR Miller holding pond south of Silt, Colorado***



***Drilling activity in rural Colorado south of Silt***



***Well and well pad construction***



***Towering drill rig next to private home south of Silt, Colorado***



***Large well pad south of Silt, Colorado***



***After our Baca community heard about the proposed gas drilling, we sent an investigative team to the area south of Silt to see what gas drilling does to people and the environment there***

***(Archives-2: My Articles and Reports Related to Proposed Gas Drilling)***



***Peggy Utesch of Grand Valley Citizen's Alliance was our tour guide. Peggy lived south of Silt and lost her health and her home after EnCana put a gas well right next to her house.***



***Aspen glycol south of Silt, Colorado***



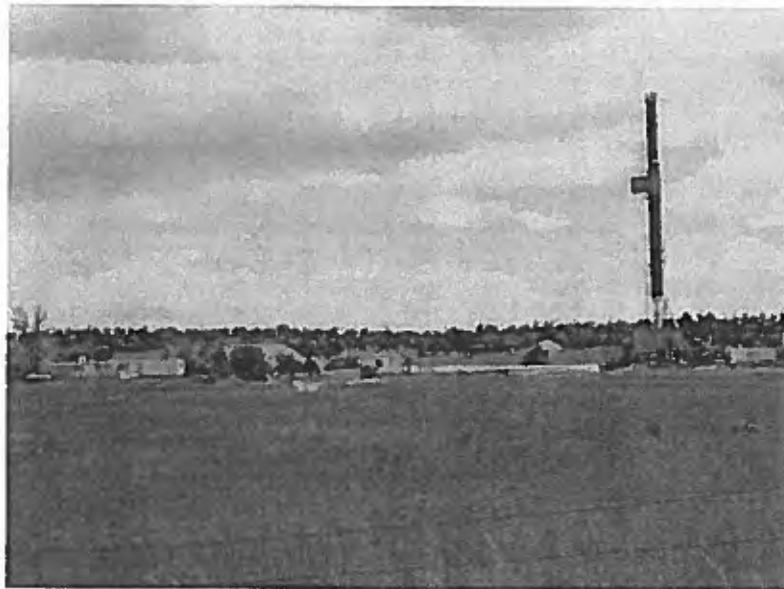


***EnCana Oil and Gas (a Canadian, not American Company!) sign in rural Colorado south of Silt.***





***Drill rigs in rural areas south of Silt, Colorado.***



***The Meese Ranch near Silt, Colorado with drill rig in back yard.***



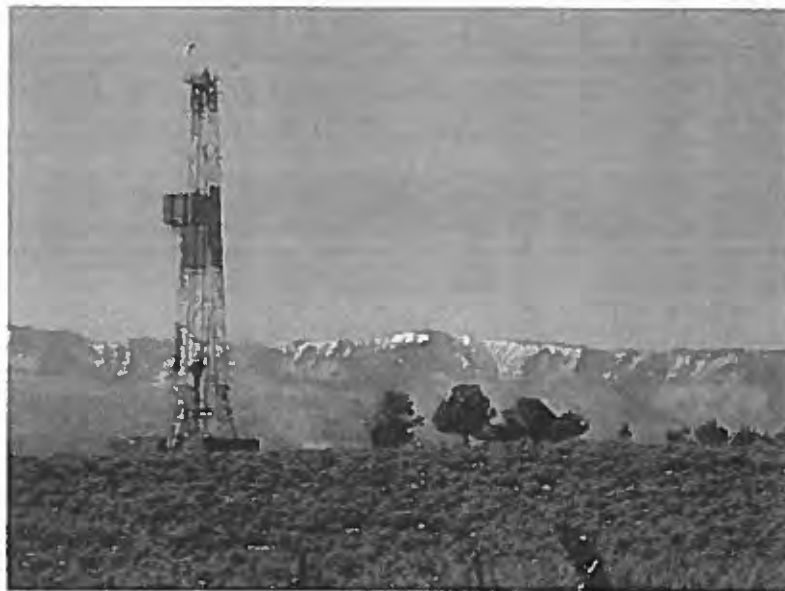
***Drill rig in your backyard!***



***Torn pit liner of evaporation pond.***



***Pit liner/evaporation pond south of Silt.***



***Drill rig in rural area south of Silt, Colorado***



***Big hauling rigs, south of Silt, Colorado***



***The dust from big hauling rigs.***



***On well pad.***



***"Pig" of gas pipeline***



***"Fracking cars"***



***Magnall rig. You too could have a gas drill rig in your yard!***



**Well pad in rural area south of Silt, Colorado**



**Well Pad**

***Finally, (doctored images) of what Lexam would like to See and Do to Our San Luis Valley, BNWR, and Great Sand Dunes National Park:***



***Doctored image of gas drill rig ON the Great Sand Dunes National Park***

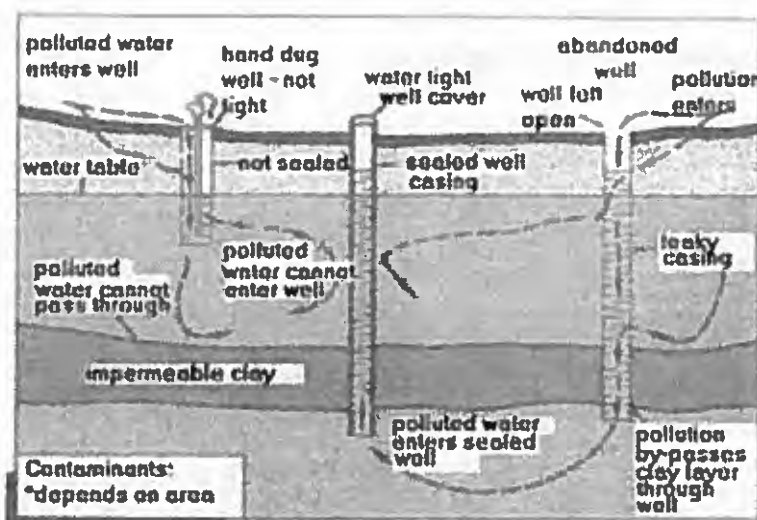






**Figure 4. Oil spill**

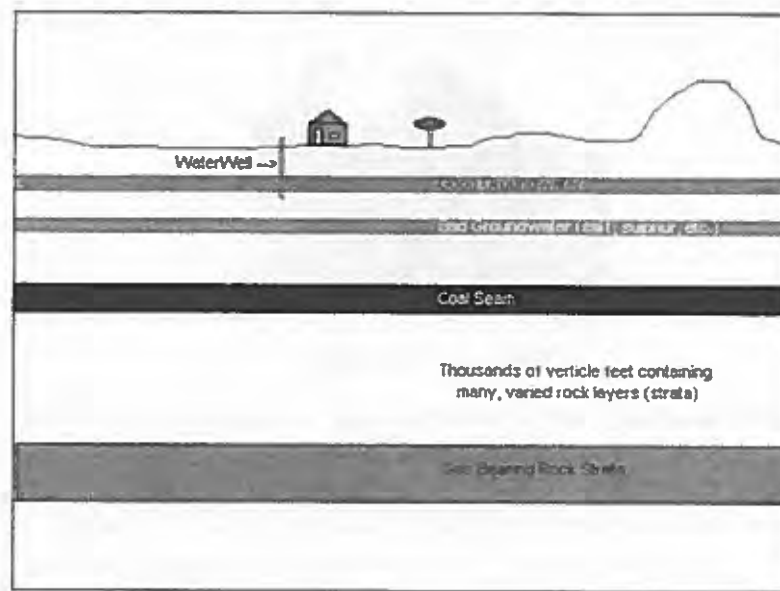
First, gas and oil are **hydrocarbons**. Hydrocarbons evaporate easily, dissolve to some extent in water, and are often toxic. One component, **benzene** is carcinogenic. Because hydrocarbons are less dense than water, they rapidly move upward through aquifers. And hence, where wells in the **San Luis Valley** penetrate the "**blue clay**," gas and oil can leak upward from the confined aquifer into the unconfined (surface) aquifer. Recall that one quart of **oil** can contaminate 250,000 gallons of water. And where concentrations of **methane gas** are above about 10 mg/l, the water is **ignitable** and highly polluted. In addition, since **concrete casing** of wells typically deteriorates after about 20 years, old wells can be an important source of pollution (**Figure 5**).



**Figure 5. How old wells can pollute aquifers**

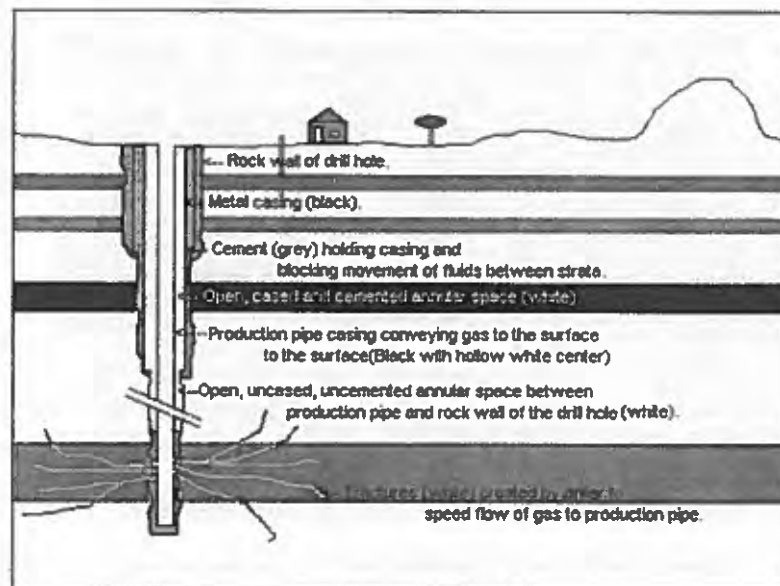
There are many ways in which the drilling process itself can contaminate aquifers. An excellent website entitled "**How a gas well is drilled into the ground and what can go wrong**" shows the sequence of drill events that occur and what can go wrong at each step

([http://www.wvsoro.org/resources/how\\_a\\_well\\_is\\_drilled/index.html](http://www.wvsoro.org/resources/how_a_well_is_drilled/index.html)). In this "slide show" sequence of diagrams, the first one shows the subsurface layers before drilling (**Figure 6**):



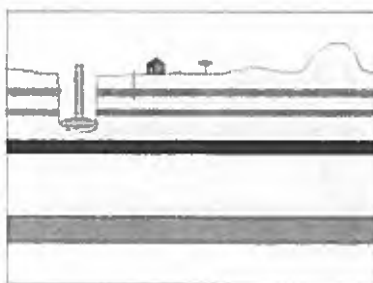
**Figure 6. Simplified schematic cross-section; green layer is "good water," brown layer is "bad water," black layer is coal seam, and blue layer is gas-bearing rock strata.**

The components of a gas well are shown in **Figure 7**:



**Figure 7. Components of a gas well**

Contamination of "good water" can occur through mixing with "bad" water, from chemicals used in the drilling process, or from coal or gas layers. Ways in which water is contaminated include: **1)** Migration of polluted water from old, unplugged, "orphan" (abandoned) wells or from wells in which concrete casings have deteriorated. **2)** Mixing of good and bad waters that occurs in initial drilling (**Figure 8**) and **3)** contamination from "drilling pits" filled with drill "cuttings" that have been put through a water bath and left at the surface in a "drilling pit" (**Figures 8 and 9**):

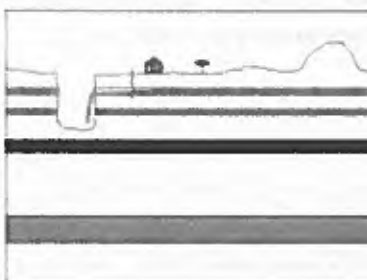


**Figure 8. Drill bit penetrates upper strata, including good and bad water aquifers.**



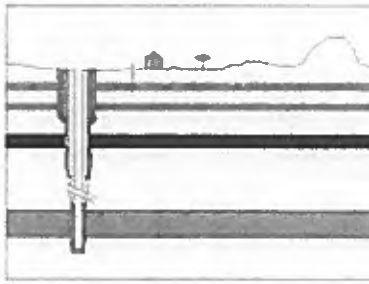
**Figure 9. Drilling pit. After it is full of cuttings and chemicals it is folded over ("toxic burrito") and either buried or hauled off.**

**4)** After the driller finishes the initial hole and until he completes the concrete and steel casing of that hole, the good water can mix freely with bad water, compressed air, cuttings, drilling fluids, etc. (**Figure 10**).



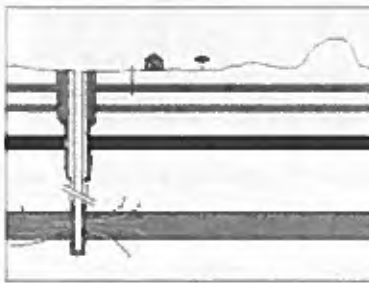
**Figure 10. Both good and bad water fill the unprotected, temporary hole.**

**5)** If the driller does a bad job of pouring, there can be **holes or voids** in the **concrete casing**. **6)** Or if he doesn't wait the required 8 hours (a frequent occurrence), the concrete may not set up properly, and cracks and spaces can form in the concrete, creating passages through which bad water (or hydrocarbons) can migrate upward and polluted water can migrate downwards. **7)** When the hole is extended the hole thousands of feet downward to or through the coal beds into gas-bearing strata (**Figure 11**), the driller lines the well hole with concrete casing at the top and bottom levels only, leaving no casing in the middle portion.



**Figure 11. Concrete casing is only near top and bottom.**

8) Once the hole is drilled into the gas-bearing strata, the driller sets off explosives in the gas-bearing strata to get the gas moving. 9) To increase the flow of gas further, the driller then pumps compressed air, water, or nitrogen down the hole to cause fracturing of the gas-bearing rock in a process called "**hydraulic fracturing**." To make these cracks at these depths, enough pressure has to be exerted to actually lift all the overlying rocks (**Figure 12**)!



**Figure 12. Hydraulic fracturing requires injection of fluids or gases under high pressure into the well.**

## Hydraulic Fracturing

Typically, hydraulic fracturing ("**fracking**") involves **high-pressure injection of fluids and sand** to fracture rock formations and prop the fractures open with sand in order to allow more gas to flow to the well. After fracturing, some of the **chemicals used in the "fracking" process remain stranded underground**. "**Fracking**" fluids may include **hazardous chemicals** such as **biocides, diesel fuel, acids, metals, ethylene glycol, corrosion inhibitors and other chemicals**. Although "**fracking**" normally occurs just after a well has been drilled, a well may be re-fractured as many as 28 times after a well goes into production. Dr. Theo Colborn of **TDEX** states "Fracturing of wells is a common practice..., in which **a million gallons of fluid** are injected underground, creating a **mini-earthquake that facilitates the release of natural gas**. The gas industry claims that 70% of the material it injects underground is recovered. While the fate of the remaining 30% is unknown, the recovered product is placed in holding pits at the surface and allowed to evaporate. This results in many highly toxic chemicals being introduced into the air as well as **being dispersed into local surface waters**. The condensed residues remaining in the pits are taken off-site and dealt with in two ways: 1) they can be **re-injected into the ground** posing concerns for aquifers, or 2) they can be "**land farmed**" by which they are incorporated into the soil through tilling. Land farming can release toxic chemicals to the air via volatile substances and dust, or result in accumulations of mixtures of toxic metals in the soil. At some locations because of regional differences in geology or technology, **100% of the injected material may remain underground**. The mobility of these substances in the ground, or **their ability to contaminate ground water and aquifers has not been evaluated**."

Although gas industry spokesmen typically claim they "**only use water, soap and guar gum**," analysis of chemicals from spill accidents by chemist, **Dr. Theo Colborn**, reveals that the chemicals are highly toxic and

destructive to human health. In particular, the chemicals harm 1) skin, eyes, and sensory organs, 2) respiratory systems, 3) stomach and liver, and 4) the nervous system. Of the 245 chemicals Dr. Colborn analyzed, **91% were found to have adverse health effects** and **35% of the products were found to have endocrine disrupting effects**. Informative websites on contamination of groundwater by gas mining processes include those of **The Endocrine Disruption Exchange** (TEDX by Dr. Theo Colborn) ([www.endocrinedisruption.org](http://www.endocrinedisruption.org)), **Earthworks** ([www.earthworksaction.org/oilandgas.cfm](http://www.earthworksaction.org/oilandgas.cfm)), and the **Western Colorado Congress** ([www.wccongress.org](http://www.wccongress.org)).

Thus, in gas drilling and mining processes, good, clean, potable water is used for drilling, contaminants are added to both surface and groundwater, and contaminated groundwater is added to the surface as evaporation ponds, etc. There is also typically a **flowback** of "**produced water**," **condensate**, and "**fracking fluids**" that contaminate water, soils and air. Gas production in **Garfield County, Colorado**, for instance has resulted in degradation and ruination of many water wells. Both water quality and quantity are adversely affected. In **La Plata County, Colorado**, numerous houses have caught on fire due to buildup of methane gas in the houses themselves.

### Coal-Bed Methane (CBM) Gas

Mining of **coal-bed methane gas**, involves pumping vast quantities of often extremely saline "**produced water**" to the surface and is particularly polluting. **Produced water** is rich in oil, sulfur and phenol and can be smelled and tasted. It is definitely poisonous and unfit for human, wildlife, or agricultural use. Pumping CBM gas out of the ground produces large volumes of water, which often contain large amounts of **dissolved solids** (e.g., **chlorides, nitrates, nitrites, sodi-arsenic, barium, boron, cadmium, chromium, copper, lead, lithium, mercury, nickel, silver, and zinc**), **hydrocarbons** (**benzene, ethylbenzene, naphthalene, toluene, phenanthrene, bromodichloromethane, and pentachlorophenol**) and **radionuclides** (**uranium, radon, and radium**). Of these, **benzene is a known human carcinogen**. In addition, produced water is often highly saline, ranging from about 1,000 to over 400,000 mg/l. The EPA's recommended safe drinking water limit is 500 mg/l. Waters with above 5,000 mg/l salts are considered too saline for almost all crops. If produced water is discharged onto land surfaces, then, salts can render agricultural land unusable (OGAP, 2005).

Massive de-watering of aquifers may also lead to increased **methane and/or hydrogen sulfide (H2S)** migration to the surface. Escape of **methane and H2S** can also result from inadequate well control procedures and faulty casing or plugging of wells. The gas can then collect in explosive levels in homes and other structures. Thus, methane and H2S seepage/venting can be one of the most disastrous problems facing landowners living near these CBM operations.

### But Can We Prove that the Drilling Will Contaminate the Aquifer?

At the February 12, 2008 public hearing on the Draft EA, **William Berg**, petroleum geologist and principle author of the **Draft EA**, "defied" me and other concerned citizens to prove that the proposed gas drilling would pollute the aquifers in the San Luis Valley. Of course, it is not possible to prove a future occurrence (or a negative, for that matter). However, gas drilling operations around the country and the world are characterized by many, many "accidents" that contaminate water, air and land. Peggy Utesch, of the Grand Valley Citizen's Alliance in Garfield County, Colorado, stated: "**We know that everyday there are accidents and incidents in the field- just look at the (COGCC) commission's reports.**" Indeed, the Denver Post conducted a study that showed that while most Colorado operators are passing inspections, **20 companies have violation rates that exceed 50 percent** (DenverPost.com 3/7/06). Nancy and Gary Gagne, who have a ranch south of Silt, claim they caught Encana filling in a waste pit on their property without first pumping out the liquids. But a commissioner inspector told the couple he would not sanction the company. Jacobsen stated: "I tell people **it doesn't matter if you catch a company red-handed doing something they shouldn't. Billy Jack ain't coming to help.**" Thus,

perhaps the best way to "prove" that gas drilling operations in the San Luis Valley would contaminate our aquifers is simply to examine the record of "accidents" documented elsewhere.

1) In **Garfield County, Colorado**, where Canadian gas drilling company, **EnCana** is producing gas in and amongst homes in the Silt-New Castle area. The **Colorado Oil and Gas Conservation Commission (COGCC)** fined **EnCana \$371,200**, the largest such fine in the regulator's history, because natural gas containing benzene, a known carcinogen, seeped from a poorly completed EnCana well into **Divide Creek** (GlobeandMail.com, 2005). Basically, the cement casing on two gas wells failed. In addition to **contaminating local wells, stock ponds, and springs, domestic water wells have gone dry**. A Grand Valley Citizen's Alliance Newsletter of January, 2005, reports that as a result of the Divide Creek seep:

*"human and livestock health complaints are being investigated, and in several areas, gardens are dying when watered from groundwater supplies. Water quality is also at risk long term from drilling waste contamination. As gas wells are drilled, the fluids used in the process are dumped into waste pits on the pad. These fluids contain oil, diesel fuel, heavy metals, benzene, and other constituents known to be harmful to human health. When the well is completed, the fluid is typically left to evaporate into sludge and then buried on site. Although some drilling companies line waste pits, many do not, and those that are lined are known to begin leaking within as little as a year... As the contamination from these pits spreads through the soils, the long-term potential for ground water contamination is high. Most water wells south of Silt are between 50' and 200' deep, and a network of irrigation ditches overlays the surface. Buried waste plumes have the potential to contaminate both of these water sources, which will then impact human health.*

*Interestingly, an April 20, 2004 article in the Glenwood Post Independent described Garfield County's difficulty in cleaning up spilled fuel at the old road and bridge site in Rifle. Major excavation was deemed necessary as contamination was found to be migrating under the 18th Street toward Rifle's municipal pool. With many drilling waste pits located near homes and on agricultural land, the potential for catastrophic contamination is real, but nobody is willing to conduct studies or address this public health issue."* at least 17 wells have been contaminated by the gas drilling. These include:

The **Grand Valley Citizen's Alliance** passed on a report of problems to individual's wells and springs thought to be related to EnCana's activities:

a) Larry and Laura Amos' well, 0687 Johns Drive, Silt, CO, which is now **high in methane gas** content,

b) Rick Arbaney's (5643 CR 33, Silt, CO) well tested positive for **thermogenic methane and hydrocarbons**. He also lost about 1/3 of his goat herd and many new-borns in spring of 2004. CSU determined that the goats died of bacterial pneumonemia, which may be related to methane leaking on property from the Divide Creek gas seep.

c) Tom and Sandy Lloyd (5500 CR 331, Silt, CO). **High methane levels** in their water well.

d) Michael and Stephanie Dietrich (6544 CR 331, Silt, CO). EnCana bought their ranch. Their well was filled with **biogenic and thermogenic methane**.

e) Robert and Wilma Beurger (78 and 83 years old) (7348 CCR 331, Silt, CO). Their **spring is polluted**, probably due to leakage from EnCana's nearby gas pipeline.

f) Harold and Linda Smith (0546 CR 326, Silt, CO) **Natural gas drilling mud** found in their 260' well.

g) Michael and Kenda Spauling (1601 CR 313 New Castle, CO, **High levels of methane** in their well.

h) Marty Miller (6338 and 7121 CR 311) High levels of methane in two wells.

i) Hermann Stauffer (9109 CR 311, Silt, CO). His extremely productive **natural spring has dried up**. Problem started when EnCana drilled the Morgan well.

j) Pepi and Ann Langegger (7863 CR 311, Silt, CO) Stock pond and Divide Creek have **high levels of methane**. Three houses on the ranch are on whole house replacement water systems.

k) Wendall and Kalin Goad (4120 CR 320, Rifle, CO). **Gas traveled along a mile long fracture and accumulated in the Goad well. The well exploded**. They continue to have difficulties.

l) Jerry and Lori Godat, 9818 CR 331, Silt. When EnCana drilled Well Pad E-27, there **well went completely dry**.

m) Lou and Sandi Vallario. Their water well is close to the Arbaney natural gas pad. **Methane content of their water has gone from 2-3 mg/l to 7.1 mg/l**.

n) Kelly Couey (4745 and 5000 CR 315, Silt. A **fresh water spring** that has served their family for multiple generations has been rendered **undrinkable** by natural gas drilling.

o) Rhonda Naugle (16605 US Highway 6 and 24 Rifle). Garfield Co. word of mouth says her cousin was paid **half a million dollars after his kids were sickened by close proximity to a waste pit in the Rulison area**. **Non-disclosure agreements** were signed so no newspaper story.

2) Hydraulic fracturing fluids are the prime suspect in incidences of impaired or polluted drinking water in **Alabama, Colorado, New Mexico, Virginia, West Virginia, and Wyoming**. The **Environmental Protection Agency (EPA)** does not regulate the injection of fracturing fluids under the **Safe Drinking Water Act**. Thus, "the oil and gas industry is the only industry in America allowed by the EPA to inject known hazardous materials-unchecked- directly into or adjacent to underground drinking water supplies." The 2004 EPA study exempting hydraulic fracturing fluids from regulation has been called "scientifically unsound" by EPA whistleblower Weston Wilson. (<http://earthworksaction.org/Hydrfracking.cfm>).

3) To exacerbate the problem, as oil and gas exploration and production have boomed in Colorado, the business of inspecting wells has busted. Colorado has only eight inspectors- one for every 3,625 wells. Today, wells are inspected an average of once every 3.5 years. A West Virginia land owner, Jack Wycaver, compiled a long list of complaints against an operator drilling on his ranch. Only after the commission's environmental specialist visited the property, was a notice of violation issued against the company. **"It just goes to show that if the public doesn't complain, nothing will ever get done."** (DenverPost.com, 3/7/06).

4) A mud volcano that is now erupting in Indonesia, caused by gas drilling, is now disgorging between 7000 and 150,000 cubic meters of every day and the flow "will continue for many months and possibly years to come." The event has forced the evacuation of many villages and will leave 11,000 people permanently displaced.

(<http://environment.newscientist.com/channel/earth/dn11025-indonesian-mud-volcano-caused-by-gas-drilli>)

5) Finally, natural gas is also the most important source of indoor air pollution and is responsible for

generating more illness than other kind of indoor pollutants.  
(<http://www.geocities.com/Rainforest/6847/>).

Thus, we at Water Watch Alliance agree with the "Position Statement on Oil and Gas Drilling in Sante Fe County" (<http://nmwaterinfo.org/html/position.html>).

**The Valle Vidal was Saved, New Mexican Governor Richardson has put a 6-month moratorium on gas drilling in the Galisteo Basin, and Colorado Governor Ritter has told the Moffat County Commissioners not to allow gas drilling in the Vermillion Basin.**

## **So Why Not the San Luis Valley and its Aquifer?**

### **References**

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Oil and Gas Accountability Project (OGAP), 2005, *Oil and Gas at Your Door? A Landowners Guide to Oil and Gas Development*, P.O. Box 1102, Durango, CO, 81301,

Pearl, Richard, H., 1974, *Geology of Ground Water Resources in Colorado*. Denver: Colorado Geological Survey, Department of Natural Resources.

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# Accidents in the Gas Fields

*Clean water is a gift from God, a gift for the common good. Without clean water there cannot be physical, emotional, or spiritual health. So clean water is a spiritual and ethical concern. The level of our concern reflects the level of our spiritual awareness and commitment.*

*Catholic nun protesting pollution of the Rio Grande River by Los Alamos National Labs.*

*We know that every day there are accidents in the field. Just look at the (Colorado Oil and Gas Conservation) Commissions' reports.*

*Peggy Utesch, Grand Valley Citizen's Alliance, re: EnCana's gas drilling near Silt, Colorado)*

On February 12, 2008, at the public meeting held by the Baca National Wildlife Refuge on the Draft Environmental Assessment (EA), **William Berg, oil geologist and main author of the EA**, challenged me to prove that Lexam's proposed drilling of **three 14,000' gas test wells** would **contaminate the priceless aquifer in the San Luis Valley**. Of course, it is impossible to prove a future occurrence. However, an examination of the incredibly long history of accidents associated with the gas industry in Colorado alone, indicates that the **chances of an accident and contamination of the groundwater are 100%**.

## **A Long Record of Accidents, Fatalities, Exploded Buildings, etc.**

(Note: Although mining began in Colorado in the mid-1800's, there was no organized reporting of mine fatalities until the death of 59 miners at the Crested Butte Mine in 1884.) Most of the incidents below between 1884 and 1965 are recorded in: <http://www.usmira.com/barrick/colorado.htm>

**1/24/1884: 59 miners killed** at the Crested Butte Mine, Gunnison, Co., Colorado, from **explosion of gas and dust**.

**11/13/1885: 10 miners killed** due to **gas explosion** and fire at Bull-Domino Mine, Custer Co., Colorado.

**2/18/1896, 49 miners killed due to explosion of gas and dust in Vulcan mine, Garfield County, Colorado.**

**1896- 5 miners killed by a gas explosion** in coal mine near Walsenberg, Colorado.

**9/3/1897- 12 miners killed by gas explosion** in Sunshine Mine, Garfield County, Colorado,

**2/19/1906- 14 miners killed by gas explosion** in Maitland Mine, Herfano County, Colorado.

**4/22/1906- 19 miners killed by gas explosion** in Cuarto Mine, Las Animas County, Colorado

**1/23/1907- 24 miners killed by gas explosion** in Primero Mine, Las Animas County, Colorado

**7/6/1909, 9 miners killed by gas explosion** in Toller Mine, Las Animas County, Colorado.

**1/31/1910- 75 miners killed by gas explosion** in Primero Mine, Las Animas County, Colorado.

**6/18/1912- 12 miners killed by gas explosion** in Hastings Mine, Las Animas County, Colorado

**12/16/1913- 37 miners killed by gas explosion** in Vulcan Mine, Garfield County, Colorado

**4/27/1917- 121 miners killed by gas explosion** in Hastings Mine, Las Animas County, Colorado

**3/31/1919- 13 miners killed by gas explosion** in Empire Mine, Las Animas County, Colorado

**8/18/1919- 18 miners killed by gas explosion** in Oakdale Mine, Herfano County, Colorado

**3/24/1922- 17 miners killed by gas explosion** in Sporis No. 2 Mine, Las Animas County, Colorado

**5/5/1923- 10 miners killed by gas explosion** in Southwestern Mine, Las Animas County, Colorado

**6/1932- methane gas explosion caused landslides and rockfalls** near Durango

**1/20/1936: 8 miners died when methane gas exploded** in the Monarch No. 2 Coal Mine near Louisville, Colorado.

**1/27/1942- 34 miners killed by gas explosion** in Wadge Mine

**5/5/1957- A woman was killed by a gas explosion**

**12/28/1965- 9 miners killed by gas explosion** in Dutch Creek Mine, Pitkin County, Colorado

**4/27/1970- 121 coal miners killed in a methane gas explosion.**

**Mid-1990's - Amoco bought six homes near Bayfield** that had been infiltrated by methane gas.

**2005, Charles Yoakum's trailer exploded because methane gas from abandoned wells** leaked into his house. He spent six months in a local hospital recovering.

**2/25/2005- A double-wide trailer exploded in Bondad, Colorado.** An **abandoned well**, drilled in the 1920's or 30's and located about 250 from the home, is thought to have caused the **gas leak** that caused the house explosion. A 70-year old man in the home was severely burned.

**5/5/2005- A methane gas explosion** occurred at a building housing an ice cream factory in Walsenberg

**7/12/2005: A gas leak occurred at EnCana's Hamilton Creek facility** in the west end of San Miguel County, Colorado. The leak caused a cloud of gas to form above ground. The COGCC did not issue any fines.

**7/12/2005: A tanker truck rolled over on the Dry Hollow Road south of Silt, spilling hazardous-materials** of an oil byproduct from gas drilling that took several days to clean up. Fumes filled the air and a yellow substance formed puddles along the Dry Hollow Road. The spill caused a 7-hour closure of the road covering a half-mile radius. The truck was carrying 189 barrels of condensates (a crude oil byproduct of natural-gas drilling) and produced water. Local residents were not notified of the accident by Encana.

**7/21/2005: A Hydrovac truck, carrying unidentified substances from natural-gas drilling sites south of Silt, Colorado, turned over and spilled its contents.**

**11/22/2005: A natural gas well fire occurred southeast of Rifle, Colorado** at a fracturing pit at a Bill Barrett

Corp. well off County Road 315. The cloud of smoke from the fire was visible as far away as Silt.

**11/23/2005: Hydrogen sulfide, a deadly gas, has contaminated wells south of Redmesa in La Plata County, Colorado.**

**2/8/2006- A truck hauling 6,750 gallons of highly saline water produced from EnCana natural gas wells in Hunter Mesa turned over, spilling its contents into Mamm Creek.** (Glenwood Spring Pst Independent, 2/8/2006).

**2/26/2006: Natural-gas compressor station ignited,** sending thick, black smoke into the air in southwest Weld County, near Fort Lupton, Colorado (Denver Post, 2/27/2006). About **50 people were evacuated from their homes.**

**5/10/2006- Fire burns at natural gas condensate tank and pit operated by EnCana south of Rifle.** (Grand Junction Daily Sentinel).

**June, 2007, a gas explosion blew the roof of a water well house** near Walsenburg, CO. Of 37 water wells tested in a 14-mile radius, 11 contained significant amounts of methane. Only now has the COGCC mandated that the operator, **Petroglyph Energy**, must drill a monitoring well to collect data that should show where the **methane is entering the aquifer.** Next phase of the **COGCC plan** is to remove water from the aquifer and then return it to the aquifer. Currently, **Petroglyph Energy** has installed home methane monitors to 10 landowners in the area and is supplying water to seven of those whose water has been severely contaminated. Individual property owners in the River Ridge Ranch area are now in the process of suing **Petroglyph Energy.**  
(<http://new.quote.com/news/story.action?id=KR0022e3978>)

**11/28/2007: A cooling tower of a natural gas processing plant, as well as an office trailer, two warehouses, a control center, and a break room were completely destroyed by a gas explosion at Williams Ignacio plant near Durango in La Plata County, Colorado.** Homes within a half mile radius were evacuated.  
([http://co.laplata.co.us/pressrel/pr112807\\_2.htm](http://co.laplata.co.us/pressrel/pr112807_2.htm))

**12/10/2007: A tremendous gas explosion occurred SE of Purdy Mesa, Mesa County, Colorado due to Aspen Well Operating Company's gas well drilling operations.** Extremely loud gas venting emissions preceded and followed the explosion. The emissions, which occurred over a period of weeks, were accompanied by foul smell of oil and hydrogen sulfide.

In all, **89 people died working in the energy fields of Wyoming, Colorado, New Mexico, Montana, North Dakota, and Utah between 2000 and 2006** ([http://www.hcn.org/servlets/hcn.Article?article\\_id=16931](http://www.hcn.org/servlets/hcn.Article?article_id=16931)).

## Does Gas Drilling Pollute and Waste Aquifers? YES

In the late 80's in **Durango, Colorado**, children started **lighting lemonade on fire.** At local houses, **tap water came out looking like milk fizzing with Alka-Seltzer.** The cause was **gas seeps caused by drilling into coal-beds for methane gas.** Since then, a booming gas and oil industry has caused an exodus of people and wildlife from the affected areas. Gwen Lachelt, director of **San Juan Citizen's Alliance**, stated: "**This really is considered a national sacrifice area by lots of industry, because it's rural, unpopulated and rich in resources.**" The problem, then, as now, is that during the Depression era, the federal government split the property rights above the ground from mineral rights below the ground and seniority was given to owners of the mineral rights.

Residents near Durango, Colorado filed a **class-action lawsuit** on Feb. 11, 1993 **against four oil companies (Amoco, Meridian, Southland Royalty Company and Phillips Petroleum) for reckless and deliberate**

**disregard for the safety** of local residents. The suit says the four oil companies ignored their tests, which showed that **methane from their deep wells was polluting shallow aquifers.**

[http://www.hcn.org/servlets/hcn.Article?article\\_id=2203](http://www.hcn.org/servlets/hcn.Article?article_id=2203)

Attorney Ed McCord says that Amoco diagrams show how drilling in coalbeds can allow methane to escape to the surface or into the groundwater. **"County officials and many local residents suspect that the pumping may have changed underground water pressure across large areas, freeing gas to migrate through natural cracks and fissures and residential water wells. They also point to a 1989 internal BLM memo warning that while new coalbed gas wells may be sound, the drilling activity may be causing new leaks in the estimated 15,000 old and abandoned wells scattered across the basin."**

The Powder River Basin of Wyoming contains an estimated 7.8 to 1.3 trillion tons of coal and trillions of cubic feet of methane gas in the cracks and pores of the coalbeds. As of 2000, there were 7000 new methane gas wells in the basin. The gas industry wants to drill some 45,000 wells on federal, state and private land in the next 10 years. But, Tim Westby of High Country News notes **"to get the gas, underground aquifers above the coal bed must be dewatered. At peak drilling, the BLM estimates that 66 million gallons of water per day could be pumped to the surface."**

Independent petroleum geologist Walter Mershat, of Casper, Wyoming calls this prospect of 15,000 wells **"one of the biggest natural environmental disasters to hit Wyoming.... There's a shortage of freshwater around the world, but here we are in drought-ridden Wyoming, throwing billions of gallons of water away just so the governor doesn't have to think of another way to make money. (Although) We don't have any idea what the hell's happening underground.....once an underground reservoir (of water) is damaged, that's it. Mother Nature can't heal itself."**

Kenny Claybaugh, who ranches near Sheridan, Wyoming, is several miles from the nearest gas well. Even so, his ranch was flooded by a 45-well operation owned by Houston based, CMS. Republican state Senator Josh Schiffer, witnessed the devastation at the Claybaugh Ranch and stated: There were three miles of river bottom with dead critters floating on it. What happens to rangeland with continual flooding- it sours. It's a disastrous kind of thing, a mammoth problem." (<http://www.hcn.org/servlets/hcn.Article?article-id=6053>).

Rebecca Claar, resident of the Red Rock subdivision outside of Gillette, stated: **"I've lived in Wyoming for 40 years, and my husband is a native. I can't believe we have such a ruthless industry in our midst that doesn't give a damn about the water. There's a lot the governor can do, but we won't."**

## ***Does Gas Drilling Affect Water Levels? YES***

The Colorado Department of Natural Resources (CNR) and its contractor, S.S. Papadopoulos and Associates, presented a draft of their report: **"Coalbed Methane Stream Depletion Assessment Study-Raton Basin, Colorado.** The Colorado side of the **Raton Basin contains about 1,994 CBM wells**, over half the total 3,909 CBM wells in the state.

Average annual rate of production of **CBM gas** in the Colorado portion of the Raton Basin is about **85 billion cubic feet/year. About 16,000 acre feet of groundwater is extracted annually** in the same area. The study's executive summary states: "there are concerns that the removal of water from aquifers that may be tributary to the surface stream system could be resulting in stream depletions that could impact water rights holders, the State of Colorado, and downstream users not in Colorado." **Tracy Dahl** of North Fork Ranch states, "The industry doesn't own the 560 billion gallons it's pumping out (from the Colorado part of the Raton Basin) each year. The study concludes there are going to be impacts to the water that the state owns. There's also the potential for litigation from downstream

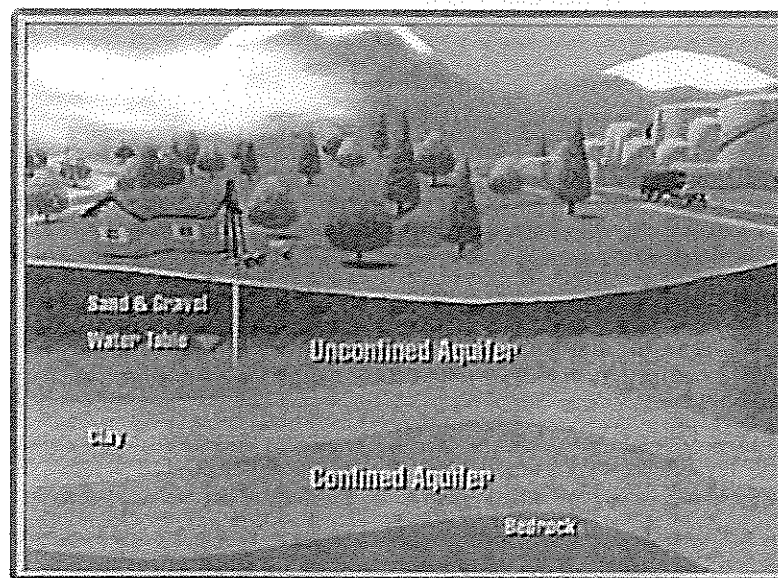
*hydraulic fracturing. Thus, neither the government nor the public can evaluate the risks posed by injecting these fluids underground.*

*([www.earthworksaction.org/pubs/Fracking.pdf](http://www.earthworksaction.org/pubs/Fracking.pdf))*

## ***San Luis Valley Water: A Fragile Abundance***

A 1974 geological report estimates that aquifers in the San Luis Valley hold 2 billion acre feet of water, of which ***at least 140 million acre feet is potable*** (Pearl, 1974). At the (2001) going rate of \$5000 to \$12,000 per acre-foot in suburban areas, the value of this water on the market is ***over \$700 billion to \$1.6 trillion***. At the (2008) going Safeway rate of \$1.29 for a gallon of bottled water, this amount of water would be worth over \$59 trillion. In other words: ***It is priceless!***

Today there are some wells in the unconfined aquifer and 6,000 wells in the confined aquifer. Water table today averages about 7 feet below the surface of the San Luis Valley. Surface soils are typically very sandy, highly porous, and permeable. Water table frequently rises to well above the soil surface level. Indeed, Valley old timers recall that in the early 1900's, ***the only way to get from Moffat to Center, a distance of about 20 miles, was by boat!*** Locals also recall that during spring meltoff, the first two rows of the theater in downtown Saguache would typically be under water. Hence, any additions of contaminants at the surface by either exploratory or production gas wells would inevitably poison towns, residential areas, agricultural fields, and critical, riparian wildlife habitats in the San Luis Valley and the BNWR! Figure 2 shows a schematic diagram of confined and unconfined aquifers.



***Figure 2. Schematic diagram of unconfined and confined aquifers over bedrock.***

## **Aquifer Sensitivity and Vulnerability**

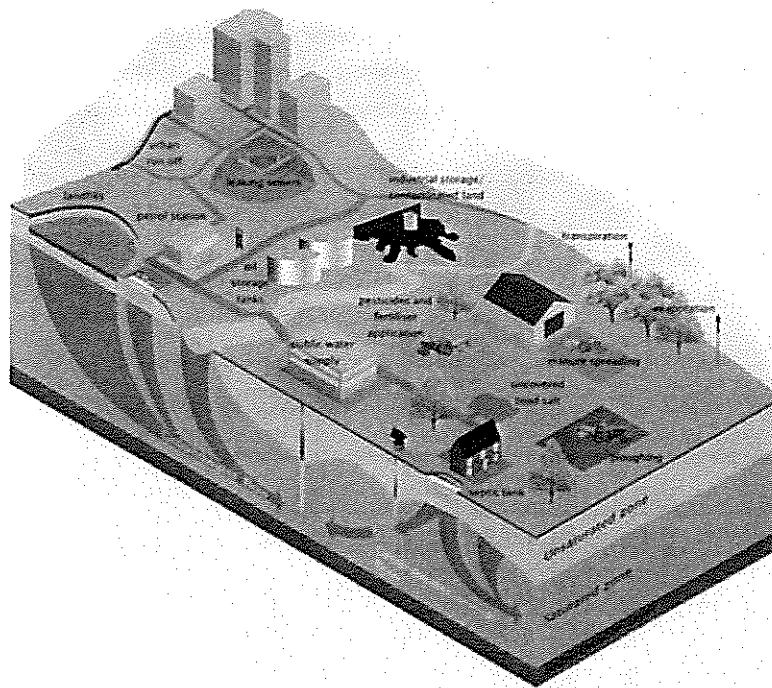
According to the water encyclopedia ([www.waterencyclopedia.com/Oc-Po/Pollution-of-Groundwater-Vulnerability.html](http://www.waterencyclopedia.com/Oc-Po/Pollution-of-Groundwater-Vulnerability.html)), the **sensitivity** of an aquifer to contamination depends on its **physical characteristics**. A **highly sensitive aquifer** has little or no defense against infiltrating contamination. The **most sensitive and vulnerable aquifers** are those

that; 1) are **shallow**, 2) are **comprised of unconsolidated sands and gavel**s, and 3) are **overlain by porous sandy sediments and soils**. In addition, aquifers in 4) **fractured or faulted materials** are also very sensitive because they recharge very rapidly. Thus, it is clear that the **San Luis Valley aquifers** have all of the characteristics of "**highly sensitive**" and **vulnerable** aquifers. It is imperative, then, that the **BNWR** conduct a "**vulnerability assessment**" of the aquifers before allowing any gas drilling in this extremely sensitive environment.

Because of its low population and lack of industrial activities, **water quality** in the **San Luis Valley** is generally excellent. Two exceptions to this are: 1) in the northern part of the valley where overuse of irrigation water has caused accumulation of salts and alkali at the surface and in the unconfined aquifer, and 2) between Alamosa and Moffat (on the east side of Highway 17) where wells from the confined aquifer often contain between 10 and 20mg/l **methane gas**. (10 mg/l is considered "**ignitable**" whereas 20 mg/l is completely saturated with methane).

## How Oil and Gas Operations Can Contaminate Groundwater

Gas and oil operations contaminate groundwater in many ways. In large scale gas production, serious pollution can come from both the surface (from evaporation ponds, drilling pits, condensate, leachate, etc.) and from the subsurface (from mixing of water with drilling fluids and cuttings, and oil and gas). **Figures 1, 2, and 3** show typical sources of groundwater pollution that come from the surface.



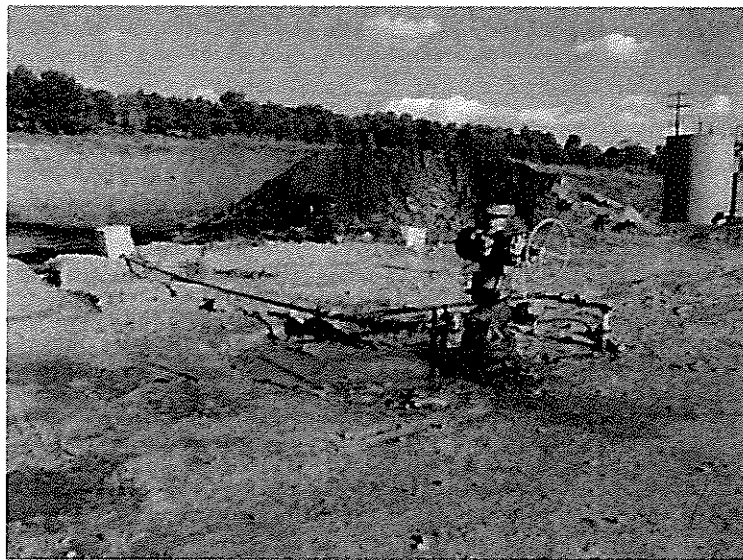
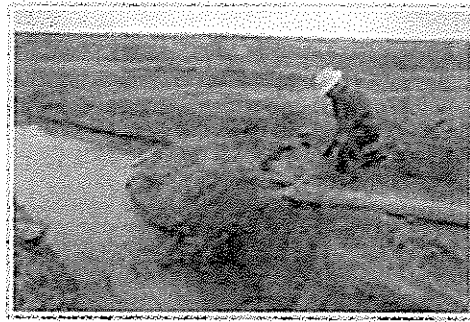
**Figure 3. Surface pollutants get into groundwater.**

methane molecules from the coal and allows upward gas migration. Thus, pore-pressure reduction is usually accomplished through **removal of "formation" water** by walking beam pumps, submersible pumps, piston lift or gas lift.

**Water/gas separators** used for conventional gas production are modified to accommodate copious amounts of **"produced" water** and associated **coal fines** (small particles of coal that can pollute water). After hydrostatic pressure is reduced, methane gas is desorbed from the coal and is free to migrate through permeable strata and fractures to an area of lower pressure, ideally into well bores that created the pressure reduction. Since water must be withdrawn to reduce the pressure and allow gas migration, the volume of gas produced tends to build from a low initial rate to a maximum rate several years after the onset of production. (Conventional gas production rates are reversed, with the highest rates at the onset and a steady decline over the life of the well. When reservoir pressure drops below 150 psi, the well is no longer considered economic. It is estimated that less than 50% of the coalbed methane in place can be economically recovered by reservoir pressure depletion strategy. Thus, in areas like the **San Juan Basin**, enhanced production techniques have been used.

Another one of the **enhancement production techniques** introduces nitrogen under high pressure through injector wells into individual coalbeds. Nitrogen sorption displaces the methane on the coal molecules and reduces the partial pressure of the methane. Beginning in the 1980's, **Amoco Production Company** experimented with this technique and found that up to 80% of the methane could be recovered by introducing nitrogen gas into the coal.

## Water and Gas Don't Mix!



**Figure 1. Contamination of surface water by gas operations**

**The Regulations Fall Short!** Americans get over half of their clean drinking water from underground sources. In 2005, the oil and gas industry was granted an **exemption** from the **Safe Drinking Water Act**, making the oil and gas the only industry allowed to **inject toxic fluids directly into good quality groundwater** without oversight by the **Environmental Protection Agency (EPA)**. At the state level, most oil and gas regulatory agencies do not require companies to report the volumes or names of the chemicals being injected during



[illegible]

## NEPA and The Draft Environmental Assessment



**Figure 1. Gateway to the new Baca National Wildlife Refuge**

*The present cabinet boasts more CEO's than any in history. Most come from the energy, extractive, and manufacturing sectors that rely on giant subsidies and create the worst pollution. Almost all the top positions at the agencies that protect our environment and oversee our resources have been filled by former lobbyists for the biggest polluters in the very businesses that these ministries oversee. These men and women seem to have entered government with the express purpose of subverting the agencies they now command.*

*Robert F. Kennedy, Jr., Crimes Against Nature: How George W. Bush and His Corporate Pals Are Plundering the Country and Hijacking Our Democracy*

### **History of NEPA on the Baca (BNWR)**

The newly-formed **Baca National Wildlife Refuge (BNWR)** has been out of compliance with the **National Environmental Policy Act (NEPA)** from the very beginning. The **BNWR** called a public

meeting on February 12, 2008, to obtain input from our community on the **Draft Environmental Assessment (EA)** written by **ENSR**, a private contracting company paid by **Lexam**. The public was given 45 days until March 3, 2008 to submit written comments to the **BNWR**. Although this operation has had all the markings of a "**rigged game**" and a "**done deal**," some 48,000 comments and substantive letters were reportedly submitted to the **BNWR** by the deadline. The overwhelming sentiment of respondents was that a full **Environmental Impact Statement** is required. We have done this by documenting specifics about **1) the context and intensity** of expected impacts associated with the proposed drilling, and **2) how the Draft EA** does not address the many specific issues we already raised in the 48,500 letters submitted during the **scoping process**. Even though the official comment period is over, it still may be helpful if individuals write original and substantive letters to:

**Michael Blenden**  
**U.S. Fish and Wildlife Service**  
**9383 El Rancho Lane**  
**Alamosa, CO 81101**  
**Email: Baca\_EA@fws.gov**

In addition, please be sure to send **copies** of your letter to the **Governor, your Congressmen, County Commissioners**, and anyone other stake-holders you can think of (some addresses are provided at the bottom of the page). Now is a critical time because if the **BNWR** accepts the **FONSI ("finding of no significant impact")** recommended in the **Draft EA**, then Lexam's drilling can commence this August. An **example of a good, "substantive letter"** by Bruce Blodgett of Crestone is shown in **Appendix A** below.

Looking back over the past year and a half, it is evident that the **BNWR** began working to facilitate Lexam's drilling project **BEFORE** they initiated the **NEPA** process, which is required by federal law. In fact, **Ron Garcia, Manager of the BNWR**, initially informed our community representatives that the **BNWR** would **NOT** conduct a **NEPA** process because they did **NOT** have to comply with **NEPA**. Indeed, the way the Lexam drilling project was introduced to our Crestone/Baca community indicates that representatives of the **BNWR** had already been working with **Lexam**, other federal agencies (the **National Park Service** and the **BLM**), and the **Sonoran Institute** (a non-profit organization) to limit the scope and effectiveness of public response. This **a priori** collusion between government and industry suggests that the **BNWR** has been acting on orders from senior officials in the **Department of the Interior** and/or the **White House** to "expedite" this drill play rather than follow the federal laws meant to protect public lands and ensure that the American citizens have a role in the decision-making process. Unfortunately, similar blatant attempts to circumvent NEPA are now happening all over the country due to this administration's blatant disregard for law ([http://pubs.acs.org/subscribe/journals/esthag-w/2007/nov/policy/jp\\_nepa.html](http://pubs.acs.org/subscribe/journals/esthag-w/2007/nov/policy/jp_nepa.html)).

Indeed, in March, 2007, the U.S. Fish and Wildlife Service and Lexam Explorations, Inc. released a 47-page draft "**Negotiated Operating Plan for Conducting Hydrocarbon Exploration and Development Activities on the Baca National Wildlife Refuge.**"

Obviously, this document was meant to replace the legally-mandated **NEPA** process. Only after the **Energy Minerals Law Center** lawyers sued the **BNWR** did U.S. attorneys agree that the **BNWR** is legally required to conduct a **NEPA** process. And only then did the **BNWR** belatedly "decide" to initiate the NEPA process. And when they did it, they tried to do an "**end run**" around **NEPA**. Ron Garcia, BNWR Manager, emailed 52 people from our community at 4:44 pm on August 7, 2007, notifying us that the **BNWR** was

initiating a **scoping process/Environmental Assessment** at a public meeting to be held 10 days later, Friday, August 17th, from 5:00 to 8:00 pm. His email was entitled: "Notice of Public Meeting to Discuss Resource Protection Issues Related to Gas Exploration Activities on Baca National Wildlife Refuge." The notice did not say "issues related to **proposed gas exploration activities**," it said "issues related to gas exploration activities." For the **BNWR**, it has always been and remains a "**done deal**," despite the fact that **NEPA** requires a fair and open process with public input and acquisition of relevant scientific data to determine if there are **significant impacts - before an activity can go forward**.

The facts that the **BNWR** did **NOT** give fair, customary notice of this meeting in our local newspapers and gave us only 9 days to prepare for the meeting suggest they were trying to limit our public input and response. Nonetheless, citizens from our community filled the meeting on August 17th and argued persuasively for three hours that drilling on the **BNWR**; 1) would degrade the surface estate and resources of the wildlife refuge and therefore is not a "**reasonable or compatible use**" of the refuge, 2) is not compatible with the **cultural values of our community and region**, and 3) would cause **serious contamination of water, air, and degrade our roads and communities, as well as wildlife habitats** in this still pristine and spectacular area.

According to NEPA lawyer Travis Stills, **NEPA (National Environmental Policy Act of 1969)**, the "**Magna Carta** of environmental protection," was written in order to address the problem of "**agency capture**," i.e., situations where federal agencies and industry "forget who is who and start acting like each other." **NEPA** is an "**action forcing process**" that mandates public participation and an interdisciplinary approach in the acquisition of relevant scientific data so that decisions affecting special areas and communities are not just made by industry. **NEPA** mandates that the **BNWR** understand and respect the "**cultural values**" of the San Luis Valley and our Crestone/Baca community. **NEPA** also requires that **cumulative, synergistic impacts** be examined and that "**alternatives**" to satisfy the "**purpose and need**" of the project be considered and assessed.

NEPA mandates the **disclosure of impacts, alternatives, and projected mitigation measures**. It requires that one of two kinds of studies must be completed before a proposed project can go forward on federal land. An **Environmental Assessment (EA)** is used when there are "**no significant impacts**" (i.e., **no unique and exceptional circumstances**) associated with the proposed project. An **Environmental Impact Statement (EIS)** is required when there are "**significant impacts**" associated with the proposed project.

NEPA specifies (<http://www.nepa.gov/nepa/reg/cwq/1508.htm#1508.27>) that whether or not there are "**significant impacts**" depends upon the **context** and **intensity** of the proposed operation. **Contexts** that need to be considered include society as a whole (human and national), the affected region, affected interests, and locality. Intensity pertains to the "severity of impact" regarding:

- 1) degree to which the proposed action **affects public health and safety**.
- 2) unique characteristics of the geographic area such as **proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas**.
- 3) degree to which effects on the **quality of the human environment are likely to be controversial**.

- 4) degree to which the possible effects on the **human environment** are **highly uncertain or involve unique or unknown risks**.
- 5) degree to which the action may **establish a precedent for future actions with significant effects** or **represents a decision in principle about a future consideration**.
- 6) degree to which it is reasonable to expect **cumulatively significant impacts on the environment**.
- 7) degree to which the action may **adversely affect districts, sites, highways, structures** or objects listed in or eligible for listing in the National Register of Historic Places- or may cause **loss or destruction of significant scientific, cultural, or historical resources**.
- 8) degree to which the action may **adversely impact an endangered or threatened species or its habitat**- as determined under the Endangered Species Act of 1973.
- 9) whether an action threatens a **violation of Federal, State, or local law or requirements** imposed for the protection of the environment.

**The proposed drilling meets each of these criteria for "significant" in terms of context and intensity!**

**NEPA** law also states that more than one agency may make decisions about partial aspects of a major action. Thus, **Saguache County**, the **Baca Grande Property Owners Association**, **Native American Tribal Governments**, **Rio Grande Water Districts**, the **State of Colorado**, **grazing lease-holders on the BNWR**, **nearby farmers, ranchers and communities**, as well as many **agencies in New Mexico, Texas and Mexico**, among others, also have the right and responsibility to give their input on these issues.

As we will see, even a cursory examination of the issues related to drilling in the valley, indicate that the proposed drilling action has **very severe impacts**, and thus, is highly **significant** in each of the above categories.

Despite the abundance of **significant impacts** associated with the proposed project, the **BNWR** selected a private contractor, **ENSR**, to write an **EA** rather than an **EIS**. Note again, that **EAs** are appropriate only when there is a **finding of "no significant impact" (FONSI)**. However, industry prefers **EAs**, of course, because they are typically written in a relatively a short time interval and do not require the acquisition of new, baseline scientific data. By contrast, a full-blown **Environmental Impact Statement (EIS)** is a much more thorough study requiring acquisition of new scientific data and normally takes about two years to complete. And **EIS** also involves participation of the **EPA (Environmental Protection Agency)**.

## **The Scoping Process**

At our **scoping process** meeting, Mike Blenden, of the **BNWR**, asked our community members to write in our comments and informed us that by law, **ENSR** and the **BNWR** would address each of our concerns. Over the next 30 days, some **48,500 people** sent in responses. This indicates that the proposed action is

extremely **controversial** and unpopular. During the scoping meeting itself, although our community spoke for about 3 hours, it was evident to us that neither Mike Blenden nor employees of ENSR were taking notes or recording our comments. And the **Draft EA** itself indicates that they also mostly **ignored** the approximately 48,500 written comments as well, comments overwhelmingly in opposition of the drilling!!! (My "scoping" letter is included in **Appendix B** below.)

## **ASSESSMENT OF THE DRAFT ENVIRONMENTAL ASSESSMENT: A "FONSI" (FINDING OF "NO SIGNIFICANT IMPACT" AND CLASSIC WHITEWASH!**

The **BNWR** released the **Draft EA** on **January 18, 2008** (<http://www.fws.gov/alamosa/BacaNWR.html>). In his cover letter, Mike Blenden of the **BNWR** states that the **public comment period will end on March 2, 2008** and called a public meeting on 2/12/08.

My observations about the **EA** are that **Blenden and ENSR** are in **violation of the NEPA policy** in several keys ways:

- 1) No impacts are addressed at all!** (Recall, that **NEPA** mandates disclosure of impacts, alternatives and mitigation measures). If no impacts are addressed, the document becomes nothing more than a **whitewash** of the NEPA process.
- 2) In the cover letter for the document, Blenden states: "The scope of this EA does not address production of natural gas and oil from any of the wells described above."** This is another clear violation of NEPA law because: **#5** (above, under **intensity** of impacts) requires that NEPA examine the **"degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration,"** and **#6** (above) talks about **"degree to which is reasonable to expect cumulatively significant impacts on the environment."**
- 3) The document starts with the *a priori* assumption that Lexam will drill and that the role of the BNWR is only to help mitigate impacts. The first sentence of page 1-1 of the EA is: "The purpose of the Environmental Assessment (EA) is to ensure that initial exploration of the mineral estate under the Baca National Wildlife Refuge (Refuge) by Lexam Explorations (U.S.A.) Inc. (Lexam) is conducted in a reasonable manner." Thus, the letter and spirit of the NEPA process are thrown out the window in the first sentence. It is not surprising then, that the rest of the document is nothing more than boiler-plate whitewash. But then we know that "he who pays the piper calls the tune."**
- 4) Nowhere in the EA is there a Conclusions section stating specifically that there are "no significant impacts" or explaining how ENSR came to this conclusion. Rather, "no significant" or "minimum" impacts are simply stated and repeated, without any backup by facts or data, throughout the document. Thus, regarding soils, for example, the EA finds "minimal long-term impact." It provides a map of soil mapping units lifted from the Saguache County Soil Survey by the Soil Conservation Service (Figure 3-2). But it does not interpret the kinds of pollution impacts that would be associated with these kinds of soil when they are associated with large-scale drilling operations. In all, there is less than half a page devoted to soils. And yet, we know that the soils in the proposed drill locations (Mosca loamy sand and Laney loam series) are have a high sand content, are porous and erodible, and thus, pollutants added to the surface would readily percolate through the soil and into groundwater, as the water table is quite shallow, averaging 7 feet or less here. Likewise, the EA devotes an inadequate one page to **air quality** and concludes **"minimum short-term impact."** The EA does not address the significant problems of air pollution commonly associated with gas drilling elsewhere in the West, such as accumulation of surface ozone, B-tex**

chemicals, etc.

On the incredibly important issue of **water quality** of the unconfined and confined aquifers, the **EA** devotes less than two pages, concluding "**impacts to groundwater quality less than significant**" and "**no impact on water use.**" Regarding vegetation and habitats; the **EA concludes "less than significant impacts" and "impacts minimal,"** etc.

5) For all intents and purposes, then, the **EA** seems to have been written for and by **Lexam**. The **Manager of the EA** project was **William Berg, an oil geologist**. During the public meeting of February 12, 2008, it became clear from his comments that he himself has worked in the oil/gas industry. When I asked him whether ENSR could have recommended that there were significant impacts and to that an EIS was needed, he replied that that was not possible.

Further evidence that for the **BNWR**, this has always been a "**done deal**" is that on page 2-11, the **EA** states: "Any action by the **USFWS** to totally deny Lexam the reasonable opportunity to explore for minerals would likely be considered by Lexam an unconstitutional "**taking**" of their private property (mineral estate) without just compensation (U.S. Constitution, Amendment V). Therefore, this alternative was considered and eliminated from detailed analysis." The EA fails to acknowledge that the application of the legal concept of a "**taking**" is very controversial. Certainly, it has been advanced and manipulated by corporations for their own benefit. Under the **Exploring Constitutional Conflicts** website, we read: "The Court has had difficulty to determine when a regulation becomes a taking. There is "**no set formula**" and courts "**must look to the particular circumstances of the case.**" So on this critical issue, the **BNWR** and **ENSR**, and by extension, the **Lexam**, have assumed that courts would rule in their favor, when in fact, they may not. Furthermore, why should the American government extend civil rights of American citizens (in this case the 5th Amendment of the Constitution) to a Canadian corporation, which is neither an American citizen nor a real person, but rather a legal fiction. Let's be clear: Lexam is a Canadian corporation listed on the Toronto Stock Exchange. It should have no legal claim to the American Bill of Rights. If it does, surely those laws are "**repugnant to the constitution**" and should be declared illegal.

("All laws which are repugnant to the Constitution are null and void" Marbury vs. Madison, 5 US (2 Cranch) 137, 174, 176 (1803). From **Citizen's Rule Book**.

## **For example, here is what the Draft EA does not tell you about water:!**

***Americans get over half of their clean drinking water from underground sources. In 2005, the oil and gas industry was granted an exemption from the Safe Drinking Water Act, making the oil and gas the only industry allowed to inject toxic fluids directly into good quality groundwater without oversight by the Environmental Protection Agency (EPA). At the state level, most oil and gas regulatory agencies do not require companies to report the volumes or names of the chemicals being injected during hydraulic fracturing. Thus, neither the government nor the public can evaluate the risks posed by injecting these fluids underground.***

***([www.earthworksaction.org/pubs/Fracking.pdf](http://www.earthworksaction.org/pubs/Fracking.pdf))***

As noted elsewhere in this website, **aquifers in the San Luis Valley hold 2 billion acre- feet of water, of which at least 140 million acre-feet is potable** (Pearl, 1974). At the (2001) going rate of **\$4000 to \$5000 per acre-foot**, the value of this water is **over \$700 billion**. At the rate of bottled water in Safeway

(\$1.29 per gallon), this amount of water would be worth **over \$59 trillion dollars**. In other words: **It is priceless!**

Thousands of wells in the unconfined and confined aquifers supply **irrigation and drinking water for the San Luis Valley**. These **aquifers** are "**highly sensitive**" and **vulnerable to infiltrating contamination** because: 1) Depth to water table is shallow, averaging only about 7 feet, 2) Surface soils are typically sandy and highly porous, 3) aquifers are comprised mostly of porous unconsolidated sands and gravels, and 4) faults and fractures are common and hence, the aquifers recharge rapidly and water pollutants can move through the aquifers and mix readily.

## **How Oil and Gas Operations Can Contaminate Groundwater**

In gas drilling, serious pollution can come from both the surface (from **evaporation ponds, drilling pits, condensate, leachate, spills, etc.**) and from the subsurface (by mixing of water with **toxic drilling fluids, cuttings, and oil and gas**). Drilling fluids used in the "**hydraulic fracturing**" process, used in 90% of gas wells, are **exempt from regulation** by the **Clean Water Act**. Each "**frack**" or "**shot**" requires a **million gallons** and causes **mini-earthquakes at depth**. "**Fracking**" fluids include a **toxic suite of chemicals**, including **B-Tex (benzene, toluene, ethyl benzene and xylene)**, **heavy metals, diesel fuel, VOC's (volatile organic compounds)**, formaldehyde, methane, and hydrogen **sulfide**. Chemist, Dr. Theo Colborn of The Endocrine Disruption Program ([www.endocrinedisruption.org](http://www.endocrinedisruption.org)), has found that of **the 245 chemicals used, 91% have adverse health effects and 35% have endocrine disrupting effects**. Through **evaporation and leaching**, these same chemicals also **contaminate air and soils**.

If **coal beds** are found, the mining of **coal-bed methane (CBM) gas** is even more toxic. In these cases, drillers pump enormous quantities of briny "**produced water**" from great depths to the surface and also **enlarge the borehole** by injecting high pressure gas into the well in a process called "cavitation." **Gas and oil** themselves evaporate easily, dissolve in water, and are **toxic**. One component, **benzene, is carcinogenic**. Because hydrocarbons are less dense than water, they rapidly move upward through aquifers. Hence, gas and oil can leak upward from the confined aquifer into the unconfined (surface) aquifer. **One quart of oil can contaminate 250,000 gallons of water!** And concentrations of **methane gas above 10 mg/l are ignitable**. Well water from the confined aquifer between Alamosa and Moffat already has **ignitable levels of methane**. A new house east of Mosca exploded in 2003! Finally, **concrete well casings typically deteriorate after 20 years**, so old wells can also be a major source of pollution.

## **APPENDIX A. Four sample letters to BNWR that critique the Draft EA and call for a full Environmental Impact Statement**

TO: Michael Blenden  
USFWS  
9383 El Rancho Lane  
Alamosa, CO 81131  
email: [Baca\\_EA@fws.gov](mailto:Baca_EA@fws.gov)  
FROM: James P. McCalpin

[mccalpin@geohaz.com](mailto:mccalpin@geohaz.com)  
DATE: 26-FEB-2008  
SUBJECT: Draft EA, Baca National Wildlife Refuge



Mr. Blenden,

*As a resident of Saguache County, I am disappointed by the narrow and illegal scope you have chosen for the Environmental Assessment of the Baca National Wildlife Refuge.*

*Over the past 15 years, I have written the technical documentation for about a dozen Environmental Assessments and EISs for projects on Federally-owned land. Thus, I am quite familiar with both the regulations and procedures of NEPA, and internal agency guidelines such as used by the USDA Forest Service.*

*The Draft EA released by FWS in January 2008 does not conform to the original NEPA requirements for an EA, nor to any agency's internal requirements I am familiar with, including the FWS. It is not actually an "environmental assessment" at all, as that term is defined in NEPA, and interpreted in the FWS's own NEPA guidelines (from the Department of Interior Manual). Thus, this document is fundamentally flawed because it does not address issues currently required by law.*

*There are too many individual flaws in the Draft EA to list them all. However, here are some of the more glaring examples.*

*1-- Incorrect Handling of Cumulative Impacts:*

*In the Cumulative Impacts section (p. 4-3, Section 4.2.5.1), this statement appears "There are no other reasonably foreseeable future activities (RFFA) regarding oil and gas in the cumulative effects study area as Lexam's planned activities are the only oil and gas permit applications of current record in the county (COGCC 2007)."*

*Whoever wrote all the Cumulative Impact sections, and tied Cumulative Impacts narrowly to only the proposed action, does not understand what the term "Cumulative Impacts" means in NEPA and within FWS rules.*

*In FWS rules regarding NEPA (550 FW 1) and cumulative impacts (Section 6c thereof), it is stated: (c) Cumulative Impact Analysis. In an EIS, prepare a cumulative impact analysis that addresses the proposed action, and a separate analysis for each alternative (if possible). This analysis can be included within each alternative or as a separate analysis at the end of the Environmental Consequences chapter. In an EA, a cumulative impact assessment should be conducted if it is deemed necessary through scoping to make a determination of significance of the proposed action. Refer to CEQ's guidance on considering cumulative effects cited in 550 FW 1.5J. (color added).*

*When we refer to the CEQ guidelines on cumulative impacts cited above, they are defined as follows: Table E-1. Incorporating principles of cumulative effects analysis (CEA) into the components of Environmental Impact assessment (EIA). Source: Council on Environmental Quality, 1997, Considering Cumulative Effects Under the National Environmental Policy Act (<http://www.nepa.gov/nepa/ccenepa/ccenepa.htm>) EIA Components, and CEA Principles Scoping*

*I Include past, present, and future actions.*  
*I include all federal, nonfederal, and private actions.*  
*I Focus on each affected resource, ecosystem, and human community.*  
*I Focus on truly meaningful effects.*

#### *Describing the Affected Environment*

*I Focus on each affected resource, ecosystem, and human community.*  
*I Use natural boundaries.*

#### *Determining the Environmental Consequences*

*I Address additive, countervailing, and synergistic effects.*  
*I Look beyond the life of the action.*  
*I Address the sustainability of resources, ecosystems, and human communities.*  
*(color added)*

*As you can see, "cumulative impacts" must include future impacts (direct, indirect), AND additional future actions that arise directly from the proposed action, and the direct and indirect impacts of those actions. Thus, when the Draft EA states "The planned exploration wells would be the only oil and gas wells drilled on the Refuge to date...", that statement in no way addresses Cumulative Impacts as defined by NEPA and by CEQ.*

*Further, the next statement "There are no other reasonably foreseeable future activities regarding oil and gas..." is ludicrous when applied to the proposed action, because the purpose of these wells is to assess whether full-scale gas/oil development can be performed here. Such development is, by definition, a "reasonably foreseeable future activity" if the exploration wells find a commercial deposit. How then, can the EA conclude that there are no RFFAs regarding the proposed action? That is a demonstrably false statement, and serves only to prove that cumulative impacts were never actually addressed or analyzed in this Draft EA.*

*Each section on Cumulative Impacts (4.2.5.1; 4.3.5.1; 4.4.5.1, etc.) contains the following statement: "No cumulative impacts have been identified...", or "There would be no cumulative impacts...", etc. These cookie-cutter statements indicate that there was no substantive attempt to assess cumulative impacts on the environment. Based on my 15 years experience in the EIS business, the chance that an action of this type (and its probable development follow-up), would have not a single cumulative impact on 23 different aspects of the environment\* is so remote as to be negligible.*

*\*geology, mineral resources, soils, air quality, water resources, surface water quality, groundwater quality, water use, vegetation, weeds, sensitive plants, wetlands, big game, small game, non-game species, migratory birds, fish, cultural resources, recreation, local economy, traffic, emergency services, and visual resources.*

*In a way, the repetitive statements "No cumulative impacts have been identified..." could be as true as far as the preparers of the EA are concerned, but only because they made no attempt to identify any cumulative impacts, and had assumed (wrongly) that cumulative impacts do not cover future actions. The truth is,*

*this EA clearly demonstrates that there is not enough known about the BNWR ecosystem, to be able to predict one way or the other, whether there will be incremental or cumulative impacts on the ecosystem. According to NEPA, when an EA reaches such a conclusion (as it should have done in this case), then an EIS is mandated to collect the missing data, so a proper analysis can be performed.*

*However, rather than follow NEPA requirements, the preparers of this Draft EA simply stated, when they did not have enough data to assess an impact, that "No cumulative impacts have been identified...". That lame statement is quite different from, and should not be confused with, saying "We have lots of data, and based on it and on similar data-supported studies elsewhere, we can confidently predict there will be no impacts."*

*In my opinion, this EA has such pervasive structural flaws throughout, that it cannot be salvaged by revision. Instead, the FWS must perform an EIS that conforms to the spirit and letter of NEPA. If FWS does NOT take such an action, it may well find itself in the same situation as the US Forest Service and its EIS for the Village at Wolf Creek. There, a federal judge recently ordered the original contractor-prepared EIS thrown out due to structural deficiencies, and the USFS is now going to start all over again (after years of work), preparing a new EIS that conforms to NEPA.*

*So clearly, federal judges are willing to strike down environmental assessments that contain major structural defects, such as this Draft EA for the Baca National Wildlife Refuge. I would certainly be willing to testify as an expert witness before any judge that, based on my 15 years in the environmental industry, this is the most poorly prepared and written EA that I have ever seen.*

*The FWS attempt to circumvent NEPA in the first place by refusing to perform an EA, and then after it was sued, by creating this flawed EA, was basically a bad strategy probably adopted under outside pressure. As often happens with decisions made under pressure, the FWS would have been better off to have done the right thing last year, and to have initiated a legally-defensible EIS in the first place, rather than embarking down this dead-end road with a flawed, unsalvageable EA.*

*Sincerely,*

*James P. McCalpin, PhD  
President, GEO-HAZ Consulting, Inc.  
Director, Crestone Science Center  
Adjunct Associate Professor, Colorado School of Mines, Utah State University  
Past Fulbright Research Scholar  
Certified Professional Geologist No. 7020 (AIPG); licensed in Utah  
Member Association of Engineering Geologists, Geological Society of America, American Geophysical Union,  
etc.*

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*February 21, 2008  
Mr. Michael Blenden  
U.S. Fish and Wildlife Service  
9383 El Rancho Lane  
Alamosa, CO 81101*

Dear Mr. Blenden:

*Based on my close reading of the entire Lexam EA, the cumulative result of multiple misjudgments, any one of which is significant on its own, is that you need to do a full EIS before any exploratory drilling takes place in the BNWR. To do otherwise would put at risk resources far more valuable than whatever natural gas might be discovered by Lexam. What follows is a listing of a few of the many issues the EA either raises and too easily dismisses or does not raise at all.*

1. Drilling. 1.6.2.2 "Lexam's drilling operations will use fresh water-based drilling fluids, unless unforeseen downhole conditions require the use of different types of drilling fluids."

*This is typical of the vagueness of the entire document. What fluids will be used? What different types of fluids might be used under unforeseen circumstances? All fluids should not only be listed but consequences should be enumerated for any pollution that occurs to the aquifer or other components of the surface and sub-surface elements surrounding the drilling sites. Moreover, there should be a stipulation that some chemicals or combinations may be prohibited pending a judgment rendered by a qualified, objective agency appointed by the COGCC, approved by the Saguache County Commissioners and paid for by Lexam.*

*"The USFWS will perform another NEPA environmental review prior to any proposed oil and gas development in the Refuge."*

*Since there has not been a true NEPA environmental review in the first place, you can't actually use the word "another." Logic dictates that the risks are greatest when breaking new ground in virgin territory; therefore, the most thorough NEPA process should be conducted before any initial steps are taken such as speculative drilling. Then, if all goes well, so to speak, and any potential harm has been clearly avoided in the initial work, the extraction process is already covered. There is too much at stake not to apply the most restrictive practices first. The reason Lexam wants to drill in the first place is because it thinks there is gas below the aquifer. You may be betting there isn't enough to warrant extraction, but the safer bet is that there is. Therefore, an EIS would be the most protective process for exploratory drilling, and an EIS would be the logical application for development, assuming all went well with the EIS and there is gas to be developed.*

*Why you went ahead with an EA first can only be explained by a misguided, self-serving policy created by the oil and gas folks planted by the Bush administration in the various government agencies including your own. They hide behind the dominant tenement laws that favor mineral rights owners over surface owners much like the slave owners in 1850 counted on the Fugitive Slave Act to uphold their property rights. In both cases, the law was not and is not right on moral grounds: the former having to do with the treatment of people; the latter having to do with the treatment of the environment. Pollution is to today what slavery was becoming by 1860. The so-called EA thus far produced may save Lexam money up front, but it gives considerably less protection to the habitat you are charged with managing and to the wider community surrounding the refuge. Drilling and protection may not be mutually exclusive, but the protection the EA currently affords is far from adequate.*

2. 2.2 Proposed Action Alternative (4) "Impacts to sensitive habitat, wildlife, plants or other sensitive natural, cultural or historical resource features will be avoided to the extent possible while constructing the access road and well pads."

*This statement is toothless, narrowly directed, and vapid. There is not as much as a hint of any real responsibility on anyone's part to do anything in the way of modifying behavior or holding anyone accountable. In short, it says nothing. It also does not take into account the significant vulnerability of Crestone's cultural uniqueness and ambience that will be threatened if not permanently ruined by gas drilling in the BACA. Nowhere in the entire EA document is there any recognition of Crestone's unique cultural properties and how much silence, serenity, and seclusion are necessary to its functioning as one of the world's foremost spiritual retreat centers. It is a spiritual resource center recognized worldwide as well as recently by such mainstream publications as U S New and World Report and the New York Times. <http://travel.nytimes.com/2008/01/11/travel/escapes/11crestone.html>  
<http://www.usnews.com/articles/news/sacred-places/2007/11/16/a-spiritual-community-takes-root.htm> )*

*Gas drilling would be more than just a proverbial turd in the Crestone punchbowl. It would drive away a significant number of pilgrims to our spiritual centers and therefore decimate the local economy. Hearing, smelling, and seeing an upwind gas drilling operation nearby would completely undermine the ambience and economy of this sacred community. This alone is reason enough to warrant a full EIS.*

3. Smoking. p. 2-5. "Cigarette butts are considered litter."

*I find it hard to believe that cigarette smoking would be allowed in the BNWR. Given the danger fires pose for Crestone and the entire western slope of the Sangre de Cristos as well the usually extremely arid aspect of the valley surrounding the proposed drill sites, smoking should be banned. This is not an unreasonable request given the circumstances of prevailing WSW winds and the potential extreme fire danger to Crestone this drilling operation poses anyway. If smoking is permitted, the entire region will be put at risk, especially with only one access road (County Road T) in and out of this sacred community.*

4. 1.5.1.1 Excepted Mineral Rights "In this Manual, the USFWS provides for the exercise of non-federally owned mineral rights while protecting USFWS resources to the maximum extent possible." (my italics). How are the following statements even close to an attempt to protect USFWS resources to the maximum extent possible?

A. P. 2-4, 29) "It is highly recommended that an auger tank be used..." (my italics)  
Why is this not required?

B. P. 2-1, 5) "All disturbed areas will be reclaimed per the COGCC requirements and with USFWS input. (my italics)  
Why not to the maximum extent possible as determined by the USFWS and Saguache County?

C. P. 2-2, 18) "All materials brought into the Refuge to build up the location pad will be authorized by the Refuge Manager..." (my italics)

*Don't you mean must be authorized ? Otherwise, the statement gives Lexam a blank check.*

D. P. 2-3, 25) "Dust levels on regularly traveled access routes must be kept to a minimum." (my italics)

*First, there is the issue of regularly traveled. Why not all?*

*Second, what does kept to a minimum look like? How is it measured? In effect, the requirement has no teeth whatsoever.*

*E. P. 2-4, 30) "A site reclamation plan may be required by the Refuge Manager..."  
Why not is required?*

*5. 2.5.1 Suspend Drilling Until Completion of a Comprehensive Conservation Plan "Suspension of the planned drilling...is considered an unreasonable constraint on Lexam's rights to develop its mineral estate." Is considered by whom? Whose consideration is determining that position? A wildlife manager, given his mission, certainly would not take that position.*

*Here is the problem, as I see it. By allowing Lexam to operate exploratory drilling under this flimsy EA, you open the door to a suit by Lexam to extract any significant findings under the same conditions outlined in this so-called EA. If you have already allowed exploratory drilling and it was deemed of insignificant impact, why not full scale production? At what point is significant impact defined? How many acres of the whole Refuge does it take to move from insignificant to significant? Exploratory drilling is the camel's nose under the tent. Therefore, it is better to require a full EIS up front rather than let the camel sniff around first and then try to control his next move once he smells gas.*

*I would contend that if Lexam wants to get going on drilling, let them provide the financial resources that enable the USFWS to proceed expeditiously with the CCP. If not that, at least proceed with a legitimate EIS, the result of which may either open the door for gas drilling or call for the CCP to be completed before any further action of any kind is taken or perhaps some other course of action. In effect, an EIS would serve as a compromise between an EA and the completion of the CCP. That way, the least restrictive analysis (the current draft EA) is not used as leverage later on to prevent tighter restrictions should gas be discovered.*

*I won't go into all the other toothless statements contained in this appallingly inadequate document called an EA, paid for by a Canadian company that has a vested interest in the outcome. I am sure the company hired by Lexam to produce the EA does not stay in business by protecting the environment. Suffice it to say that I have never felt so vulnerable to a government agency's irresponsible behavior as I do right now. The only solution is to implement a full EIS before any drilling activity commences.*

*Sincerely,*

*Bruce A. Blodgett*

*CC: Governor Bill Ritter, 136 State Capitol, Denver, CO 80203-1792*

*Representative John Salazar, 609 Main Street #6, Alamosa, CO 81101*

*Senator Ken Salazar, 609 Main Street #10, Alamosa, CO 81101*

*Dave Neslin, Acting Director of the COGCC, 1120 Lincoln St. Ste #801, Denver, CO 80203*

*Saguache Board of County Commissioners, P.O. Box 655, Saguache, CO 81149*

*Robbie Roberts, Regional Administrator, U.S. EPA Region 8, 1595 Wynkoop St., Denver, CO 80202-1129*

*Senator Gail Schwartz, 200 E. Colfax, Denver, CO 80203*

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*February 22, 2008*

*Michael Blenden  
U.S. Fish and Wildlife Service  
9383 El Rancho Lane  
Alamosa, Colorado 81101*

*Regarding: Draft Environmental Assessment (EA) of Planned Gas and Oil Exploration in the Baca Wildlife Refuge, located in Saguache County, Colorado*

*Dear Mr. Blenden,*

*With all due respect, reading the draft EA is indeed a sobering experience. This document contains incomplete, misleading, and erroneous information. This EA should not be allowed to stand. The purpose of this letter is to highlight some of that misinformation, and to therefore request, again, with all due respect, that a more thoroughly researched Environmental Impact Statement (EIS) be produced before any exploratory drilling is contemplated for the Refuge.*

- The EA document states it is in compliance with the federally mandated NEPA process. The truth is no NEPA was followed. Not following NEPA is against the federal law. This needs to be corrected with an EIS.*
- The EA document states that the U.S. Fish and Wildlife Service (hereafter called the "Service") has a responsibility to protect the surface estate of the Refuge and its associated resources. But without a comprehensive conservation plan (CCP), the Service can not determine what currently exists on the Refuge. So it is misleading to state that the Service is protecting the Refuge with this EA. Again, this can be corrected with an EIS.*
- A CCP has not been completed due to lack of adequately trained professionals to undertake this multi-year evaluation. At least that is what the EA states. Yet the EA also states that it will provide trained environmental monitors, a biologist, and archeologist plus additional USFWS law enforcement personnel to Lexam (see page 2-1). How is it that a federal agency who can't do what the law mandates, i.e., assess the current resources within the Refuge, afford to pay for staff who will perform functions for a private oil and gas company?*
- The EA states that it will continue to consult with local emergency response personnel (page 1-18) who would then be available should an emergency develop. It is misleading to assume that local staff can continue to consult and provide emergency assistance without financial support from Lexam or the federal government who is, at the same time, supporting oil and gas exploration on the Refuge. The inference is that the community most impacted, Crestone, can pay for these services. That is because the EA also*

states that Crestone is not low income nor inhabited by minorities (who historically have lower incomes than Caucasians). The truth is quite a bit different. Saguache county median family income is \$23,638, which means 22.7% of the population lives below poverty. In addition, 45.4% are persons of Hispanic or Latino origin (<http://quickfacts.census.gov/qfd/states/08/08109.html>). People move out of Crestone because they can not find sustainable jobs in the town. Draining Crestone's tax base by having its emergency staff help Lexam is an unfortunate and insensitive proposition. Stating that Crestone is not low-income nor minority demonstrates how little the Service knows about the community closest to where drilling is proposed. The staff that are responsible for the EA never walked down a street in Crestone. If the EA staff is so ignorant of the major town which would be impacted by drilling, how sensitive are they to the remainder of the San Luis Valley?

- The EA states that the use of the surface estate is reasonable and does not cause undue surface disturbance (page 1-4) because of the limited scope of Lexam's proposed drilling project (page 1-6). This is misleading at best, and most assuredly not the truth. According to various statements throughout the EA, this project will:

1. Span a time period of at least 6 months (in addition to one month of road building before drilling begins, as well as the time necessary after project completion for total reclamation activities).
2. During those months drilling will occur all day and all night.
3. There will be trucks and other vehicles, including ATVs (again, according to this EA document on page 2.5), going into and out of the Refuge at unprecedented numbers. The EA states that there will be 30-60 trucks needed for location preparation; 250 truckloads of equipment per well; and at least bi-weekly transportation of septic waste and other trash. This does not even include the traffic of workmen and supervising personnel.
4. There will be strong lighting provided for the drilling rigs and this is discussed at great length (page 4-20). Since the EA states that only one tree exists on the proposed site, there will be no shield to protect against such reflections. Currently a person can look across the valley from Crestone and see the San Juans which are over 50 miles away. Lights from Moffat are readily apparent in Crestone; lights from Crestone can be seen 14-16 miles away on Highway #17. It is not true as the EA states that drill sight lighting will not be seen over 2 miles away from the source of those lights. Nocturnal animals will most assuredly be negatively impacted by these strong lights, if there are any nocturnal animals left after drilling begins.
5. The Service is required to abide by the Migratory Bird Treaty Act and Migratory Bird Conservation Act (page 1-8). Yet some of our area's most important birds and fish will, according to the EA (pages 3-24 to 3-31) be impacted negatively by drilling. In fact, the bald eagle, the Ferruginous hawk, the American Peregrine falcon, and the Greater Sandhill crane, as well as other birds and fish, have all been documented within the project area. Birds will not stay in an area resounding with noise from 24/7 drilling equipment.
6. The EA states that all vehicles entering the refuge will be power-washed to prevent soil contamination and introduction of plants not indigenous to the area (p. 1-4). This water, dripping from large transport trucks, will seep into the soil; further runoff may go into the wetlands. This most assuredly will unduly impact the surface estate. Or is Lexam's plan to pack all this water out of the Refuge? Or is this washing of vehicles to occur at the junction of the T-road and the "Lexam" Road?
7. The EA states that roads and drill pads will cover a surface area of approximately 14 acres. Later in the document (page 3-1) the EA revises the project area to 5,200 acres. It is not clear what would happen on these additional acres, but what is clear is that Lexam will be disturbing a significant portion of the Refuge. It is not true that this event will not seriously impact the surface estate.
8. According to the EA 32% of the project (32% of the 5,200 acres) is on wetlands (section 3.5.1.1) yet



the EA states that no "long-term" damage to fish and aquatic life is expected. At best this is a gross underestimation of damage that could occur; at worst this is a lie. Certainly without a CCP no one knows the extent of the aquatic life existing there now. How could anyone suggest a judgment on the 'long-term impact' of any man-made activity on this property?

9. Full-scale drilling is scheduled from August 1 through April 30th (See item #13, page 2-2). It is during this period that large animals such as elk mate, and migratory birds breed and nest. It is not true that such drilling will have no significant surface disturbance.

10. According to the EA (page 3-18) the entire project area (5,200 acres) is considered pronghorn winter range; the eastern half of the project area is considered mule deer winter range; and elk populations within the project area peak during winter months. Drilling will occur during winter months.

11. Other wetlands, specifically the La Blanca Wetlands located between the Baca Wildlife Refuge and its wetlands and the Sand Dunes National Park is closed to people between February 15th and July 15th. The sign at the gate indicates such closure is for breeding and nesting of birds. How can breeding and nesting activities be protected in one sensitive area and not in a contiguous area? Therefore it is not true and very misleading to say, as the EA does, that surface disturbance in the Baca will not occur with drilling. The inconsistencies in federal interpretation of policies are alarming. Application of such inconsistencies appears illegal.

In all fairness, there are some statements in the EA that are probably correct.

- Lexam will probably not have to fence the drill pads to protect animals from entry (page 2-2, item #14). Every animal within a 10-mile radius will have fled the area because of the noise, air pollution, and out-right fear.
- The EA is probably correct: most Lexam drillers will reside in Alamosa because of the number of restaurants and hotel rooms available. However, it is also a fair assumption that men who work 12-hour shifts, as this EA states, may not be keen on adding two additional hours per day traveling to and from work. That doesn't allow much time for a beer after work.
- The EA does in fact prohibit all fires in the project area. And it even prohibits litter from cigarettes. Amazing, cigarette smoking allowed in an area the EA itself states will contain hazardous chemicals.
- It is true, as the EA states, that most of the almost 50,000 responses to the Service expressing non-support for oil and gas drilling in the Baca National Wildlife Refuge were generated through an e-mail alert sent to 650,000 members of the Natural Resource Defense Council. Fourteen thousand (14,000) responses were from Colorado residents disgruntled by this proposed project. But in fairness, and according to statements made by you, Mr. Mike Blenden, 1,000 of those letters came from citizens here in the Valley. All responses except three (3) were very concerned about proposed drilling (page 5-2). So in all fairness, there are some people who support this project: 3.

Sincerely,

Bonnie M. Orkow, Ph.D.

86 Baca Grant Way North, Crestone, CO 81131 And 200 Adams Street, Denver, CO. 80206

CC: Jay Slack, Acting Director, U.S. Fish and Wildlife Services

*Representative John Salazar*

*Senator Ken Salazar*

*Senator Wayne Allard*

*Governor Bill Ritter*

*David Neslin, Acting Director, Colorado Oil and Gas Conservation Commission*

*Saguache Board of County Commissioners*

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*February 22, 2008*

*Mike Blenden*

*Baca National Wildlife Refuge*

*Alamosa/Monte Vista National Wildlife Refuge Complex*

*9383 El Rancho Lane*

*Alamosa, CO 81101*

*Dear Mike Blenden:*

*The San Luis Valley should remain a region without gas and oil drilling. Regarding the potential for gas and oil, it should be noted that San Luis Valley is the northern extension of the Rio Grande Rift, which is one of five major rifts in the world, and that there is no significant production of oil and gas in any of them.*

*Although many exploration wells have been drilled to depths of over two miles in the Rio Grande Rift to the south, there have been no big finds of gas and oil. However, Lexam, the company that wants to profit by invading our public wetlands in the Great Sand Dunes National Park and Reserve claims that test wells they drilled in 1995 had "oil shows."*

*ENRI, a private consulting group paid by Lexam, whose interests were being represented, prepared the Draft EA resulting in a FONSI (Findings of No Significant Impact). What would you expect if you paid for an outcome? It recommends that Lexam's proposed drilling should go forward. To suggest that drilling three 14,000 foot exploratory gas wells through sensitive wetlands and into one of the continents largest and most valuable aquifers is preposterous. In order to come to this conclusion, ENRI and the Administration of the Baca National Wildlife Refuge had to ignore significant impacts, including potential groundwater contamination, air pollution, noise pollution, light pollution, damage to sensitive riparian ecosystems, enormous agricultural areas, damage to archaeological sites and sacred areas of modern Native Americans, and damage to the surrounding communities as well as to the Great Sand Dunes National Park and Preserve.*

*How does our present government justify intrusion by corporate interests into public lands and public parks without the consent and guidance of its citizens? This is not an issue simply of obtaining an Environmental Impact Statement. It is an issue where inhabitants of the region and U.S. citizens should decide whether drilling for oil and gas should take place in the Baca National Wildlife Refuge (BNWR)*

*Wetlands along the Sangre de Cristo Mountains. It is an issue of whether the government can invite intrusion by corporate interests into public lands and public parks without the consent and guidance of its citizens*

*Gas and oil mining in the rest of the Rocky Mountains is having tremendously adverse impacts on the environment, destroying pristine natural beauty, sullyng wetlands, and polluting our water. Let's protect the agricultural lands, wild lands and wetlands of our nation.*

*Sincerely,*

*Thomas B. French*

*Thomas B. French, HC 68 Box 139 , 506 Upper Ranchitos Rd. Taos, NM 87571, 505 758-3827*

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*Michael Blenden  
U.S. Fish and Wildlife Service  
9383 El Rancho Lane  
Alamosa, CO 81101  
Email: Baca\_EA@fws.gov*

*2/28/08*

*1) The present cabinet boasts more CEO's than any in history. Most come from the energy, extractive and manufacturing sectors that rely on giant subsidies and create the worst pollution. Almost all the top positions at the agencies that protect our environment and oversee our resources have been filled by former lobbyists for the biggest polluters in the very businesses that these ministries oversee. These men and women seem to have entered government with the express purpose of subverting the agencies they now command.*

*Robert F. Kennedy, Jr., Crimes Against Nature: How George W. Bush and His Corporate Pals Are Plundering the Country and Hijacking Our Democracy (2006)*

*2) The U.S. government is being run like a franchise by private corporations.*

*Michael Ruppert*

*3) Laws are like cobwebs, strong enough to detain only the weak, and too weak to hold the strong.*

*Anarcharis, 500*

*B.C.*

*4) The 20th century has been characterized by three developments of great political importance: the growth of democracy, the growth of corporate power, and the growth of corporate propaganda as a means of protecting corporate power against democracy.*

Alex Carey

5) A government should not solicit input from its citizens for the purpose of decision-making if they are simply going to ignore it.

Taos citizen at public hearing

I am attaching the bound contents of my Water Watch Alliance website (<http://WaterWatchAlliance.googlepages.com>) with this letter. I understand that Lexam paid ENSR nearly a million dollars to come up with their FONSI ("finding of no significant impact") in the Draft EA submitted on January 18, 2008. By contrast, I have a staff of only one and no budget at all. Nonetheless, on this website (this volume) and in this letter, I have documented that the proposed gas drilling activity by Lexam would have many, many adverse and significant impacts to our unique and irreplaceable San Luis Valley. I invite you to consider the information and perspectives in this document, along with this letter, as my input regarding the draft EA. I suggest that the amount of truthful and useful information in this website/document probably far surpasses that included in the draft EA, which we should best regard as "corporate propaganda," as per quote 4 above. I hope that this information I and others are supplying you might be useful for those groups or individuals charged with writing the Environmental Impact Statement that NEPA so clearly mandates in this case.

Under the present Bush administration, the oil and gas industry has commandeered our federal agencies and federal lands for its own purposes. The analogy of "the fox guarding the chicken coop" is an appropriate one. Thus, it is not surprising that the Baca National Wildlife Refuge (BNWR) has been out of compliance with the National Environmental Policy Act (NEPA) from the very beginning and remains so today. The Draft Environmental Assessment, a FONSI ("finding of no significant impact") written by ENSR, is a cynical whitewash of a document that generally fails to address impacts and certainly fails to fulfill the requirements of NEPA. Because the impacts of the proposed drilling activity are indeed significant, adverse, cumulative, and controversial, as defined by NEPA, this draft EA fails to meet NEPA requirements. Rather, it will be necessary for the USFWS to conduct a full-scale Environmental Impact Statement in order to comply with the law.

As a resident of the Baca community, I have been involved in the public process regarding the proposed Lexam drilling since it first began in August, 2006. The experience has been frustrating, mainly because representatives of the BNWR, ENSR, and Lexam have acted in concert to subvert and undermine the NEPA process. For these individuals, the proposed drilling has always been a "done deal." And though they are now legally bound to give the appearance of complying with NEPA, they have continually undermined and circumvented the NEPA process itself. Representatives of the BNWR have apparently even redefined NEPA so that, to them, it is simply means they need to try to mitigate Lexam's activities. Hopefully, Federal judges will not accept the USFWS attempts to redefine NEPA. The Bush/Cheney administration program of turning the Rocky Mountain states into an "energy colony" and "national sacrifice zone" was never debated by Congress or approved by the American people. The American people reject this desecration of our land and this subversion of our democracy.

Based on the information I have compiled herein, I conclude that the relative value of the BNWR surface estate plus that of the priceless groundwater underneath the San Luis Valley far surpasses any amount of

*natural gas which might underlie the BNWR.*

### **History of NEPA on the BACA**

*The BNWR began working to facilitate Lexam's drilling project BEFORE initiating the NEPA process. In fact, Ron Garcia, Manager of the BNWR, initially informed our community that the BNWR was NOT legally required to comply with NEPA. The way the project was introduced to our Crestone/Baca community indicates that representatives of the BNWR had already been working with Lexam, other federal agencies (the National Park Service and the BLM), and the Sonoran Institute (a non-profit organization) to limit the scope and effectiveness of public response. This a priori collusion between government and industry suggests that the BNWR is acting on orders from senior officials in the Department of the Interior and/or the White House itself to "expedite" this drill play rather than follow the federal laws that are in place to protect public lands and public health and ensure that the American citizens have a role in the decision-making process. Unfortunately, similar attempts to circumvent NEPA are now also happening elsewhere in the U.S. due to this administration's disregard for law ([http://pubs.acs.org/subscribe/journals/esthagw/2007/nov/policy/jp\\_nepa.html](http://pubs.acs.org/subscribe/journals/esthagw/2007/nov/policy/jp_nepa.html)).*

*Only after the Energy Minerals Law Center lawyers sued the BNWR did the BNWR belatedly "decide" to initiate the NEPA process. How they did it, again, indicates their primary purpose was to do an end-run around NEPA. Ron Garcia, BNWR Manager, emailed 52 people from our community at 4:44 pm on August 7, 2007, notifying us that the BNWR was initiating a scoping process/Environmental Assessment at a public meeting to be held 10 days later, on Friday, August 17th, from 5:00 to 8:00 pm. His email was entitled: "Notice of Public Meeting to Discuss Resource Protection Issues Related to Gas Exploration Activities on Baca National Wildlife Refuge." The notice did not state: "issues related to proposed gas exploration activities." For the BNWR, it has always been and remains a "done deal," even though NEPA law requires a fair and open process with public input and acquisition of relevant scientific data to determine if there are significant impacts associated with the proposed project.*

*Again, that the BNWR did NOT give customary notice of this meeting in our local newspapers and gave us only 9 days to prepare for the meeting indicates they were trying to limit our public input and response. Nonetheless, citizens from our community filled the scoping process meeting on August 17th and argued passionately and persuasively for three hours that drilling on the BNWR; 1) would degrade the surface estate and resources of the wildlife refuge and therefore is not a "reasonable or compatible use" of the refuge, 2) is not compatible with the cultural values of our community and region, and 3) would cause serious contamination of water, air, and degrade our roads and communities, as well as wildlife habitats in this still pristine and spectacular area. No one from the BNWR recorded our comments. Rather, Michael Blenden instructed us earnestly to write down our scoping comments, send them to him, and by law, the BNWR and ENSR would have to respond to each comment. Over the next 30 days, some 48,500 people sent in responses that were overwhelmingly in opposition to the drilling. This in itself indicates that the proposed action is extremely controversial and unpopular. However, based on the contents of the Draft EA, it appears that our written comments have almost entirely been ignored.*

### **What is NEPA?**

*According to NEPA lawyer Travis Stills, NEPA (National Environmental Policy Act of 1969) is the "Magna Carta of environmental protection" and was written in order to address the problem of "agency capture,"*

*i.e., situations where federal agencies and industry "forget who is who and start acting like each other." (Clearly, the way this NEPA process has unfolded indicates that "agency capture" has occurred, despite NEPA.) NEPA is an "action forcing process" that mandates public participation and an interdisciplinary approach in the acquisition of relevant scientific data so that decisions affecting special areas and communities are not just made by industry alone. NEPA mandates that the BNWR understand and respect the "cultural values" of the San Luis Valley and our Crestone/Baca community. It also requires that cumulative, synergistic impacts be examined and that "alternatives" to satisfy the "purpose and need" of the project be considered and assessed.*

*NEPA mandates the disclosure of impacts, alternatives, and projected mitigation measures. One of two kinds of studies must be completed before a proposed project can go forward on federal land. An Environmental Assessment (EA) is used when there are "no significant impacts" (i.e., no unique and exceptional circumstances) associated with the proposed project. A more rigorous Environmental Impact Statement (EIS) is required when there are "significant impacts" associated with the proposed project.*

*NEPA specifies (<http://www.nepa.gov/nepa/reg/cwq/1508.htm#1508.27>) that whether or not there are "significant impacts" depends upon the context and intensity of the proposed operation. Contexts that need to be considered include society as a whole (human and national), the affected region, affected interests, and locality. Intensity pertains to the "severity of impact" regarding:*

- 1) Impacts that may be both beneficial and adverse.*
- 2) degree to which the proposed action affects public health and safety.*
- 3) unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.*
- 4) degree to which effects on the quality of the human environment are likely to be controversial.*
- 5) degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.*
- 6) degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.*
- 7) degree to which it is reasonable to expect cumulatively significant impacts on the environment.*
- 8) degree to which the action may adversely affect districts, sites, highways, structures or objects listed in or eligible for listing in the National Register of Historic Places- or may cause loss or destruction of significant scientific, cultural, or historical resources.*
- 9) degree to which the action may adversely impact an endangered or threatened species or its habitat- as determined under the Endangered Species Act of 1973.*
- 10) whether an action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.*

*Note that the proposed drilling meets each of these ten criteria for "significant" in terms of context and intensity!*

*NEPA law also states that more than one agency may make decisions about partial aspects of a major action. Thus, Saguache County, the Baca Grande Property Owners Association, Native American Tribal Governments, Rio Grande Water Districts, the State of Colorado, grazing lease-holders on the BNWR, nearby farmers, ranchers and communities, as well as many agencies in New Mexico, Texas and Mexico, among others, also have the right and responsibility to give their input on these issues.*

*As we will see, even a cursory examination of the many issues related to drilling three 14,000-foot gas test wells on sensitive wetlands in the BNWR, indicates that the proposed action has very severe impacts, and thus, is highly significant in each of the above ten categories.*

*Despite the abundance of severe and significant impacts associated with the proposed project, the BNWR selected a private contractor, ENSR, to write an EA rather than an EIS. Note again, that EA's are appropriate only when there is a finding of "no significant impact" (FONSI). However, industry prefers EAs because they are typically written in a relatively a short time interval and do not require the acquisition of new, baseline scientific data. In addition, the fact that Lexam itself paid ENSR to write the EA is clear conflict of interest. By contrast, a full-blown Environmental Impact Statement (EIS) is a much more thorough study requiring acquisition of new scientific data and normally takes about two years to complete. And EIS also involves the participation of the EPA (Environmental Protection Agency).*

*The BNWR called a public meeting on February 12, 2008, as required by NEPA, to obtain input from our community on the Draft EA. Lexam and ENSR representatives were in attendance, as well as those of the USFWS. That the issue is "controversial" is indicated by the fact that the room was packed with about 75 people and the meeting lasted 4 hours. The community unanimously argued that "significant impacts" are associated with the proposed project, and thus, a full Environmental Impact Statement must be completed. Community members demonstrated their knowledge and understanding of NEPA and the issues. We argued that 1) the context and intensity of expected impacts associated with the proposed drilling all indicate "significant impacts," and 2) that the Draft EA does not address the many specific issues we as a community had already raised in the approximately 48,500 letters submitted during the scoping process.*

### **ASSESSMENT OF THE DRAFT ENVIRONMENTAL ASSESSMENT: A "FONSI" (FINDING OF "NO SIGNIFICANT IMPACT") AND CLASSIC WHITEWASH!**

*The BNWR released the Draft EA on January 18, 2008 (<http://www.fws.gov/alamosa/BacaNWR.html>). My observations about the draft EA are that Blenden and ENSR are in violation of the NEPA policy in several keys ways:*

*1) No impacts are addressed at all! (Recall, that NEPA mandates disclosure of impacts, alternatives and mitigation measures). If no impacts are addressed, the document becomes nothing more than a whitewash of the NEPA process.*

*2) In the cover letter for the document, Blenden states: "The scope of this EA does not address*

production of natural gas and oil from any of the wells described above." This is another clear violation of NEPA law that:

#6 (above, under intensity of impacts) requires that NEPA examine the "degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration,"

#7 (above) talks about "degree to which it is reasonable to expect cumulatively significant impacts on the environment"

3) The document starts with the a priori assumption that Lexam will drill and the role of the BNWR is to help mitigate impacts. The first sentence of page 1-1 is: "The purpose of the Environmental Assessment (EA) is to ensure that initial exploration of the mineral estate under the Baca National Wildlife Refuge (Refuge) by Lexam Explorations (U.S.A.) Inc. (Lexam) is conducted in a reasonable manner." Thus, the letter and spirit of the NEPA process are thrown out the window in the first sentence. It is not surprising then, that the rest of the document is nothing more than boiler-plate whitewash. But we know from experience that "he who pays the piper (in this case, Lexam) calls the tune (in this case the Draft EA)."

4) There is no Conclusions section at all in the document that specifically states how ENSR has arrived at the conclusion that there are "no significant impacts" or that explains how ENSR came to this conclusion. Rather, "no significant" or "minimum" impacts are simply stated and repeated throughout, without any backup by facts or data, throughout the document. Thus, regarding soils, the EA finds "minimal long-term impact," regarding air quality: "minimum short-term impact," regarding water; "impacts to groundwater quality less than significant" and "no impact on water use;" regarding vegetation and habitats; "less than significant impacts" and "impacts minimal," etc.

5) For all intents and purposes, then, the EA was written for and by Lexam. The Manager of the EA project was William Berg, an oil geologist. During the public meeting of February 12, 2008, it became clear from his comments that he himself has worked in the oil/gas industry. And when I asked him directly if it would even have been possible for ENSR to have concluded that there were significant impacts and to recommend an EIS, he replied that that was not possible. Thus, it appears that indeed, "the fix is in," the document begins with its ruling premise (no significant impacts) and then simply supports that conclusion as best it can. This is the opposite of the scientific method. Examples which indicate the built-in bias favoring Lexam's project include:

a). On page 2-11, the EA states: "Any action by the USFWS to totally deny Lexam the reasonable opportunity to explore for minerals would likely be considered by Lexam an unconstitutional "taking" of their private property (mineral estate) without just compensation (U.S. Constitution, Amendment V). Therefore, this alternative was considered and eliminated from detailed analysis." The EA fails to acknowledge that the application of the legal concept of a "taking" is very controversial. Over the past two decades, it has increasingly been advanced and manipulated by corporations for their own benefit, of course. However, under the Exploring Constitutional Conflicts website, we read: "The Court has had difficulty to determine when a regulation becomes a taking. There is "no set formula" and courts "must look to the particular circumstances of the case." So on this critical issue, ENSR and the BNWR, and by extension, Lexam, have assumed that courts would rule in their favor, when in fact, they may not. Furthermore, why should the American government extend civil liberties of American citizens (in this case the 5th Amendment of the Bill



of Rights) to a Canadian corporation, which is neither an American citizen nor a real person, but rather a legal fiction. Let's be clear: Lexam is a Canadian corporation listed on the Toronto Stock Exchange. It should have no legal claim to the American Bill of Rights. If it does, surely those laws are "repugnant to the constitution" and should be declared illegal.

("All laws which are repugnant to the Constitution are null and void" Marbury vs. Madison, 5 US (2 Cranch) 137, 174, 176 (1803). From Citizen's Rule Book.

### **Specific issues ignored by the Draft EA that I raised in my scoping letter 9/5/07**

Like so many others who worked hard to submit scoping comments, my comments were ignored by the BNWR and ENSR in the draft EA. I attach a copy of my 9/507 scoping letter for reference. On page 2, I mention that, by their own admission, Lexam hopes to strike on the order of a tcf (trillion cubic feet) of natural gas. Indeed, they would not want to invest about \$30 million to drill three 14,000-foot test wells unless they felt there was a high probability of success. Hence, by NEPA's own criteria, we must look at the drilling of the test wells as a "precedent setting activity" that could result in "cumulative impacts" and synergistic effects in the event of "success" and the commencement of full-scale gas production. Indeed, if gas is struck by the test wells no new permit is required to begin extracting fossil fuels. This issue is not addressed in the draft EA, but rather, is obfuscated and dodged in Michael Blenden's cover letter when he blithely states that "the scope of this EA does not address production of natural gas and oil from any of the wells described above. If necessary, the Service regulation of production and associated transportation would be the subject of a separate analysis pursuant to the NEPA." These statements, in the second paragraph of Blenden's cover letter, indicate that the USFWS has failed to recognize the "precedent setting" nature of the proposed drilling or the "cumulative impacts," and "synergistic effects" of production and transportation of natural gas on the BNWR. Thus, the USFWS is out of compliance with NEPA from the very beginning. In my graduate computer classes, we had a phrase: "garbage in, garbage out," or GI-GO. If your assumptions are erroneous, your conclusions will be erroneous as well.

On page 7, I asked the question whether this drill-play may have something to do with a government-corporate strategy that might relate to Vice President Cheney's Energy Task Force. Is this why they are trying to get into "the best places first" as former National Forest Supervisor Gloria Flora observed. Could this proposed activity have anything to do with U.N. Agenda 21? And although this issue was not addressed in the Draft EA, I would like to pose an additional question: Might this project relate to a relatively secret mega-project by U.S. Federal Agencies to build "Energy Corridors on Federal Lands in the 11 Western States?" A pending EIS on this project describes that the lead agencies for this proposed project are the US Department of Energy, U.S. Department of the Interior, BLM, US Forest Service, U.S. Department of Defense, U.S. Fish and Wildlife Service, the State of Wyoming and 10 other agencies. Might this gas play then relate to a future energy corridor being planned for the area along the present Highway 50 in Colorado? If so, why all the secrecy?

In my scoping letter, I identified 15 areas of concern and adverse impacts. I don't space or energy to do a point-by-point analysis. However, examination of just a few of the critical areas will reveal that these many of these impacts are significant based on NEPA definitions.

#### **I) Impacts on groundwater and water quality**

In my scoping letter of 9/5/07, I detail many ways in which the proposed drilling and related activities could and would contaminate surface and groundwater. These include:

- a) the sensitive nature of the aquifers
- b) near-term impacts of aquifer pollution on humans, in terms of drinking water and irrigation
- c) contamination of aquifer wells already in existence.
- d) long-term contamination of aquifers by gas drilling, hydraulic fracturing, evaporation ponds, leaks, spills, accidents, additions of produced water at the surface, etc. (page 2)
- e) potential impacts of water contamination on downstream users (page 1) based on Rio Grande Compact.
- f) specific chemical pollutants/contaminants, methane, fracturing fluids, B-tex (benzene, toluene, ethyl benzene, xylene), diesel fuel, hydrogen sulfide, heavy metals, VOCs, formaldehyde and PAH's (Colborn, 1997). Propylene glycol used on well pads is fatal for animals.
- g) deterioration of concrete casings over time will cause future pollution of aquifer
- h) and why should local county officials accept that each gas well is automatically exempt from following the safety standards for clean water outlined in the Clean Water Act and Safe Drinking Water Act?

Note that each of the above factors and all of them taken cumulatively would have significant impacts as defined by NEPA criteria, including:

- #2 - affects public health and safety,
- #3 - affects parklands, farmlands, wetlands, ecologically critical areas,
- #4 - affects on quality of human environment are controversial,
- #5 - highly uncertain, unique, unknown risks,
- #6- sets a precedent for future action,
- #7) cumulative impacts,
- #9) action may threaten endangered or threatened species.
- #10) threatens violation of federal, state or local law.

Interestingly, during the public meeting on the draft EA, William Berg, main author of the draft EA and himself an oil geologist, challenged me to prove that gas drilling on the Baca Refuge would contaminate the aquifer. Of course, no one can prove a future occurrence. However, the sheer number of accidents that have occurred in the gas fields of Colorado resulting in pollution of wells, ponds, and aquifers, explosion of buildings, etc. is proof that this kind of activity frequently pollutes groundwater. As Peggy Utesch of the Grand Valley Citizen's Alliance stated regarding EnCana's drilling activities near Silt, Colorado: "We know there are accidents every day. All you have to do is look at the (COGC) Commissions' reports." I document many accidents associated with gas drilling activity on my website: <http://WaterWatchAlliance.googlepages.com>. Please go to the page on Accidents in the Gas Fields.

These kinds of impacts, by and large, are not addressed at all in the Draft EA. Therefore, a full EIS is required. To the concerns I raised in my scoping letter, I would now add the following concerns:

### **The Regulations Fall Short!**

Americans get over half of their clean drinking water from underground sources. In 2005, the oil and gas industry was granted an exemption from the Safe Drinking Water Act, making the oil and gas the only industry allowed to inject toxic fluids directly into good quality groundwater without oversight by the

Environmental Protection Agency (EPA). At the state level, most oil and gas regulatory agencies do not require companies to report the volumes or names of the chemicals being injected during hydraulic fracturing. Thus, neither the government nor the public can evaluate the risks posed by injecting these fluids underground. ([www.earthworksaction.org/pubs/Fracking.pdf](http://www.earthworksaction.org/pubs/Fracking.pdf))

### **San Luis Valley Water: A Fragile Abundance**

A 1974 geological report estimates that aquifers in the San Luis Valley hold 2 billion acre feet of water, of which at least 140 million acre-feet is potable. At the (2001) going rate of \$5,000 to \$12,000 per acre-foot, the value of this water is over \$700 billion to \$1.7 trillion. In other words: It is priceless!

Thousands of wells in the unconfined and confined aquifers supply irrigation and drinking water for the San Luis Valley. These aquifers are "highly sensitive" and vulnerable to infiltrating contamination because: 1) Depth to water table is shallow, averaging only about 7 feet, 2) Surface soils are typically sandy and highly porous, 3) aquifers are comprised mostly of porous unconsolidated sands and gravels, and 4) faults and fractures are common and hence, the aquifers recharge rapidly and water pollutants can move through the aquifers and mix readily.

### **How Oil and Gas Operations Can Contaminate Groundwater**

In gas drilling, serious pollution can come from both the surface (from evaporation ponds, drilling pits, condensate, leachate, spills, etc.) and from the subsurface (by mixing of water with toxic drilling fluids, cuttings, and oil and gas). Drilling fluids used in the "hydraulic fracturing" process, used in 90% of gas wells, are exempt from regulation by the Clean Water Act. Each "frack" or "shot" requires a million gallons and causes mini-earthquakes at depth. "Fracking" fluids include a toxic suite of chemicals, including B-Tex (benzene, toluene, ethyl benzene and xylene), heavy metals, diesel fuel, VOC's (volatile organic compounds), formaldehyde, methane, and hydrogen sulfide. Of the 245 chemicals used, 91% have adverse health effects and 35% have endocrine disrupting effects ([www.endocrinedisruption.org](http://www.endocrinedisruption.org)). Through evaporation and leaching, these chemicals also contaminate air and soils.

If coal beds are found, the mining of coal-bed methane (CBM) gas is even more toxic. Then, drillers 1) pump enormous quantities of briny "produced water" to the surface, and 2) enlarge the borehole by injecting high-pressure gas into the well. Gas and oil themselves evaporate easily, dissolve in water, and are toxic. One component, benzene, is carcinogenic. Because hydrocarbons are less dense than water, they rapidly move upward through aquifers. Hence, gas and oil can leak upward from the confined aquifer into the unconfined (surface) aquifer. One quart of oil can contaminate 250,000 gallons of water! And concentrations of methane gas above 10 mg/l are ignitable. Well water from the confined aquifer between Alamosa and Moffat already has ignitable levels of methane. A new house east of Mosca exploded in 2003! Finally, concrete well casings typically deteriorate after 20 years, so old wells can also be a major source of pollution.

For more information, check <http://WaterWatchAlliance.googlepages.com>.

### **II) Potential Impacts from Hydraulic Fracturing and Mining of Coal Bed Methane (CBM) Gas**

To consider the even more profound and adverse impacts associated with hydraulic fracturing and

mining of coalbed methane gas, please refer to the appropriate sections of my website (appended volume).

### *III) Air pollution*

Gas wells cause photochemical smog. Photochemical smog is formed where volatile organic compounds and nitrogen oxides mix in the presence of sunlight. Although often termed "haze" when associated with gas wells, the chemicals and the effects are identical to that of smog in our large western cities and include a loss of visibility and formation of secondary pollutants such as ground level ozone and sulfur trioxide. Today, the clear atmospheric conditions in the San Luis Valley are some of the best for solar electrical generation in the entire U.S. Obviously, formation of haze (smog) here will "significantly" reduce this areas potential to lead the nation in generation of clean electrical energy from the sun.

In addition, other toxic carcinogenic compounds emitted from drill pads, include ground level ozone (with damaging health effects for humans, animals, plants and crops), B-tex, PM-10, as well as pollution from evaporation ponds, dust from trucks and roads, toxic leaks from pipelines. Ozone is the single greatest cause of asthma.

Flaring of gas from wells emits great quantities of VOCs and nitrogen oxides. Gas operations south of Silt Colorado have caused illness amongst local residents and die-off of goat herds.

I could continue to point out the egregious inadequacies of the Draft EA in terms of each of the categories of impacts I outlined before, including health concerns, impacts on wildlife, noise, light and dust pollution, damage to roads by heavy vehicles, infrastructure requirements, etc. But I imagine other concerned individuals will address these topics adequately. I can only hope that the USFWS and will be compelled to follow NEPA more carefully in the future.

The San Luis Valley is unique and irreplaceable national treasure. We are seeing here a battle between the mineral estate and the surface estate. Not represented at the table is the value of the most valuable estate of all, the water, which is owned by the people of Colorado. Although it is impossible to place a value on the wealth of the surface estate and the water, they are certainly worth infinitely more than the minerals under the BNWR.

Sincerely,

Dr. Eric Karlstrom, Professor of Geography, Coordinator, Water Watch Alliance  
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***APPENDIX B: LETTER TO BNWR DURING THE "SCOPING PROCESS:" (Most of  
substantive concerns in this letter are not addressed in the Draft EA.)***

**LETTER FROM DR. ERIC KARLSTROM**

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9/5/07

Comments and Concerns Re: proposed exploratory gas-well drilling by Canadian firm, Lexam Explorations, Inc. on  
Baca National Wildlife Refuge

At a recent meeting with our Crestone/Baca community (8/17/07), the USFWS initiated an EA/scoping phase of the NEPA process, requesting that local citizens write-in our concerns re: the proposed drilling of two 14,000' gas test wells by a Canadian corporation, Lexam Explorations, Inc., on the BNWR. We of Water Watch Alliance (WWA, formerly San Luis Valley Citizen's Alliance) and I as a citizen of the Baca have many concerns regarding the adverse impacts of Lexam's proposed drilling on sensitive wetlands of the Wildlife Refuge within 1.5 miles of the Baca community. It is our (WWA) opinion that there are numerous reasons that gas and oil exploratory drilling on the Baca Refuge constitutes an "incompatible use" with that of protecting and preserving fish and wildlife habitats as well as the health and viability of human communities and agricultural operations in the San Luis Valley (SLV). In addition, "downstream" communities in New Mexico, Texas, and Mexico, located in the lower portions of the Rio Grande drainage basin, may also be adversely affected by contamination of surface water from the drilling project. The rights of these downstream users are protected by the Rio Grande Compact. We conclude that: 1) many of the inevitable damages caused by gas exploration drilling in this sensitive area cannot be mitigated and therefore should not be allowed, and 2) due to directives from Washington, D.C., the USFWS is out of compliance with many of the federal regulations it is bound by law to follow and enforce.

It is mandated by law that the BNWR conduct a full-blown NEPA process. Even so, the BNWR announced last fall that it was not required to conduct a NEPA process. Today, it is conducting this process, but only in response to a lawsuit filed by our SLVEC/WWA lawyers. The BNWR is now conducting an Environmental Assessment, which suffices as the short version to fulfill legal requirements when the proposed activity is found to cause no significant impacts. However, given the well-documented, adverse impacts of gas drilling elsewhere in Colorado and the West (OGAP, 2005) and given the extremely sensitive nature of wetland ecosystems and aquifers on and under the Baca Wildlife Refuge, we of WWA believe that the USFWS is legally and morally obligated to conduct a full-blown EIS (Environmental Impact Statement) as well as complete their own Management Plan before allowing any drilling to occur on the Refuge. By conducting a full-scale Management Plan, the BNWR will be able to establish base-line data on air quality, water quality, and the ecosystem itself, including delineation of sensitive species requirements, etc. We would hope these data would be shared with local and state health officials, the POA, Saguache County officials, etc. before any exploratory drilling is allowed.

Our group of concerned citizens chose to call ourselves the Water Watch Alliance because it became clear to us that the gigantic reservoir of water stored in aquifers beneath the San Luis Valley is a priceless resource both now and in the future. It is our goal to protect this resource against potential long-term contamination by large-scale gas/oil operations. We believe that an honest and adequate EIS process will indicate that drilling should not occur on the BNWR. We should be seeking federal legislation to insure that the SLV remains protected in perpetuity as a "No-Go Zone," as the Valle Vidal and Otero Mesa of New Mexico have now been designated. Whereas the NEPA process permits federal agencies to use Environmental Assessment's alone when there are no "unique and exceptional circumstances" and "no significant impacts," we feel that drilling two 14,000' gas wells through sensitive wetlands and through a series of priceless aquifers on the newly-created BNWR would certainly have significant, adverse impacts and thus, this certainly qualifies as a "unique and exceptional circumstance."

Lexam Explorations, Inc., which owns 75% of the mineral rights, is a small Canadian company that has never operated an oil or gas well. They will use subcontractors to carry out their drilling; they don't intend to operate anything. The remaining 25% of the mineral rights are owned by Conoco-Phillips. If Lexam "strikes it rich" and finds a "tcf" (trillion cubic feet) of natural gas, as they hope, their \$20 million investment could provide a windfall financial profit for their 2200 shareholders of between \$1 billion and \$18 billion. Lexam would then immediately sell out to major oil companies such as Conoco-Phillips, which would then proceed to turn the SLV into a toxic, industrial park. I have visited the gas fields south of Silt, Colorado and talked with local property owners there whose lives have become

a prolonged nightmare. People's health, quality of life, and property values are severely and adversely impacted. In addition, it is now well understood that burning fossil fuels contributes to global climate change. One estimate is that the burning of a "tcf" of natural gas would produce about 150 million tons of carbon dioxide, a greenhouse gas. In Europe, production of this amount of CO2 would be taxed at the rate of nearly \$2 billion.

William Blake's image of "Dark Satanic Mills" dotting the 19th century English countryside might then be an apt description of what our own San Luis Valley could look like as an industrial gas field. Meanwhile, the collective benefit to the nation of a successful gas play here would be to obtain sufficient natural gas to supply the US for perhaps a couple weeks only. And the equivalent amount of energy can now be much less harmfully produced using green energy, including solar, wind, and geothermal energy, which, ironically, are very abundant in the SLV.

Adverse impacts that accompany gas and oil drilling:

1) Pollution and degradation of surface water (wetlands) and subsurface water in the unconfined and confined aquifers. Much of the BNWR consists of seasonal wetlands, which are among the most sensitive and important ecosystems in terms of their importance for supporting a large variety of species. Underneath the BNWR is 14,000' to 15,000' of sediments overlying Precambrian bedrock. An impermeable layer of clay, 10 to 80' thick separates the surface (unconfined) from the subsurface (confined) aquifers. However, there are probably as many as 30 distinct aquifers contained within the confined aquifer (Dr. James McCalpin, pers. comm., 2007). Water pressure increases as you descend in the aquifer, therefore (polluted?) water will tend to rise (and mix) through the aquitards and aquifers. In the unconfined aquifer, water table is quite shallow (about 12' or less) and hence, any addition of pollutants will likely contaminate surface water essential to a wide variety of human and non-human users, both in the near-term and in the future. This relatively shallow unconfined aquifer provides drinking water to our Baca community and most other SLV communities. It also provides the water needed for fish and wildlife, including over 70 species of rare plants and animals, agriculture in the San Luis Valley, and water usage throughout the Rio Grande basin.

There are currently about 7000 wells in the SLV, of which about 1800 are "deep wells" that penetrate the confined aquifer. There is a significant danger of contaminants from the Lexam drilling operation leaking and irrevocably polluting the San Luis Valley aquifers. If the drillers encounter the Dakota Sandstone, a "reservoir rock" that they hope to find, they will in probably use hydraulic fracturing fluids, which can be highly toxic. This poses a threat to the whole Rio Grande region's water supply and wildlife for future generations. The state of Colorado, which technically owns most of the water, has recently imposed a moratorium on drilling in the confined aquifer. Why is Lexam Explorations, Inc. exempt from this moratorium? Given the magnitude of adverse impacts of the drilling and the potential future value of water in the aquifer (probably many billions of dollars), exploratory gas drilling is an "incompatible use" with the Wildlife Refuge.

Chemical contamination of groundwater: Dr. Theo Colborn has analyzed the chemical compounds involved in the gas well drilling process by studying Material Safety Data Sheets. Of particular concern is the process of hydraulic fracturing which utilizes a suite of especially dangerous chemicals. Such fracturing operations may require up to a million gallons of fluid per well (Gwen Eifle, OGAP, pers. communication, 2007). Colborn determined that of the 245 chemicals commonly used in drilling, 91% have adverse health effects and there is no information on the other 9%. Of the 91%, 35% are endocrine disrupters for people and wildlife. Some of the most toxic chemicals include BTEX (benzene, toluene, ethylbenzene and xylene) which are carcinogenic, methane, diesel fuel, hydrogen sulfide, heavy metals, VOCs (volatile organic compounds), formaldehyde and PAHs (Colborn, 1997). On viewing the list of chemicals used, Professor Clay Bridgford, an ex-military man in Crestone, referred to this suite of chemicals as "a laundry list for chemical warfare." Many of these chemicals have been found in contaminated wells and in grab samples for air quality

near gas wells in Colorado and elsewhere in the west (OGAP, 2005).

According to OGAP's Gwen Lachelt (pers. comm., 2007), due to the current industry-friendly administration, every chemical used is considered propriety by the gas and oil drilling industry and this industry is exempt from following the Clean Water Act and other laws that limit and regulate use of toxic chemicals in the U.S. Drillers also use propylene glycol (an antifreeze) on well pads. When ingested, this chemical is fatal for animals. Hence, pad areas always need to be fenced. However, in practice, they typically are not fenced (OGAP, 2005).

Even closed-loop systems still utilize open, evaporation pits, which often contaminate surface water, poison creatures, and add toxic pollutants to the air.

Inadequacy of concrete well casing: The COGCC issued a permit to Lexam specifying that they only need to use double concrete casing in the well for the upper 3500' of 14,000' wells. Clearly, there is great potential for contamination of the confined aquifer if the well hits gas and oil and if the casing leaks in the future. . It is well-known that cement casings lose their integrity over time and can become a source of groundwater contamination for decades and centuries (OGAP, 2005). It is also commonly known that one quart of oil can contaminate up to 250,000 gallons of water. Thus, double concrete casing should extend the entire depth of any well.

Needs of future generations: Future generations of humans and other organisms will depend on the quality and quantity of water in the SLV aquifers. A recent study on global warming concluded that by the year 2050, Colorado residents will have to subsist on 30% less water than present. Contamination of the water supply, then, could have disastrous consequences. Two individuals, Canadian Maurice Strong (AWDI) and local Colorado-resident, Gary Boyce (the Baca Corporation), tried, unsuccessfully, to make billions by exporting water from the SLV to the Denver area. So we can speculate that the value of the water is potentially as great or possibly much greater than that of any oil or gas that may be present. Clearly, more scientific studies are required to determine the potential value of the SLV aquifers as well as to determine how best to protect the quality and quantity of the aquifers.

Water from the Rio Grande River is allocated to three states (Colorado, New Mexico, and Texas) and Mexico and is regulated by the Rio Grande Compact. Potential degradation of water in the SLV aquifers could affect the quality of surface water available to downstream users in these areas in the future. We hope that the Rio Grande Water Conservation District becomes more involved in this issue to help protect water quality and quantity for farmers and downstream users.

Solution: A moratorium on drilling. Because access to fresh potable water in the semi-arid West will probably increase in the future, the Governor of New Mexico has recently imposed a moratorium on gas and oil drilling on the Otero Mesa until such scientific studies are complete. We suggest that our governor and/or our federal representatives do the same in this region.

2) Air pollution: Chemicals used in natural gas development are dangerous to the health of living creatures (animals, plants and humans) who happen to live near the drilling operations. Emissions from drilling pads emit carcinogenic toxic chemicals into surrounding public lands and communities. Ground level ozone causes degenerative health problems for humans, wildlife, plants and agricultural crops. It is the #1 cause of asthma. Because ground-level ozone is produced at every gas well pad, each well needs a special permit to exceed air quality standards required by the state and U.S. government. In addition, after gas comes to the surface, a dehydrator is used to separate the gas from the condensate, which includes a complex of volatile carcinogens, called BTEX, which includes ethyl benzene, xylene, and toluene. In addition, PM-10 (airborne particulate matter less than 10 microns in diameter) has serious negative



impacts on crops and human health. In order to monitor air quality in the BNFWR, it will be necessary to coordinate activities with the following organizations: Colorado Air Quality Control Commission, Colorado Water Quality Control Commission, Colorado Division of Wildlife, Local county weed programs, Bureau of Land Management, and Saguache County. It will also be necessary to conduct preliminary baseline studies on present air quality.

3) Health Concerns: Based on analysis of data in the Chemicals Used in Natural Gas Development Spreadsheets, Dr. Theo Colborn found that of the chemicals used, 49% can cause skin/sensory organ toxicity, 47% can cause respiratory problems, 47% are neurotoxins, 43% are gastro-intestinal/liver toxicants, 38% are kidney toxicants, 33% are carcinogenic, 29% are cardio/vascular/blood toxicants, 27% are immune system toxicants, 25% are developmental toxicants, and 13% are endocrine disruptors. In addition, of the chemicals on the list, 20% are biocide products that kill all life. Of the chemicals that are soluble in water (13%), 72% are neurotoxins, 61% are gastro-intestinal/liver toxicants, 61% are reproductive toxicants, 61% are skin and sensory organ toxicants, 56% are respiratory toxicants, 50% are kidney toxicants, 39% are cardiovascular toxicants, 28% are endocrine disruptors, and 22% are wildlife toxicants. Furthermore, And furthermore, of the chemicals used in natural gas drilling that vaporize, 66% are neurotoxins, 60% are gastro-intestinal/liver toxicants, 52% are respiratory toxicants, 45% are kidney toxicants, 43% are reproductive toxicants, 37% are cardiovascular/blood toxicants, 33% are carcinogens, 27% are immuno-toxicants, 14% are endocrine disruptors, and 4% are wildlife toxicants.

4) Impacts upon wildlife: Rare flora and fauna in the San Luis Valley, some found nowhere else in the world, include, the Great Sand Dunes tiger beetle, the giant sand treader cricket, the Rio Grande cutthroat trout, the southwestern willow flycatcher, and the slender spiderflower. Other species found in the area include the bald eagle, sandhill crane, pronghorn antelope, elk, mule deer, bighorn sheep, mountain goats, mountain lion and black bear.

5) Noise, light, and dust pollution: The proposed drilling, located about 1.5 to 2 miles west of the Baca residential community, will produce inevitable noise, light, and dust pollution which will degrade the quality of life for members of the Baca community as well as the habitats of fish and wildlife on the Refuge. In addition, heavy truck traffic associated with various aspects of the operation will significantly increase noise and dust. Compressor stations, if built, produce noise as loud as a jet airliner "24-7" (24 hours a day, 7 days a week. Crestone/Baca includes many spiritual groups and individuals who have moved here because of the pristine beauty of nature and the awesome and profound silence that the area affords. These spiritual groups will be adversely impacted by the drilling operations, in particular.

6) Damage to local roads due to use of heavy vehicles: We can expect that heavy traffic by heavy vehicles will result in damage to local roads and the increase of traffic accidents. Will Lexam pay for the damage their operation causes to existing infrastructure?

7) Infrastructure requirements: There is currently no infrastructure in the SLV that would support gas production. Building such an infrastructure would require construction of gas pipelines, gas compressors, building of innumerable gas well pads, building extra roads, etc. The synergistic effects of these kinds of operations would significantly degrade the pristine quality and quality of life in the San Luis Valley for many residents. Oil spills, truck crashes and highway deaths resulting from those crashes would be highly likely.

8) Boom-town effects: If Lexam strikes gas, we can expect that a suite of highly disruptive "boom-town effects" would accompany the gas boom. Other communities which have been subjected to this process have experienced varying degrees of chaos, social upheaval, negative impacts on schools, emergency services, crime rates, etc. And typically, after gas companies create problems, the local tax payers have pay the cost of the damages, road repair, etc. This pattern repeats in many ways, with local communities paying for extra schools, roads, etc. that industry needs

in order to function. Meanwhile, what percentage of the profits are shared with local counties? Often, little to none.

9) Damage to local cultural, spiritual and native American values: The NEPA process requires that the USFWS try to understand the cultural values of the Crestone/Baca community. Our community is comprised of numerous communities and individuals committed to the preservation of pristine nature, developing more sustainable living models, and pursuing spiritual retreat in one of the world's truly magnificent natural settings. Every fall for many years, for example, our town has sponsored an energy fair, which displays alternative and renewable means of creating energy. The San Luis Valley itself has long been acknowledged as one of the great spiritual centers of the world. It is commonly claimed around here that since pre-historic times when several Native American nations would gather in this "Bloodless Valley" bloodshed between peoples' was not permitted. Mount Blanca, at the southern end of the valley, is one of the four sacred mountains of creation for Hopi and Navajo Indians. In practice, both the SLV and Mount Blanca are such recognized as cultural/spiritual sites of great importance to various Native American groups. And over the past few decades, the Baca Grande community has become home to many international spiritual centers and spiritual masters of various faiths including Christian, Buddhist, Hindu and others. These diverse cultures, faiths and retreat centers provide the sanctuary and retreat that both residents and visitors seek.

We believe that our cultural identity, our "sense of place," and the continued health and integrity of our human and natural ecosystems is more important than Lexam's short-term profit potential on the Toronto stock exchange. In practice, these "wild-cat" speculators are not only trying to mine for resources, they are also mining their own investors. It seems these people are motivated more by short-term personal gain than by a larger vision for or commitment to the future of our society or our environment. The fact that they are from Canada means they have little or no understanding of or regard for the values of our community. To us, national security or "homeland security" means clean air and water, a healthy environment, healthy communities, safe neighborhoods, healthy food, and minimum impact on the physical environment, etc. Certainly, our idea of prosperity is not compatible with a quick "wild-cat" gas play. To us, the potential threat by the Lexam drill play to the water and ecosystems of the SLV is not an acceptable risk. By contrast, we note and are concerned by the cynical, "public be damned" attitude typical of fossil fuel companies and "the oilies". In a moment of candor, one industry geologist reportedly admitted to the Colorado legislature: "The industry is not happy until there is a hole drilled every 40 acres."

Perhaps the inevitable question now is: Is the fossil fuel industry today more powerful than the U.S. government? Given that our president and vice president are both fossil fuel industry insiders and have manipulated our government so as to remove the impediments of federal regulations in an effort to maximize industry's profits, it seems that yes, the oil/gas companies are now more powerful than our government.

Bitter Root National Forest Supervisor Gloria Flora stated: "Why are they going to the best places first? They are going to the best places first because if they can get in there, there is nowhere they can't get in." (I paraphrase, her actual comment can be heard on the excellent movie- A Land Out of Time). Could Lexam be acting in coordination with a government/corporate strategy, perhaps outlined in Vice President Cheney's (still classified) Energy Task Force documents? Could their strategy, in fact, be to drill in the most environmentally sensitive areas as soon as possible so as to derail any possible citizen opposition to their goal of turning the American West into a national energy colony, or in fact, a "National Sacrifice Area?" Could it be a deliberate plan to lower or even destroy property values of American citizens? Or might it be part of a larger UN Agenda 21, whereby lands are to be confiscated from the American people in order to be designated as federal lands, only to be later offered up to corporations through federal sell-offs and mineral-rights give-aways? All these questions should be addressed and answered by the Draft EA if it is to be in compliance with the NEPA process and not merely a whitewash.

There are several federal laws that protect Native American sacred places. These include the National Historic Preservation Act (NHPA) and its implementing regulations at 36 CFR Part 800:

- a. Installations must determine whether they have any properties of traditional religious or cultural significance to Native Americans.
- b. Installations with such properties are required to follow the requirements of Section 106 of NHPA regarding consultation with Native Americans if the BRAC activity constitutes an undertaking as defined in the ACHP regulation (36 CFR 800.16(y)). Further information on Section 106 is available at ACHP website at [www.achp.gov/work106.html](http://www.achp.gov/work106.html).

Since native peoples in antiquity typically camped near water and since there are abundant seasonal wetlands on the BFWR, there are undoubtedly countless artifacts and sites on the Baca Refuge which have not been catalogued or recorded. Again, the BNWR needs to complete a survey of actual resources on the Refuge before allowing any drilling to occur.

In addition, the American Indian Religious Freedom Act (AIRFA) of 1978 states:

It shall be the policy of the United States to protect and preserve for Americans their inherent right of freedom to believe, express, and exercise the traditional religions of the American Indian..., including, but not limited to access to sites, use and possession of sacred objects.

Has the BNWR queried all the native groups which might believe that sacred sites are located on the Refuge?

The Preservation of Sacred Sites as revised by President Clinton in 1996 Executive Order 13007 states:

In managing federal lands, each executive branch agency with statutory or administrative responsibility for the management of federal lands shall... avoid adversely affecting the physical integrity of such sacred sites.

Other pertinent laws include:

Native American Graves Protection and Repatriation Act (NAGPRA) and its implementing regulations at 43 CFR 10, the Archaeological Resources Protection Act (ARPA), NEPA Executive Orders 13175, 12898, and DOD Instruction 4715.3.

In addition to many potential sacred sites on the 100,000 acre lease area of the BNWR, there are many spiritual groups located a few miles to the east of the proposed wells in the Crestone/Baca community. These include a Carmelite Catholic monastery, a Hindu Ashram, several Tibetan Buddhist temples and retreat spaces, a Zen Buddhist retreat center, etc.

10) Inadequacy of inspections. Whereas the number of oil and gas wells in Colorado has climbed 30% to 29,000 since 2000, the COGCC inspections have not kept pace. The state has just 8 inspectors, just one for every 3,625 wells. Therefore, we recommend that a qualified engineer be added to the team of inspectors. Deb Phenecie of the Baca Grande Water and Sanitation district is an engineer, she has experience in the gas fields of Wyoming, and she has volunteered to be an inspector.

Peggy Utesch, a member of the Grand Valley Citizen's Alliance in Garfield County, stated: "We know that every day there are accidents and incidents in the field- just look at the commissioner's reports." Based on the track record of the

COGCC, we at WWA do not believe they have the capability to adequately monitor drilling activities on the BNWR.

11) Inadequacy of \$10,000 bond: Given the potential value of water stored under the San Luis Valley is probably many billions of dollars, a more accurate and adequate bonding amount might be \$5 billion.

12) Pressure on government agencies to expedite gas and oil drilling and downplay adverse environmental impacts: In 2001, President Bush signed Executive Order 13212 (Actions to Expedite Energy-Related Projects) which mandated that all federal agencies put new oil, gas, and coal projects on a fast-track, priority footing. Simultaneously, the Bush administration drastically cut funding to federal agencies and regulatory agencies, so they are now typically too short-staffed and under-funded to enforce the existing laws that regulate the oil/gas industry and protect communities and the environment. In particular, this administration has targeted the USF&WS with draconian cutbacks. One recent study showed that 90% of the changes that local people wanted were already in the existing rules and laws, but that these laws were no longer being enforced. Of course, it is well known that Bush and Cheney have deep roots in the oil/gas industry.

BLM research biologist Steve Belinda told Washington Post reporter Blaine Harden: "The BLM is pushing the biologists to be what I call "biostitutes", rather than allow them to be experts in the wildlife they are supposed to be managing." Even a GAO report released in February, 2005, concluded that the BLM is so focused on issuing oil and gas drilling permits that it is neglecting its responsibility to protect the land and other resources (<http://www.gao.gov/ew.items/d05418.pdf>)

13) Legal and constitutional issues: Lexam's acquisition of mineral rights:.

Canadian billionaire Maurice Strong of AWDI (American Water Development, Inc.) severed the mineral rights from the surface rights on the Baca Grande Ranch when he owned the ranch back in the 1970's. Lexam Explorations, Inc., is headed by another Canadian billionaire, Rob McEwen, the former CEO (and still largest shareholder) of Canada's Goldcorp Inc. and current CEO of U.S. Gold. Lexam purchased 50% of the hard mineral rights from Baca Minerals (Strong) in 1987 and the other 50% of the oil and gas rights on the Baca Grande ranch from Newhall Land and Farming Company for \$1 million. It acquired an additional 25% of the oil and gas rights from the Baca Corporation in 1996 from Gary Boyce for \$1 million. Boyce, in turn, purchased these rights from Maurice Strong. The remaining 25% of the oil and gas rights is owned by Conoco-Phillips.

Lexam acquired surface access and use by fee simple ownership and a Surface Use Agreement with AWDI (i.e., Maurice Strong) in 1992 for \$1 million. This agreement is a 20-year paid up lease that is binding on surface owners who may be successors in the ownership to AWDI. This agreement can be extended if there is production on the property. Surface rights were held temporarily by the Nature Conservancy for about three years, during which time the U.S. government passed the requisite legislation and raised the needed cash to purchase the 100,000 acre Baca Grande Ranch in order to establish the new Great Sand Dunes National Park and Baca National Fish and Wildlife Refuge.

Attempts by a Colorado Springs lawyer to obtain some of the property transfer documents via Freedom of Information Act apparently failed. Thus, there is reason to suspect that government and business have acted secretly and in collusion in this matter. We would like a full disclosure of pertinent legal documents concerning the transfer of mineral rights to Lexam.

Meanwhile, the Lexam proposed drilling comes at a time when the U.S. Congress has not yet defined the mission and purpose of the BNWR. And BNWR has not completed its own Management Plan. And whereas the BNWR denies

American citizens' access to the Refuge because there has been no Management Plan, Lexam has full access. What is wrong with this picture? Additionally, apparently responding to orders from individuals higher up in government, the BFWR tried to issue a permit to Lexam last summer (2006) and then retracted the permit within days after being notified it had no authority to issue such a permit. Nevertheless, the new BFWR stated to our Crestone/Baca community last fall that they did not feel they needed to perform a NEPA process and the drilling could go ahead without the completion of this process. It was only after being sued by SLVEC/WWA alliance attorneys that the BFWR decided they would initiate a NEPA process.

On 8/7/07, the BFWR notified the Crestone/Baca community by email that the EA/scoping process would begin with a public meeting on 8/17/07, effectively giving us only 9 days to organize and prepare our public input. Our community was not notified of the meeting through normal publicity channels, such as the Crestone Eagle, which comes out on the first of each month. Our subsequent requests for a postponement of this meeting and then, an extension of the comment period from 30 days to 45 days have fallen on deaf ears. It is hard to avoid the conclusion that the BFWR is placing the Lexam drilling project on "fast-track," as per directives from above. Thus, it is quite likely the NEPA process in this case will be a whitewash and a sham. Nonetheless, of course, we hope that it will be a genuine, thorough, and honest appraisal of the many significant impacts attendant upon drilling projects of this scope.

Re: the NEPA Process, the Energy Mining Law Center notes that the surface owner has the legal authority to gather input regarding proposed projects and to impose "reasonable alternatives." Federal agencies have the legal mandate to participate honestly in the NEPA process. And they have the right to determine what comprises "reasonable use" for access and development of minerals. The 1969 National Environmental Policy Act (NEPA) was designed to prevent "Agency Capture," a process in which industry and federal agencies act cooperatively to advance the interests of industry. The law was written to insure that ultimately, decisions require significant community input and input from experts in various fields; the decisions are not to be made by those with the greatest vested interests and the biggest bank accounts, i.e., the "oilies."

I am not a lawyer, but it seems there may be several important constitutional issues here: A) The Nature Conservancy acted as "middle man" in the sale of the land from the Baca Corporation to the USFWS. Was their role legally appropriate? B) Did Maurice Strong, a Canadian citizen, have the legal right to sever surface from subsurface rights and sell these to different entities? C) Should subsurface mineral rights really be considered superior to surface rights? D) Re: the sale of surface and subsurface property rights, the entities involved include Maurice Strong (AWDI), Gary Boyce (the Baca Corporation), Rob McEwan (Lexam), Baca Minerals, the Newhall Land and Farming Company, Petro-Hunt, Chevron, SONAT, Conoco-Phillips, the Nature Conservancy, and the USF&WS. Were the sales of these properties legal? Or would FOIA information reveal insider deals? Finally, E) should the "property right" of a Canadian corporation supercede those of American citizens and the U.S. government itself?

14) Control of Noxious Weeds: Noxious weed invasion is a significant threat to agriculture and wildlife habitat, rivaling urban sprawl in acres of habitat lost in many rural counties. Studies document that the number one way weeds are spread is from seeds transported on truck tires. In conjunction with local governments, the gas industry must be accountable to mitigate any spread of noxious weeds that may result from drilling operations.

We are also concerned about potential impacts to the area's organic agricultural activities. Management of noxious weeds will apply to all areas disturbed by drilling operations, including but not limited to existing roadways and borrow pits, new roads, pipeline cuts, and well pads.

15) Conflicts of interest?

It has come to our attention that the Draft EA will be written by a consulting team that is being paid by Lexam. There is an old phrase: "He who pays the piper calls the tune." I sincerely hope that this team will follow the NEPA process in good faith, listen to the opinions and views expressed by we American citizens, who really own the BFWR, and conduct not only an EIS but a Management Plan before considering allowing foreign investors to drill on our precious Baca National Wildlife Refuge.

Sincerely,

Dr. Eric Karlstrom  
Professor of Geography  
Water Watch Alliance  
P.O. Box 54  
Crestone, CO 81131  
Email: [erickarlstrom@fairpoint.net](mailto:erickarlstrom@fairpoint.net)

References:

The Rifle, Silt, New Castle Community Development Plan, January 1, 2006

A Project of the Grand Valley Citizens' Alliance.

Management Guidelines for Oil & Gas Development (August 4, 2005), Colorado Mule Deer Assoc.

Oil and Gas at Your Door? A Landowner's Guide to Oil and Gas Development, 2nd Edition, Oil and Gas Accountability Project (OGAP), 2005

CC: Governor Bill Ritter: 136 State Capitol, Denver, CO 80203-1729. Phone: 800-283-7215 or 303-866-2471, fax- 303-866-2003, Email: [www.Colorado.gov](http://www.Colorado.gov)

Senator Ken Salazar: 702 Hart Senate Office Building, Washington, D.C. 20519  
Washington, D.C.- phone- 202-224-5852, fax 202-228-5036. Alamosa office: 609 Main St. #110, Alamosa, CO 81101; email: [charlotte\\_bobicki@salazar.senate.gov](mailto:charlotte_bobicki@salazar.senate.gov), phone: 719-587-0096, fax: 719-587-5137, Denver office: toll free phone 866-455-9866, phone 303-455-7600, fax- 303- 455-8851, Email: [salazar.senate.gov/contact/email.cfm](http://salazar.senate.gov/contact/email.cfm)

Senator Wayne Allard: 525 Dirksen Senate Office Building, Washington, D.C., 20519  
Washington, D.C.: phone- 202-224-5941, fax- 202-224-6471. Denver office: phone- 303-220-7414, fax- 303-220-8126. Email: [allard.senate.gov/](mailto:allard.senate.gov/)

U.S. Representative John Salazar: 1531 Longworth House Office Building, Washington, D.C. 20515 Washington, D.C.- 202-225-4761, fax- 202-226-9669. Alamosa office: 609 Main Street, Alamosa, CO 81101; Email: [erin.minks@mail.house.gov](mailto:erin.minks@mail.house.gov). phone- 719-587-5105, fax- 719-587-5137. Email: [house.gov/salazar/contact.shtml](http://house.gov/salazar/contact.shtml)

State Senator Gail Schwartz- 200 E. Colfax, Denver, CO 80203, Capitol phone: 303-866-4871  
Email: [gail.schwartz.senate@state.co.us](mailto:gail.schwartz.senate@state.co.us)

State Representative Tom Massey (R- Dist. 60) 200 E. Colfax, Denver, CO 80203, Capitol phone: 303-866-2747,

303-866-2346, Email: tom.massey.house@state.co.us

Saguache County Commissioners: 1) Linda Joseph: phone- 719-256-5003, Email: sagcomlj@centurytel.net 2). Sam Pace- 719-256-4660 3) Michael J. Spearman-719-754-2486

Colorado Department of Wildlife Wendy Wallis, Phone: 303-291-7208

Email: wendy.wallis@state.co.us

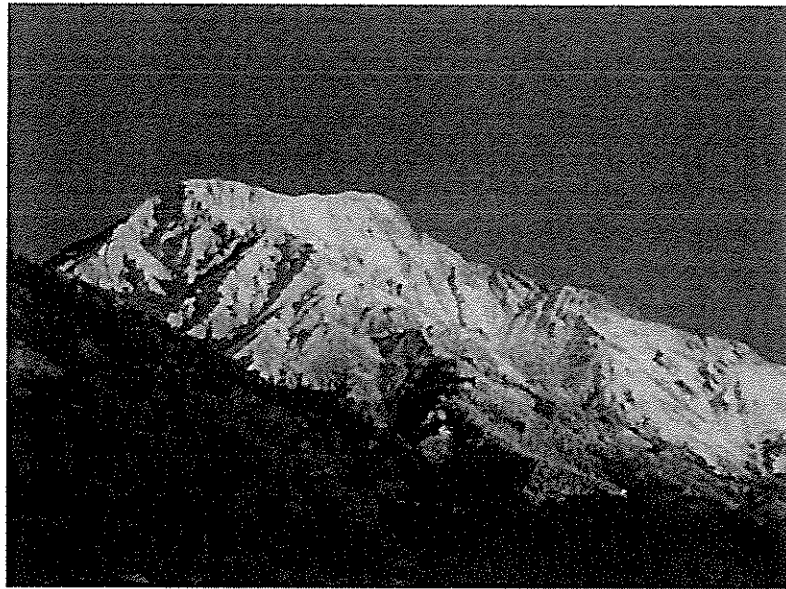
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## *Photo Gallery of San Luis Valley, the BNWR, and the Crestone/Baca community*

***"The San Luis Valley..... is a sacred  
place unlike any other on earth."***

***Senator Ken Salazar***

***The San Luis Valley and Sangre de Cristo Mountains:  
A Unique and Sacred Place***



***Kit Carson Peak (14,165) overlooks the San Luis Valley, the BNWR, and the Baca  
Community***





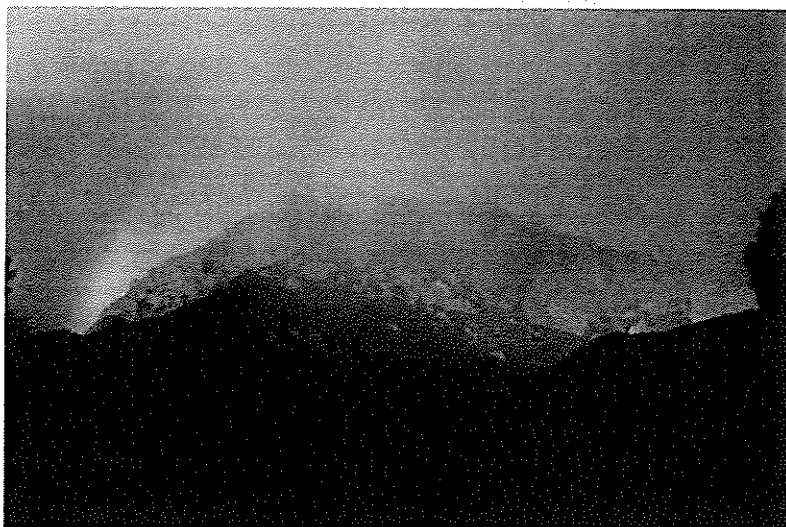
***Sangre de Cristo Mountains (from Pundarika Foundation website)***



***Sunset on the Sangres***



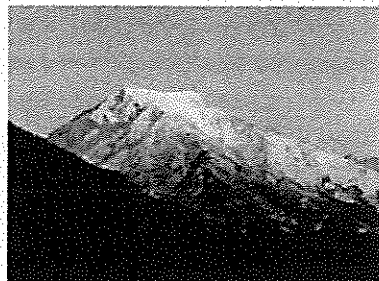
***Cloud-cap over Kit Carson Peak***



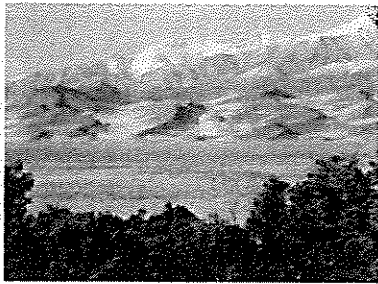
***Rainbow and Kit Carson Peak from my back yard***



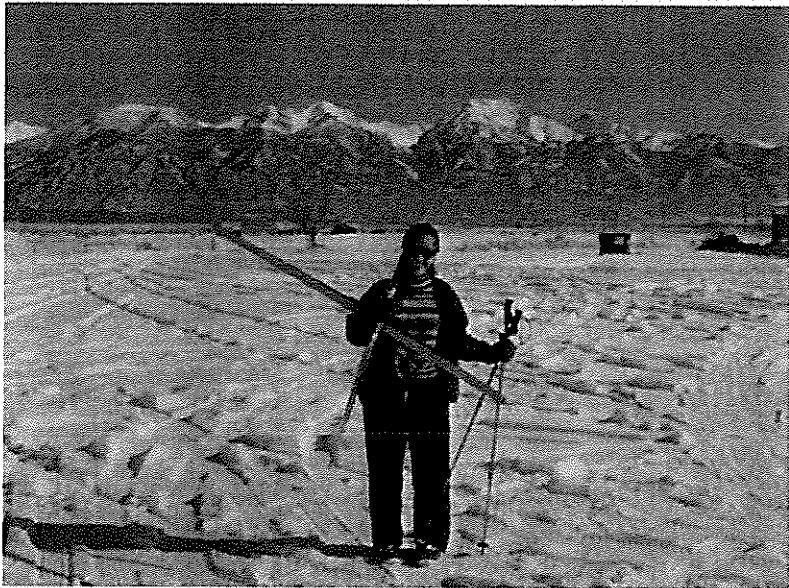
***Full moon and Sangres from my back yard***



***Kit Carson Peak***

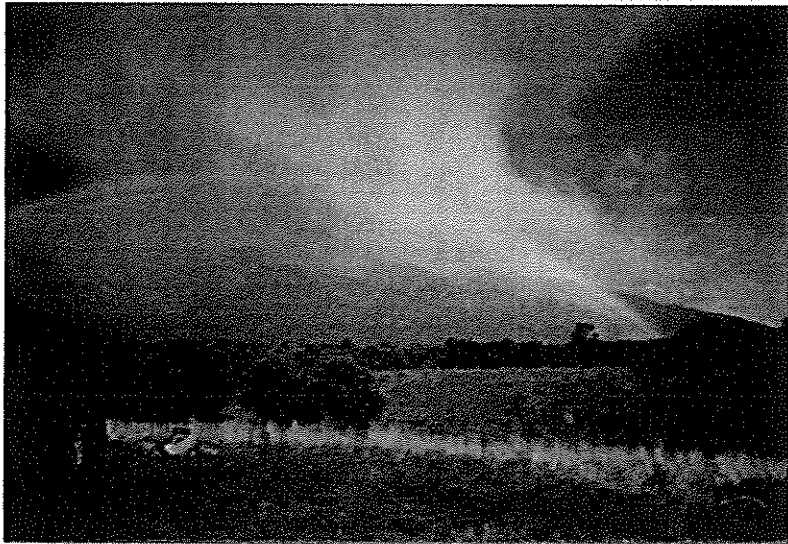


***Sangre de Cristo Range and the Great Sand Dunes***

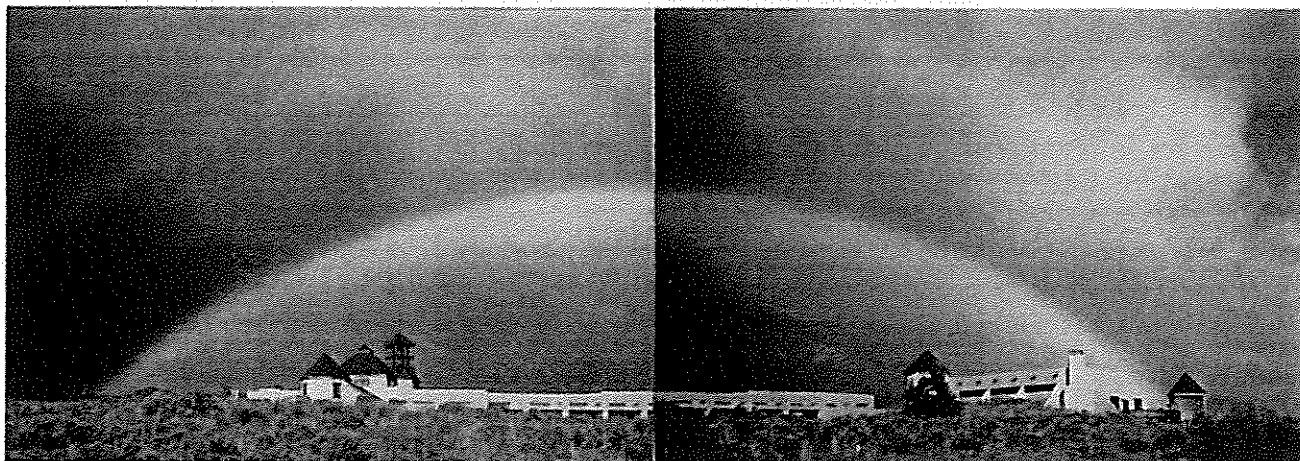


***And we have great x-country skiing***

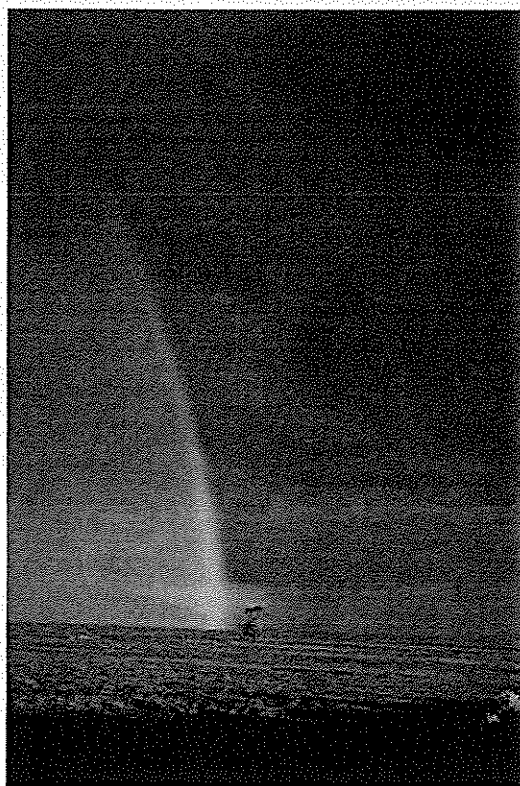
***You can find the end of the rainbow right here!***



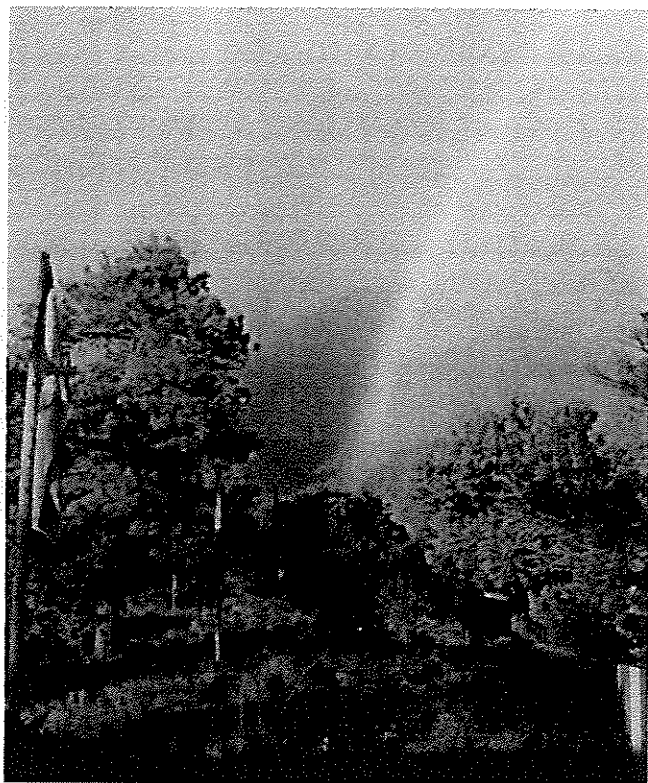
***Statue of St. Francis at the Carmelite monastery***



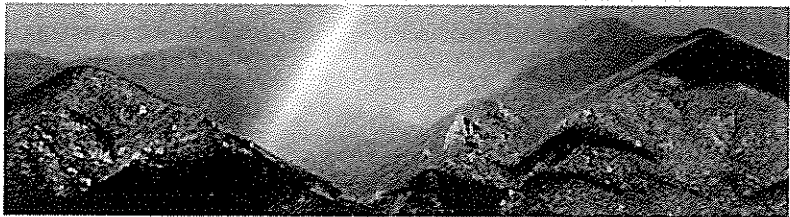
***Double rainbow over Carmelite (Catholic) monastery***



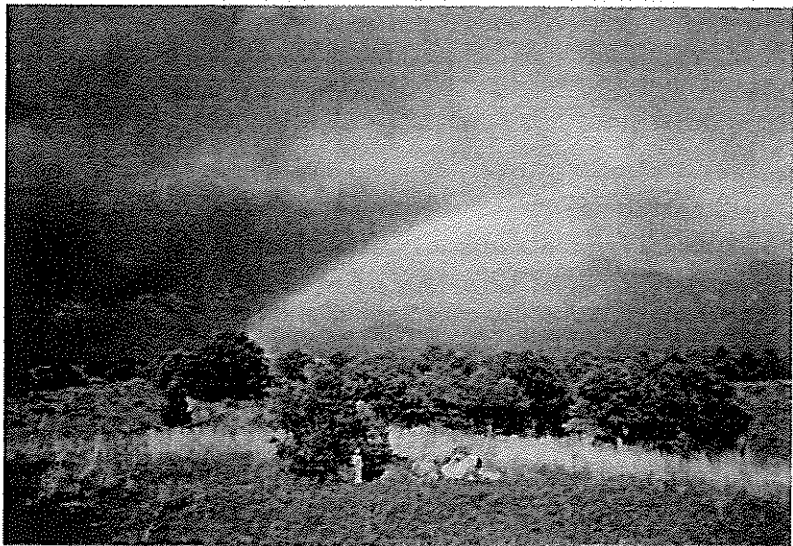
***Rainbow's end on the Baca National Wildlife Refuge***



*Now it's in my back yard!*

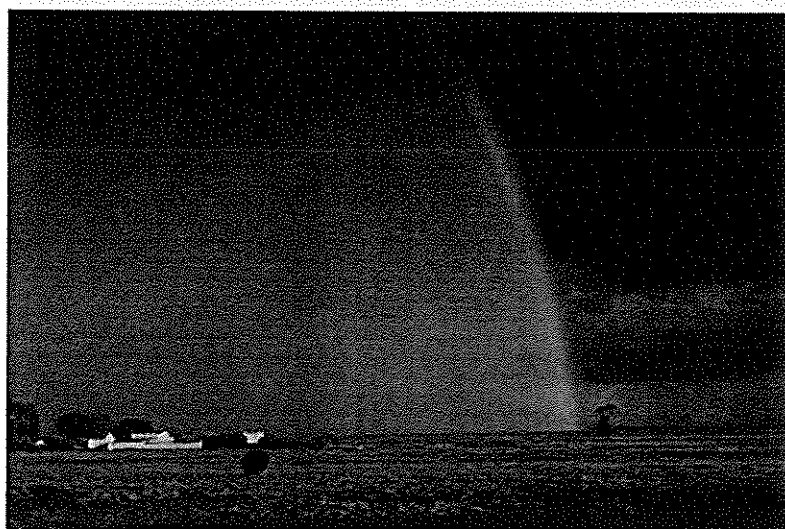


*Now it's up in Copper Gulch (from Pundarika.org website)*



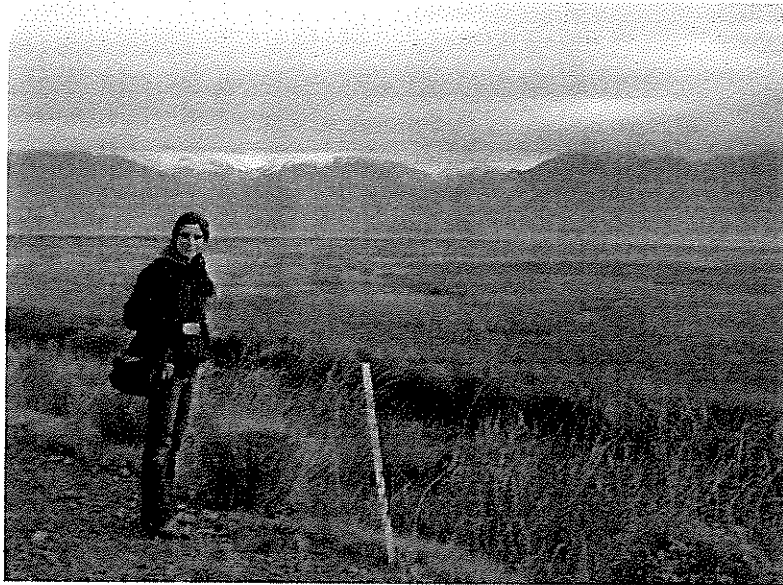


***A double bow for St. Francis***



***Rainbow over Baca Ranch, now headquarters of BNWR***

***On the Baca National Wildlife Refuge:***



***Here's where Lexam wants to drill well #5, their first (14,000 feet!) test well on the BNWR***



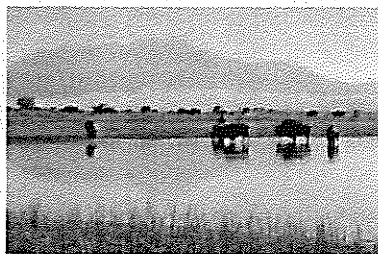
***Ron Garcia (Manager of BNWR) and members of our Baca community at second prospective drilling site (Well #6)***



***Proposed Well #5 is sited on the Willow Creek drainage here, which seasonally is.... a wetland!***

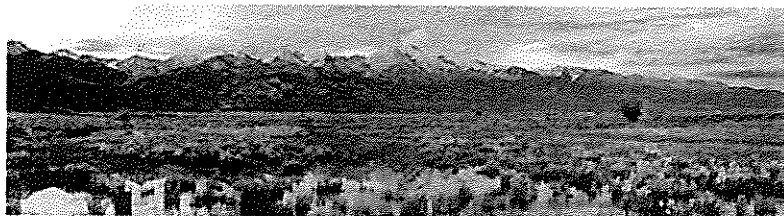


***The Refuge looks like this- with wetlands, and sometimes large lakes, in the spring when the snow melts! (photo from Lexam website)***

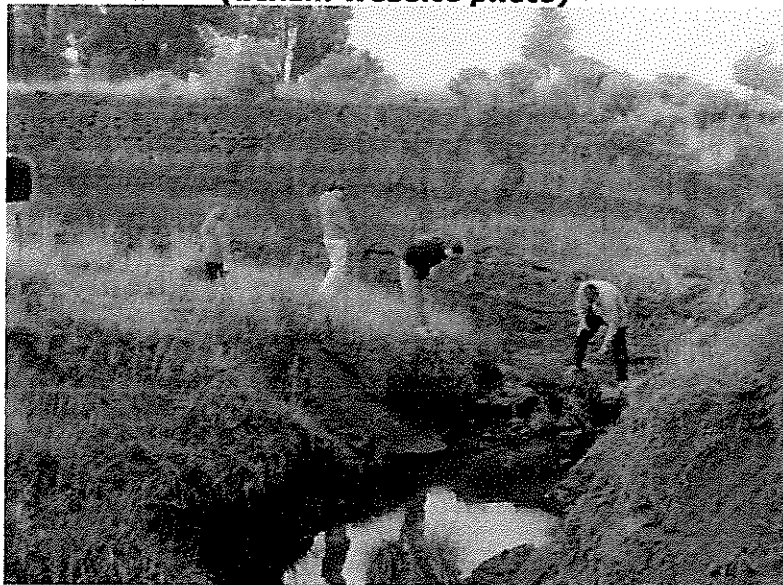




***A herd of buffalo lives east of the Great Sand Dunes National Park and Preserve  
(photo from Lexam website)***



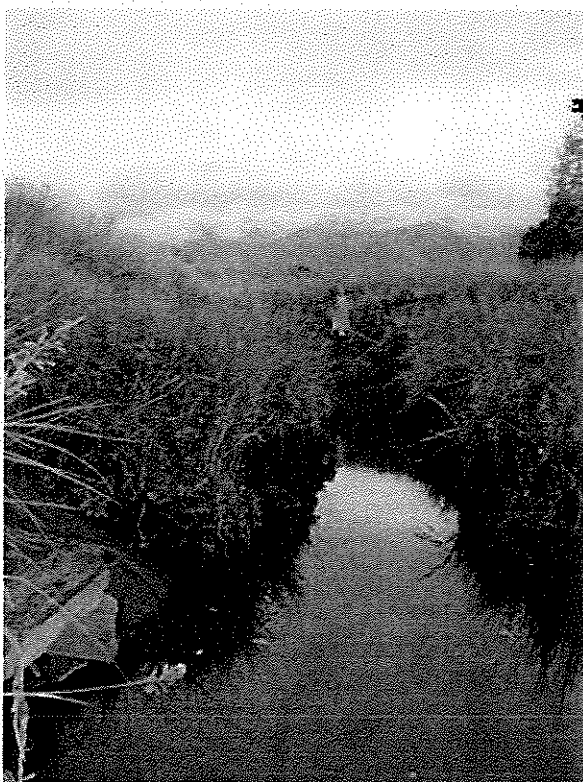
***The views here are spectacular, often magical, always changing!  
(Lexam website photo)***



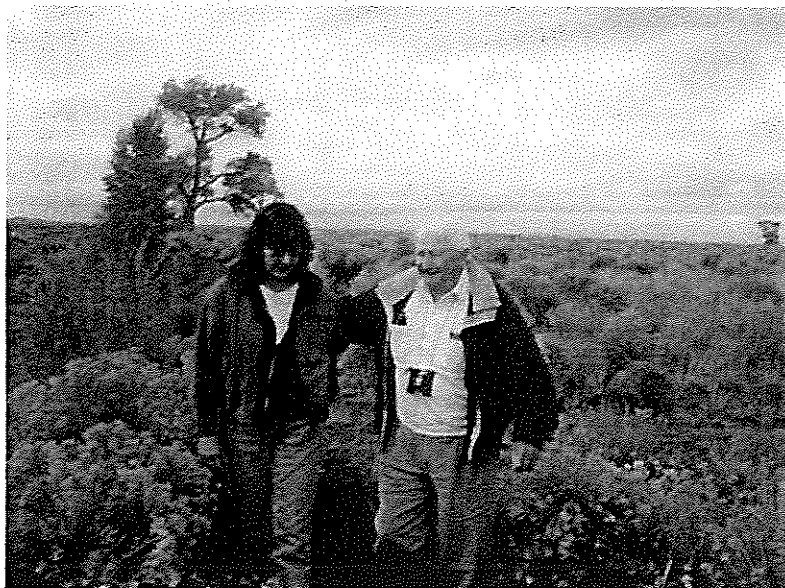
***4th Annual Karlstrom/Quaternary reunion/field trippers explore Cottonwood Creek,  
about 1.5 miles east of the wildlife refuge***



***Along Cottonwood Creek***



***Hattie contemplates on Cottonwood Creek alluvium***



***Karlstrom Quaternarists next to BNWR***



***Geologist Jim McCalpin (in red) shows us how to identify past earthquakes (and predict future ones) by studying stratigraphy of trenches on alluvial fans***

## ***Our Crestone Community***



***The Greater Crestone Kosmic Kazoo Band In the 4th of July Parade***



***The Greater Crestone Kosmic Kazoo Band In Action!***

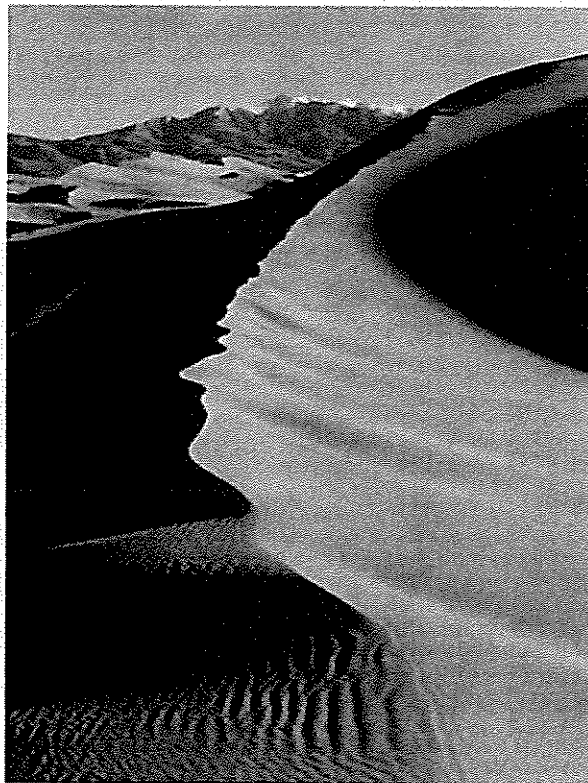


***Downtown Crestone on 4th of July Parade***

***This Valley has Sand Dunes as Large as in Saudi Arabia!***



***Great Sand Dunes! (National Park) and Sangre de Cristo Mountains***

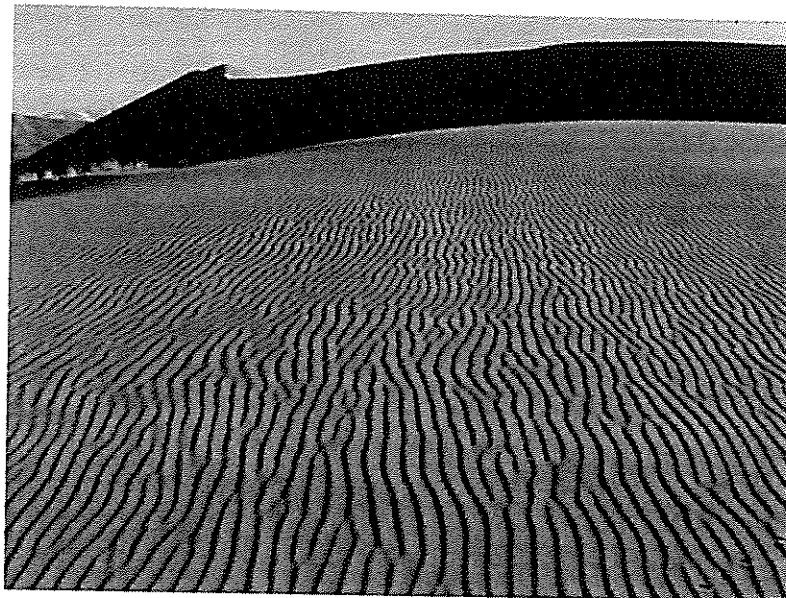


***Hiking the Dunes! Is this what it's like in Saudi Arabia?***





*I don't know, but I bet it's cooler!*





***Ida says: This stuff is fun!***



*It doesn't taste very good though*



*What a sand box!*

**People Come From All Around the World for Spiritual Retreat Here**

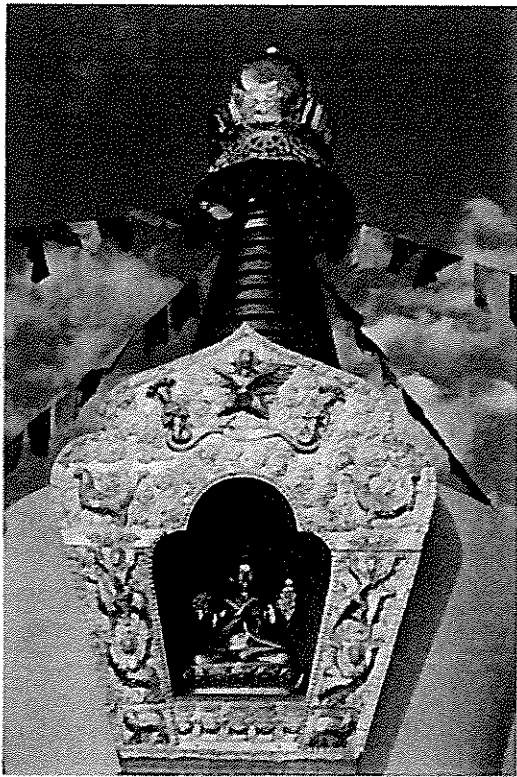




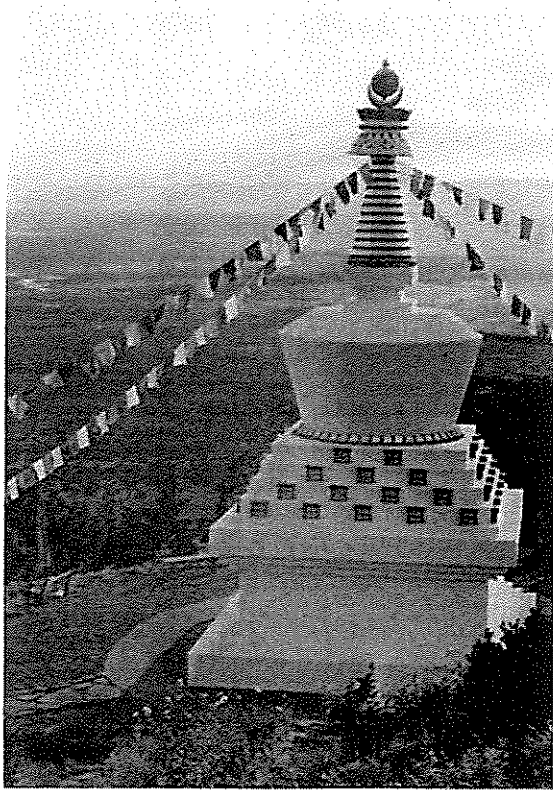
**Agape Chapel at Carmelite Monastery**



***Carmelite self-sufficient, south-facing solar retreat cabin***



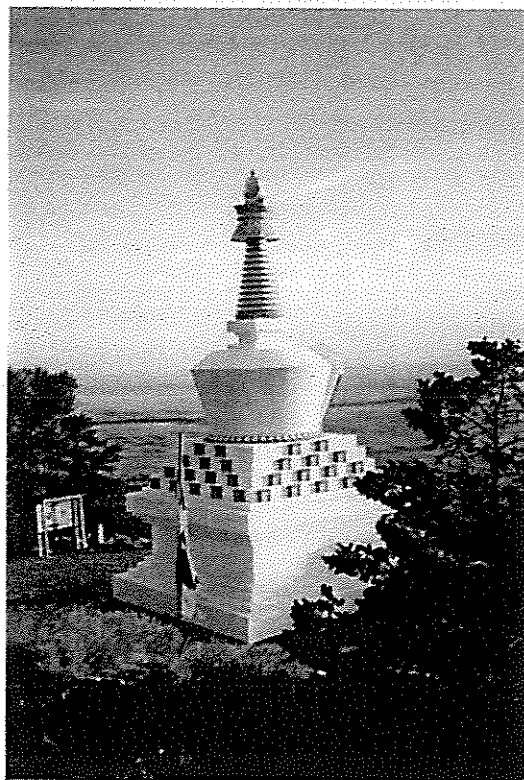
***Tibetan Buddhist (Tashi Gomang XVI Karmapa) Stupa***



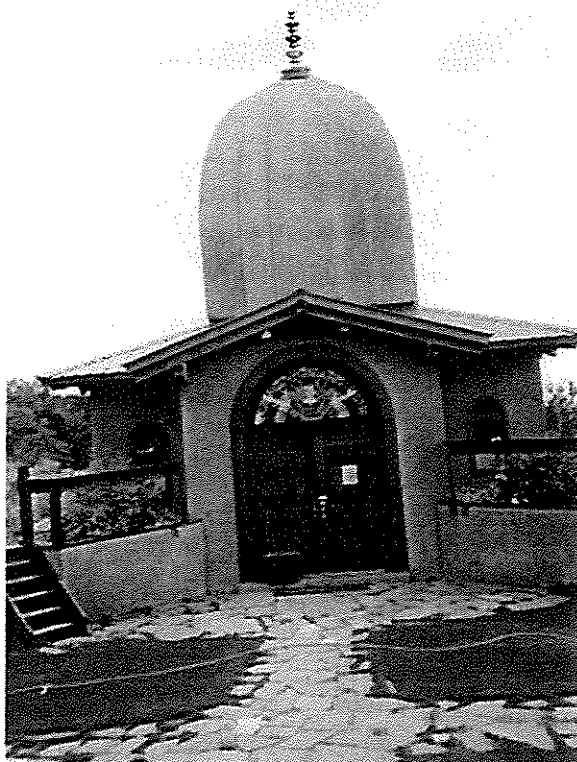
***Tibetan Buddhist Stupa***



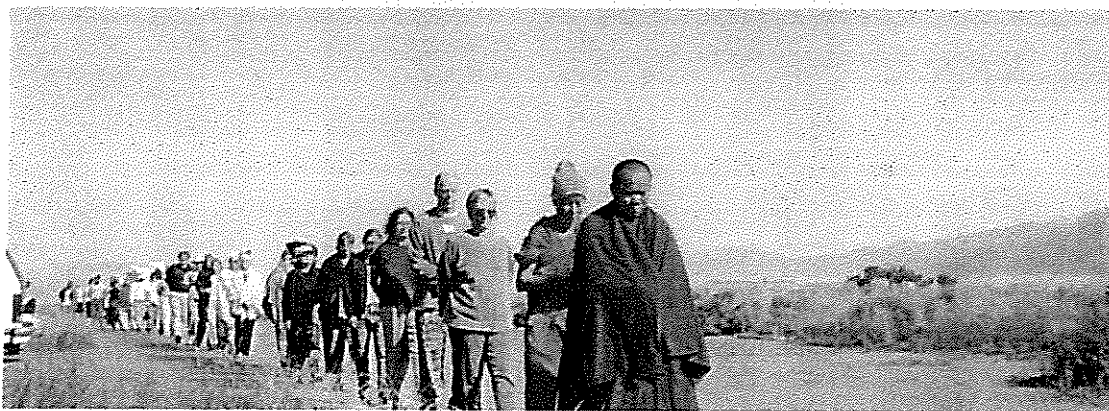
***Tashi (left), Tsoknyi Rinpoche (2nd from right) and members of Buddhist Sangha***



***Tibetan Buddhist Stupa***

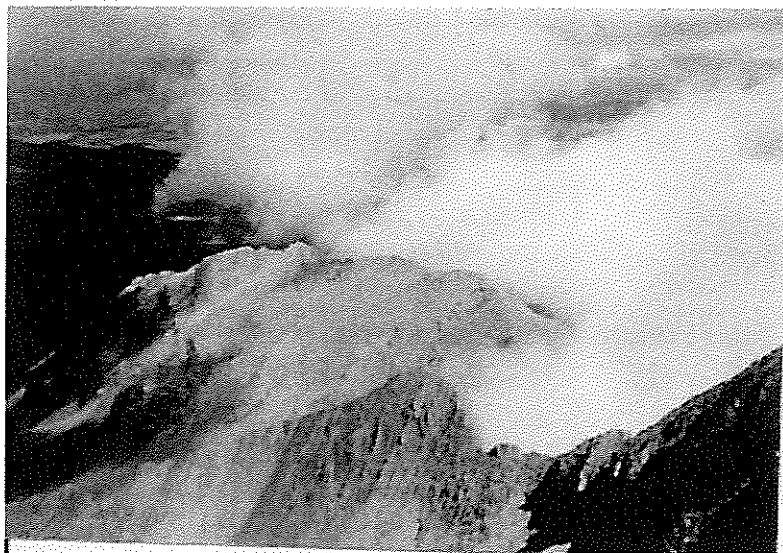


***Hatakanda Universal Ashram Temple***

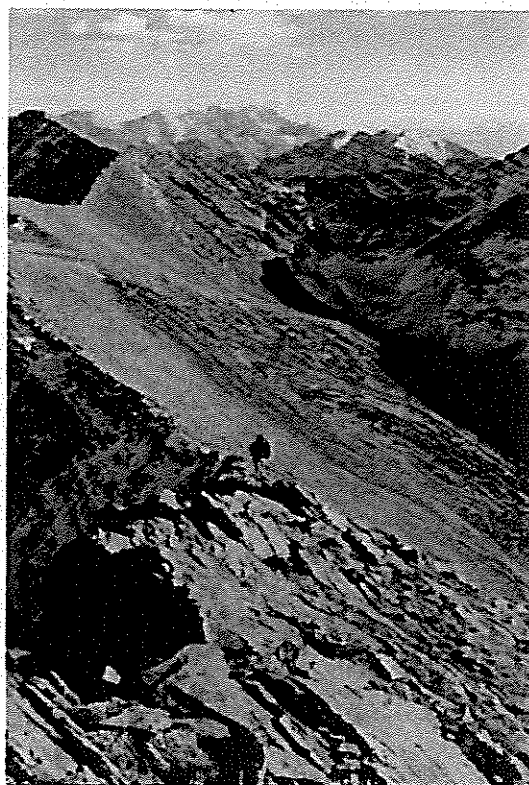


***Cambodian Buddhist Venerable Maha Ghosananda (second from right)  
leads walking meditation in Crestone***

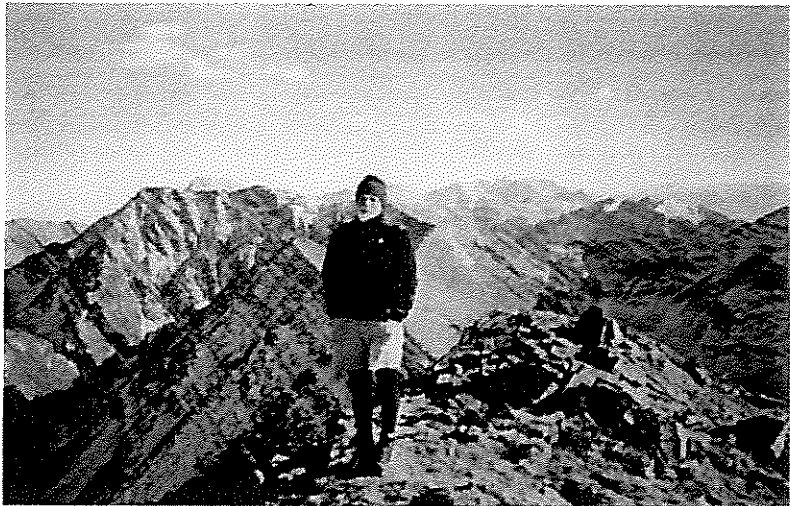
**Then There is the Spectacular Sangre de Cristo Wilderness Area**



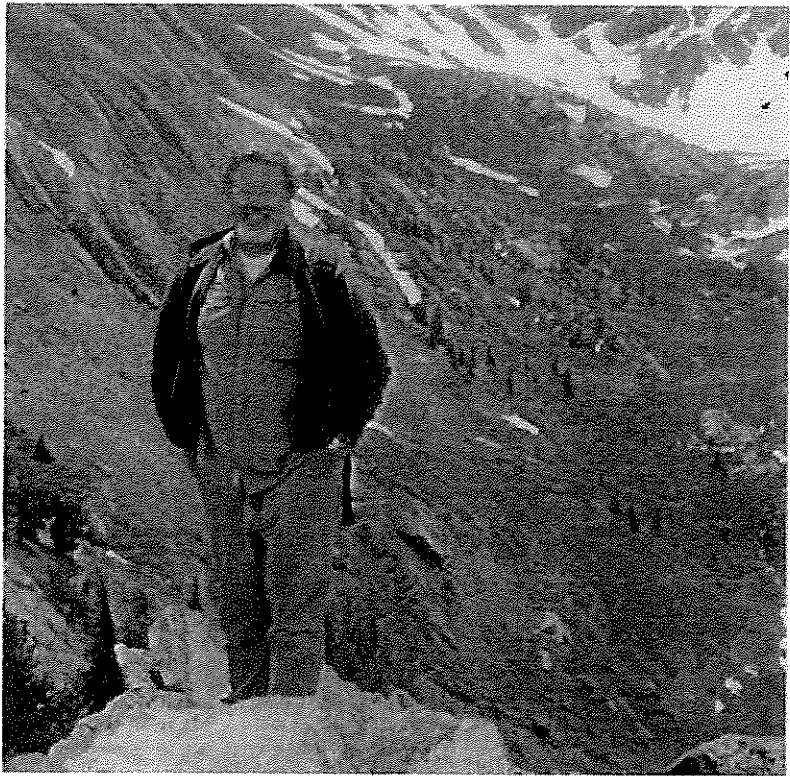
*View from on top of a local 13'er*



*Fantastic ridge walking and peak bagging!*

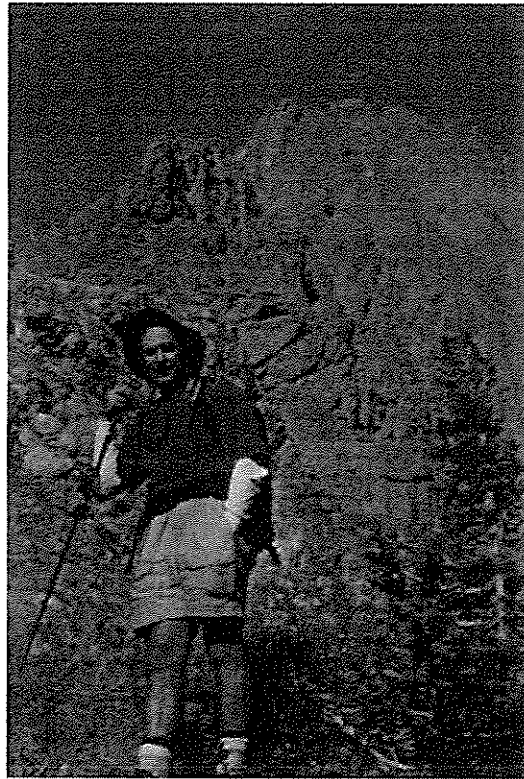


*On top of the world!*



*Special permit required for travel beyond this point!*

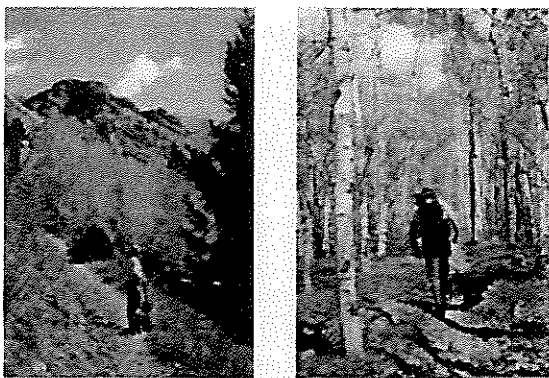




***A modern-day John Muir in front of Crestone Needle***



***Sangre de Cristo Wilderness Area***



*The hiking is great through the golden aspens in the fall*



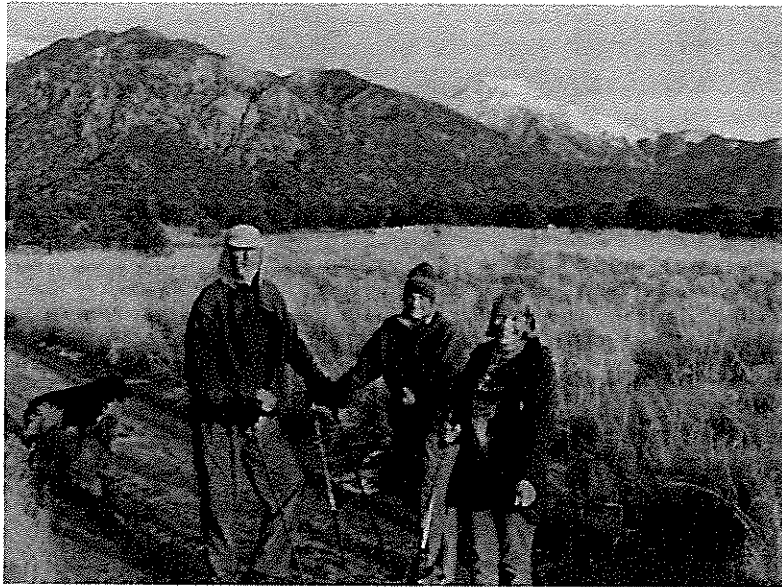


***But watch out for the wildlife!***

***Sangres and Pinedale terminal moraine by moonlight from my back yard***



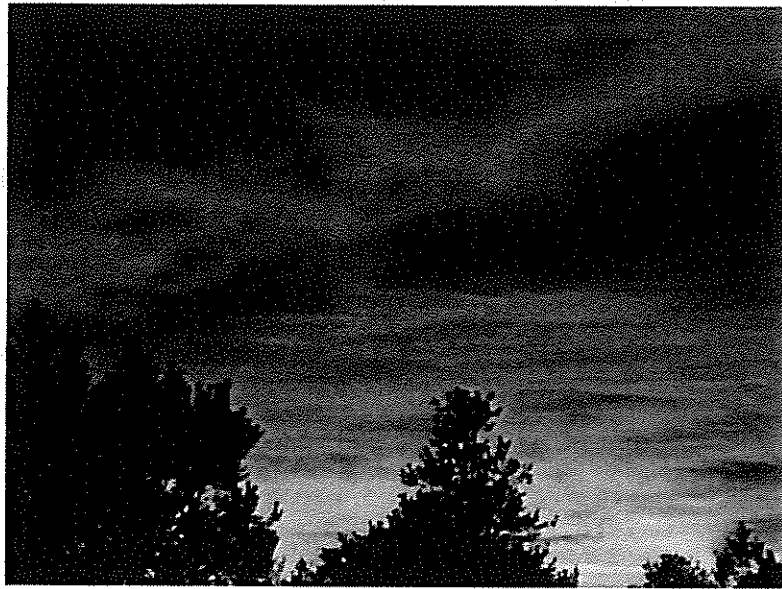
***Sunset on the Sangres***



*Some happy hikers*

*Dead bristlecone pine tree*





*The sun sets over the San Luis Valley*

***Now don't you think the San Luis  
Valley is worth protecting and  
preserving for future generations?***

*Photos by Eric Karlstrom unless noted otherwise*

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## *Archives-My letters to Officials Regarding Lexam's Proposed "Drill-play"*

### ***My Letter to Ron García, Manager of BNWR re: NEPA and our FOIA request (letter unanswered)***

Ron Garcia, Manager  
11/13/06  
Baca National Wildlife Refuge  
Alamosa, Colorado

Dear Mr. Garcia,

The National Environmental Policy Act (NEPA) requires that federal agencies implement certain procedures and supply documentation to the public when significant environmental impacts could result from activities on federal lands such as Lexam's proposed drilling of two 14,000' test wells on the Baca National Wildlife Refuge. Specifically, we are requesting all written documentation that is available, including an environmental analysis and the NEPA decision document. If these policies were not implemented and these documents do not yet exist, we would like to see the written documentation explaining why the BNWR is not in compliance with these federal statutes. We would be happy to accept copies of these documents today.

Sincerely yours,

Dr. Eric Karlstrom, representative of  
San Luis Valley Citizen's Alliance (SLVCA)  
P.O. Box 54  
Crestone, CO 81131

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### ***My Letter to Director of Colorado Oil and Gas Conservation Commission Re: Lexam's permit request to drill two 14,000' gas test wells (unanswered)***

Brian Macke, Director  
Colorado Oil and Gas Conservation Commission  
1120 Lincoln Street, Suite 80  
Denver, CO 80203

November 27, 2006

Subject: Lexam Explorations, Inc.'s Application for Permit to Drill in the Baca National Wildlife Refuge

Dear Mr. Macke,

As a physical geography professor and resident of the Baca subdivision, I have concerns regarding the Canadian company, Lexam Explorations, Inc.'s, proposed exploratory drilling in the Baca National Wildlife Refuge. Having read the scientific literature pertaining to the geology and hydrogeology of the San Luis Basin, I (along with many Valley "old-timers"), suspect that Lexam's "gas drill play" may actually be a "water play." I don't think the COGCC would knowingly issue drilling permits to Lexam if they understood that: 1) the claimed presence of Mesozoic source rock (hence, gas and oil) may be based more on "science by assertion" than by rigorous science, and 2) the target of exploration may be the vast groundwater reserves of the San Luis Basin rather than fossil fuels.

We know that in the current, industry-friendly political climate, some scientific experts may be motivated to fudge data in order to please their paymasters. Thus, just as we now know that the "intelligence" for WMD in Iraq was "fixed" to justify a preconceived policy, it seems possible that the "scientific evidence" now being used to justify gas and oil drilling in the San Luis Basin may also have been "fixed" in order to achieve a preconceived and altogether different objective.

Thus, it is very important that we first acknowledge two very salient facts:

I) The conventional geologic wisdom is that Mesozoic source rocks for gas and oil are not found in significant quantity in the San Luis Basin (Keller and Cather, 1994).

II) The groundwater underlying the valley floor, however, is worth a considerable amount of money. And there have been concerted attempts in the past two decades to gain control of this water resource for export and private profit.

Perhaps if we put these two facts together, we can rightly deduce that the real purpose of Lexam's exploratory drilling could be different than is currently being portrayed.

As background, in the 1980's and 1990s, there were two attempts to mine and export the vast water resources of the San Luis Basin. The first attempt was by Canadian company (American Water Development, Inc., or AWDI) and the second attempt was by the Baca Corporation. Both attempts failed, due in part to concerted efforts by local environmentalists. As further background, Aber (2002) notes that the confined aquifer of the San Luis Basin may be as much as 30,000 feet deep, that the valley fill consists of Oligocene-Holocene-aged unconsolidated sediments interlayered with volcanic strata, and that artesian wells yield up to 4000 gallons of water per minute.

I) Regarding very salient fact # I: Numerous peer-reviewed papers by expert geologists (Keller and Cather, 1994) agree that:

1) The Rio Grande rift extended northward to create the San Luis Basin during the Oligocene (about 28 million years ago), and that basin fill is comprised of Tertiary and Quaternary sediments deposited during the past approximately 28 million years.

2) Structurally, the San Luis Basin coincides with two half-basin grabens (the Monte Vista and the Baca Grabens) separated by the Alamosa Horst. Mesozoic rocks which were deposited in this region were for the most part eroded and removed during regional uplift during the Laramide Orogeny, from about 65 to 50 million years ago (Brister and Chapin, 1994). Geologic cross-sections by Brister and Greis (1994) (above) and Tweto (1979) (next page) show the major structures as well as the estimated ages of sediments in the northern San Luis Basin.

Brister and Greis (1994):

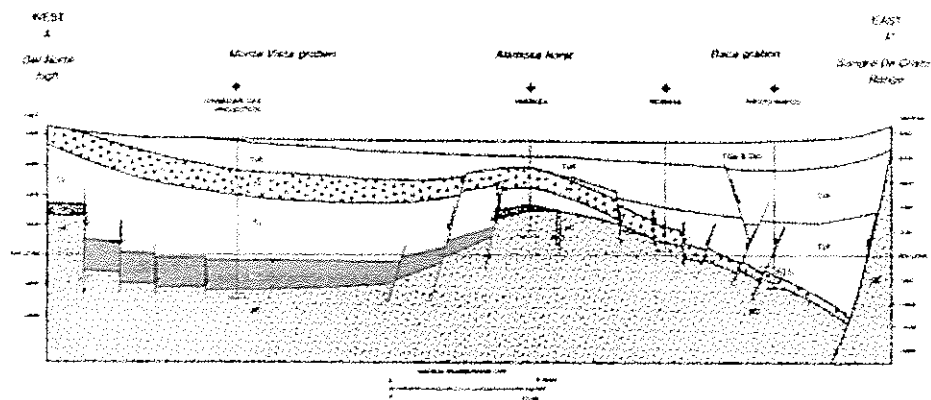


Figure 1. Interpretive cross section A-A' across the San Luis Basin; location of section indicated in Figure 3. Symbols: TQa and Qal, Alamosa Formation (Plio-Pleistocene) and Quaternary alluvium; TQb, Lower Santa Fe Group (Mid-Pleistocene); TQc, sub-Santa Fe of San Juan volcanic field (Oligocene); TQd, Conejos Formation and equivalents (Oligocene); TQe, Blondo Basin Formation (Pliocene, P4); TQf, TQg, TQh, TQi, TQj, TQk, TQl, TQm, TQn, TQo, TQp, TQq, TQr, TQs, TQt, TQu, TQv, TQw, TQx, TQy, TQz, TQa, TQb, TQc, TQd, TQe, TQf, TQg, TQh, TQi, TQj, TQk, TQl, TQm, TQn, TQo, TQp, TQq, TQr, TQs, TQt, TQu, TQv, TQw, TQx, TQy, TQz. Figure modified from Greis and Brister (1989).

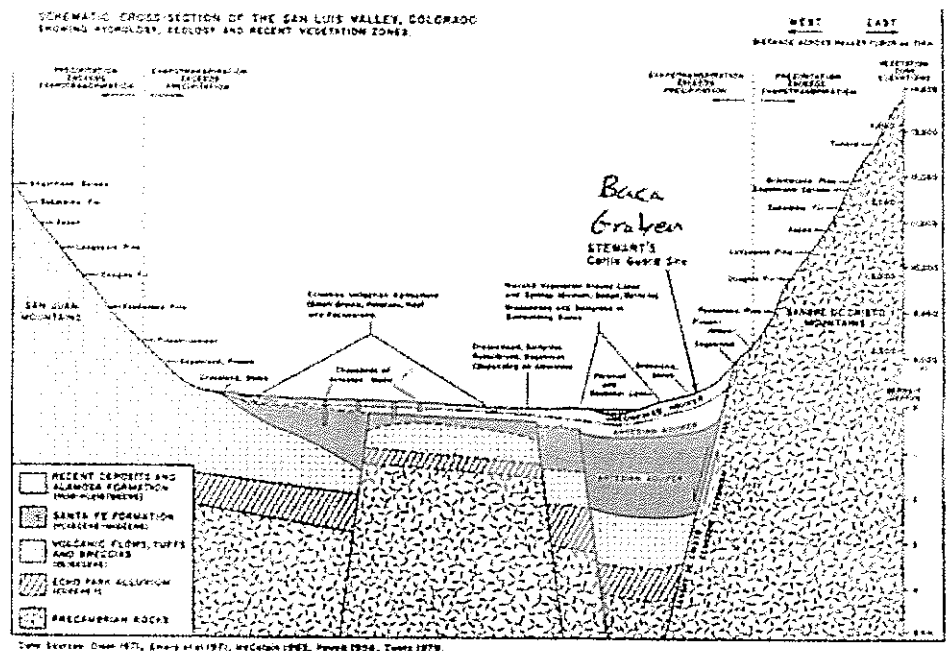
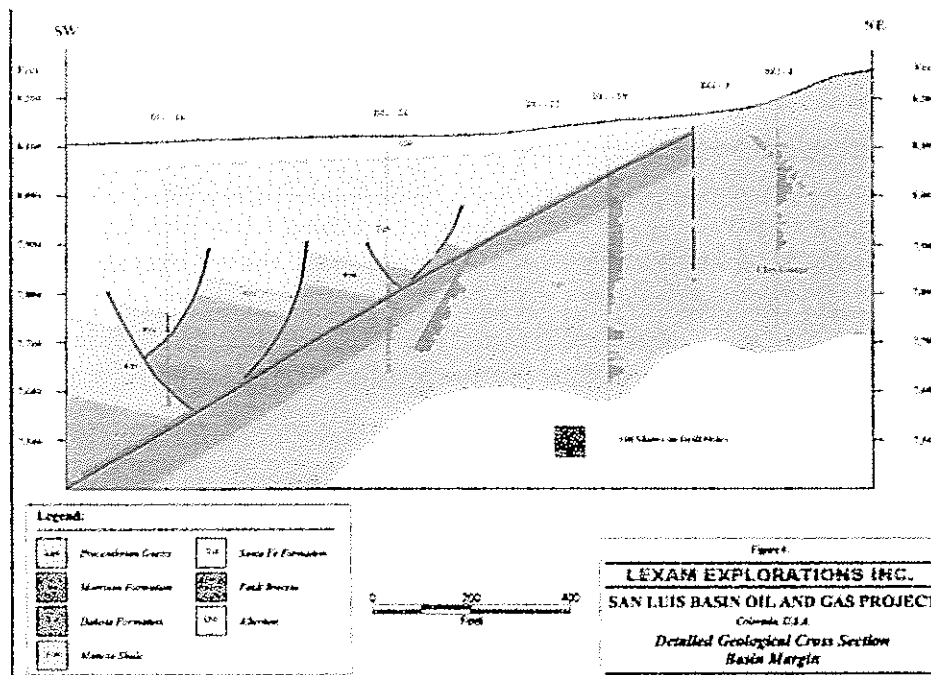


Figure 2. Schematic cross-section of the San Luis Valley.

3) Again, authors of all peer-reviewed papers on the geology of the San Luis Basin agree that basin fill consists mainly of upper Oligocene to middle Pleistocene sediments (as much as 5.6 km thick), comprised of mudstones and coarse lithic sandstones and conglomerates, overlying Precambrian bedrock (Chapin and Cather, 1994; Kluth and Schaftenaar, 1994, Brister and Greis, 1994; Brister and McIntosh, 2004)). Their conclusions are based on seismic, gravity, and well data, as well radiometric dating and geologic mapping. None of these geological experts recognize the presence of Mesozoic hydrocarbon source rocks in San Luis Basin sediments. Thus, for example, Kluth and Schaftenaar (1994) conclude that the basin is filled with about 6.4 km (21,000) of mostly Tertiary sediments, Oligocene and younger in age. They also conclude that the angle of the (east) bounding fault of the Baca graben is about 60°, with 45° as an absolute minimum angle.

4) By contrast, a geologist who happens to work for Lexam Explorations, Inc., Thomas Watkins, has written a 7-page report that postulates that Mesozoic source rocks are abundant in the San Luis Basin (Watkins, no date given). These conclusions are justified based on re-interpretation of seismic data in addition to well data acquired in 1992 and 1993. Although this paper has not gone through the accepted scientific peer-review process, it provides the scientific basis for the report prepared by Toronto-based consulting group, Watts, Griffiths and McQuat (Hoey, et al., 2006) that Lexam is using to justify its drilling program and fund-raising efforts.

Lexam's (Hoey, et al., 2006) geologic cross-section of the northern San Luis Valley:



Note that Watkin's/Lexam's interpretation differs radically from all others in that sections of Mesozoic source rock are shown to be preserved along rotated blocks in the hanging wall of a low-angle (25 to 30°) normal fault that forms the (eastern) margin of the basin. Is this merely "science by assertion?" Perhaps what is needed is for Watkin's Ideas to be subjected to the standard peer review process that other geologists go through.

II) Regarding very salient fact #II, Lexam's drilling of two 14,000' exploratory wells could directly and adversely affect the quality and quantity of groundwater in the San Luis Basin. This groundwater occurs in two major reservoirs. The shallow, unconfined aquifer provides drinking water to our community and most, if not all, of the communities in the San Luis Valley. It also provides water for agriculture. The groundwater utilized for drinking water and irrigation is within 7 feet of the surface in some locations in a highly permeable sand formation. Any surface disturbance or spill due to drilling operations has the potential to impact the groundwater quality adversely. Thus, contamination of this unconfined surface aquifer could mean the loss of our groundwater resource for generations. In addition, it could have very negative impacts on downstream users of the Rio Grande River in New Mexico, Texas, and Mexico, all of which have treaty rights to surface water, which is affected and supplied by the much larger quantity of groundwater in the confined and unconfined aquifers.

Thus, more specific information regarding groundwater flow directions is needed. The interconnection and interaction between surface water (streams and wetlands) and the unconfined and confined aquifers also needs to be evaluated. Specifically, more data is needed on the potential impacts of drilling on each of these interrelated parts of the surface water/groundwater system. Thus, a thorough evaluation of the groundwater system and an Environmental Impact Study (EIS) should be conducted before these test wells are permitted.

This is indeed a special situation, where a federally-owned area set aside for the protection of the area's ecosystem, has a privately-held mineral right. If this were a typical federal site, the National Environmental Policy Act (NEPA) would require that an EIS be conducted. The COGCC may not have a specific process for conducting an EIS or evaluating a site prior to authorizing drilling. However, before the COGCC issues drilling permits that would potentially damage this incredibly valuable resource, it is essential that EIS and groundwater evaluation be conducted by others so that scientifically-supported data can be provided to the COGC prior to well-permitting.

In conclusion, the two most very salient facts surrounding this issue indicate that 1) the potential of finding a recoverable amount of gas is low, highly speculative, and even doubtful. 2) Groundwater, on the other hand, is arguably the SLV's most precious resource. It supports our lives and livelihoods. It's ownership and use is regulated by a complex set of laws involving several basin states as well as Mexico. Thus, it seems common sense that the water rights and surface-owner rights (especially those of a federally-protected Wildlife Refuge) are a much higher priority than a speculative mineral right. Clearly, the protection of this groundwater reservoir should be the highest priority. And the potential contamination (and potential theft by secretive and perhaps illegal tactics) of this vast reservoir of groundwater is an unacceptable risk.

Thus, I join many others in the San Luis Valley in urging you to allow more time for a thorough evaluation of the groundwater system as well as the completion of an EIS before you approve Lexam's drilling applications. In addition, because the proposed exploratory drilling may be based on "science that fits the policy objective" rather than objective science and because this could constitute a step towards a potentially illegal "water grab," I suggest that the COGCC also contact the following before issuing any drilling permits:

- 1) other geological/hydrogeologic experts, such as the geologists referenced here, to determine if Watkin's report is scientifically credible.
- 2) an independent, better-business bureau or environmental advocacy agency in order to get an independent assessment of Lexam's real objectives in this "drill play."

Finally, and very importantly, 3) a way to discover whether Lexam's real goal is determine the value and gain control of the groundwater of the San Luis Valley would be to carefully examine the sales and land transfer agreements between AWDI, the Baca Corporation, the Nature Conservancy, and the Baca National Wildlife Refuge. A careful reading of these documents by independent legal council could reveal whether Lexam, or some corporation in partnership with Lexam, could legally acquire the water rights under the BNWR and therefore, in the San Luis Valley.

Time and experience have taught me to "follow the money." However, my suspicions of a "secret water grab" could be entirely unfounded. In that case, the BNWR, our Valley citizens, and hopefully the COGCC still need to try to mitigate with the potentially very damaging impacts of gas exploration and possibly, production. Thus, if, under pressure from current, industry-friendly political forces, the COGCC chooses to proceed with authorization of the drilling application, I, along with many other local agencies and individuals, request that the following conditions or restrictions be included in the permit:



- Off-site disposal of all drilling wastes (liquid and solid), including drilling mud.
- Utilize the Best Available Technology for installation of the well to protect all groundwater aquifers, such as concrete casing of the well to full depth.
- Conduct groundwater monitoring, including existing water wells surrounding the drill sites and an alarm-well system around each drill site.
- Consideration for safety and traffic on public roads.

Of course, in addition to the protection of groundwater, many local groups are concerned about air quality in our nearby community. Based on the prevailing wind direction and the proximity of the mountains immediately to the east, any air discharges could concentrate in the community and air quality would be negatively impacted.

Thank you for considering these concerns. We, the affected citizens of the San Luis Valley, count on you doing the right things to protect the quality of our environment.

Sincerely yours,

Dr. Eric T. Karlstrom  
Professor of Physical Geography  
California State University, Stanislaus  
Member, San Luis Valley Citizen's Alliance  
P.O. Box 54, Crestone, CO 81131

Cc: Senator Ken Salazar, Representative John Salazar

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**Water Watch Alliance Form letter for citizens to write to COGCC Re: Lexam's requested permit to drill two 14,000' exploratory gas wells on the BNWR**

November \_\_\_\_, 2006

Brian Macke, Director  
Colorado Oil and Gas Conservation Commission  
1120 Lincoln Street  
Suite 801  
Denver, CO 80203

Subject: Lexam Explorations Application for Permit to Drill in the Baca Wildlife Refuge

Dear Mr. Macke,

The \_\_\_\_\_ has some concerns regarding the proposed drilling in the Baca Wildlife Refuge. The shallow groundwater aquifer provides drinking water to our community and most, if not all, of the communities in the San Luis Valley. It also provides water for agriculture. The groundwater aquifer utilized for drinking water and irrigation is within 7 feet of the surface in some locations in a highly permeable sand formation. Any surface disturbance or spill due to drilling operations has the potential to impact the groundwater quality. Contamination of groundwater could mean the loss of our groundwater resource for generations. Specific information regarding groundwater flow direction is needed. The interconnection and interaction between the surface and subsurface needs to be evaluated, including the presence of wetlands in the area. We request that a thorough evaluation of the groundwater system and an Environmental Impact Study (EIS) be conducted before these test wells are permitted.

This is a special situation, where a federally-owned area, set aside for the protection of the area's ecosystem, has a privately-held mineral right. If this were a typical federal site, the National Environmental Policy Act (NEPA) would require that an EIS be conducted. Although the Colorado Oil & Gas Commission (COGCC) may not have a specific process for conducting an EIS or evaluating a site prior to authorizing drilling, this is a unique situation. We are not requesting that the COGCC conduct the EIS or the groundwater evaluation themselves if it is not part of your process, but to allow time for these evaluations to be conducted by others so that scientifically supported data can be provided

to the COGC prior to well-permitting.

The potential of finding a recoverable amount of gas is speculative. Groundwater is arguably the SLV's most precious resource; it supports our lives and livelihoods. When are water rights and surface-owner rights (especially a federally-protected surface) considered a higher priority than a speculative mineral right? The protection of groundwater should be the highest priority. Contamination of groundwater is an unacceptable risk.

We urge you to allow time for a thorough evaluation of the groundwater system and completion of an EIS before approving the drilling applications. If the COGCC chooses to proceed with authorization of the drilling application, we request that the following conditions or restrictions be included in the permit:

- Off-site disposal of all drilling wastes (liquid and solid), including drilling mud.
- Utilize the Best Available Technology for installation of the well to protect all groundwater aquifers, such as concrete casing of the well to full depth.
- Conduct groundwater monitoring, including existing water wells surrounding the drill sites and an alarm-well system around each drill site.
- Consideration for safety and traffic on public roads.

In addition to the protection of groundwater, we are also concerned about air quality in our nearby community. Based on the prevailing wind direction and the proximity of the mountains immediately to the east, any air discharges could concentrate in the community and air quality would be negatively impacted.

Thank you for considering our concerns and requests.

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***Fund-Raising Letter for Water Watch Alliance with the "Help" of San Luis Valley Ecosystem Council (SLVEC). \$8700 was raised from the Crestone/Baca Community. Of this amount, SLVEC (Chris Canaly) kept all of it, paying herself and the SLVEC without consulting WWA.***

The Water Watch Alliance  
2006  
The San Luis Valley Ecosystem Council  
P.O. Box 223  
Crestone, CO 81131

December 6,

Dear Friends,

You may have already heard of the possibility of natural gas drilling occurring only a few miles west of the Baca community on the new Baca National Wildlife Refuge. We are asking for your help now to save our spectacular environment and way of life here in the Crestone Baca Community and San Luis Valley.

The volunteer Lexam working group has had several meetings over the last few months to gather information and inform the community and ourselves about the consequences of oil and gas exploration and drilling. We are calling

ourselves The Water Watch Alliance (WWA), since water is really the key to maintaining the quality of the environment and economy in this spectacular, sensitive, and pristine area.

This issue is time-sensitive for the following reasons:

- Lexam Explorations, Inc., a Canadian firm, has applied for permits to the Colorado Oil and Gas Conservation Commission (COGCC) to drill two 14,000' gas test wells in the Baca Refuge just west of the Baca subdivision. Through recent land transfer agreements, Lexam owns the mineral rights under the Refuge. Drilling the two test wells is considered a wildcat, high risk, and speculative endeavor. But they are willing to gamble \$10 million to reap potentially huge profits if they strike a large reservoir of natural gas. Once the test drill permits are issued, Lexam does not have to apply for another permit to mine gas from those particular wells.
- Legal Research needs to occur now regarding a surface agreement that is in place between the Baca National Wildlife Refuge and Lexam that apparently allows Lexam access those mineral rights. We need legal expertise from National Environmental Policy Act (NEPA) lawyers to review this agreement so that pressure can be applied to the U.S. Fish and Wildlife Service to do an Environmental Impact Statement (EIS) or Environmental Assessment (EA) on the proposed drilling.
- We are currently exploring and implementing several strategies including mounting letter writing campaigns to political representatives and the COGCC, outreach to media, and research and learning from western slope communities which have been the hardest hit, and finally, outreach to elders in Native American communities.

As other Rocky Mountain communities have learned through hard experience, full-scale gas production activities can devastate pristine environments by adding toxic pollutants to air and water (both surface water and groundwater) and cause many other negative impacts on human communities and wildlife.

Recently, a small group of Baca residents went to visit the area just south of Silt and Rifle, Colorado, to examine the impacts of Encana's massive gas production activities on local communities. The majority came back ill from their brief (less than 2 hours) exposure to air pollution from the gas drilling, which includes ground level ozone and a suite of carcinogenic compounds.

Today, the San Luis Valley may be the last, relatively unspoiled and pristine mountain basin in Colorado. But that could change dramatically if Lexam discovers commercially-viable levels of gas or oil in the San Luis Basin. The pollution, noise, environmental degradation, and "boom-town" effects that would accompany full scale production could destroy the qualities of pristine beauty and profound silence that originally drew many of us to this special and sacred place.

We cannot just sit back and let this happen. Please donate at this time, using the business reply envelopes that are included. Make your donations payable to:

The San Luis Valley Ecosystem Council, which has agreed to sponsor this mailing and which is a 501c3 non-profit corporation. Your donations are tax deductible. Please put "Lexam Research" in the memo of your check. If you would like to participate in WWA, please contact us.

You are contributing to your own well being. Thank you for your concern.

Sincerely,

The Water Watch Alliance: David Bright, Christine Canaly (256-4758), Lisa Cyriaks (256-4140), Pavita Decorah  
Eric Karlstrom, JoAnne Kiser (256-4732)

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***My Letter to Town Councils of local affected communities in the San Luis Valley***

Center Town Council  
Town Hall  
294 S. Worth  
Center, CO

July 19, 2007

We of the Water Watch Alliance (WWA) in Crestone, CO would like to update you and your community on recent developments concerning the Canadian company, Lexam Explorations Inc.'s plan to drill two 14,000' gas test wells on the newly-created Baca Fish and Wildlife Refuge just west of the Baca Grande Subdivision. We are concerned that oil and gas drilling in our area could adversely affect our shared surface and ground water resources, cause health problems for humans and other species, and despoil the pristine character of the San Luis Valley. Attached please find Lexam's July 3, 2007 press release which states that: 1) their recent 3-D seismic tests show strong potential for oil and gas deposits, and 2) the San Luis Valley Ecosystem Council has filed a Complaint against the U.S. Fish and Wildlife Service (USFWS) claiming that the USFWS has not complied with the National Environmental Policy Act (NEPA). The press release also states that Lexam will not start drilling until this lawsuit is resolved.

At recent meetings of the WWA in the Baca Grande subdivision, we learned that:

- 1) At this point, the U.S. attorneys agree with the San Luis Valley Ecosystem Council's lawsuit and will likely require that the USFWS conduct a NEPA process, which would probably mean they have to conduct an Environmental Assessment (EA) before drilling can begin. This process would probably delay the actual drilling by at least one year.
- 2) Meanwhile, in order to protect the interests of our local community, the Baca Water and Sanitation District recently turned down Lexam's request to use our local water for drilling purposes.

If Lexam approaches you to purchase water for drilling, we encourage you to consider all the potential ramifications of gas and oil exploration in an area which is effectively upstream from your community.

In order to share information and educate people in the San Luis Valley regarding these issues, we plan to sponsor an educational conference on August 25, which will feature local experts who will speak to various aspects of this important issue. We would welcome your participation in this event and will be sending you more details about this event soon.

Sincerely,

Eric T. Karlstrom, Water Watch Alliance  
(phone: 719-256-4814; email: [erickarlstrom@fairpoint.net](mailto:erickarlstrom@fairpoint.net))

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***My Letter to Ron Garcia, Manager of the BNWR Re: The Way that BNWR Initiated the***

### ***EA/Scoping Process (8/9/07)***

Ron Garcia, Manager  
Baca National Wildlife Refuge  
Crestone, CO 81131

Dear Ron,  
8/9/07

We, Water Watch Alliance (WWA), are happy to learn that the Baca FWS will be conducting a scoping process. However, we are extremely concerned that by scheduling the Lexam EA/scoping process meeting on Friday, August 17, the USFWS has not provided sufficient time for us to develop our input for the meeting or to notify the community through our local newspaper, The Crestone Eagle. As you know, this monthly publication is the primary means through which our community is informed about upcoming events. WWA was notified of this meeting through an email sent at 4:44 pm on 8/7/07. In the interest of fairness to all parties, we request that this meeting be postponed until we can have adequate time to prepare and notify members of this community who will be directly impacted by drilling activities on the Baca Wildlife Refuge. In addition to postponement of this meeting, we request that additional meetings also be scheduled on later dates to allow ample opportunity for members of the Crestone/Baca community to participate in this public process.

The NEPA glossary of the Fish and Wildlife Service NEPA Reference Handbook defines "scoping" as: "An early and open process for determining the extent and variety of issues to be addressed and for identifying the significant issues related to a proposed action" (40 CFR 1501.7). We believe that an "open process" to determine "the extent and variety of issues" requires, first, that we, the community, be given sufficient notification so that we have time to prepare meaningful input into the scoping process; and, second, that the scoping process consist of several public meetings over a several month period.

The USFWS NEPA glossary also defines Environmental Assessment (EA) as "a concise public document, prepared in compliance with NEPA, that briefly discusses the purpose and need for an action, alternatives to such an action, and provides sufficient evidence and analysis of impacts to determine whether to prepare an environmental impact statement or no significant impact." We believe the potential impacts of drilling two 14,000' gas test wells in the middle of a wetland - wells that would penetrate 14,000' into aquifers - are significant and adverse. We believe that the EA will indicate that a full EIS is required. As the nearest community and the community most impacted, the Crestone/Baca community deserves the same opportunity to make our case during the EA/scoping process as Lexam has been given to make theirs.

Since the next issue of the Crestone Eagle will be published on September 1, 2007, we recommend that the Friday, August 17th meeting be postponed until an evening during the second full week of September (the 11th to the 15th) or later. We would also like to take this opportunity to invite you to a public, educational forum, entitled "Oil and Gas in the San Luis Valley?" on August 25, 2007 (see attached flyer). We hope that this educational forum can play an important part in the scoping process.

Sincerely yours,

Water Watch Alliance: Dr. Eric Karlstrom, Lisa Cyriaks, Tom Tucker, Aurielle Andhara, Winter Ross, Pavita Decorah, Dr.

Vince and Mary Palermo, Ceal Smith, JoAnne Kiser, Larain Matheson, Tamar Ellentuck, Steve and Jan Andersen, Catie Moore

cc. Senator Ken Salazar, Governor Bill Ritter, Rep. John Salazar, State Senator Gail Schwarz, Colorado Dept. of Wildlife, Colorado Oil and Gas Commission, Saguache County Commissioners

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***My Letter to Senator Ken Salazar's Office Re: BNWR EA/Scoping Process***

Charlotte Bobecki  
8/10/07  
Senator Ken Salazar's Office

Dear Charlotte,

As per our phone conversation just now, we at the Water Watch Alliance (WWA) would very much appreciate it if you could notify Senator Salazar re: this situation and pass along our request that he try to help us however he can. I am faxing three notices with this cover letter. And we would welcome the Senator and/or you and/or another of his aids to attend our Forum: Oil and Gas in the San Luis Valley? August 25, 2007, 10 to 5 pm.

Thank you,

Eric Karlstrom,  
Water Watch Alliance  
719-256-4814  
erickarlstrom@fairpoint.net  
P.O. Box 54, Crestone, CO 81131

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***My Letter to Mike Blenden of the BNWR Re: Scoping Comments on Proposed Lexam Drilling (9/5/07) (my concerns were addressed or adequately dealt with in the Draft EA)***

Mike Blenden  
9/5/07  
U.S. Fish & Wildlife Service  
Baca National Wildlife Refuge  
Alamosa/Monte Vista National Wildlife Refuge Complex  
9383 El Rancho Lane,  
Alamosa, CO 81101  
Email: mike\_blenden@fws.gov

Comments and Concerns Re: proposed exploratory gas-well drilling by Canadian firm, Lexam Explorations, Inc. on Baca National Wildlife Refuge

At a recent meeting with our Crestone/Baca community (8/17/07), the USFWS initiated an EA/scoping phase of the NEPA process, requesting that local citizens write-in our concerns re: the proposed drilling of two 14,000' gas test wells

by a Canadian corporation, Lexam Explorations, Inc., on the BNWR. We of Water Watch Alliance (WWA, formerly San Luis Valley Citizen's Alliance) and I as a citizen of the Baca have many concerns regarding the adverse impacts of Lexam's proposed drilling on sensitive wetlands of the Wildlife Refuge within 1.5 miles of the Baca community. It is our (WWA) opinion that there are numerous reasons that gas and oil exploratory drilling on the Baca Refuge constitutes an "incompatible use" with that of protecting and preserving fish and wildlife habitats as well as the health and viability of human communities and agricultural operations in the San Luis Valley (SLV). In addition, "downstream" communities in New Mexico, Texas, and Mexico, located in the lower portions of the Rio Grande drainage basin, may also be adversely affected by contamination of surface water from the drilling project. The rights of these downstream users are protected by the Rio Grande Compact. We conclude that: 1) many of the inevitable damages caused by gas exploration drilling in this sensitive area cannot be mitigated and therefore should not be allowed, and 2) due to directives from Washington, D.C., the USFWS is out of compliance with many of the federal regulations it is bound by law to follow and enforce.

It is mandated by law that the BNWR conduct a full-blown NEPA process. Even so, the BNWR announced last fall that it was not required to conduct a NEPA process. Today, it is conducting this process, but only in response to a lawsuit filed by our SLVEC/WWA lawyers. The BNWR is now conducting an Environmental Assessment, which suffices as the short version to fulfill legal requirements when the proposed activity is found to cause no significant impacts. However, given the well-documented, adverse impacts of gas drilling elsewhere in Colorado and the West (OGAP, 2005) and given the extremely sensitive nature of wetland ecosystems and aquifers on and under the Baca Wildlife Refuge, we of WWA believe that the USFWS is legally and morally obligated to conduct a full-blown EIS (Environmental Impact Statement) as well as complete their own Management Plan before allowing any drilling to occur on the Refuge. By conducting a full-scale Management Plan, the BNWR will be able to establish base-line data on air quality, water quality, and the ecosystem itself, including delineation of sensitive species requirements, etc. We would hope these data would be shared with local and state health officials, the POA, Saguache County officials, etc. before any exploratory drilling is allowed.

Our group of concerned citizen's chose to call ourselves the Water Watch Alliance because it became clear to us that the gigantic reservoir of water stored in aquifers beneath the San Luis Valley is a priceless resource both now and in the future. It is our goal to protect this resource against potential long-term contamination by large-scale gas/oil operations. We believe that an honest and adequate EIS process will indicate that drilling should not occur on the BNWR. We should be seeking federal legislation to insure that the SLV remains protected in perpetuity as a "No-Go Zone," as the Valle Vidal and Otero Mesa of New Mexico have now been designated. Whereas the NEPA process permits federal agencies to use Environmental Assessment's alone when there are no "unique and exceptional circumstances" and "no significant impacts," we feel that drilling two 14,000' gas wells through sensitive wetlands and through a series of priceless aquifers on the newly-created BNWR would certainly have significant, adverse impacts and thus, this certainly qualifies as a "unique and exceptional circumstance."

Lexam Explorations, Inc., which owns 75% of the mineral rights, is a small Canadian company that has never operated an oil or gas well. They will use subcontractors to carry out their drilling; they don't intend to operate anything. The remaining 25% of the mineral rights are owned by Conoco-Phillips. If Lexam "strikes it rich" and finds a "tcf" (trillion cubic feet) of natural gas, as they hope, their \$20 million investment could provide a windfall financial profit for their 2200 shareholders of between \$1 billion and \$18 billion. Lexam would then immediately sell out to major oil companies such as Conoco-Phillips, which would then proceed to turn the SLV into a toxic, industrial park. I have visited the gas fields south of Silt, Colorado and talked with local property owners there whose lives have become a prolonged nightmare. People's health, quality of life, and property values are severely and adversely impacted. In addition, it is now well understood that burning fossil fuels contributes to global climate change. One estimate is that



the burning of a "tcf" of natural gas would produce about 150 million tons of carbon dioxide, a greenhouse gas. In Europe, production of this amount of CO<sub>2</sub> would be taxed at the rate of nearly \$2 billion.

William Blake's image of "Dark Satanic Mills" dotting the 19th century English countryside might then be an apt description of what our own San Luis Valley could look like as an industrial gas field. Meanwhile, the collective benefit to the nation of a successful gas play here would be to obtain sufficient natural gas to supply the US for perhaps a couple weeks only. And the equivalent amount of energy can now be much less harmfully produced using green energy, including solar, wind, and geothermal energy, which, ironically, are very abundant in the SLV.

Adverse impacts that accompany gas and oil drilling:

1) Pollution and degradation of surface water (wetlands) and subsurface water in the unconfined and confined aquifers. Much of the BNWR consists of seasonal wetlands, which are among the most sensitive and important ecosystems in terms of their importance for supporting a large variety of species. Underneath the BNWR is 14,000' to 15,000' of sediments overlying Precambrian bedrock. An impermeable layer of clay, 10 to 80' thick separates the surface (unconfined) from the subsurface (confined) aquifers. However, there are probably as many as 30 distinct aquifers contained within the confined aquifer (Dr. James McCalpin, pers. comm., 2007). Water pressure increases as you descend in the aquifer, therefore (polluted?) water will tend to rise (and mix) through the aquitards and aquifers. In the unconfined aquifer, water table is quite shallow (about 12' or less) and hence, any addition of pollutants will likely contaminate surface water essential to a wide variety of human and non-human users, both in the near-term and in the future. This relatively shallow unconfined aquifer provides drinking water to our Baca community and most other SLV communities. It also provides the water needed for fish and wildlife, including over 70 species of rare plants and animals, agriculture in the San Luis Valley, and water usage throughout the Rio Grande basin.

There are currently about 7000 wells in the SLV, of which about 1800 are "deep wells" that penetrate the confined aquifer. There is a significant danger of contaminants from the Lexam drilling operation leaking and irrevocably polluting the San Luis Valley aquifers. If the drillers encounter the Dakota Sandstone, a "reservoir rock" that they hope to find, they will in probably use hydraulic fracturing fluids, which can be highly toxic. This poses a threat to the whole Rio Grande region's water supply and wildlife for future generations. The state of Colorado, which technically owns most of the water, has recently imposed a moratorium on drilling in the confined aquifer. Why is Lexam Explorations, Inc. exempt from this moratorium? Given the magnitude of adverse impacts of the drilling and the potential future value of water in the aquifer (probably many billions of dollars), exploratory gas drilling is an "incompatible use" with the Wildlife Refuge.

Chemical contamination of groundwater: Dr. Theo Colborn has analyzed the chemical compounds involved in the gas well drilling process by studying Material Safety Data Sheets. Of particular concern is the process of hydraulic fracturing which utilizes a suite of especially dangerous chemicals. Such fracturing operations may require up to a million gallons of fluid per well (Gwen Eifle, OGAP, pers. communication, 2007). Colborn determined that of the 245 chemicals commonly used in drilling, 91% have adverse health effects and there is no information on the other 9%. Of the 91%, 35% are endocrine disrupters for people and wildlife. Some of the most toxic chemicals include BTEX (benzene, toluene, ethylbenzene and xylene) which are carcinogenic, methane, diesel fuel, hydrogen sulfide, heavy metals, VOCs (volatile organic compounds), formaldehyde and PAHs (Colborn, 1997). On viewing the list of chemicals used, Professor Clay Bridgford, an ex-military man in Crestone, referred to this suite of chemicals as "a laundry list for chemical warfare." Many of these chemicals have been found in contaminated wells and in grab samples for air quality near gas wells in Colorado and elsewhere in the west (OGAP, 2005).

According to OGAP's Gwen Lachelt (pers. comm., 2007), due to the current industry-friendly administration, every chemical used is considered propriety by the gas and oil drilling industry and this industry is exempt from following the Clean Water Act and other laws that limit and regulate use of toxic chemicals in the U.S. Drillers also use propylene glycol (an antifreeze) on well pads. When ingested, this chemical is fatal for animals. Hence, pad areas always need to be fenced. However, in practice, they typically are not fenced (OGAP, 2005).

Even closed-loop systems still utilize open, evaporation pits, which often contaminate surface water, poison creatures, and add toxic pollutants to the air.

**Inadequacy of concrete well casing:** The COGCC issued a permit to Lexam specifying that they only need to use double concrete casing in the well for the upper 3500' of 14,000' wells. Clearly, there is great potential for contamination of the confined aquifer if the well hits gas and oil and if the casing leaks in the future. It is well-known that cement casings lose their integrity over time and can become a source of groundwater contamination for decades and centuries (OGAP, 2005). It is also commonly known that one quart of oil can contaminate up to 250,000 gallons of water. Thus, double concrete casing should extend the entire depth of any well.

**Needs of future generations:** Future generations of humans and other organisms will depend on the quality and quantity of water in the SLV aquifers. A recent study on global warming concluded that by the year 2050, Colorado residents will have to subsist on 30% less water than present. Contamination of the water supply, then, could have disastrous consequences. Two individuals, Canadian Maurice Strong (AWDI) and local Colorado-resident, Gary Boyce (the Baca Corporation), tried, unsuccessfully, to make billions by exporting water from the SLV to the Denver area. So we can speculate that the value of the water is potentially as great or possibly much greater than that of any oil or gas that may be present. Clearly, more scientific studies are required to determine the potential value of the SLV aquifers as well as to determine how best to protect the quality and quantity of the aquifers.

Water from the Rio Grande River is allocated to three states (Colorado, New Mexico, and Texas) and Mexico and is regulated by the Rio Grande Compact. Potential degradation of water in the SLV aquifers could affect the quality of surface water available to downstream users in these areas in the future. We hope that the Rio Grande Water Conservation District becomes more involved in this issue to help protect water quality and quantity for farmers and downstream users.

**Solution:** A moratorium on drilling. Because access to fresh potable water in the semi-arid West will probably increase in the future, the Governor of New Mexico has recently imposed a moratorium on gas and oil drilling on the Otero Mesa until such scientific studies are complete. We suggest that our governor and/or our federal representatives do the same in this region.

**2) Air pollution:** Chemicals used in natural gas development are dangerous to the health of living creatures (animals, plants and humans) who happen to live near the drilling operations. Emissions from drilling pads emit carcinogenic toxic chemicals into surrounding public lands and communities. Ground level ozone causes degenerative health problems for humans, wildlife, plants and agricultural crops. It is the #1 cause of asthma. Because ground-level ozone is produced at every gas well pad, each well needs a special permit to exceed air quality standards required by the state and U.S. government. In addition, after gas comes to the surface, a dehydrator is used to separate the gas from the condensate, which includes a complex of volatile carcinogens, called BTEX, which includes ethyl benzene, xylene, and toluene. In addition, PM-10 (airborne particulate matter less than 10 microns in diameter) has serious negative impacts on crops and human health. In order to monitor air quality in the BNFWR, it will be necessary to coordinate activities with the following organizations: Colorado Air Quality Control Commission, Colorado Water Quality Control

Commission, Colorado Division of Wildlife, Local county weed programs, Bureau of Land Management, and Saguache County. It will also be necessary to conduct preliminary baseline studies on present air quality.

3) Health Concerns: Based on analysis of data in the Chemicals Used in Natural Gas Development Spreadsheets, Dr. Theo Colborn found that of the chemicals used, 49% can cause skin/sensory organ toxicity, 47% can cause respiratory problems, 47% are neurotoxins, 43% are gastro-intestinal/liver toxicants, 38% are kidney toxicants, 33% are carcinogenic, 29% are cardio/vascular/blood toxicants, 27% are immune system toxicants, 25% are developmental toxicants, and 13% are endocrine disruptors. In addition, of the chemicals on the list, 20% are biocide products that kill all life. Of the chemicals that are soluble in water (13%), 72% are neurotoxicants, 61% are gastro-intestinal/liver toxicants, 61% are reproductive toxicants, 61% are skin and sensory organ toxicants, 56% are respiratory toxicants, 50% are kidney toxicants, 39% are cardiovascular toxicants, 28% are endocrine disruptors, and 22% are wildlife toxicants. Furthermore, And furthermore, of the chemicals used in natural gas drilling that vaporize, 66% are neurotoxicants, 60% are gastro-intestinal/liver toxicants, 52% are respiratory toxicants, 45% are kidney toxicants, 43% are reproductive toxicants, 37% are cardiovascular/blood toxicants, 33% are carcinogens, 27% are immuno-toxicants, 14% are endocrine disruptors, and 4% are wildlife toxicants.

4) Impacts upon wildlife: Rare flora and fauna in the San Luis Valley, some found nowhere else in the world, include, the Great Sand Dunes tiger beetle, the giant sand treader cricket, the Rio Grande cutthroat trout, the southwestern willow flycatcher, and the slender spiderflower. Other species found in the area include the bald eagle, sandhill crane, pronghorn antelope, elk, mule deer, bighorn sheep, mountain goats, mountain lion and black bear.

5) Noise, light, and dust pollution: The proposed drilling, located about 1.5 to 2 miles west of the Baca residential community, will produce inevitable noise, light, and dust pollution which will degrade the quality of life for members of the Baca community as well as the habitats of fish and wildlife on the Refuge. In addition, heavy truck traffic associated with various aspects of the operation will significantly increase noise and dust. Compressor stations, if built, produce noise as loud as a jet airliner "24-7" (24 hours a day, 7 days a week. Crestone/Baca includes many spiritual groups and individuals who have moved here because of the pristine beauty of nature and the awesome and profound silence that the area affords. These spiritual groups will be adversely impacted by the drilling operations, in particular.

6) Damage to local roads due to use of heavy vehicles: We can expect that heavy traffic by heavy vehicles will result in damage to local roads and the increase of traffic accidents. Will Lexam pay for the damage their operation causes to existing infrastructure?

7) Infrastructure requirements: There is currently no infrastructure in the SLV that would support gas production. Building such an infrastructure would require construction of gas pipelines, gas compressors, building of innumerable gas well pads, building extra roads, etc. The synergistic effects of these kinds of operations would significantly degrade the pristine quality and quality of life in the San Luis Valley for many residents. Oil spills, truck crashes and highway deaths resulting from those crashes would be highly likely.

8) Boom-town effects: If Lexam strikes gas, we can expect that a suite of highly disruptive "boom-town effects" would accompany the gas boom. Other communities which have been subjected to this process have experienced varying degrees of chaos, social upheaval, negative impacts on schools, emergency services, crime rates, etc. And typically, after gas companies create problems, the local tax payers have pay the cost of the damages, road repair, etc. This pattern repeats in many ways, with local communities paying for extra schools, roads, etc. that industry needs in order to function. Meanwhile, what percentage of the profits are shared with local counties? Often, little to none.

9) Damage to local cultural, spiritual and native American values: The NEPA process requires that the USFWS try to understand the cultural values of the Crestone/Baca community. Our community is comprised of numerous communities and individuals committed to the preservation of pristine nature, developing more sustainable living models, and pursuing spiritual retreat in one of the world's truly magnificent natural settings. Every fall for many years, for example, our town has sponsored an energy fair, which displays alternative and renewable means of creating energy. The San Luis Valley itself has long been acknowledged as one of the great spiritual centers of the world. It is commonly claimed around here that since pre-historic times when several Native American nations would gather in this "Bloodless Valley" bloodshed between peoples' was not permitted. Mount Blanca, at the southern end of the valley, is one of the four sacred mountains of creation for Hopi and Navajo Indians. In practice, both the SLV and Mount Blanca are such recognized as cultural/spiritual sites of great importance to various Native American groups. And over the past few decades, the Baca Grande community has become home to many international spiritual centers and spiritual masters of various faiths including Christian, Buddhist, Hindu and others. These diverse cultures, faiths and retreat centers provide the sanctuary and retreat that both residents and visitors seek.

We believe that our cultural identity, our "sense of place," and the continued health and integrity of our human and natural ecosystems is more important than Lexam's short-term profit potential on the Toronto stock exchange. In practice, these "wild-cat" speculators are not only trying to mine for resources, they are also mining their own investors. It seems these people are motivated more by short-term personal gain than by a larger vision for or commitment to the future of our society or our environment. The fact that they are from Canada means they have little or no understanding of or regard for the values of our community. To us, national security or "homeland security" means clean air and water, a healthy environment, healthy communities, safe neighborhoods, healthy food, and minimum impact on the physical environment, etc. Certainly, our idea of prosperity is not compatible with a quick "wild-cat" gas play. To us, the potential threat by the Lexam drill play to the water and ecosystems of the SLV is not an acceptable risk. By contrast, we note and are concerned by the cynical, "public be damned" attitude typical of fossil fuel companies and "the oilies". In a moment of candor, one industry geologist reportedly admitted to the Colorado legislature: "The industry is not happy until there is a hole drilled every 40 acres."

Perhaps the inevitable question now is: Is the fossil fuel industry today more powerful than the U.S. government? Given that our president and vice president are both fossil fuel industry insiders and have manipulated our government so as to remove the impediments of federal regulations in an effort to maximize industry's profits, it seems that yes, the oil/gas companies are now more powerful than our government.

Bitter Root National Forest Supervisor Gloria Flora stated: "Why are they going to the best places first? They are going to the best places first because if they can get in there, there is nowhere they can't get in." (I paraphrase, her actual comment can be heard on the excellent movie- A Land Out of Time). Could Lexam be acting in coordination with a government/corporate strategy, perhaps outlined in Vice President Cheney's (still classified) Energy Task Force documents? Could their strategy, in fact, be to drill in the most environmentally sensitive areas as soon as possible so as to derail any possible citizen opposition to their goal of turning the American West into a national energy colony, or in fact, a "National Sacrifice Area?" Could their strategy be to wage covert chemical warfare against the American people using toxic drilling chemicals? Could it be a deliberate plan to lower or even destroy property values of American citizens? Or might it be part of a larger UN Agenda 21, whereby lands are to be confiscated from the American people in order to be designated as federal lands, only to be later offered up to corporations through federal sell-offs and mineral-rights give-aways? All these questions should be addressed and answered by the Draft EA if it is to be in compliance with the NEPA process and not merely a whitewash.

There are several federal laws that protect Native American sacred places. These include the National Historic

Preservation Act (NHPA) and its implementing regulations at 36 CFR Part 800:

- a. Installations must determine whether they have any properties of traditional religious or cultural significance to Native Americans.
- b. Installations with such properties are required to follow the requirements of Section 106 of NHPA regarding consultation with Native Americans if the BRAC activity constitutes an undertaking as defined in the ACHP regulation (36 CFR 800.16(y)). Further information on Section 106 is available at ACHP website at [www.achp.gov/work106.html](http://www.achp.gov/work106.html).

Since native peoples in antiquity typically camped near water and since there are abundant seasonal wetlands on the BFWR, there are undoubtedly countless artifacts and sites on the Baca Refuge which have not been catalogued or recorded. Again, the BNWR needs to complete a survey of actual resources on the Refuge before allowing any drilling to occur.

In addition, the American Indian Religious Freedom Act (AIRFA) of 1978 states:

It shall be the policy of the United States to protect and preserve for Americans their inherent right of freedom to believe, express, and exercise the traditional religions of the American Indian..., including, but not limited to access to sites, use and possession of sacred objects.

Has the BNWR queried all the native groups which might believe that sacred sites are located on the Refuge?

The Preservation of Sacred Sites as revised by President Clinton in 1996 Executive Order 13007 states:

In managing federal lands, each executive branch agency with statutory or administrative responsibility for the management of federal lands shall... avoid adversely affecting the physical integrity of such sacred sites.

Other pertinent laws include:

Native American Graves Protection and Repatriation Act (NAGPRA) and its implementing regulations at 43 CFR 10, the Archaeological Resources Protection Act (ARPA), NEPA Executive Orders 13175, 12898, and DOD Instruction 4715.3.

In addition to many potential sacred sites on the 100,000 acre lease area of the BNWR, there are many spiritual groups located a few miles to the east of the proposed wells in the Crestone/Baca community. These include a Carmelite Catholic monastery, a Hindu Ashram, several Tibetan Buddhist temples and retreat spaces, a Zen Buddhist retreat center, etc.

10) Inadequacy of inspections. Whereas the number of oil and gas wells in Colorado has climbed 30% to 29,000 since 2000, the COGCC inspections have not kept pace. The state has just 8 inspectors, just one for every 3,625 wells. Therefore, we recommend that a qualified engineer be added to the team of inspectors. Deb Phenecie of the Baca Grande Water and Sanitation district is an engineer, she has experience in the gas fields of Wyoming, and she has volunteered to be an inspector.

Peggy Utesch, a member of the Grand Valley Citizen's Alliance in Garfield County, stated: "We know that every day there are accidents and incidents in the field- just look at the commissioner's reports." Based on the track record of the COGCC, we at WWA do not believe they have the capability to adequately monitor drilling activities on the BNWR.

11) Inadequacy of \$10,000 bond: Given the potential value of water stored under the San Luis Valley is probably many billions of dollars, a more accurate and adequate bonding amount might be \$5 billion.

12) Pressure on government agencies to expedite gas and oil drilling and downplay adverse environmental impacts: In 2001, President Bush signed Executive Order 13212 (Actions to Expedite Energy-Related Projects) which mandated that all federal agencies put new oil, gas, and coal projects on a fast-track, priority footing. Simultaneously, the Bush administration drastically cut funding to federal agencies and regulatory agencies, so they are now typically too short-staffed and under-funded to enforce the existing laws that regulate the oil/gas industry and protect communities and the environment. In particular, this administration has targeted the USF&WS with draconian cutbacks. One recent study showed that 90% of the changes that local people wanted were already in the existing rules and laws, but that these laws were no longer being enforced. Of course, it is well known that Bush and Cheney have deep roots in the oil/gas industry.

BLM research biologist Steve Belinda told Washington Post reporter Blaine Harden: "The BLM is pushing the biologists to be what I call "biostitutes", rather than allow them to be experts in the wildlife they are supposed to be managing." Even a GAO report released in February, 2005, concluded that the BLM is so focused on issuing oil and gas drilling permits that it is neglecting its responsibility to protect the land and other resources (<http://www.gao.gov/ew.items/d05418.pdf>)

13) Legal and constitutional issues: Lexam's acquisition of mineral rights:

Canadian billionaire Maurice Strong of AWDI (American Water Development, Inc.) severed the mineral rights from the surface rights on the Baca Grande Ranch when he owned the ranch back in the 1970's. Lexam Explorations, Inc., is headed by another Canadian billionaire, Rob McEwen, the former CEO (and still largest shareholder) of Canada's Goldcorp Inc. and current CEO of U.S. Gold. Lexam purchased 50% of the hard mineral rights from Baca Minerals (Strong) in 1987 and the other 50% of the oil and gas rights on the Baca Grande ranch from Newhall Land and Farming Company for \$1 million. It acquired an additional 25% of the oil and gas rights from the Baca Corporation in 1996 from Gary Boyce for \$1 million. Boyce, in turn, purchased these rights from Maurice Strong. The remaining 25% of the oil and gas rights is owned by Conoco-Phillips.

Lexam acquired surface access and use by fee simple ownership and a Surface Use Agreement with AWDI (i.e., Maurice Strong) in 1992 for \$1 million. This agreement is a 20-year paid up lease that is binding on surface owners who may be successors in the ownership to AWDI. This agreement can be extended if there is production on the property. Surface rights were held temporarily by the Nature Conservancy for about three years, during which time the U.S. government passed the requisite legislation and raised the needed cash to purchase the 100,000 acre Baca Grande Ranch in order to establish the new Great Sand Dunes National Park and Baca National Fish and Wildlife Refuge.

Attempts by a Colorado Springs lawyer to obtain some of the property transfer documents via Freedom of Information Act apparently failed. Thus, there is reason to suspect that government and business have acted secretly and in collusion in this matter. We would like a full disclosure of pertinent legal documents concerning the transfer of mineral rights to Lexam.

Meanwhile, the Lexam proposed drilling comes at a time when the U.S. Congress has not yet defined the mission and purpose of the BNWR. And BNWR has not completed its own Management Plan. And whereas the BNWR denies American citizens' access to the Refuge because there has been no Management Plan, Lexam has full access. What is

wrong with this picture? Additionally, apparently responding to orders from individuals higher up in government, the BFWR tried to issue a permit to Lexam last summer (2006) and then retracted the permit within days after being notified it had no authority to issue such a permit. Nevertheless, the new BFWR stated to our Crestone/Baca community last fall that they did not feel they needed to perform a NEPA process and the drilling could go ahead without the completion of this process. It was only after being sued by SLVEC/WWA alliance attorneys that the BFWR decided they would initiate a NEPA process.

On 8/7/07, the BFWR notified the Crestone/Baca community by email that the EA/scoping process would begin with a public meeting on 8/17/07, effectively giving us only 9 days to organize and prepare our public input. Our community was not notified of the meeting through normal publicity channels, such as the Crestone Eagle, which comes out on the first of each month. Our subsequent requests for a postponement of this meeting and then, an extension of the comment period from 30 days to 45 days have fallen on deaf ears. It is hard to avoid the conclusion that the BFWR is placing the Lexam drilling project on "fast-track," as per directives from above. Thus, it is quite likely the NEPA process in this case will be a whitewash and a sham. Nonetheless, of course, we hope that it will be a genuine, thorough, and honest appraisal of the many significant impacts attendant upon drilling projects of this scope.

Re: the NEPA Process, the Energy Mining Law Center notes that the surface owner has the legal authority to gather input regarding proposed projects and to impose "reasonable alternatives." Federal agencies have the legal mandate to participate honestly in the NEPA process. And they have the right to determine what comprises "reasonable use" for access and development of minerals. The 1969 National Environmental Policy Act (NEPA) was designed to prevent "Agency Capture," a process in which industry and federal agencies act cooperatively to advance the interests of industry. The law was written to insure that ultimately, decisions require significant community input and input from experts in various fields; the decisions are not to be made by those with the greatest vested interests and the biggest bank accounts, i.e., the "oilies."

I am not a lawyer, but it seems there may be several important constitutional issues here: A) The Nature Conservancy acted as "middle man" in the sale of the land from the Baca Corporation to the USFWS. Was their role legally appropriate? B) Did the Maurice Strong, a Canadian citizen, have the legal right to sever surface from subsurface rights and sell these to different entities? C) Should subsurface mineral rights really be considered superior to surface rights? D) Re: the sale of surface and subsurface property rights, the entities involved include Maurice Strong (AWDI), Gary Boyce (the Baca Corporation), Rob McEwan (Lexam), Baca Minerals, the Newhall Land and Farming Company, Petro-Hunt, Chevron, SONAT, Conoco-Phillips, the Nature Conservancy, and the USF&WS. Were the sales of these properties legal? Or would FOIA information reveal insider deals? Finally, E) should the "property right" of a Canadian corporation supercede those of American citizens and the U.S. government itself?

14) Control of Noxious Weeds: Noxious weed invasion is a significant threat to agriculture and wildlife habitat, rivaling urban sprawl in acres of habitat lost in many rural counties. Studies document that the number one way weeds are spread is from seeds transported on truck tires. In conjunction with local governments, the gas industry must be accountable to mitigate any spread of noxious weeds that may result from drilling operations.

We are also concerned about potential impacts to the area's organic agricultural activities. Management of noxious weeds will apply to all areas disturbed by drilling operations, including but not limited to existing roadways and borrow pits, new roads, pipeline cuts, and well pads.

15) Conflicts of interest?

It has come to our attention that the Draft EA will be written by a consulting team that is being paid by Lexam. There is an old phrase: "He who pays the piper calls the tune." I sincerely hope that this team will follow the NEPA process in good faith, listen to the opinions and views expressed by we American citizens, who really own the BFWR, and conduct not only an EIS but a Management Plan before considering allowing foreign investors to drill on our precious Baca National Wildlife Refuge.

Sincerely,

Dr. Eric Karlstrom  
Professor of Geography  
Water Watch Alliance  
P.O. Box 54  
Crestone, CO 81131  
Email: [erickarlstrom@fairpoint.net](mailto:erickarlstrom@fairpoint.net)

References:

The Rifle, Silt, New Castle Community Development Plan, January 1, 2006

A Project of the Grand Valley Citizens' Alliance.

Management Guidelines for Oil & Gas Development (August 4, 2005), Colorado Mule Deer Assoc.

Oil and Gas at Your Door? A Landowner's Guide to Oil and Gas Development, 2nd Edition, Oil and Gas Accountability Project (OGAP), 2005

CC: Governor Bill Ritter: 136 State Capitol, Denver, CO 80203-1729. Phone: 800-283-7215 or 303-866-2471, fax- 303-866-2003, Email: [www.Colorado.gov](http://www.Colorado.gov)

Senator Ken Salazar: 702 Hart Senate Office Building, Washington, D.C. 20519

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Saguache County Commissioners: 1) Linda Joseph: phone- 719-256-5003, Email: [sagcomlj@centurytel.net](mailto:sagcomlj@centurytel.net) 2). Sam Pace- 719-256-4660 3) Michael J. Spearman-719-754-2486



Colorado Department of Wildlife Wendy Wallis, Phone: 303-291-7208  
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***My Letter to Dave Montgomery, Board of Directors of San Luis Valley Ecosystem Council Re: Lack of Accounting for the \$8700 of WWA money that was raised by the fund-raising letter of December 6, 2006.***

Dave Montgomery  
9/29/07  
San Luis Valley Ecosystem Council  
537 Main Street  
Alamosa, CO 81101

Dear Dave,

Thanks for your letter of September 13 in which you thank the Water Watch Alliance (WWA) for helping to protect the BNWR from potential oil and gas development. We agree that WWA will be most effective by maintaining its own autonomy from SLVEC. Indeed, it has always been important that we remain autonomous from SLVEC. We also agree that WWA and the SLVEC face some major challenges in the near future and we also hope we can cooperate in our efforts to keep Lexam Explorations and ConocoPhillips from turning our Valley into an industrial gas park.

Unfortunately, since December, 2006, the financial and professional relationship between WWA and SLVEC has been rather poorly-defined and murky. WWA had its beginnings as a group of local volunteers who began studying the potential impacts of Lexam's gas drilling in about September, 2006. We soon realized that we needed funds to continue our work and since Christine Canaly had begun attending our meetings, she volunteered the SLVEC to become our financial umbrella organization. In December, 2006, WWA and SLVEC sent out a fundraising letter for WWA, from which we raised about \$8700. This summer (2007), Christine informed us that she had spent all the funds, and indeed, had used over half the funds to pay herself for work.

As I understand it, 501c3 non-profits are under legal obligation to follow rather strict rules regarding the expenditure of funds: Namely, 1) funds cannot be spent without prior approval by a vote of the association, 2) minutes need to be supplied to the group that account for the expenditure of all funds, and 3) non-profits must use appropriate parliamentary procedures in the process of dispersing funds.

Our recollection is that: 1) WWA never designated or authorized Chris Canaly to dispense WWA funds, 2) Chris never requested our approval for expenditure of these funds, 3) she never notified us that she was going to spend the funds, 4) she never reported in any minutes how the funds were going to be spent, 5) she paid herself most of the funds (about \$5000), and 6) she failed to give our group an accounting of the benefits to our group which accrued from expenditure of the funds and her activities on our behalf.

At a WWA meeting in August, I asked Christine to supply us with an accounting of her expenditure of WWA funds. A couple weeks later, she furnished me (E. Karlstrom) with two informal documents, including 1) a document entitled "Chris's Hours," a rough accounting of hours she spent on the Lexam issue presumably on behalf of WWA, and another entitled, "Lexam Statement of Activities- Detail, All Transactions." Whereas the "Chris's Hours" document mentions WWA twice, the other document does not mention WWA at all. Rather, it appears that she simply assumed the \$8,700

belonged solely to SLVEC and that she therefore had complete power and authorization to spend the funds as she saw fit.

These documents indicate that of the \$8700 raised for the WWA, \$3500 were spent on legal fees and that another \$4984 were spent on payroll expenses. Christine claims to have worked and paid herself for 195.5 hours on behalf the Lexam cause (at \$20 per hour, this totals \$3910). The document entitled "Chris's Hour," indicates that she paid herself for the following activities: 1) fundraising letter, thank you notes, meeting at the BNWR, going over books, attending Lexam (presumably WWA) meetings at the Manitou Foundation, distributing packets, legal research, meeting with Foundations in Washington DC, writing Lexam press releases, etc. (documents attached). In fact, this document indicates that Christine coordinated her activities with the Manitou Foundation and that she also took a trip back to Washington, D.C. (using WWA money?) Again, however, Chris never informed our group of these activities or of the benefits to our group which might have accrued from these activities. It is important to stress that all other members of WWA have donated their time to the Lexam cause. Thus, it becomes a matter of particular importance if someone in the group should begin to receive pay. Again, this discussion never took place.

In essence, WWA is satisfied that the \$3500 spent on legal fees is money well spent. However, because Chris Canaly designated herself rather than WWA as the client, members of our group have not ready access to the lawyers or their advice. Even so, we would hope that Christine and SLVEC will keep us informed regarding the progress of this important legal case. But given that we never authorized Chris to pay herself out of WWA funds and WWA never authorized her to spend those remaining funds (\$5200), we request that the SLVEC reimburse WWA the remainder of the funds spent without our knowledge or approval, i.e. \$5,200.

Sincerely,

Eric Karlstrom, Lisa Cyriaks, Water Watch Alliance

Cc: Christine Canaly, Phil Madonna

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***My Letter to the COGCC Re: Lexam's Request for a Third Permit to drill an additional 14,000' Gas Test Well (10/3/07) (unanswered)***

Brian Macke, Director  
2007

October 3,

And Valerie Walker, Permitting Tech for Saguache County  
Colorado Oil and Gas Conservation Commission  
1120 Lincoln Street, Suite 80  
Denver, CO 80203

Subject: Lexam Explorations, Inc.'s New Application for Permit to Drill in the Baca National Wildlife Refuge

Dear Mr. Macke and Ms. Walker,

Lexam Explorations, Inc. has applied for an additional permit to drill a third well, "well #7" on the Baca National Wildlife. As a resident of the Baca subdivision, I have several concerns regarding this proposed activity. I am hopeful that with a new composition of the COGCC, that you will at least maintain the level of requirements (i.e., the 17 conditions) you imposed upon Lexam for their previous two permits. Furthermore, I hope you will take this opportunity

the San Juan and Raton basins are enormous and are estimated at 30 and 10 trillion cubic feet, respectively, using current industry practices, then these fields can support many, many thousands of gas wells.) Extraction of this "unconventional source" of natural gas is considerably messier and more damaging to aquifers than that of "conventional" gas reservoirs. And although drilling techniques are similar to those used for conventional wells, the completion practices and the method of reservoir evaluation are different. Thus, "the BLM has adopted COGCC order number 112-61, which requires that production casing of all coalbed methane wells be cemented from producing horizon to surface by grout circulation methods." (<http://oil-gas.state.co.us/Library/sanjuanbasin/blm/Background/cbch4res.htm>). This is done to try to minimize the inter-zonal flow of fluids between producing horizons and aquifers within the casing annulus.

Indeed, one of the main methods used to produce CBM is the "cavitation method," which creates a cavity in the targeted coal seams by altering the velocity of the gas escaping from the coal reservoir. This effectively enlarges the original well bore- thus virtually ensuring the mixing of hydrocarbons, produced water, with aquifer water. And the

4) Massive reserves of coalbed methane (CBM) gas are now being exploited in the Raton and San Juan Basins, located about 60 and 100 miles to the southeast and southwest of the BNWR, respectively. Geologically speaking, then, there is a reasonable likelihood it also occurs in San Luis Basin sediments as well. (Coalbed methane reserves for

to revisit the issues afresh with your new board and the new state oil and gas laws and deny Lexam this permit based on the following factors:

1) Oil and gas development is completely incompatible with maintaining environmental conditions suitable for a newly designated wildlife refuge. The BNWR has not yet completed its Comprehensive Conservation Plan as required by the National Wildlife Refuge Improvement Act, so they have not even done a comprehensive survey of the species and ecosystems they are mandated to protect and manage for the benefit of the American people. Impacts of developing natural gas on the refuge will likely make it impossible for the BNWR to manage and protect species on that land in anything close to their natural habitat.

2) Oil and gas development is also completely incompatible with the activities and nature of human communities of this area. Crestone/Baca is filled with spiritual seekers and people interested in sustainable development who have retreated to this area because of the spectacular, pristine nature and profound silence of this area. And Valley agriculturalists would also be adversely affected if oil and gas were discovered in this area.

3) There is an estimated 140 + million acre-feet of water stored in sediments beneath the San Luis Valley. Some say it is the continents largest fresh-water aquifer. Gary Boyce of the Baca Corporation devised a scheme to sell this water to Front Range cities for \$4000 to 7000 per acre foot. And our freshwater aquifers, both unconfined and confined, occur adjacent to the deserts of the American Southwest, the driest portion of our nation. Imagine the potential value of this resource in the future! It's in the hundreds of trillions of dollars (140 million times \$5000 = \$700 trillion!). Furthermore, global warming models show Colorado with 30% less moisture by the year 2050. In addition, the San Luis Valley aquifers feed the Rio Grande River, which runs through Alamosa. And water from this drainage system is currently allocated to three states (Colorado, New Mexico and Texas) and Mexico via the Rio Grande Compact. Surely, any diminution of water quality and quantity caused by oil and gas development in the SLV would therefore adversely affect quality and quantity of water available here and downstream. Thus, the present and future value of the water resource in the SLV is dramatically greater than that of a potential, temporary gas bonanza- and this water resource must be protected and guarded for the future. And clearly, a complete hydro-geologic study of the San Luis Valley aquifer systems is needed to begin to understand the potential impacts of groundwater contamination of any drilling

"produced water" associated with this kind of operation is typically very saline and sodic, so the responsible disposal of this water can be very problematic. (In 1998, the last year for which statistics are available, over 597 million gallons of water were produced from Las Animas County methan wells in the Raton Basin.) Although Lexam claims to be targeting "conventional sources" of natural gas, the fact Cretaceous formations with coalbeds (the Vermejo and Raton Formations in the Raton Basin and the Fruitland and Menefee Formations in the San Juan Basin) overlie the Dakota formation, indicates there is a reasonable chance these formations would be encountered in drilling. Again, double concrete casing of drill holes for the entire 14,000 well would be a minimum precaution.

5) Lexam's own website indicates that the Cretaceous sub-basin extends both north and south of their recent 3D seismic survey, hence obviously they believe they are targeting a massive gas field. Their exploitation of this resource would bring wind-fall profits for investors, it would also likely have massive adverse impacts on our Valley's pristine environment and our precious aquifers.

6) Our Crestone/Baca community has the serious problem of very limited access. There is only one road in and out-the County T road. If there is an accident or fire associated with Lexam's operation, there could be a real disaster here. Therefore, Lexam should not be issued a permit to drill on the BNWR until alternative escape routes have been identified and engineered.

7). If comparisons with other magnificent areas in our Rocky Mountain West are extended to this region, it is most probable that the potential total amount of gas that could be recovered here might be less than the U.S. consumers would go through consumer in two weeks.

8) I have genuine and profound questions about a legal system that would allow a Canadian company to have a "private property right" on American soil that would supercede that of the surface property owner, particularly as that surface property (BNWR) is the U.S. government, i.e., the American people. This means our legal system has effectively granted a corporation (which is a legal fiction) the right to exploit and despoil surface land that the U.S. Congress as designated to be protected in perpetuity for the benefit of wildlife and for the American people. The illegal usurpation of our bill of rights rights by corporations was accomplished in a legal fraud in 1886 known as Santa Clara County vs. Southern Pacific Railroad (please see Hartmann's Unequal Protection: The Rise of Corporate Dominance and the Theft of Human Rights). And of course the law that gave precedence to the idea that mineral rights are superior to surface rights is the 1873 Mining Act. I would argue that both of these laws are unconstitutional and therefore, invalid.

Indeed, U.S. federal and supreme courts have ruled that laws contrary to the U.S. Constitution are unlawful. For example: "All laws which are repugnant to the Constitution are null and void (Marbury vs. Madison, 5 US, 137, 174, 176). And "An unconstitutional act is not law; it confers no rights, it imposes no duties; affords no protection; it creates no office; it is in legal contemplation, as inoperative as though it had never been passed." (Norton vs. Shelby County, 118 US 425 p. 442).

9) The sequence of economic/legal transactions which has led to this current situation is particularly suspicious, murky, and possibly odious and illegal. Most of what is now the 92,000-acre BNWR was acquired as part of the 100,000-acre Maria Luis Baca #4 Ranch by the agri-business conglomerate Arizona-Colorado Land and Cattle Company in 1962. Canadian billionaire Maurice Strong purchased the property in 1971. Saudi sheik, billionaire, and arms, gold, and drugs dealer, Adnan Khashoggi purchased major shares of the Arizona-Colorado Land and Cattle Company in 1973. (Khashoggi was later associated with the drugs/arms deals of the Iran-Contra scandal of the 1980's\*). Strong, a Canadian industrialist who has been a trustee of the Rockefeller Foundation, has, at various times, been Vice President of Dome Petroleum, President of Power Corporation, head of Petro-Canada, Hydro Canada, Ajax, Alberta Gas

Company, Ontario Hydro (North America's largest utility), American Water Development Inc. (AWDI), Baca Petroleum Corporation, Baca Resources Ltd., and MF Strong Management. He has also founded and headed numerous non-governmental organizations such as the Canadian International Development Agency (CIDA). Strong has also been one the most powerful men in the United Nations, having organized and directed both Earth Summit I in Stockholm in 1972 and the Rio Earth Summit II in Rio de Janeiro in 1992. He was also the first director of the United Nations Environmental Programme (UNEP), and served on the U.N.'s World Commission on Environment and Development, as well as the U.N.-funded Commission on Global Governance. He also served on the Boards of International Union for the Conservation of Nature (IUCN), the World Wide Fund for Nature (WWF) and the World Resources Institute (WRI), three international NGO's that have developed and advanced the global agenda since the early 1970's. Strong, who was appointed by Canadian Prime Minister Brian Mulroney to the Privy Council of Canada, was also involved in huge scheme, called the GRAND, Canal, to divert water from Canada to the United States ([www.discovervancouver.com/forum/topic.asp?TOPIC\\_ID=131262](http://www.discovervancouver.com/forum/topic.asp?TOPIC_ID=131262)). According to Glen Kealey, one of the main purposes of the water diversion was to create a giant Chicago- Winnipeg food cartel, which was to be managed from Strong's Baca Ranch. Although this plan was never realized, it also was never cancelled. According to Kealey, some version of it could surface again, as the present political and economic climate under NAFTA/Free Trade agreements make the project more viable.

Strong recently cut his ties with the UN after being associated with various UN scandals and conflicts of interest, such as the oil-for-food program and his secret dealings with North Korea (<http://www.foxnews.com/story/0,2933,250789,00.html>). And he is being sued by San Diego class-action shark Milberg Weiss for dumping his shares of Molten Metal Technology at around \$31/share a month prior to the stock's October, 1996 collapse (two years later they were worth 13 cents/share.). Due to Strong's and Molten Metal's ties with presidential candidate Al Gore, this issue has surfaced in Senate hearings on corrupt campaign financing (FORBES, Jan. 22, 1996 and Apr. 21, 1997).

In "Maurice Strong: The new guy in your future! (<http://www.sovereignty.net/p/sd/strong.html>), Henry Lamb stated: "After establishing UNEP (the United Nations Environmental Program) and setting its agenda, Strong returned to Canada where he resumed chairmanship of both Petro-Canada and the IDRC (International Development Research Center). He was introduced to Scott Spangler, who ran a Texas company called ProChemCo. Strong's partnership, Stronat, bought ProChemCo., and changed the name to Procor, which immediately entered into a complex \$10 million deal to acquire AZL, also known as the Arizona-Colorado Land and Cattle Company. AZL's major stockholder was Adnan Khashoggi. In the end, AZL acquired Procor, but Strong landed in control of the conglomerate that owned feed lots, land, gas and oil interests, engineering firms, and 200,000 acres which included the Baca ranch in Colorado. Amid this multi-national deal making, Strong became President of the World Wildlife Fund (WWF), a post he held until 1981."

So we see a confusing but recurrent pattern: Strong consistently uses his insider business connections to personally profit from international development projects which often are disguised as environmentally beneficial. As chairman and principle shareholder of Arizona-Colorado Land and Cattle Company, Strong was sued for allegedly hyping the stock ahead of a merger that eventually failed. As head of AWDI (American Water Development, Inc.), Strong made an unsuccessful bid to export the water from San Luis Valley aquifers to the Front Range. As Secretary-General of the 1992 UN Conference on "Environment and Development" in Rio de Janeiro, Strong helped draft and usher into completion "Agenda 21," which was adopted at the 1992 Rio Summit. Though this document purports to protect the environment, it is in reality a way to secure control of natural resources (<http://www.freedom21santacruz.net/site/article.php?sid=443>). Elaine Dewar, author of Cloak of Green, states: "I was beginning to understand that the Rio Summit was part of a Rockefeller-envisioned Global Governance Agenda that dated back before World War II."

But back to the Baca: It was Strong who severed the mineral rights from the surface rights on the Baca Ranch. The mineral rights and surface rights have each changed hands several times, subsequently. Lexam Explorations, Inc. purchased their interest in the mineral rights from Baca Minerals and the Newhall Land and Farming Company in 1987. Canadian billionaire, Rob McEwen, CEO of Goldcorp, purchased Goldcorp's 49.8% share of Lexam in 2005 for \$400,000 (Canadian), or 2 cents a share. The last quarterly financial statement shows that Lexam is now worth \$12 million. At the time when The Nature Conservancy acquired the Baca Ranch from Gary Boyce's Baca Corporation and when federal government acquired the Baca Ranch from The Nature Conservancy for about a few years later for about \$34 million, the mineral rights could have been purchased for as little as \$1 million. Why were the mineral rights not acquired then along with the surface title? Although some of our local citizens have tried to find out by accessing the pertinent sale documents through the Freedom of Information Act, they have not been allowed to view those documents. Hence, the question must be asked: Is there a government-corporate plan to control the mineral and/or water resources on the BNWR? Until these issues are resolved in a transparent way, drilling should not go forward on the BNWR.

Abraham Lincoln best described democracy as "government of the people, by the people and for the people." This requires that elected officials and non-elected officials such as Maurice Strong conduct their affairs in transparent and legal manner for the benefit of all. It seems that there may have been a wide departure from these principles in the case of the land deals that lead to the application of this present permit. Indeed, writer Jim Hightower (Thieves in High Places: They've Stolen Our Country and It's Time to Take it Back) documents the systemic looting of federal treasury by the "kleptocracy." Therefore, until transparency of government is at last achieved and until the necessary environmental studies are conducted in this case, I hope you will see fit to place a moratorium on resource development in this very beautiful corner of the state.

Thank you for considering these concerns. We, the affected citizens of the San Luis Valley, count on you doing the right things to protect our environment and our aquifers.

Sincerely yours,

Dr. Eric T. Karlstrom  
Professor of Geography  
Member, Water Watch Alliance  
P.O. Box 54, Crestone, CO 81131

Cc: Governor Bill Ritter  
Senator Ken Salazar  
Senator Wayne Allard  
Representative John Salazar  
State Senator Gail Scwhartz  
State Representative Tom Massey  
Saguache County Commissioners Linda Joseph, Sam Pace and Michael Spearman  
Mike Blenden, BNWR  
Peter Gintautas, COGCC

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Palast, G., 2003, The best democracy money can buy; The Truth about corporate cons, globalization, and high-finance fraudsters., A Plume Book, 370 pp.

\* Investigative reporter, Greg Palast has this to say about Khashoggi in The Best Democracy Money Can Buy: "Adnan Khashoggi, the Saudi arms dealer, the "bag man" in the Iran-Contra arms-for-hostages scandals. The man who sent guns to the Ayatollah.... and ultimately put up the money on the Nevada (gold) mine. You may recall that Bush (I) pardoned the conspirators who helped Khashoggi arm the Axis of Evil, making charges against the sheik all but impossible."

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***My Letter to the Saguache County Commissioners and Board of the Baca Grande Property Owners Association (POA) (11/22/07) (unanswered)***

11/22/07

Comments on the threats of: 1) proposed Lexam gas drilling, and 2) NAT request to close trailheads in the Baca Grande:

Dear POA Board and County Commissioners,

**Introduction**

People may legitimately have different perspectives and opinions on controversial issues. As a geography professor, I try to see the connections between things, particularly regarding human/earth interactions. My perspective is informed by my many years of university research and teaching about environmental/energy issues. I believe local issues and events are often best understood by placing these in the context of larger national and international economic and political forces. Today, even our quiet and relatively unspoiled San Luis Valley is being affected by these larger forces. Thus, it is imperative that we have a realistic understanding of what "globalization" really is, how it works, who benefits, and who pays. The principles of "globalization" (also sometimes called: "The New World Order") are well defined in numerous international treaties/organizations like NAFTA (North American Free Trade Agreement), FTAA (Free Trade Agreement of the Americas) and WTO (World Trade Organization); the planned North American Union (NAU); and in countless United Nations policies and resolutions. These "internationalist" institutions and treaties advance and enforce the principle that corporate and private-property rights supercede the sovereignty of nations the rights of citizens. Ultimately, they require the dismantling of the United States of America and the U.S. Constitution. Because I believe it is imperative that local, democratically-elected officials educate themselves on these issues, I attaching my lecture notes on the topic of eco-politics and eco-nomics (from my Human Ecology course at California State University).

The extensive bibliography at the end of these notes give many sources that corroborate my interpretations regarding the immediate issues facing our community. I am also attaching various pertinent articles, videos. An even broader perspective can be gleaned by listening to an interview I did with Canadian Alan Watt on KHEN's "Truth Quest" on October 30, 2007. I include a link to this interview: The last third of the first hour deals specifically with the issues of Lexam, oil and gas development, and the United Nations Agenda 21, all of which directly affect us and our San Luis Valley. This web link and my lecture notes are attached at the end of this message.

#### Comments

Amongst the many things we have to be grateful for in the Crestone/Baca area on this Thanksgiving Day are our: 1) ready access to U.S. public lands offering some of the most beautiful and pristine mountain/desert environments in the world, 2) vast expanses of uncrowded spaces, and 3) clean and pure air and water, and 4) profound silence, an asset essential for the many local spiritual groups. Unfortunately, these priceless assets appear now to be under threat- not from Moslem extremists or global warming- two politically correct "public enemies" promoted by our ruling elite and media. Rather, it seems to me they are threatened by two Canadian billionaires; Lexam's CEO Rob McEwen, and former owner of the Baca Ranch and United Nations magnate, Maurice Strong. McEwen (and Lexam Exporations, Inc.) has immediate plans to pollute our air and water and destroy the silence and pristine majesty of our Valley in order to reap millions and perhaps billions in windfall profits for himself, his shareholders, and his business partners. And Strong, through his Danish wife Hanne's Manitou Foundation, apparently wishes to cut off American's access to our own public lands. Could this and the great increase in public lands designation in our Valley relate to the U.N.'s Agenda 21?

Why do I link these two individuals and their possible agendas? Let's review the facts. Most recently, we should be aware that both the issues of Lexam proposed drilling and the potential trailhead closures in the Baca were first made known to our Crestone/Baca community through the Sonoran Institute, a non-profit environmental group. Thus, initial community responses to these issues were influenced by the (un-elected) individuals who volunteered to make recommendations regarding these issues. Second, recall that Maurice Strong acquired the Baca Ranch back the late 70's, at which time he severed the mineral rights from the surface estate. In the 80's his AWDI (American Water Development ) tried unsuccessfully to make billions by exporting groundwater from under the Ranch to the Front Range.

Although most locals view Maurice and Hanne Strong as generous benefactors who donated land to various spiritual groups, we would be well to look deeper into Maurice's past activities. If we do so, we see that he is a major player in the "globalist-New World Order" agenda.

Although his bio is much too long for me to reproduce here, he is notable for the fact that in addition to being CEO of many major Canadian energy and water corporations (including Power Corporation, Petro-Canada, Hydro Canada, Ontario Hydro (North America's Largest utility company), Alberta Gas Company, and Dome Petroleum), he has also been perhaps the single most powerful unelected bureaucrat in the United Nations. In this capacity, he organized and directed the Earth Summit I in Stockholm in 1972, Earth Summit II in Rio de Janeiro in 1992, and the United Nations Environmental Programme (UNEP). With former Soviet President Mikhail Gorbachev, Strong authored the U.N. Earth Charter. He also served on the U.N.'s World Commission on Environment and Development and Commission on Global Governance. (I attach a letter I wrote recently to the Colorado Oil Gas Conservation Commission, which gives a more detailed history of Strong's involvement with the Baca, the U.N. and water and power corporations.)

Strong was also authored the U.N.'s Agenda 21, adopted by the U.S. under President Clinton in the 1990's. Agenda 21 calls for putting away over 50% of the America land. Although Agenda 21 is justified in the name of protecting

nature, many people believe that it has an altogether different objective. Daniel Beckett states: The real agenda behind "Sustainable Development" has nothing to do with protecting the environment. It is about controlling natural resources. If the resources are controlled, the people are controlled." (I attach a couple articles on Agenda 21 here).

Ironically, these Canadian billionaires and their surrogates are now justifying their claims on our land and resources on the basis of their "private property" rights. (Thus, the property rights of rich foreigners now apparently supercedes the rights of the U.S. government itself as well the American citizens who actually live in this area). Am I dreaming, or have we returned full-circle to a new "Age of Robber Barons," with the modern twist that today's super-rich are an international elite with little or no national allegiances? Certainly, by virtue of their incredible wealth, these globalist/monopolists now claim ownership of land, water, air, and energy resources everywhere throughout the world. They justify their ownership claims with words like "privatization," "de-regulation," "free trade," and of course "private property." And, of course, their agenda is greatly aided by the impotence and/or complicity of local and national governments; governments originally instituted to protect the interests of the majority of people against the continual predations of the rich and powerful.

You, the POA board and County Commissioners of Saguache County, are the duly elected representatives of the citizens who live in the San Luis Valley. I would ask you to consider the irony of the fact that the individuals who now lobby you so persistently to close off local trailheads and access to our public lands are disproportionately of foreign origin. These include Christian Dillo from Germany, Martin McCauley from Britain, and of course, Hanne Strong, from Denmark and her husband, Canadian Maurice Strong. My concern, of course, is that by cutting off American's access to public lands may indeed be the immediate goal of Agenda 21, and this agenda should be resisted by citizens and local governments whenever and wherever possible.

Of course, our country is a nation of immigrants, and we have a distinguished history of welcoming them. My own grandparents are from Sweden, Canada and Wales. Thus, I was gratified to learn, while bicycling across Sweden in the 80's, that in Sweden, any traveler has the right to camp on anyone else's land at any time. This is called "every man's right" and it seems to me to be a very civilized way to organize things. Certainly, Hanne Strong must know about this enlightened Scandanavian tradition. Similarly, it is commonplace for public trails to traverse private land in England. Indeed, in England, if all such access points were closed, there would be little or no public opportunity for hiking at all.

At the public meeting on September 15 at Colorado College on the subject of the Northern Access Team's recommendations, a young couple from Boulder, Colorado who own the lot at the top of Pine Cone (which hikers, myself included, now traverse to get to the Willow Creek and South Crestone Creek trails) made it clear that they purchased the land so that hikers could continue to have access to these trails. Does it not seem strange that in regards to this issue, this couple is behaving in a more generous and public-spirited manner than some of our own local spiritual communities?

I just returned from a short trip to northern Arizona, where I live in the 60's through the 80's. I was dismayed to find that my favorite hike in that region, the West Fork of Oak Creek Canyon, now has only one public access point, a parking lot run by the state park where it costs \$8 to park. On that day, the parking lot was completely full, so there was no public access at all. Meanwhile, the long string of beautiful, uninhabited houses adjacent to the main road next to the trailhead all were gated and had "No Trespassing signs."

Is this the kind of country we want, where only the super-rich have access to beautiful places? So I ask you to assert your authority for the benefit of the common citizens who inhabit this great country. That way, we may continue to be grateful on future Thanksgiving Days.

In particular, I would ask that in regard to the proposed drilling by Lexam Explorations, Inc. that you do everything in your power to stall and/or prevent this potentially disastrous activity by finding some county regulation or restriction that would delay or block the proposed drilling. And in regard to the proposed closure of trails accessed through the Baca Grande, I hope you will continue to honor and uphold the County Commission's Resolution of 1996 and which was printed in the November Crestone Eagle.

Sincerely yours,

Eric Karlstrom  
Professor of Geography/Baca Resident/Water Watch Alliance

Cc. Representative John Salazar  
Senator Ken Salazar  
Colorado Representative Gail Schwartz

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***Open Letter to Governor Bill Ritter Re: Nepa Process and Need to Maintain the San Luis Valley as a NO-GO Zone***

Open letter to Governor Bill Ritter

2/20/08

I have always told people that the San Luis Valley is more than a home to me. It is a spiritual place unlike any other on earth.

Senator Ken

Salazar

We in the San Luis Valley of southern Colorado live in a unique and spectacular place; indeed, this valley is a priceless, national treasure. Considered North America's largest, alpine agricultural valley, the San Luis Valley is surrounded by the spectacular Sangre de Cristo Range on the east and the San Juan Mountains to the west. It contains the highest sand dunes in North America (The Great Sand Dunes National Park) and the adjoining Baca National Wildlife Refuge (BNWR), which protects a vast network of wetlands that are amongst the most pristine and biologically diverse in the American Southwest. Significant elk, antelope and deer herds, over 45 rare, threatened or endangered species, and some of the oldest archaeological sites in North America, dating back some 11,500 years, are here. The Pueblo, Ute, and Navajo peoples consider this valley and Mt. Blanca the most sacred places in the world. Over 20 spiritual groups, representing a variety of religious traditions, have retreat centers here because of the profound silence and pristine quality of nature. But perhaps most important for future generations, this valley is underlain by one of the largest reservoirs of clean groundwater in North America, including an estimated 140 million+ acre-feet of potable water (Pearl, 1974).

In August, 2006, Lexam Explorations, Inc., a Canadian company, applied for permits to drill two 14,000-foot exploratory gas test wells on sensitive wetlands in the BNWR about 1.5 miles west of our community. Initially, BNWR officials told us they were NOT obligated to conduct a NEPA (National Environmental Policy Act) process because Lexam owns the mineral rights underneath the refuge. However, after our lawyers sued, a federal judge instructed the BNWR that they are legally bound to conduct a NEPA process. So on August 17, 2007, the BNWR initiated an Environmental Assessment (EA)/scoping process at a public meeting where they instructed us to submit our concerns in writing and informed us that, by law, they were obligated to address and respond to our concerns in the EA. As you know,

Governor Ritter, NEPA was established to insure public and scientific input to determine whether or not a proposed activity on federal land would result in "significant impacts" to local physical, biological, and cultural environments. Whereas activities with "significant impacts" require full-scale Environmental Impact Statements (EIS), those with "no significant impacts" require the much less comprehensive Environmental Assessment (EA).

On January 18, 2008, the BNWR released the Draft EA, written by ENSR, a private contracting company paid by Lexam. Given this inherent conflict of interest, it is not surprising that the EA is a FONSI ("finding of no significant impact) even though the proposed drilling activity meets all ten criteria for "significant" defined in NEPA. ENSR and BNWR apparently used several devices to justify their FONSI conclusion. The Draft EA: 1) assumes a priori (but never proves) "no significant impacts," 2) ignores the NEPA definition of and overwhelming evidence for "significant impacts," 3) ignores the substantial number of questions and concerns which citizens submitted in writing, 4) does not address impacts at all, and 5) limits the assessment to the drilling of exploratory wells, not acknowledging that this "precedent-setting" activity could result in significant "cumulative" impacts if gas production occurs. Indicative of the conflict of interest here, at the public meeting, William Berg, oil geologist and main author of the Draft EA, challenged our community to prove that drilling would contaminate groundwater. Although it is impossible to prove future occurrences, there is an abundant record of gas drilling accidents that have polluted wells, springs, ponds, etc. Regarding EnCana's gas drilling near Silt, Colorado, for example, Peggy Utesch (Grand Valley Citizen's Alliance) stated, "We know that every day there are accidents in the field - just look at the (COGC) Commission's reports." Indeed, gas-drilling accidents recur worldwide.

The purpose of the BNWR is to restore, enhance, and maintain habitat for wildlife, plants and fish species native to the San Luis Valley. Water is a vital and irreplaceable part of this protection. We believe that we have raised legitimate concerns regarding the adverse impacts to water and the BNWR that have not been addressed through the NEPA process to date. We also believe that some places are best managed for other uses besides energy development and the Baca National Wildlife Refuge is one of them.

BNWR representatives have apparently now redefined NEPA in such a way that their only responsibility is to mitigate Lexam's drilling activities. Thus, it seems that representatives of the BNWR, Lexam, and ENSR view the NEPA process as a "done deal." Whereas we are participating in the NEPA process in good faith, we question whether the USFWS is following the NEPA process honestly and fairly. They did not respond to the many concerns we submitted during the EA/scoping process, as they promised they would. So we are concerned that the comments and concerns we are now submitting to the BNWR during the present public comment period will be ignored, just as they were before. And we are also concerned that in this process, no official group is representing the interest of the most valuable part of the BNWR "estate", which is the water that belongs to the people of Colorado. Finally, we feel that, in this case at least, the property rights of American citizens, the U.S. government (the BNWR), and the state of Colorado (the water) should supersede those of a Canadian corporation. For more information, please check our website: <http://WaterWatchAlliance.googlepages.com>.

Although we know you have many diverse interests to balance, we ask you, Governor Ritter, to please consider helping us protect and preserve this unique, special valley as a NO-GO (No Gas and Oil Drilling) Zone. We urge you to place a moratorium on oil/gas drilling until base-line water studies are conducted on our aquifers to help us understand their importance to this valley and to fulfilling Colorado's commitment to the Rio Grande Basin Compact.

Respectfully yours,

Dr. Eric Karlstrom, Lisa Cyriaks, Chuck Grant, Parvin Johnson, Tom Ontko, Susan N. Vaughan, (Water Watch Alliance)

Cc: Senators Ken Salazar and Wayne Allard, Representative John Salazar, Senator Gail Schwarz, David Neslin (COGCC), Jay Slack (U.S. F&WS), Jim Martin (Colorado Dept. of Public Health), Harris Sherman (Colorado Dept. of Natural Resources), Senators Barack Obama and Hillary Clinton, various newspapers.

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From: Eric Karlstrom <erickarlstrom@fairpoint.net>  
To: Michael Blendon, U.S. Fish and Wildlife Service, Baca\_EA@fws.gov  
Subject: Tweeti Blancett's Talk  
Date: March 28, 2008 8:47:45 AM PST

Hi Mike,

I enjoyed having a chance to talk with you at your office on the last day of the EA comment period. (I'm the one who gave you a big, fat, COLOR printout of my website. I hope it has been useful. And since it was considerably heavier than the Draft EA, I hope you have given it more "weight.") (joke)

I came away from our conversation with the strong sense that you and USFWS really need to assume that Lexam drillers are going to hit a big gas field. I say this because 1) those three wells are already permitted for production and they will automatically start producing if they hit something- without any further NEPA studies, and 2) they have lots of good data, including really good seismic data, to go on.

So again, we need to understand what a "gas boom" looks like. In that regard, it's too bad that you missed Tweeti Blancett's talk in Del Norte last night. She was invited to speak on the gas and oil drilling in the San Juan Basin that has put her ranching family out of business. Of course, she was invited to speak because of the BLM and Forest Service's plan to lease 144,000 more acres to the gas and oil industry in the San Luis Valley. Tweeti made some excellent points in her presentation, which I'll summarize here for you.

- 1) She stated and repeated numerous times: "All the surface water on our old ranch (a BLM lease) is contaminated, rivers, dams, stock ponds, springs, lakes, all of it. Contaminants are everywhere. So we called and asked them to test the water."- But curiously, whereas independent testing showed lots of pollutants, industries reps found no contamination and the government's reps lost the samples. She noted there was never any baseline water quality testing on their rivers.
- 2) There is no enforcement whatsoever of the rules- by federal, state, or local governments.
- 3) Illegal dumping of toxic contaminants is occurring throughout the San Juan Basin because all the legal places to dump toxins are full.
- 4) Our Rocky Mountain West is systematically being destroyed- from Montana to New Mexico, including the Roan Plateau, the Tetons and Yellowstone, etc., etc. (And then we all watched the movie: "A Land Out of Time"- I can send you a copy if you haven't seen it.

- 5) We must be willing to fight. It is our right to fight to protect our land, water, air, lifestyles, etc. We American citizens have standing and must fight for our land- because no one else will. The courts are listening to us.
- 6) There is now a moratorium on drilling in the Galisteo Basin near Sante Fe, NM until they do adequate water studies and get some base line studies on their aquifer- and the potential impacts of drilling to the aquifer. The moratoriums were placed by the Governor and County Commissioners even though leases had already been granted.
- 7) Our main allies include the Salazar brothers and Tom Udall (Congressman in New Mexico) who helped protect 100,000 acres in the Valle Vidal.
- 8). A class action suit for damages in the San Juan Basin would be a waste of money because of the extreme wealth (she mentioned \$8.2 billion) and power of gas and oil companies.
- 9) However, there are currently lawsuits in progress in Lovington, because gas and oil drilling has contaminated the Ogallala aquifer there.
- 10) They've learned that if you don't have forage and clean water for livestock, you won't have it for wildlife either. (They had to stop ranching because their livestock were being poisoned by contaminated water, etc.)
- 11) Government and industry keep federal employees in the dark. We should blame the White House and industry but work with local federal employees because they can be very helpful- and they mean well and typically are as ignorant as we are about what's going on.
- 12) Oil and gas pays great wages- but drugs and alcoholism is rampant wherever they go.
- 13) Government and industry don't treat Indian land any better than the other land.
- 14) Surface Occupancy rules are typically waived.
- 15). Industry is capable of drilling from 14 to 48 holes from one pad using directional drilling. (One oil/gas worker present said his company typically drills wells 15,000 to 20,000' deep using directional drilling).
- 16) Lean on public land people to get safeguards.
- 17) Fumes, haze, smog, and air pollution from the rigs is a real problem, especially in winter when there are temperature inversions, such as we commonly have in the SLV.
- 18) We can ask for a limitation as to how many rigs can operate at one time.
- 19) The BLM and FS lease area includes three big tributaries to the Rio Grande. Polluting these tributaries will pollute the Rio Grande.
- 20) She repeated that, yes, we all need gas and oil, but "At what cost?!!" The health of our natural environment, our communities, our families, and our way of life, etc. are more important than the obscene profits (usually with low severance taxes, as in Colorado). Therefore, there are many places that should be off limits to oil/gas drilling.

21) But the Bush/Cheney administration is in bed with the gas/oil industry that they are now doing everything they can to get into all the best, most beautiful places now, knowing that when their term is up conditions may not be as favorable to industry.

I hope this helps you visualize what could happen to the BNWR and the entire SLV if a gas boom were to happen here.

Again, if you'd like to see the excellent movie - A Land Out of Time- that shows the scope and damage of drilling throughout the West- let me know and I'll be happy to loan you my copy.

Cheers and best,

Dr. Eric Karlstrom  
Water Watch Alliance

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From: Eric Karlstrom <[erickarlstrom@fairpoint.net](mailto:erickarlstrom@fairpoint.net)>  
Date: March 28, 2008 7:09:17 AM PST  
Subject: concerns about agenda 21 and "sustainable growth" process

Hello neighbors,

I am increasingly concerned about the issues raised in these attached articles- and how they may pertain to our community. If you look at the diagrams in this first article: "Sustainable Trouble: The attempt to Transform the Vision of America"- we see that there is are concerted efforts on the part of the ruling elite to use the Hegelian dialectic ("thesis-antithesis-synthesis" or put another way, "problem-reaction-solution") to bring our country under their complete tyranny. Notice that all the arrows lead to tyranny. Their immediate goal is to lock up about 50% of America's land in the hands of the feds (this is UN-devised, and American-adopted- under Clinton- "Agenda 21") in order to control all resources- land, water, energy, food, etc. Coincidentally(?), this also happens to be the strategic goal of all warfare. And all this is very cleverly done with facilitators with smiley faces, a game plan, and lots of subterfuge. As Sun Tzu said: "All warfare is based on deception." Could this be happening here? Sure it could. (<http://www.freedom21santacruz.net/site/article.php?sid=247>). Here are a couple other articles that pertain to Agenda 21- the consensus process. My feeling is we are being scammed here. Let's not let it happen, OK?  
<http://www.freedom21santacruz.net/site/article.php?sid=379>

<http://www.freedom21santacruz.net/site/article.php?sid=5>

<http://www.freedom21santacruz.net/site/article.php?sid=443>

So it might be a good idea to print these out and look them over- kind of to inoculate ourselves to the techniques described. We certainly don't ever "all have to speak with one voice"- as some in our community keep trying to advise us. The basis of democracy is we all speak our own minds and our own thoughts. Otherwise..... tyranny.

Cheers and top of the morning to you,

Eric Karlstrom  
Water Watch Alliance



1. The information on this page is provided as a service to the public. It is not intended to be used as a substitute for professional advice. The information is provided as a service to the public and is not intended to be used as a substitute for professional advice. The information is provided as a service to the public and is not intended to be used as a substitute for professional advice.

## *Archives-2: My Articles and Reports Related to Proposed Gas Drilling*

### ***Our Visit to Silt with Peggy Utesch of the Grand Valley Citizen's Alliance (10/28/06).***

By Eric Karlstrom

Attending were Eric Karlstrom David Bright, MacKenzie Trujillo, and Maya Madrigal of the San Luis Valley Citizen's Alliance (SLVCA).

We met Peggy for breakfast at 8:30 am at the Newcastle Diner and discussed general issues and asked questions that we had prepared for her.

From that breakfast discussion we learned:

1) Answer to Vince and Mary's questions: Did Peggy and Drilling Co. address water questions before they started drilling? Yes, they had a community development plan.

2) Was there a change in the water quality after drilling? Yes. 17 water wells were wrecked. These occurred along a fault line- where gas was coming up through the fault line. Among these is the West Divid Gas Seep (EnCana was fined \$370,000- largest fine ever by Colorado Oil and Gas Conservation Board. After fracking, total dissolved solids went off the scale. Drilling caused water shaking in wells, massive increase in iron-bearing bacteria, higher B-tex levels (carcinogens).

3) Did they do anything about it? No

4) Re: information on old wells, Call Tweeti Blancett, of San Juan Basin, NM

5) What would Peggy do differently? She wishes she had understood how the laws were on their side, and how corrupt the government is at all levels, local, state and federal, with key officials on the take from industry. Therefore, need to act more pro-actively rather than re-actively. Need to quickly connect with all available resources, environmental groups, legal council, water experts, hydrogeology experts, spiritual and native American groups, etc.

6) What about air and water quality?

Re: air quality, ground-level ozone is emitted by drilling on every pad. Each pad needs a special permit to exceed air quality standards required by the state and the feds. After gas comes to surface, a dehydrator is used to separate the gas from the condensate, which includes volatile carcinogens - B-tex- (benzene, ethyl benzene, xylene, toluene), fracking fluids, water. Ozone is heavier than air and sinks into low lying areas- cause of goat herds, especially kids, dying. 1/2 of goat kids were stillborn on a ranch about 5 miles south of Silt where Encana has many wells operating.

A Colorado Bill (2004) limits ground level ozone that comes off condensate tanks, Check EPA website, ground level ozone is the #1 cause of asthma, also causes significant crop damage, and damage to animals, etc. Check Colorado Air Quality Coalition. Pollutants also lodge in body fat. Women at greater risk than men.

Re: water quality, they use propylene glycol (an antifreeze)- on the well pads, which is fatal for animals, so these areas need to be fenced (but aren't). Also B-tex (carcinogens) has been found in some contaminated wells and in grab samples for air quality.

7) What about the "boom town" syndrome? Typically, after the gas co. creates a problem (for example, a fatality occurred when a drunk Encana employee had a head-on collision around a blind curve, "dead man's curve", the local tax payers pay to fix the road. This pattern repeats in many ways, with local communities paying for extra schools, roads, etc. that industry needs to function. Then when industry leaves,...

8) What are the chances that test wells will contaminate the aquifer (unconfined, and confined)? Pretty good chance, check with local hydrogeologists, insist on closed-loop water system, and concrete casing from top to bottom of well.

9) What are chances commercial production will contaminate aquifer? High, based on Peggy's experiences.

10) How can we "get them?" Peggy says: Bad PR, everytime there's an accident, report it, put it in paper, get everything in writing, hold them accountable for everything, their Achilles Heel is money. If we knick away at their profits, through law suits, delays, EIS's, tie them up in court, etc. this costs them money and may make them want to cave in.

11) We need a strategic plan.

Our 3-hour field trip about 5 miles south of Silt and onto Harris and Grass Mesas.

After breakfast at the New Castle Diner, five of us loaded into Peggy Utresh's small Honda civic and began our tour of gas wells about five miles south of Silt. Peggy drove us to the area where she had lived prior to gas drilling by Antero, which began in 2003. We saw and photographed many gas wells and associated well pads with their typical assemblage of dehydrators, condensate tanks, gas pipelines, etc. The wells and well pads are situated throughout beautiful rural communities with widely dispersed homes, cattle, horses, and goats. Sometimes a single house was surrounded by several well pads. The pads themselves were simply comprised of scrapped earth and were typically about 1 acre diameter and were not paved. We also saw a number of lined ponds designed to hold drilling fluids and other wastes.

Peggy related that she herself had suffered extreme (full body) skin rashes from the air pollution (ozone and B-tex, among other things) and therefore, had more or less been forced to sell her home and move to nearby Newcastle. Three of the four of us visitors from Crestone also experienced strong reactions to the air pollution immediately next to her old house. Our symptoms included dizziness, nausea, watering of the eyes, headaches, etc. We could smell the pollution in some areas, as well as see the damage it has been caused to local vegetation.

Many large gas trucks were driving on the mostly dirt roads, as well as some large red Halliburton trucks, and many smaller service vehicles. In our 3-hour drive, we were followed by four different industry pick-up trucks. One of these parked in the middle of a road next to a gas well, blocking our access. Another one pulled along side our vehicle and asked if there were any problems. Clearly, they were nervous about our taking pictures of their activities and were engaged in some mild intimidation. Peggy guessed that all four were driven by supervisors who were in radio or walky-talky contact with each other.

Misc. "bigger context" facts.

1) On May 18, 2001, George W. Bush signed Executive Order 13212 (Actions to Expedite Energy Related Projects) which ordered all government agencies to put new oil, gas, and coal projects on a fast-track, priority footing. The new m.o. is to facilitate rather than regulate the energy industry. At the same time, the Bush administration drastically cut

funding to federal agencies and regulatory agencies, who then are too short-staffed and underfunded to enforce the existing laws that protect communities and the environment. So we might as well not have the laws. Peggy notes that a study showed that 90% of the changes local people wanted to see were already in the existing rules and laws- but these were not enforced. So the federal agencies typically pull people off of inspection duties and so they can concentrate on issuing more permits. Due to lack of staff, it is physically impossible for regulatory agencies to do the amount of inspecting that is needed and required.

2) A typical "play" is about 30 years, but the most gas comes out in the first 5 to 7 years. The Big companies take the best and leave, then small guys come in take the rest and leave without cleaning up the mess because it's cheaper. Then typically the tax payers pay to clean up the abandoned equipment, separator units that have to be moved, soils that need reclaiming and ground that needs reseeding.

3) We need to look at Federal Energy Bill to see what kind of technologies they are using.

4) Industry should pay for extra roads and fixing roads damaged by their impacts, haz-mat response, extra schools, and we should get them to do cluster drilling, (1 pad/square mile- with 32 to 64 wells)

5) It costs about \$1 to 1.5 million to drill a well, and they get back at least 10 times that much.

6) There is now a complete moratorium on drilling in the confined aquifer (Bob Kirkham). Surface water rights are senior and gw rights are junior. State engineers office issued too many permits for water wells in the 50s, 60s, and 70s, but the state is not helping to solve the problem.

#### Important organizations and individuals:

1) Western Organization of Resource Councils

Kevin Williams, Montrose, CO (970-323-6849)

2) Rocky Mountain Clean Air Action

3) Skytruth- photos from air planes.

4) Wilderness Society- Steve Smith (Assoc. Director), Glenwood Springs,  
phone: 970-945-4490, fax- 970-945-8596.

5) Sierra Club- Yvonne Peters, Todd Momsbury (economic analyst)

6) Mayor of Rifle, Keith Lambert- 970-625-5122 (email: [lambert2004@msn.com](mailto:lambert2004@msn.com))

Allen Lambert, Rifle City Council, [www.dividecreek@sopris.net](http://www.dividecreek@sopris.net)

970-625-9550

Rick Aluise- town planner, Silt, [Rick@townofsilt.org](mailto:Rick@townofsilt.org), 970-876-2353.

7) Western Governor's Association- [www.westgov.org](http://www.westgov.org)

Has printed up 8 best practices for oil and gas

8) Center for the American West- UC Boulder, also describes best practices. [www.centerwest.org](http://www.centerwest.org)

[www.ogap.org](http://www.ogap.org)

[www.worc.org](http://www.worc.org)

9) Colorado Geological Survey, Groundwater Section Matt Sayers (303-866-2073) and Peter Barkmann\*  
(303-866-2002) and [peter.barkmann@state.co.us](mailto:peter.barkmann@state.co.us)

Ask Barkmann about potential gw problems from oil and gas development (he's the expert on local hydrogeology in this area) issues about brine and water disposal.

10) Tweeti Blancett- NM 505-334-1200

11) Grand Valley Citizens' Alliance, Grassroots Community Action, P.O. Box 54, Silt, CO, 970-876-0430 or 970-285-2250 (Peggy Utresch's organization and numbers).

12) Colorado Geological Survey, Groundwater Section, Matt Sayers (303-866-2073) and Peter Barkmann (303-866-2002)

13) Coalition for the Valle Vidal ([www.vallevidal.org](http://www.vallevidal.org)).

- 13). Mike Sullivan, Colorado Water District (?).
- 14) High Country News. Paonia, CO. Tom Bell. P.O. Box 1090 Paonia, CO 81428-9989.
15. NOW. PBS. David Bronkocio.

Documents that Peggy shared with us:

- 1) COGCC Regs (10/06)
- 2) Filling the Gaps: How to Improve Oil and Gas Reclamation and Reduce Taxpayer Liability, a publication by the Western Organization of Resource Councils, August, 2005.
- 3) Management Guidelines for Oil and Gas Development (August 4, 2005) Colorado Mule Deer Association.
- 4) Law and Order in the Oil and Gas Fields; A Review of Inspection and Enforcement Programs in Five Western States, A report by the Western Organization of Resource Councils, November, 2004.
- 5) Air Pollution Control Division Regulation Proposals: Oil and Gas Emissions, Western Colorado Congress, An Alliance for Community Action.
- 6) Resolution to Protect Colorado's Air from Oil and Gas Production Emissions, a petition.
- 7) Oil and Gas at Your Door,

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## ***Background Information on Lexam's Drill Play in the "Crestone Prospect"***

By Eric Karlstrom- 10/31/06

### Introduction:

Oil and gas is the single richest industry in the world, worth well over \$1 trillion/year. Over 2 million oil and gas wells have been drilled in the U.S. As of 2002, there were about 520,000 producing oil wells and 360,000 producing gas wells here. That number is expected to double by 2012. The San Juan Basin of New Mexico has over 18,000 wells, with the Bureau of Land Management (BLM) proposing an additional 12,500 wells in just one portion of the basin. By some estimates, at least half of the natural gas that can be produced in the U.S. has already been burned. Because consumption has outpaced production, the nation now imports over 15% of the natural gas it uses. As supplies dwindle and demand soars, prices have also soared; natural gas prices skyrocketed 400% in the year 2000 alone. The federal government is providing huge subsidies to the gas extraction industry. Our cheap, abundant, and supposedly "clean" fuel of choice has now become expensive both in terms of dollars and damage to communities and to the environment.

Along with the boom in gas and oil comes a vast grid of associated infrastructure: wells, well pads, roads, power line and pipeline corridors, waste water impoundments, compressor stations, processing plants, and other facilities. This development is significantly affecting public and private lands, water resources, crops and soils, air quality, and property values. The impacts on people, communities, and the environment are often dismissed as "collateral damage" by the present administration and the federal and state regulatory agencies involved in the permitting process (Kuipers and Associates, 2005).

As a matter of fairness, when an oil or gas company's actions result in expensive damages to land, water supplies, and other natural resources, the burden of cleanup should be borne by the company, not taxpayers or landowners. However, companies often cut corners in the exploration, production, and cleanup phases of their operations in order to

maximize their profits and "externalize" their losses.

Peggy Utresch of the Grand Valley Citizen's Alliance notes that, generally speaking, you can't hope to sue oil and gas companies because all the laws are in their favor, based on over 100 years of legal precedents. In fact, we are dealing with an entrenched system of state-supported monopoly capitalism that goes back to the very beginning of the oil industry, when John D. Rockefeller gained control of 90% of the oil industry by 1880 (Wasserman, 1994). When the state uses its power to protect the interests of private profiteers over those of its citizens, the form of government shifts from that of democracy to that of fascism.

**Fascism should more properly be called "corporatism", since it is the merger of state and corporate power.**

**Italian (fascist) dictator, Benito**

**Mussolini**

**We stand for the maintenance of private property.... We shall protect free enterprise as the most expedient, or rather the sole possible economic order.**

**Adolf**

**Hitler**

**Free enterprise refers in practice to a system of public subsidy and private profit with massive government intervention in the economy to maintain a welfare state for the rich.**

**Noam**

**Chomsky**

**Capitalism boils down to this: Privatization of profits, socialization of losses.**

**Istvan Meszaros,**

**economist**

**The real truth of the matter is, as you and I know, that a financial element in the large centers has owned the government ever since the days of Andrew Jackson.**

**Franklin D. Roosevelt,**

**1933**

**The liberty of democracy is not safe if the people tolerate the growth of private power to a point where it becomes stronger than their democratic state itself. That, in its essence, is fascism- ownership of government by an individual, by a group or by any controlling private power.**

**Franklin D. Roosevelt, 32nd**

**President**

**This is a government of the people, by the people, and for the people no longer. It is a government of corporations, by corporations, and for corporations.**

**Rutherford B. Hayes, 19th**

**President**

**We can have democracy in this country, or we can have great wealth concentrated in the hands of a few, but we can't have both.**

**Louis Brandeis, US Supreme Court Justice**

#### I) The Bush administration and scope of gas/oil mining in Colorado and the Rockies

On May 18, 2001, George W. Bush signed Executive Order 13212 (Actions to Expedite Energy Related Projects) which ordered all government agencies to put new oil, gas, and coal projects on a fast-track, priority footing. The new policy is to facilitate rather than regulate the energy industry. At the same time, the Bush administration drastically cut funding to federal agencies and regulatory agencies, so they are now too short-staffed and under-funded to enforce the existing laws that regulate industry and protect communities and the environment. So we might as well not have the laws. Peggy Utresch of GVCA notes that a study showed that 90% of the changes local people wanted to see were already in the existing rules and laws, but these laws were not being enforced. Typically, federal agencies now pull people off of inspection duties and so they can concentrate on issuing more oil and gas permits. And due to lack of staff, it is physically impossible for regulatory agencies to do the amount of inspecting that is needed and required.

> The Colorado Oil and Natural Gas Conservation Commission is issuing the highest number of new permits for oil and gas wells ever- 5400 in 2006 vs. 2917 in 2004. Colorado now has about 30,000 active wells and another 40,000 that have been plugged and abandoned.

#### II. Oil and Gas drilling on public lands

> Source: Darin, Thomas and Stills, Travis. Preserving our Public Lands: A Citizens Guide to Understanding and Participating in Oil and Gas Decisions Affecting our Public Lands. "The Life Cycle of an Oil or Gas Well"

Physical exploration involves drilling of "wildcat wells" to determine both the location and size of potential deposits. Upon discovery of an economically viable field, a "full field development" plan is implemented with spacing of wells and other production concerns set out in a variety of corporate, local, state and federal proceedings.

The oil or gas field is then developed site-by-site with the drilling of production wells. Pipelines, treatment facilities, compression stations, and a variety of other production infrastructure facilities are constructed at the well site to extract the raw oil and gas, separate the saleable materials, prepare for transporting the oil and gas to market, and dispose of wastes and by-products. Gathering pipelines lead to centralized field facilities for further treatment, compression and waste disposal. From there, transportation pipelines are used to ship oil and gas products. The field is operated for decades with daily maintenance checks and frequent construction work required to keep these industrial facilities operating. Production data is constantly gathered during the full field development and can lead to changes in well-spacing and operations requirements. However, little data is gathered on the environmental impacts of production, treatment and transportation.

Eventually, the oil or gas sources are drained and fall below profitable flow levels.

The wells are then "abandoned." The abandonment phase includes plugging wells, removing infrastructure, and, in theory, returning the land back to the condition that existed before full field development. Since each of these phases can have detrimental impacts on the surrounding environment, the ability to return the land and water to the condition before full field development is still a theory that has not been proven on the ground. "Plugging and abandonment" is an industry term that refers to the stage at which a well becomes uneconomic to operate and is therefore abandoned. Once production ends, the well is capped. This involves placing cement plugs into the wellbore and at the surface. Abandoned wells are the source of numerous water well contaminations.

Instead of properly plugging and abandoning wells, many companies just walk away from uneconomic wells by selling them to undercapitalized corporations near the end of the profitable stages of the lifecycle of the well. These are termed "orphan wells" and become the responsibility of the federal agency and ultimately that of the taxpayer. In a survey completed by the BLM in 2001, it was reported that dozens of orphaned wells have been left behind on western public lands, leaving everyday taxpayers on the hook to clean up industry's mess. Current bonding requirements are inadequate to ensure that orphaned wells are properly plugged and abandoned.

Although a typical "play" is about 30 years, most gas comes out in the first 5 to 7 years. The Big companies take the best and leave, then smaller companies come in to take the rest and leave, often without cleaning up the mess because it's cheaper. The taxpayers then pay to clean up the abandoned equipment, separator units that have to be moved, soils that need reclaiming and ground that needs reseeding, etc..

It costs about \$1 to 1.5 million to drill a well, and industry gets back at least 10 times that much.

### III. Geographical/geological context of the San Luis Basin

1) The Baca Grant property (100,000 acres) is part of the San Luis Basin, a graben that extends north of the Rio Grande Rift in New Mexico. The basin includes two half grabens, the western Monte Vista Graben and the eastern Baca Graben, separated by the Alamosa Horst. Depth to Precambrian basement rocks in the Baca Graben is estimated at about 14,000 feet. Sediments and sedimentary rocks within the Baca Graben include, from top down, the Pliocene to Pleistocene Alamosa Formation and the Miocene Santa Fe Formation, as well as possibly Mesozoic sedimentary rocks (Cretaceous Mancos Shale and Dakota Sandstone, and Jurassic Morrison Formation) and Permo-Pennsylvanian sedimentary rocks of the Sangre de Cristo Formation. Mesozoic sediments, if present, would provide the "source rock" or "reservoir rock" for gas and oil. There are two small outcrops of Mesozoic sediments near the eastern margin of the basin.

Depositional context of Mesozoic Rocks: About 65 million years ago, there was a major invasion of ocean into Colorado, which extended from the Wet Valley, across the area of the modern Sangre de Cristo Mountains and the San Luis Valley to present-day Durango, leaving beach lines and marine shales. Climate was very hot and wet at that time, and huge, peat swamps developed behind the beaches, much like the Amazon River area today. However, most of these rocks were stripped away by erosion during the Laramide Orogeny some 65 to 55 mya..

2) Until recently, it was believed there were essentially no Mesozoic sediments in the San Luis Basin. In his 1991 lecture notes, Colorado College geology professor William Fischer stated:

On the east side of the range, in an overturned anticline at Loco Hill, there are small exposures of Jurassic Entrada sandstone and Morrison shale: no record of either Triassic or Cretaceous time is known. Beginning in late Cretaceous time and extending into the Eocene the region was subjected to intense compression creating anticlinal and synclinal



folds that were subsequently cut by numerous west dipping low angle thrust faults. Crustal shortening within the range is estimated at 8 km at the latitude of Westcliffe and 14 km near the latitude of the Great Sand Dunes. This mountain building event is known as the Laramide Orogeny and crustal compression appears to have been mostly unidirectional and from the west. From this time and up to the present, the area has remained continental.

Beginning in Oligocene time (ca. 36 mya), the stress pattern shifted from crustal compression to crustal extension. Plate tectonic models visualize either a spreading center or a mantle plume developing pull apart forces which create normal high angle faults on either side of the range, the Sangre de Cristo fault on the west and the Alvarado fault on the east. Between these bounding faults the Sangre de Cristo horst began to rise as the San Luis Graben subsided, thus marking the inception of the Rio Grande Rift. With continued uplift of the mountains and subsidence of the San Luis Basin, we end up with about 28,000 feet of basin fill adjoining peaks that are in excess of 14,000 above sea level...

Since the inception of rifting, the San Luis Basin has been subsiding as it was filled with alluvium. All streams draining the mountains disappear in the alluvial fill, thus creating the vast reserves of ground water.

3) But in the early to mid 1980's, oil geologists investigated the valley between Monte Vista and Wolf Creek Pass and between Crestone and the Great Sand Dunes, and started finding Mesozoic Rocks. Then, 27 of 42 shallow exploration drillholes drilled by Challenger Gold Inc. in 1992 and 1993 encountered oil in "fractured Precambrian rocks and Mesozoic sediments." 17 of these hit Mesozoic sediments that occur as rotated fault blocks in the hanging wall of the basin-bounding detachment fault. Geological consultants from Toronto (WGM) believe that the seismic character of basin rocks are "remarkably similar" to that of the San Juan Sag to the west (where Mancos-Dakota-Morrison are present) and the Raton basin to the east.

#### IV) History of Lexam – ([www.lexamexplorations.com](http://www.lexamexplorations.com)) and its "drill play on the Baca Wildlife Refuge"

1) Lexam Explorations Inc. (Lexam) is a Toronto, Canada-based, exploration company that incorporated in 1983. It changed its name from Challenger Gold to Lexam when it went public.

2) Lexam's management team, headed by Canadian billionaire Rob McEwen, former CEO (and current largest shareholder) of Canada's Goldcorp Inc. and now head of U.S. Gold, oversaw development of Red Lake Mine, Canada's largest gold mine.

3) Lexam purchased 50% of the hard mineral rights from Baca Minerals in 1987 and the other 50% of the oil and gas rights on the Luis Maria Baca Grant No. 4 from Newhall Land and Farming Company for \$1 million. It acquired the additional 25% of the oil and gas rights from the Baca Corporation in 1996 from Gary Boyce for \$1 million. Lexam also owns various interests in varying percentages of the hard mineral and oil and gas rights on land to the north and west of the Grant. The remaining 25% of oil and gas rights is owned by ConocoPhillips. But there is currently no agreement between Lexam and ConocoPhillips.

4) Lexam acquired surface access and use by fee simple ownership and a Surface Use Agreement with American Water Development, Inc. (AWDI) in 1992 for \$1 million. This agreement is a 20-year paid-up lease that is binding on surface owners who may be successors in ownership to AWDI. This agreement can be extended if there is production on the property.

5) Surface rights are currently owned by the Nature Conservancy, but there is an intent to eventually convey ownership of the surface to the Federal Government (USFWS and NPS).

6) To date, there is no indication the Federal Government wants to acquire Lexam's mineral rights.

7) Rob McEwen purchased Goldcorp's 49.8% of Lexam in August, 2005, for \$400,000 (Canadian) or 2 cents a share. As of July, 2006, that share is worth \$12 million.

8) Drilling of two new, 14,000 exploratory wells on the Crestone East Prospect (Baca #5 and # 6 wells) are considered high risk ("wildcat"), but Lexam believes there is significant potential of discovering large amounts of gas and oil in the San Luis Basin. This depends upon two main "risk factors:" 1) the presence of favorable source rock (mainly Cretaceous Mancos Shale and Dakota Sandstone) and sealed traps. To determine actual presence of the various factors requires drilling.

9) Lexam is now applying for permits from the Colorado Oil and Gas Conservation Commission to drill these two 14,000 test wells in the deepest part of the basin that has never been drilled. Details include reclamation plan, processes to be used, protections to be offered/required, proposed well design, etc..

10) Lexam plans to spend about US \$1.4 million to conduct 3D seismic survey (slated for January or February, 2006) and another US \$8.5 million on drilling the two exploratory wells (slated for late 2007 or early 2008).

11) Currently, Lexam owns the subsurface mineral rights and the U.S. government (USFWS) owns the surface and water rights.

#### A. History of the "Crestone Prospect"

1) Again, conventional geological wisdom up to about 1992, as shown in a geological X-section by Ogden Tweto (1979), was that the eastern part of the San Luis Basin (the Baca Graben) was underlain by about 4 km of Tertiary and Quaternary alluvial fill overlying Precambrian bedrock. It was believed that there were no Mesozoic rocks in this area because regional uplift and folding and faulting during the Laramide orogeny resulted in more erosion than deposition of sediments.

2) In 1992 and 1993, however, Challenger Gold drilled a number of exploratory wells and got "strong shows of oil" in 27 drillholes. Cretaceous Mancos Shale and Dakota Group and Jurassic Morrison Fm. rocks were identified in outcrop and in 17 shallow drillholes. Of these, Mancos Shale is thought to be an excellent source rock and Dakota Sandstone is thought to be sufficiently porous (15-21%) to hold commercial quantities of gas and oil.

3) In 1995, Lexam drilled the Baca #1 and Baca #2 wells and confirmed the presence of the Cretaceous section on the Deadman Creek block. The strongest shows of oil were in Baca #2 well at 6,620 feet in the Tertiary Sante Fe Fm., the Mancos Shale and in Precambrian gneiss.

4) In 1996, Lexam acquired 20 miles of seismic data and 221 gravity data points, which strongly support the presence of a thick Cretaceous to Jurassic section in the Baca Graben. Integrating this seismic data with previous seismic data, they were able to delineate a large structural closure (the Crestone Prospect) at 7000 to 12,000 feet, with both trap types present.

5) In 1998, SONAT acquired 31 miles of 2D seismic data over the Crestone Prospect which also confirms closure of Crestone structures.

6) In 1999, SONAT relinquished its option agreement on this seismic data with Lexam. (why?)\*.

7) In 1999 - 2000, Lexam acquired and reinterpreted seismic line CF-8402 that suggests gas in Tertiary sediments above the Crestone Prospect.

8) In 2002-2004, Petro-Hunt acquired, processed and interpreted another 60 miles of 2D seismic data in 2004 and bought and reinterpreted another 50 miles of Chevron 2D seismic data. Petro-Hunt relinquished this option to Lexam in December, 2004.\*\*

9) In March 2005, Lexam purchased this seismic data for \$419,000, which indicates that "closure" (i.e., a trap) is better defined for the Crestone East block than the Crestone West block.

10) Today, Lexam's primary targets are the Crestone East (4060 acres) and Crestone West (6,945 acres) prospects located in NW quadrant of their property. In addition, at Pole Creek (SE part of Baca Land Grant), a shallow 1.3-acre oil target is present in land overseen by the NPS.

11) WGM consultants from Toronto\* believe that the Baca Graben contains Mesozoic rocks about 3000 feet thick at

depths of 7000 to 17,000 feet. Two types of structural traps have been mapped seismically: closed-structure anticlines and rotated fault blocks close to the margin of the basin. WGM notes that all basins surrounding the San Luis Basin with Cretaceous rocks at depth (over 8000 feet) have significant oil and gas accumulations. These include the San Juan, D-J, Raton, and Piceance Basins. (The San Juan Basin has produced over 25 trillion cubic feet of gas.)

12) Lexam hopes that over 100 and up to 550 square miles of the Crestone sub-basin contains a 2000 to 3000 ft. thick package of Cretaceous rocks at depths of 7000 to 17,000 feet.

\* You have to wonder why Lexam did not use local consultants.....

\*\* You have to wonder why Sonat and Petro-Hunt sold their seismic data if the results were so promising.

\*\*\* Also note the list of players includes AWDI (Maurice Strong), the Baca Corporation (Gary Boyce), Baca Minerals, Petro-Hunt, Chevron, SONAT, Conoco-Phillips, Nature Conservancy, and the Federal Government (USFWS).

#### B. Primary risk factors of the project for Lexam

Their risk factors-

- 1) Presence or absence of favorable reservoir rock is not known.
- 2) Do the interpreted structures (anticline and rotated fault blocks) constitute "sealed traps" that would hold the gas/oil?
- 3) They are still raising funds for the exploratory drilling and 3-D seismic investigations (about \$12 million required).
- 4) McEwen is currently engaged in a legal battle with Goldcorp.
- 5) The nearest gas pipelines are 30 miles away. Lexam would either have to truck it out or build pipelines.

More potential risk factors for Lexam

- 6) Identification of threatened or endangered species on Wildlife Refuge or federal requirement of conducting an environmental impact statement (EIS). Potential law suit from Malville, etc.
- 7) Cultural Resource Survey along the seismic lines, to be conducted by Maria, Inc. of Laramie Wyoming, could identify native American sites that would require either excavation or protection under federal laws.
- 8) Possible law suits by Rio Grande Water Conservation District to protect quality of aquifer for local farmers and downstream users.
- 9) Community input in the permitting process.
- 10) Potential law suits from spiritual groups or native American advocacy groups pertaining to Executive Order 13007 (1996) and the 1978 American Indian Religious Freedom Act which are meant to protect unimpeded access to sacred sites.

#### V) The Baca National Wildlife Refuge and Great Sand Dunes National Park

On November 22, 2000, Congress authorized the establishment of the Baca National Wildlife Refuge (BNWR) in the San Luis Valley of Colorado. Authorization for establishment of the Refuge was included in Public Law 106-530 under Section 6 of the Act entitled, "The Great Sand Dunes National Park and Preserve Act of 2000." In addition to the Refuge, the Act authorized the Federal acquisition of lands adjacent to the Great Sand Dunes National Monument for the Great Sand Dunes National Park and Preserve. In approving The Great Sand Dunes National Park and Preserve Act of 2000, Congress determined that the lands to be acquired under the Act offered unique hydrological, educational, wildlife, recreational, and other diverse resources deserving preservation for the enjoyment of future generations.

Situated in the heart of the southern Colorado Sangre de Cristo mountain range and the San Luis Valley, the highest desert valley in North America, is the historic Luis Maria Baca Ranch. The 2004 purchase of this property, in addition to adding to Rio Grande National Forest, established the Great Sand Dunes National Park and Baca National Wildlife Refuge. The Nature Conservancy was integral to the purchase and transfer of property in the complex negotiations, due to their recognition of the value of the water rights associated with the surface rights. The San Luis Valley confined and unconfined aquifers have been the source of a large body of research, and are shown to be responsible for the creation and maintenance of the Great Sand Dune complex. This precious water resource provides for sensitive wildlife including over 70 species of rare plants and animals, valley agriculture, and water usage throughout the Rio Grande region.

Rare flora and fauna, some found nowhere else in the world include, the Great Sand Dunes tiger beetle, giant sand treader cricket, Rio Grande cutthroat trout, southwestern willow flycatcher, and *Cleome multicaulis* or slender spiderflower. Other species found in the area include bald eagle, sandhill crane, pronghorn antelope, elk, mule deer, bighorn sheep, mountain goats, mountain lion, and black bear.

The Baca National Wildlife Refuge, managed by the U.S. Fish and Wildlife Service (USFWS), as the surface right holders of the proposed area of drilling and seismic testing, is working with Lexam representatives to negotiate protections for the Refuge. Also, the Sonoran Institute has been mediating conversations between USFWS and the local Crestone/Baca Grande community. The USFWS will be taking the compiled community concerns to Lexam. It is the position of USFWS that it "will not attempt to stop Lexam from exercising their right to explore for oil and/or gas on those portions of the Baca NWR which Lexam owns the subsurface rights to." The primary concern of USFWS is "the potential for long-term irreversible damage to environment and will work to prevent these above all other concerns."

#### VI) The Mineral rights

The mineral rights, including oil, gas and hard minerals, connected to the Baca Ranch had been purchased by Lexam Explorations, Inc., in two separate fee-simple \$1m deals in 1987, and comprise approximately 100,000 acres of sub-surface area.

#### VII) The Permitting Process

##### A. Application for Permit-

Lexam has already submitted two applications to the Colorado Oil and Gas Conservation Commission, for 3D seismic testing and two 14,000' test wells. Details include reclamation plan, processes used, proposed well design, protections to be offered or required, and existing geological information from shallow and deep water wells and previous Lexam tests.

Note: COGCC anticipates 5400 permits in 2006 vs. 2917 in 2004, and has not yet begun processing applications for permits.

1. USFWS-(Ron Garcia), to approach the operator (Lexam) formally with requests.
2. USFWS receives formal approval, or not, from Lexam of requests.
3. If approved, forward requests to COGCC, to include as a condition.
4. If not approved, USFWS appeal to COGCC to consider as conditions to the permit.
5. Lexam could appeal or comply.

6. Notice is required for the start of drilling, beginning of casing operations.

#### B. PERMIT CONDITIONS

- Best Management Practices (BMP)
- Bond Amount
- Surface Disturbance
- Reclamation Plan
- Water Quality Monitoring
- Drilling 1.5-2mi from residence and subject to light and noise mitigation, dust control, proper handling of drilling waste.

Requests from Ron Garcia (BNWR) (10/09/06)

Subject: Priority Negotiation Items for Proposed Oil/Gas Exploration on Baca NWR

From: Ron Garcia, Refuge Manager, Baca National Wildlife Refuge

- Seismic Operations (mostly already negotiated)
  - Controlled activity in ecologically sensitive areas.
  - Complete avoidance of identified "extremely sensitive" areas documented on any/all seismic lines (source/receiver) during actual seismic surveys.
  - Actual seismic data gathering only during heavy freeze (Dec.-Feb.)
  - Disinfected equipment/vehicles only
  - ATV's or foot access only in wet areas
  - Archeological surveying of ALL proposed seismic lines, (source & receiver)
  - Avoidance of all recorded significant cultural sites documented.
- Drilling Operations
  - Complete avoidance of wet meadow and other wetlands with ANY drilling related operations
  - Closed loop drilling process vs. exposed open pit. Will require disposal of drilling cuttings and mud OFFSITE at an approved facility.
  - Increased measures taken during drilling/development of wells to eliminate risk of seepage between water containing layers.
  - Approved long and short term water quality monitoring of both confined and unconfined aquifers.
  - Complete avoidance of all surface water conveyance channels/ditches.
  - Any roads and other disturbance through operations will be restored to pre-operation condition.
  - Longer term invasive species control and monitoring on all disturbed and rehabilitated sites.
  - Disinfected equipment/vehicles only.
  - Archeological surveying of ALL proposed areas of activity
  - Avoidance of all recorded significant cultural sites documented.

#### VII. Our Community, the Baca, Crestone, and SLV

##### A. BACA GRANDE PROPERTY OWNERS ASSOCIATION (POA)

-An association for a residential community of artists, healers, natural builders, spiritual practitioners, retirees, and people seeking a simple country life based on values of ecological, spiritual and sustainable living. A national center of alternative home building, home to several international spiritual centers and spiritual leaders, and dedicated to preservation of local ecology and wildlife. The Baca Grande is neighbor to the historic town of Crestone, and part of the

historic Luis Maria Baca Grant bestowed by colonial Spanish authority, that has in majority become the above mentioned Baca National Wildlife Refuge and Great Sand Dunes National Park.

#### B. San Luis Valley Citizen's Alliance (SLVCA)

#### VIII) The groundwater (aquifer)-

The San Luis Valley is composed of sediment up to 30,000 feet in thickness. Several layers of lava flows are interbedded within these sediments. In addition, an impermeable layer of clay, 10 to 80 feet thick, is present throughout the central and northern valley. The clay layer (an aquiclude) blocks the downward movement of water. The clay layer, at depths of 50 to 130 feet underground, creates two separate aquifers. Both aquifers yield large quantities of water. The lower aquifer is confined. The uppermost aquifer is unconfined and lies above the clay lens. This results in a relatively high water table (less than 12 feet to water) throughout half of the valley. Both the confined and the unconfined aquifers are composed of unconsolidated clay, silt, sand, and gravel. The confined aquifer is interbedded with the layers of lava flows.

(Source: Pearl, Richard Howard. Geology of Ground Water Resources in Colorado. Denver: Colorado Geological Survey, Department of Natural Resources, 1974.)

There are about 7000 water wells in the San Luis Valley, of which about 1800 are "deep wells." The danger of leaking contaminants irrevocably polluting the San Luis Valley aquifers from the drilling of two 14,000 ft. deep test wells, and possibility of future commercial production, is a threat to the whole Rio Grande region's wildlife and water supply for future generations.

There is now a complete moratorium on drilling in the confined aquifer (Bob Kirkham). Surface water rights are senior and gw rights are junior. State engineers office issued too many permits for water wells in the 50s, 60s, and 70s, but the state is not helping to solve the problem.

#### IX) Air quality issues-

Ground-level ozone is emitted by drilling on every pad. Each pad needs a special permit to exceed air quality standards required by the state and the EPA. After gas comes to the surface, a dehydrator is used to separate the gas from the condensate, which includes volatile carcinogens (VOC) -most notably B-tex- (a suite of chemicals including ethyl benzene, xylene, toluene), fracturing fluids, water. Ozone is heavier than air and sinks into low lying areas, causes damage to human health, crops, vegetation and animals. South of Silt, ground-level ozone was found to be the cause of goat herds, especially kids, dying. Half of goat kids were stillborn on a ranch about 5 miles south of Silt where Encana has many wells operating.

A Colorado Bill (2004) limits ground level ozone that comes off condensate tanks (Check EPA website and Colorado Air Quality Coalition). Ground level ozone is the #1 cause of asthma and also causes significant crop damage, and damage to animals, etc. Because these pollutants lodge in body fat, women are at greater risk than men.

X) Water quality issues Industry uses propylene glycol (an antifreeze) on the well pads. This chemical, when ingested, is fatal for animals. These areas need to be fenced, but aren't. Also B-tex (carcinogens) has been found in some contaminated wells and in grab samples for air quality.

#### XI) Vegetation and Wildlife issues

Typically, after the gas co. creates a problem (for example, a fatality occurred when a drunk Encana employee had a head-on collision around a blind curve, "dead man's curve", the local tax payers pay to fix the road. This pattern repeats in many ways, with local communities paying for extra schools, roads, etc. that industry needs to function. Then when industry leaves,...

### XIII) Spiritual and Native American concerns

The San Luis Valley has long been acknowledged as one of the great spiritual centers of the world, since pre-historic times when several native American nations would gather in this, the "Bloodless Valley", where bloodshed between peoples' was not permitted. Mount Blanca stands on the southern end of the valley, and is one of the four sacred mountains of creation. Both SLV and Mount Blanca are such recognized cultural sites of great importance. The Baca Grande community is now home to many international spiritual centers and leaders representing diverse cultures and faiths, which provide the sanctuary and retreat that both residents and visitors seek.

Several federal laws protect Native American sacred places. These include the National Historic Preservation Act (NHPA) and its implementing regulations at 36 CFR Part 800.

- a. Installations must determine whether they have any properties of traditional religious or cultural significance to Native Americans.
- b. Installations with such properties are required to follow the requirements of Section 106 of NHPA regarding consultation with Native Americans if the BRAC activity constitutes an undertaking as defined in the ACHP regulation (36 CFR 800.16(y)). Further information on Section 106 is available at ACHP website at [www.achp.gov/work106.html](http://www.achp.gov/work106.html).

In addition, the American Indian Religious Freedom Act (AIRFA) of 1978 states:

It shall be the policy of the United States to protect and preserve for Americans their inherent right of freedom to believe, express, and exercise the traditional religions of the American Indian..., including, but not limited to access to sites, use and possession of sacred objects.

The Preservation of Sacred Sites as revised by President Clinton in 1996 Executive Order 13007 states:

In managing federal lands, each executive branch agency with statutory or administrative responsibility for the management of federal lands shall... avoid adversely affecting the physical integrity of such sacred sites.

Other pertinent laws include:

Native American Graves Protection and Repatriation Act (NAGPRA) and its implementing regulations at 43 CFR 10, Archaeological Resources Protection Act (ARPA), NEPA Executive Orders 13175, 12898, and DOD Instruction 4715.3.

In addition to potential sacred sites on the 100,000 acre lease area of the BNWR, there are many spritual groups located a few miles to the east of the proposed wells in the Crestone/Baca community. These include a Carmelite Catholic monastery, a Hindu Ashram, several Tibetan Buddhist temples and retreat spaces, a Zen Buddhist retreat

center, etc.

#### XIV) LOCAL COMMUNITY ISSUES

##### Surface Issues:

- Air Pollution
- Archeological cultural sites
- Wildlife Impact
- Roads, Traffic, Soil Erosion
- Water Quality Degradation
- Waste Disposal

##### Sub-Surface Issues:

- Casing Protocol
- Contamination
- Closed Loop System
- Fluids Used
- Noxious Weeds
- Reclamation
- Shallow Well Impact

##### Community Impact

- Communications
- Emergency Services
- Hours of Operation
- Sensory Disturbance-Light, Noise
- Costs-Traffic, Septic, Emergency Services etc.
- Quality of Life

#### XV) Community health impacts

Peggy related that she herself had suffered extreme (full body) skin rashes from the air pollution (ozone and B-tex, among other things) and therefore, had more or less been forced to sell her home and move to nearby Newcastle. Three of the four of us visitors from Crestone also experienced strong reactions to the air pollution immediately next to her old house. Our symptoms included dizziness, nausea, watering of the eyes, headaches, etc. We could smell the pollution in some areas, as well as see the damage it has been caused to local vegetation.

#### XVI) Our Strategy

We need to look at Federal Energy Bill to see what kind of technologies they are using.

4) Industry should pay for extra roads and fixing roads damaged by their impacts, haz-mat response, extra schools, and we should get them to do cluster drilling, (1 pad/square mile- with 32 to 64 wells)

What would Peggy do differently? She wishes she had understood how the laws were on their side, and how corrupt the government is at all levels, local, state and federal, with key officials on the take from industry. Therefore, need to act more pro-actively rather than re-actively. Need to quickly connect with all available resources, environmental groups, legal council, water experts, hydrogeology experts, spiritual and native American groups, etc.



How can we "get them?" Peggy says: Bad PR, everytime there's an accident, report it, put it in paper, get everything in writing, hold them accountable for everything, their Achilles Heel is money. If we knick away at their profits, through law suits, delays, EIS's, tie them up in court, etc. this costs them money and may make them want to cave in.

There is very little inspection and oversight of these kinds of wells elsewhere, therefore we need to force accountability.

We need to try to establish guidelines ensuring closed-loop water system, concrete casing of entire wells, and close monitoring of water quality. In addition, we need guidelines to ensure:

- a) cluster development, directional drilling,
- b) continuity of development and organized development,
- c) best management practices, such as cluster placement of pipelines, designated truck routes, noise and light mitigation, removal of waste water, combustion equipment to burn up emissions, dust mitigation, use of green fracturing fluids,
- d) sharing drilling plans with community,
- e) allowing monitoring of activities, (get copies of rules and regulations),
- f) control noxious weeds,
- g) develop plan for community health and safety- develop emergency response plan
- h) community education- re: roads and traffic issues, water issues, financial impacts, etc.
- i) create community board to oversee process

4) Problem: A Community Development Plan is not legally binding.

1) Subsurface issues include quality of groundwater, shallow well impacts, casing protocols, the fluids used,

2) Surface issues include permeable and sandy soil type, mixing of surface and ground water near the location of well #5, sensitive vegetation and wildlife, creation of ruts by large vehicles, road/traffic dust, waste disposal, air pollution, archaeology, reclamation.

XVII) Resources: Important organizations and individuals:

- 1) Western Organization of Resource Councils  
Kevin Williams, Montrose, CO (970-323-6849)
- 2) Rocky Mountain Clean Air Action
- 3) Skytruth- photos from air planes.
- 4) Wilderness Society- Steve Smith (Assoc. Director), Glenwood Springs,  
phone: 970-945-4490, fax- 970-945-8596.
- 5) Sierra Club- Yvonne Peters, Todd Momsbury (economic analyst)
- 6) Mayor of Rifle, Keith Lambert- 970-625-5122 (email: [lambert2004@msn.com](mailto:lambert2004@msn.com))  
Allen Lambert, Rifle City Council, [www.dividecreek@sopris.net](http://www.dividecreek@sopris.net)  
970-625-9550  
Rick Aluise- town planner, Silt, [Rick@townofsilt.org](mailto:Rick@townofsilt.org), 970-876-2353.
- 7) Western Governor's Association- [www.westgov.org](http://www.westgov.org)  
Has printed up 8 best practices for oil and gas

8) Center for the American West- UCBoulder, also describes best practices. [www.centerwest.org](http://www.centerwest.org)  
[www.ogap.org](http://www.ogap.org)  
[www.worc.org](http://www.worc.org)

9) Colorado Geological Survey, Groundwater Section Matt Sayers (303-866-2073) and Peter Barkmann\* (303-866-2002) and [peter.barkmann@state.co.us](mailto:peter.barkmann@state.co.us)

Ask Barkmann about potential gw problems from oil and gas development (he's the expert on local hydrogeology in this area) issues about brine and water disposal.

10) Tweeti Blancett- NM 505-334-1200

11) Grand Valley Citizens' Alliance, Grassroots Community Action, P.O. Box 54, Silt, CO, 970-876-0430 or 970-285-2250 (Peggy Utresch's organization and numbers).

12) Colorado Geological Survey, Groundwater Section, Matt Sayers (303-866-2073) and Peter Barkmann (303-866-2002)

13) Coalition for the Valle Vidal ([www.vallevidal.org](http://www.vallevidal.org)).

13). Mike Sullivan, Colorado Water District (?).

14) High Country News. Paonia, CO. Tom Bell. P.O. Box 1090 Paonia, CO 81428-9989.

15. NOW. PBS. David Bronkocio.

Documents that Peggy shared with us:

1) COGCC Regs (10/06)

2) Filling the Gaps: How to Improve Oil and Gas Reclamation and Reduce Taxpayer Liability, a publication by the Western Organization of Resource Councils, August, 2005.

3) Management Guidelines for Oil and Gas Development (August 4, 2005) Colorado Mule Deer Association.

4) Law and Order in the Oil and Gas Fields; A Review of Inspection and Enforcement Programs in Five Western States, A report by the Western Organization of Resource Councils, November, 2004.

5) Air Pollution Control Division Regulation Proposals: Oil and Gas Emissions, Western Colorado Congress, An Alliance for Community Action.

6) Resolution to Protect Colorado's Air from Oil and Gas Production Emissions, a petition.

7) Oil and Gas at Your Door,

## References

Kuipers and Associates, 2005, Filling the Gaps; How to Improve Oil and Gas Reclamation and Reduce Taxpayer Liability.

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## ***Lexam Talking Points- By Eric Karlstrom- 10/26/06***

I. History of Lexam – ([www.lexamexplorations.com](http://www.lexamexplorations.com)) and its "drill play on the Baca Wildlife Refuge"

1) Lexam Explorations Inc. (Lexam) is a Toronto, Canada-based, exploration company that incorporated in 1983. It changed its name from Challenger Gold to Lexam when it went public.

2) Lexam's management team, headed by Canadian billionaire Rob McEwen, former CEO (and current largest shareholder) of Canada's Goldcorp Inc. and now head of U.S. Gold, oversaw development of Red Lake Mine, Canada's largest gold mine.

3) Lexam purchased 50% of the hard mineral rights from Baca Minerals in 1987 and the other 50% of the oil and gas rights on the Luis Maria Baca Grant No. 4 from Newhall Land and Farming Company for \$1 million. It acquired the additional 25% of the oil and gas rights from the Baca Corporation in 1996 from Gary Boyce for \$1 million. Lexam also owns various interests in varying percentages of the hard mineral and oil and gas rights on land to the north and west of the Grant. The remaining 25% of oil and gas rights is owned by ConocoPhillips. But there is currently no agreement between Lexam and ConocoPhillips.

4) Lexam acquired surface access and use by fee simple ownership and a Surface Use Agreement with American Water Development, Inc. (AWDI) in 1992 for \$1 million. This agreement is a 20-year paid-up lease that is binding on surface owners who may be successors in ownership to AWDI. This agreement can be extended if there is production on the property.

5) Surface rights are currently owned by the Nature Conservancy, but there is an intent to eventually convey ownership of the surface to the Federal Government (USFWS and NPS).

6) To date, there is no indication the Federal Government wants to acquire Lexam's mineral rights.

7) Rob McEwan purchased Goldcorp's 49.8% of Lexam in August, 2005, for \$400,000 (Canadian) or 2 cents a share. As of July, 2006, that share is worth \$12 million.

8) Drilling of two new, 14,000 exploratory wells on the Crestone East Prospect (Baca #5 and # 6 wells) are considered high risk ("wildcat"), but Lexam believes there is significant potential of discovering large amounts of gas and oil in the San Luis Basin. This depends upon two main "risk factors:" 1) the presence of favorable source rock (mainly Cretaceous Mancos Shale and Dakota Sandstone) and sealed traps. To determine actual presence of the various factors requires drilling.

9) Lexam is now applying for permits from the Colorado Oil and Gas Conservation Commission to drill these two 14,000 test wells in the deepest part of the basin that has never been drilled. Details include reclamation plan, processes to be used, protections to be offered/required, proposed well design, etc..

10) Lexam plans to spend about US \$1.4 million to conduct 3D seismic survey (slated for January or February, 2006) and another US \$8.5 million on drilling the two exploratory wells (slated for late 2007 or early 2008).

11) Currently, Lexam owns the subsurface mineral rights and the U.S. government (USFWS) owns the surface and water rights.

## II. Geographical/geological context of the San Luis Basin

1) The Baca Grant property (100,000 acres) is part of the San Luis Basin, a graben that extends north of the Rio Grande Rift in New Mexico. The basin includes two half grabens, the western Monte Vista Graben and the eastern Baca Graben, separated by the Alamosa Horst. Depth to Precambrian basement rocks in the Baca Graben is estimated at about 14,000 feet. Sediments and sedimentary rocks within the Baca Graben include, from top down, the Pliocene to Pleistocene Alamosa Formation and the Miocene Sante Fe Formation, as well as possibly Mesozoic sedimentary rocks (Cretaceous Mancos Shale and Dakota Sandstone, and Jurassic Morrison Formation) and Permo-Pennsylvanian sedimentary rocks of the Sangre de Cristo Formation. Mesozoic sediments, if present, would provide the "source rock" or "reservoir rock" for gas and oil. There are two small outcrops of Mesozoic sediments near the eastern margin of the basin.

Depositional context of Mesozoic Rocks: About 65 million years ago, there was a major invasion of ocean into Colorado, which extended from the Wet Valley, across the area of the modern Sangre de Cristo Mountains and the San Luis Valley to present-day Durango, leaving beach lines and marine shales. Climate was very hot and wet at that time, and huge, peat swamps developed behind the beaches, much like the Amazon River area today. However, most of these rocks were stripped away by erosion during the Laramide Orogeny some 65 to 55 mya..

2) Until recently, it was believed there were essentially no Mesozoic sediments in the San Luis Basin. In his 1991 lecture notes, Colorado College geology professor William Fischer stated:

On the east side of the range, in an overturned anticline at Loco Hill, there are small exposures of Jurassic Entrada sandstone and Morrison shale: no record of either Triassic or Cretaceous time is known. Beginning in late Cretaceous time and extending into the Eocene the region was subjected to intense compression creating anticlinal and synclinal folds that were subsequently cut by numerous west dipping low angle thrust faults. Crustal shortening within the range is estimated at 8 km at the latitude of Westcliffe and 14 km near the latitude of the Great Sand Dunes. This mountain building event is known as the Laramide Orogeny and crustal compression appears to have been mostly unidirectional and from the west. From this time and up to the present, the area has remained continental.

Beginning in Oligocene time (ca. 36 mya), the stress pattern shifted from crustal compression to crustal extension. Plate tectonic models visualize either a spreading center or a mantle plume developing pull apart forces which create normal high angle faults on either side of the range, the Sangre de Cristo fault on the west and the Alvarado fault on the east. Between these bounding faults the Sangre de Cristo horst began to rise as the San Luis Graben subsided, thus marking the inception of the Rio Grande Rift. With continued uplift of the mountains and subsidence of the San Luis Basin, we end up with about 28,000 feet of basin fill adjoining peaks that are in excess of 14,000 above sea level...

Since the inception of rifting, the San Luis Basin has been subsiding as it was filled with alluvium. All streams draining the mountains disappear in the alluvial fill, thus creating the vast reserves of ground water.

3) But in the early to mid 1980's, oil geologists investigated the valley between Monte Vista and Wolf Creek Pass and between Crestone and the Great Sand Dunes, and started finding Mesozoic Rocks. Then, 27 of 42 shallow exploration drillholes drilled by Challenger Gold Inc. in 1992 and 1993 encountered oil in "fractured Precambrian rocks and Mesozoic sediments." 17 of these hit Mesozoic sediments that occur as rotated fault blocks in the hanging wall of the basin-bounding detachment fault. Geological consultants from Toronto (WGM) believe that the seismic character of basin rocks are "remarkably similar" to that of the San Juan Sag to the west (where Mancos-Dakota-Morrison are present) and the Raton basin to the east.

### III. History of the "Crestone Prospect"

1) Again, conventional geological wisdom up to about 1992, as shown in a geological X-section by Ogden Tweto (1979), was that the eastern part of the San Luis Basin (the Baca Graben) was underlain by about 4 km of Tertiary and Quaternary alluvial fill overlying Precambrian bedrock. It was believed that there were no Mesozoic rocks in this area because regional uplift and folding and faulting during the Laramide orogeny resulted in more erosion than deposition of sediments.

2) In 1992 and 1993, however, Challenger Gold drilled a number of exploratory wells and got "strong shows of oil" in 27 drillholes. Cretaceous Mancos Shale and Dakota Group and Jurassic Morrison Fm. rocks were identified in outcrop and in 17 shallow drillholes. Of these, Mancos Shale is thought to be an excellent source rock and Dakota Sandstone is thought to be sufficiently porous (15-21%) to hold commercial quantities of gas and oil.

3) In 1995, Lexam drilled the Baca #1 and Baca #2 wells and confirmed the presence of the Cretaceous section on the Deadman Creek block. The strongest shows of oil were in Baca #2 well at 6,620 feet in the Tertiary Sante Fe Fm., the Mancos Shale and in Precambrian gneiss.

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8) In 2002-2004, Petro-Hunt acquired, processed and interpreted another 60 miles of 2D seismic data in 2004 and bought and reinterpreted another 50 miles of Chevron 2D seismic data. Petro-Hunt relinquished this option to Lexam in December, 2004.\*\*

9) In March 2005, Lexam purchased this seismic data for \$419,000, which indicates that "closure" (i.e., a trap) is better defined for the Crestone East block than the Crestone West block.

10) Today, Lexam's primary targets are the Crestone East (4060 acres) and Crestone West (6,945 acres) prospects located in NW quadrant of their property. In addition, at Pole Creek (SE part of Baca Land Grant), a shallow 1.3-acre oil target is present in land overseen by the NPS.

11) WGM consultants from Toronto\* believe that the Baca Graben contains Mesozoic rocks about 3000 feet thick at depths of 7000 to 17,000 feet. Two types of structural traps have been mapped seismically: closed-structure anticlines and rotated fault blocks close to the margin of the basin. WGM notes that all basins surrounding the San Luis Basin with Cretaceous rocks at depth (over 8000 feet) have significant oil and gas accumulations. These include the San Juan, D-J, Raton, and Piceance Basins. (The San Juan Basin has produced over 25 trillion cubic feet of gas.)

12) Lexam hopes that over 100 and up to 550 square miles of the Crestone sub-basin contains a 2000 to 3000 ft. thick package of Cretaceous rocks at depths of 7000 to 17,000 feet.

\* You have to wonder why Lexam did not use local consultants.....

\*\* You have to wonder why Sonat and Petro-Hunt sold their seismic data if the results were so promising.

\*\*\* Also note the list of players includes AWDI (Maurice Strong), the Baca Corporation (Gary Boyce), Baca Minerals, Petro-Hunt, Chevron, SONAT, Conoco-Phillips, Nature Conservancy, and the Federal Government (USFWS).

#### IV. Primary risk factors of the project for Lexam

Their risk factors-

- 1) Presence or absence of favorable reservoir rock is not known.
- 2) Do the interpreted structures (anticline and rotated fault blocks) constitute "sealed traps" that would hold the gas/oil?
- 3) They are still raising funds for the exploratory drilling and 3-D seismic investigations (about \$12 million required).
- 4) McEwen is currently engaged in a legal battle with Goldcorp.
- 5) The nearest gas pipelines are 30 miles away. Lexam would either have to truck it out or build pipelines.

More potential risk factors for Lexam

6) Identification of threatened or endangered species on Wildlife Refuge or federal requirement of conducting an environmental impact statement (EIS). Potential law suit from Malville, etc.

7) Cultural Resource Survey along the seismic lines, to be conducted by Maria, Inc. of Laramie Wyoming, could identify native American sites that would require either excavation or protection under federal laws.

- 8) Possible law suits by Rio Grande Water Conservation District to protect quality of aquifer for local farmers and downstream users.
- 9) Community input in the permitting process.
- 10) Potential law suits from spiritual groups or native American advocacy groups pertaining to Executive Order 13007 (1996) and the 1978 American Indian Religious Freedom Act which are meant to protect unimpeded access to sacred sites.
- 11) Other-

#### V. Peggy Utresch- of Rifle, Silt, New Castle: Recommendations

- 1) Oil and gas is the single richest industry in the world. You can't sue them because all the laws are in their favor. Therefore, we can't stop the drilling of these test wells.
- 2) There is very little inspection and oversight of these kinds of wells elsewhere, therefore we need to force accountability.
- 3) We need to try to establish guidelines ensuring closed-loop water system, concrete casing of entire wells, and close monitoring of water quality. In addition, we need guidelines to ensure:

- a) cluster development, directional drilling,
- b) continuity of development and organized development,
- c) best management practices, such as cluster placement of pipelines, designated truck routes, noise and light mitigation, removal of waste water, combustion equipment to burn up emissions, dust mitigation, use of green fracturing fluids,
- d) sharing drilling plans with community,
- e) allowing monitoring of activities, (get copies of rules and regulations),
- f) control noxious weeds,
- g) develop plan for community health and safety- develop emergency response plan
- h) community education- re: roads and traffic issues, water issues, financial impacts, etc.
- i) create community board to oversee process

- 4) Problem: A Community Development Plan is not legally binding.

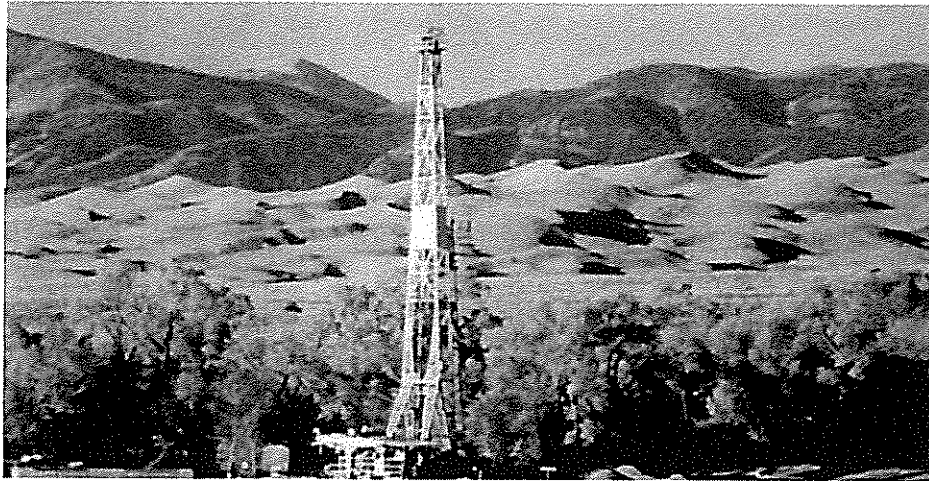
#### VI. Environmental issues

- 1) Subsurface issues include quality of groundwater, shallow well impacts, casing protocols, the fluids used,
- 2) Surface issues include permeable and sandy soil type, mixing of surface and ground water near the location of well #5, sensitive vegetation and wildlife, creation of ruts by large vehicles, road/traffic dust, waste disposal, air pollution, archaeology, reclamation.
- 3) Towers will be 130 feet high.

#### VII. Community Impacts

- 1) noise, light, hours of operation, seismic activity, emergency services, roads, "boom town" effects.
-

## ***Talking Points for Community Handout- November 9, 2006***



### **OIL AND GAS DRILLING ON THE BACA NATIONAL WILDLIFE REFUGE SAN LUIS VALLEY, CO LOCAL COMMUNITY ISSUES**

#### **Surface Issues:**

- Air Pollution
- Agricultural Impacts
- Archeological cultural sites
- Bond Amount
- Cluster Development
- EIS-Environmental Impact Statement
- Wildlife Impact
- Roads, Traffic, Soil Erosion
- Water Quality
- Waste Disposal

#### **Sub-Surface Issues:**

- Casing Protocol
- Contamination
- Closed Loop System
- Fluids Used
- Noxious Weeds
- Reclamation
- Shallow Well Impact

Community Impact:

- Communications
- Emergency Services
- Hours of Operation
- Sensory Disturbance
- Economic Impact
- Quality of Life
- Community Infrastructure- Boom/Bust effect

> FACTS ABOUT NATURAL GAS DEVELOPMENT:

- The mineral rights connected to the Baca Ranch had been purchased by Lexam Explorations, Inc., in 1987, and comprise approximately 100,000 acres of sub-surface area. Lexam has submitted to the Colorado Oil and Gas Conservation Commission (COGCC) applications to permit the drilling of two 14,000 ft. test wells and the conducting of seismic testing over the Baca National Wildlife Refuge, their current target is natural gas. Lexam owns 75% of the mineral rights with the remaining 25% being owned by one of the world's largest oil and gas producers, Conoco Phillips.
- Studies conducted on the San Luis Valley geology in the early seventies found no evidence of source rock that would contain gas or oil. In 1992 and 1993 Challenger Gold drilled a number of exploratory wells and got "strong shows of oil" in 27 of 42 drill holes. In 1995, Lexam drilled the Baca #1 and Baca #2 wells and confirmed the presence of Cretaceous source rock near Deadman Creek, which may indicate oil or gas in the area.
- The danger of leaking contaminants irrevocably polluting the San Luis Valley aquifers from the drilling of two 14,000 ft. deep test wells, and the possibility of future commercial production, is a threat to the whole Rio Grande region's wildlife and water supply for future generations. This precious water resource provides for sensitive wildlife including over 70 species of rare plants and animals, valley agriculture, and water usage throughout the Rio Grande region.
- Rare flora and fauna, some found nowhere else in the world include, the Great Sand Dunes tiger beetle, giant sand treader cricket, Rio Grande cutthroat trout, southwestern willow flycatcher, and Cleome multicalis or slender spider flower. Other species found in the area include bald eagle, sand hill crane, pronghorn antelope, elk, mule deer, bighorn sheep, mountain goats, mountain lion, and black bear.
- Other dangers include higher costs for local tax payers and irrevocable damage to "one of the last great places" on Earth. Potential energy production from drilling in the Baca is may only produce only a few days of energy for the nation.
- The Baca National Wildlife Refuge, managed by the US Fish and Wildlife Service (USFWS), as the surface right holders of the proposed area of drilling and seismic testing, is working with Lexam representatives to negotiate protections. The USFWS will be taking Best Management Recommendations compiled by the community to Lexam.
- It is the position of USFWS that it "will not attempt to stop Lexam from exercising their right to explore for oil and/or gas on those portions of the Baca NWR which Lexam owns the subsurface rights to." The primary concern of USFWS is "the potential for long-term irreversible damage to the environment and will work to prevent these above all other concerns."
- Chemicals used in natural gas development are dangerous to the health of those living in proximity to the drilling



operations. The following list is taken from a pattern of toxicity found to be associated with identified chemicals and products used in natural gas development, it is noted that many chemicals and products are not disclosed for public scrutiny. Chemical exposure can cause skin/sensory organ toxicity, respiratory problems, neuro-toxicity, gastro-intestinal/liver/kidney toxicity, and reproductive toxicity.

- Emissions from drilling pads exude carcinogenic toxic chemicals into the surrounding communities and public lands, ozone being a significant impact. Ozone displaces oxygen in the environment meaning areas become oxygen-deficient. Ozone, being heavier than oxygen, will settle into low lying areas of the landscape. Ground-level ozone is a cause of degenerative health problems for communities and wildlife. Ozone affects historical agricultural and ranching communities by causing landscape fragmentation, crop failure and livestock poisoning.
- The Bush Administration is putting plans in place to approve more than 118,000 new gas and oil wells on public lands in Utah, Wyoming, New Mexico, Colorado, and Montana over the next two decades, which is nearly double the current total number of producing wells on public lands throughout the Rocky Mountains. Approximately 63,000 wells are currently producing on public lands. Because the average well impacts approximately 10 acres, a future drilling boom of 118,000 wells could mar more than 1 million Western acres, fragmenting wildlife habitat and polluting air and water. Colorado currently has 30,000 producing wells, 40,000 abandoned wells, and 22,802 planned new wells.
- Best Management Practices can protect the environment and community health. Among the most important of these is securing a higher bond amount from Lexam. Colorado Oil and Gas only requires a \$5,000 bond amount for communities to cover potential long term problems. Pitless or closed loop drilling eliminates the need for open storage pits by recycling fluids and solids in storage tanks to be removed to an off site facility. It will prevent the death of birds and animals from poisoning and contamination of the soil and water from leakages of open pits. State of Colorado only requires 5" of concrete for the upper and lower 10% of the drill wells casings. Thicker concrete casings in the drill well walls from top to bottom are essential to the protection of both the confined and unconfined aquifer. To avoid the sprawl of oil and gas wells across the landscape and its surface impact, it is important that well pads be clustered and use slant or directional drilling, so that six or more wells are consolidated on one 10 acre well pad.

#### > ABOUT THE SURFACE RIGHT HOLDERS

The historic Luis Maria Baca Ranch is situated in the heart of the southern Colorado Sangre de Cristo mountain range in the San Luis Valley, the highest desert valley in North America. The 2004 purchase of this property in addition to adding to Rio Grande National Forest, established the Great Sand Dunes National Park and Baca National Wildlife Refuge. The Nature Conservancy was integral to the purchase and transfer of property in the complex negotiations, due to their recognition of the value of the water rights associated with the surface rights. The San Luis Valley confined and unconfined aquifers have been the source of a large body of research, and are integral for the creation and maintenance of the Great Sand Dune complex.

#### • BACA NATIONAL WILDLIFE REFUGE

On November 22, 2000, Congress authorized the establishment of the Baca National Wildlife Refuge (NWR) located in the San Luis Valley of Colorado. Authorization for establishment of the Refuge was included in Public Law 106-530 under Section 6 of the Act entitled, "The Great Sand Dunes National Park and Preserve Act of 2000." In addition to the Refuge, the Act authorized the Federal acquisition of lands adjacent to the Great Sand Dunes National Monument for the Great Sand Dunes National Park and Preserve. In approving The Great Sand Dunes National Park and Preserve Act of 2000, Congress determined that the lands to be acquired under the Act offered unique hydrological, educational, wildlife, recreational, and other diverse resources deserving preservation for the enjoyment of future generations.

- BACA GRANDE PROPERTY OWNERS ASSOCIATION is an association for a residential community of artists, healers, natural builders, spiritual practitioners, retirees, and people seeking a simple country life based on values of ecological, spiritual and sustainable living. The Baca is a national center of alternative home building, home to several international spiritual centers and spiritual leaders, and dedicated to preservation of local ecology and wildlife. The Baca Grande is neighbor to the historic town of Crestone, and part of the historic Luis Maria Baca Grant ranch, bestowed by Mexican authority and upheld by the treaty of Guadalupe-Hidalgo that has become the above mentioned Baca National Wildlife Refuge and Great Sand Dunes National Park. Sub-surface mineral rights in the Baca community are owned by Lexam.
- The San Luis Valley has long been recognized as one of the great spiritual centers of the world. Preservation of Sacred Sites, revised by Pres. Clinton in 1996, Executive Order 13007 states, "(a) In managing Federal lands, each executive branch agency with statutory or administrative responsibility for the management of Federal lands shall ... (1) accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners and (2) avoid adversely affecting the physical integrity of such sacred sites."
- The Baca Grande community is now home to many international spiritual centers and world spiritual leaders representing diverse cultures and faiths who acknowledge the power of this place. In the last 25 years that it has been called sacred by representatives of all the major religions. Local spiritual centers include the Haidakhandi Universal Ashram, Shumei International Institute, Crestone Mountain Zen Center, Tashi Gomang Stupa, the Sri Aurobindo Learning Center, Yeshe Khorlo, Carmelite Monastery, Pundarika, Temple of Consciousness, The Crestone Baptist Church, Little Shepherd in the Hills Episcopal Church, and others.

This document was prepared by the SLV Citizens Alliance (SLVCA).  
Donations are always appreciated.

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### **Article for POA Newsletter:**

### ***Lexam Explorations, Inc. To Drill Two 14,000' Gas Test Wells Just West of Baca Subdivision***

***by Eric Karlstrom*** (November, 2006)

Lexam Explorations, Inc., a Canadian company, has applied for permits to drill two 14,000' gas test wells in the new Baca National Wildlife Refuge immediately west of the Baca subdivision. Lexam, formerly Challenger Gold, owns the mineral rights under the Wildlife Refuge. The company is headed by Rob McEwen, former CEO and still the largest shareholder of Canada's Goldcorp, Inc., and current CEO of U.S. Gold. As CEO of Goldcorp, McEwen oversaw the development Canada's largest gold mine. In August, 2005, he purchased Goldcorp's 49.8% of Lexam for \$400,000 (Canadian) or 2 cents a share. As of July, 2006, that share is worth \$12 million.

Drilling the two test wells on the "Crestone East Prospect" is considered a high risk, "wildcat," "drill play," but Lexam believes there is significant potential for discovering large amounts of gas and oil in the San Luis Basin. Conventional geological wisdom until the early 1990's was that Mesozoic-age "source rock" for fossil fuels was eroded from the San Luis Basin during the Laramide Orogeny about 65 to 55 million years ago. However, Lexam claims that 27 of 42 shallow exploration wells drilled in 1992 and 1993 encountered "strong oil shows" in "fractured Precambrian rocks and Mesozoic sediments." Lexam's geological consultants from Toronto (WGM) believe the seismic character of basin rocks

is "remarkably similar" to that of the San Juan Sag to the west and the Raton basin to the east, where Mesozoic rocks are present. The nearby San Juan Basin has produced over 25 trillion cubic feet of gas. Lexam is hoping that over 100 and up to 550 square miles of the Crestone sub-basin contains a 2000 to 3000 ft. thick package of Cretaceous rocks at depths of 7,000 to 17,000 feet. Its two main acknowledged "risk factors" are: 1) the presence or absence of favorable source rock (mainly Cretaceous Mancos Shale and Dakota Sandstone) and 2) sealed traps (anticlines or rotated-fault blocks). Lexam is still raising funds for the exploratory drilling and 3-D seismic investigations (about \$12 million is required).

As director of the new Baca National Wildlife Refuge, Ron Garcia is in the process of negotiating with Lexam the conditions of the drilling permit to be issued by the Colorado Gas and Oil Conservation Commission. As the only federal employee at the Refuge, Garcia has a lot on his plate. More or less single-handedly, he is trying to gather base-line information on the vegetation, wildlife, and native American sites present as well as develop a management plan for the Refuge. And he is trying to preserve the integrity of the Refuge in the face of the imminent oil/gas drilling slated to be conducted adjacent to sensitive wetland areas where the unconfined and confined aquifers mix. Unfortunately, it appears that the exploratory drilling will proceed before an EIS (Environmental Impact Statement) is conducted to determine the presence or absence of threatened or endangered species.

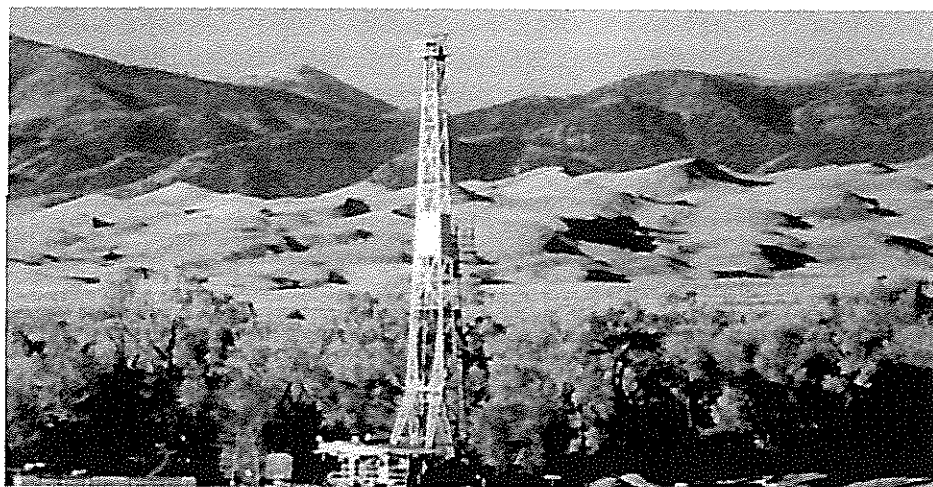
A group of Baca residents are now trying to help Garcia identify ways in which to minimize the environmental and social impacts of the drilling. This group has met several times to develop talking points (concerns) to help educate the community on these new realities. We have just acquired and viewed the excellent new DVD film "A Land Out of Time" ([www.alandoutoftime.com](http://www.alandoutoftime.com)), a documentary that records the profound impacts of gas exploration and drilling on communities and federal lands throughout the Rocky Mountain West. This current boom in gas/oil drilling throughout the Rockies, unprecedented in U.S. history, is due to: 1) the fast-track facilitation of fossil fuel extraction on federal lands resulting from Bush's Executive Order 13212 (Actions to Expedite Energy Related Projects) and 2) Bush's radical funding cutbacks of the agencies that are charged with protecting our federal lands (BLM, Forest Service, Park Service, and Wildlife Refuges). We will have a public showing of the film at 7:00 pm on November 3, at Jillian's (NRVI) studio, followed by community discussion.

In addition, four Baca residents traveled to Silt, Colorado to consult with Peggy Utresch of the Grand Valley Citizens' Alliance. Touring the gas fields south of Silt, we were amazed and aghast at the environmental and social devastation wrought by innumerable gas wells upon the idyllic and pastoral communities there. Our Baca team, now called The San Luis Valley Citizen's Alliance, have identified the following areas of concern: maintaining the integrity and quality of our unconfined and confined aquifers, maintaining integrity and access to native American sacred sites, doing baseline studies of air and water quality as well as wildlife and vegetation which could be affected by drilling. Such "best management practices" might include requiring a thick concrete casing for the entire 14,000' well and the use of "closed-loop" water system to protect surface water and soils.

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### ***Flier for San Luis Valley Community (September 29, 2007)-***

***(with addresses to write to)***



# **SAN LUIS VALLEY WATER AND LEXAM GAS DRILLING DON'T MIX !!!**

**URGENT!**

***IMAGINE THE WATER, AIR, NOISE, LIGHT, AND DUST POLLUTION OF  
1,000'S OF GAS WELLS ON THE BACA NATIONAL WILDLIFE REFUGE.  
YOUR HELP IS NEEDED NOW!!!***

Time is running out if we hope to stop oil and gas exploration in the San Luis Valley! Recent information suggests that early reports of "little chance" of finding natural gas are not true: Rather, it is a "virtual certainty," and major gas production by ConocoPhillips (the company now drilling in Arctic N. Wildlife R.) will begin after test wells strike hydrocarbons. Lexam Explorations, Inc. hopes to start drilling in the summer of 2008. If drilling begins it may be impossible to stop this Valley from becoming an industrial park. We only have a short time to communicate with officials concerning the insanity of allowing drilling and related activities in the vicinity of one of the largest and most important aquifers in the U.S. People can live without natural gas, but not without clean water. The risks of contamination are too great for ourselves and future generations. Please write or call the individuals below. To help cover financial costs related to copying, postage, etc., please consider donating money to Water Watch Alliance, P.O. Box 653, Crestone, CO, 81131. The communities, ranchers, and ecosystems of the San Luis Valley thank you!

Governor Bill Ritter: 136 State Capitol, Denver, CO 80203-1729; 800-283-7215 or 303-866-2471, fax- 303-866-2003;  
Email: [www.Colorado.gov](http://www.Colorado.gov)

Senator Ken Salazar: 702 Hart Senate Office Building, Washington, D.C. 20515; (202)- 224-5852; Alamosa: (719)-587-0096, (866)-455-9866, Denver: 303-455-7600; email: [salazar.senate.gov/contact/email.cfm](mailto:salazar.senate.gov/contact/email.cfm)

Senator Wayne Allard: 525 Dirksen Senate Office Building, Washington, D.C., 20515; 202-224-5941, Denver: phone- 303-220-7414; email: [allard.senate.gov/](mailto:allard.senate.gov/)

U.S. Representative John Salazar: 1531 Longworth House Office Building, Washington, D.C. 20515; 202-225-4761; 609 Main Street, Alamosa, CO 81101; phone- 719-587-5105, email: [house.gov/salazar/contact.shtml](mailto:house.gov/salazar/contact.shtml)

State Senator Gail Scharzt: 200 E. Colfax, Denver, CO 80203; 303-866-4871; email: [gail.schwartz.senate@state.co.us](mailto:gail.schwartz.senate@state.co.us)

State Representative Tom Massey (R- Dist. 60): 200 E. Colfax, Denver, CO 80203; 303-866-2747, 303-866-2346; email: [tom.massey.house@state.co.us](mailto:tom.massey.house@state.co.us)

Saguache County Commissioners: Linda Joseph, Sam Pace, Michael J. Spearman; Saguache County, P.O. Box 655; 719-655-2231; email: [sagcomlj@centurytel.net](mailto:sagcomlj@centurytel.net)

This could be one of the most important public services that you can render in your lifetime. It is important that you do it now!!!

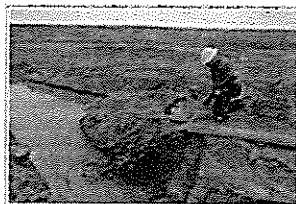
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Flier for San Luis Valley Community (2/12/08)

## **WATER AND GAS DON'T MIX IN THE SAN LUIS VALLEY!**

### ***The Regulations Fall Short!***

Americans get over half of their clean drinking water from underground sources. In 2005, the oil and gas industry was granted an exemption from the Safe Drinking Water Act, making the oil and gas the only industry allowed to inject toxic fluids directly into good quality groundwater without oversight by the Environmental Protection Agency (EPA). At the state level, most oil and gas regulatory agencies do not require companies to report the volumes or names of the chemicals being injected during hydraulic fracturing. Thus, neither the government nor the public can evaluate the risks posed by injecting these fluids underground. ([www.earthworksaction.org/pubs/Fracking.pdf](http://www.earthworksaction.org/pubs/Fracking.pdf))

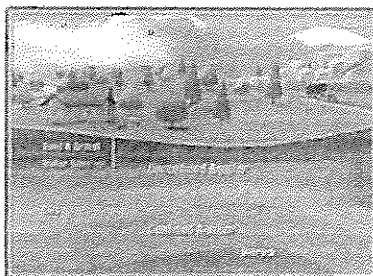


### ***San Luis Valley Water: A Fragile Abundance***

A 1974 geological report estimates that aquifers in the San Luis Valley hold 2 billion acre feet of water, of which at

least 140 million acre feet is potable. At the (2001) going rate of \$5000 per acre-foot, the value of this water is over \$700 billion. Or at the price of bottled water, over \$8.5 trillion. I.e., it is priceless!

Thousands of wells in the unconfined and confined aquifers supply irrigation and drinking water for the San Luis Valley. These aquifers are "highly sensitive" and vulnerable to infiltrating contamination because: 1) Depth to water table is shallow, averaging only about 7 feet, 2) Surface soils are typically sandy and highly porous, 3) aquifers are comprised mostly of porous unconsolidated sands and gravels, and 4) faults and fractures are common and hence, the aquifers recharge rapidly and water pollutants can move through the aquifers and mix readily.



### ***How Oil and Gas Operations Can Contaminate Groundwater***

In gas drilling, serious pollution can come from both the surface (from evaporation ponds, drilling pits, condensate, leachate, spills, etc.) and from the subsurface (by mixing of water with toxic drilling fluids, cuttings, and oil and gas). Drilling fluids used in the "hydraulic fracturing" process, used in 90% of gas wells, are exempt from regulation by the Clean Water Act. Each "frack" or "shot" requires a million gallons and causes mini-earthquakes at depth. "Fracking" fluids include a toxic suite of chemicals, including B-Tex (benzene, toluene, ethylbenzene and xylene), heavy metals, diesel fuel, VOC's (volatile organic compounds), formaldehyde, methane, and hydrogen sulfide. Of the 245 chemicals used, 91% have adverse health effects and 35% have endocrine disrupting effects ([www.endocrinedisruption.org](http://www.endocrinedisruption.org)). Through evaporation and leaching, these chemicals also contaminate air and soils.

If coal beds are found, the mining of coal-bed methane (CBM) gas is even more toxic. Then, drillers 1) pump enormous quantities of briny "produced water" to the surface, and 2) enlarge the borehole by injecting high pressure gas into the well. Gas and oil themselves evaporate easily, dissolve in water, and are toxic. One component, benzene, is carcinogenic. Because hydrocarbons are less dense than water, they rapidly move upward through aquifers. Hence, gas and oil can leak upward from the confined aquifer into the unconfined (surface) aquifer. One quart of oil can contaminate 250,000 gallons of water! And concentrations of methane gas above 10 mg/l are ignitable. Well water from the confined aquifer between Alamosa and Moffat already has ignitable levels of methane. A new house east of Mosca exploded in 2003! Finally, concrete well casings typically deteriorate after 20 years, so old wells can also be a major source of pollution.

For more information, check WATER WATCH ALLIANCE Homepage Figure 1. Baca National Wildlife Refuge (BNWR) Wetlands and Sangre d

## *Archive-3: Audio interview with Dr. Eric Karlstrom with Melodee Hallett of KHEN's Truth Quest (2/5/08)*

On February 5, 2008, Melodee Hallett, of Truth Quest (KHEN radio in Salida, Colorado) conducted a one hour interview of Dr. Eric Karlstrom, Professor of Geography, about the proposed drilling of three 14,000' gas test wells on the new Baca national Wildlife Refuge by Lexam Explorations, Inc., a Canadian company. This interview explains what has been happening with the NEPA process.

<http://givemesometruth.info/karlstromgage.mp3>

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## *Archive-4: Best Management Practices Recommendations to BNWR - 11/09/06*

### **Best Management Practices Recommendations to Baca National Wildlife Refuge**

By Water Watch Alliance (formerly San Luis Valley Citizen's Alliance, 11/9/06)

These Guidelines are for the drilling of two 14,000 feet test wells by Lexam Explorations, Inc. Should gas or other valuable minerals be discovered, these guidelines will be held in full force, but an additional set of guidelines will be developed to cover the extraction of discovered gas and all aspects of commercial natural gas production or production of other valuable minerals.

"Responsible Development is a proven way of conducting natural gas development operations, which eliminates or minimizes adverse impacts from natural gas development on public health and the environment, landowners, and natural resources; enhances the value of natural and landowner resources; and reduces conflict between industry, landowners, and the community."

1) Clustered Development of wells: Clustered development places maximum amount of drilling activity on a minimum number of drilling pads in order to centralize infrastructure and minimize surface disruption and impact to landowners and the natural environment. This results in fewer roads, pipelines and drill pads, reduced landowner conflicts, etc. It is important to maximize the distance between pads used for down-hole drilling and maximize the use of directional drilling, based on the best available technology.

2) Recognition of sensitive areas near waterways, wildlife areas or migratory corridors, wetlands or floodplains. Consideration for safety, noise, traffic, and visual impacts should be taken into consideration.

3) Spiritual and historical preservation- Written notification to SLVCA of any archaeological and sacred sites found on or around the proposed drilling area during exploration, production and cleanup phases of operation. Also, full disclosure to consulting experts in this field and interested Native American tribes and agencies.

4) Create "continuity of development plan" with BNWR, Lexam, and SLVCA.

- a. Identify areas where drilling will take place before drilling begins in order to create a development plan utilizing Clustered Development guidelines so that pads can be used during both exploratory and development operations; Work with all industry operators to achieve a plan that has longevity and continuity;
- b. Locate vehicle transportation corridors prior to the commencement of drilling operations;
- c. Locate production corridors for gas gathering and transportation pipelines as well as water and or fluid disposal pipelines, placing as many lines as possible in the same trench or corridor in order to minimize area impact.
- d. Written notice provided to BNWR and Crestone/Baca community of all new technologies being used, their



components and material that make up and fuel such technologies.

5) Provide Wildlife Refuge (BNWR) and community with a generalized semi-annual drilling plan.

- a. Industry cooperation in producing periodic newsletter for area residents.
- b. Use of pit-less (closed loop) drilling systems to eliminate drilling mud, fracking flow back and petrochemical and produced water waste pits and their associated odors; If pits must be used, they will be lined with plastic, fenced and netted sufficient to protect domestic livestock and wildlife;
- c. Water used for drilling and fracture treatment to well sites should be transported in pipelines to a central facility where feasible, rather than hauled by trucks. Wastewater should be transported to a permitted water disposal injection wells. No wastewater will be stored other than in temporary storage tanks. No evaporation pits will be used.
- d. Place multiple pipelines (water and gathering) in the same trench when practical.
- e. Erosion control to meet all Storm Water regulations.
- f. Use county-approved plan to control invasive, toxic weeds.
- g. Use heavy-duty flow-back units that reduce odors and the need for flaring by 85-95%.
- h. Use odor control and combustion devices on industry equipment to reduce VOCs and odors.
- i. Monitor and reduce "fugitive emissions" (i.e., emission of ozone and other smog-related compounds from leaking tanks, pipes, etc.)
- j. Use barriers and berms around well pads to reduce noise, light, and visual impacts of drilling.
- k. Noise levels not to exceed COGCC day and nighttime standards.
- l. Use fully enclosed compressor stations equipped with noise reduction equipment to minimize noise.
- m. Set-backs from inhabited dwellings of 500 feet whenever possible;
- n. Removal of petrochemical waste, pond liners and any surface contamination after drilling is completed;
- o. No horns, bells, or other noise-making devices to delineate shift changes;
- p. Telemetry on all producing wells to reduce truck traffic checking wells and increase safety;
- q. Water quality testing of all domestic wells within 1/2 mile of pad before drilling begins;
- r. Water quantity testing available when requested by the landowner, taking into consideration seasonal flow fluctuations;
- s. Monthly testing of domestic water wells that are 1/2 mile down gradient of drilling operations;
- t. Quarterly testing of all domestic water wells within 100 feet of a drilling pad for the first three years of operation and as necessary, but at least annually, throughout the productive life of the well;
- u. Random community irrigation water testing throughout the area and in specific locations where there is cause for concern.
- v. Graveled pads to reduce mud and the resulting dust on roads;
- w. Use of smaller, newer rigs to reduce noise and surface impacts;
- x. Compliance with the Colorado Water Quality Control Commission's storm water runoff regulations;
- y. All hydraulic fracturing operations ("fracking") shall be conducted with "green frack" methods, utilizing only sand and water as fracing materials or other "green frack" materials agreed upon between the community and industry. The use of diesel fuel, petroleum products or chemicals containing aromatic compounds such as benzene and toluene or other compounds such as 2 BE, will not be permitted as a part of the fracking process.
- z. Written notification and listing to BNWR and SLVCA (now WWA) of any other mine-able materials found on site during exploration, production, and cleanup phases of operation that are not components of oil and gas.

Please see the appendix section of this document for the definition of a "green frac."

6) Monitoring area air and water quality for impacts from drilling activities, including:

- a. Baseline monitoring of existing water and air quality to county health officials, BNWR, POA, and WWA (formerly SLVCA).
- b. Written reports provided to BNWR, the POA, the SLVCA of total dissolved solids and contaminants from wells, fracturing and cleanup in which the written reports will disclose any pollutants harmful to area residents and plants and animals on the Wildlife Refuge.

Surface spills of petrochemicals and hazardous wastes associated with drilling

- c. Contamination of domestic water wells and ground water
- d. Ozone-causing VOC emissions from condensate tanks and compressor stations.
- e. Ground-level ozone impacts to vegetation and crop health and viability as well as community health concerns
- f. Leaching of hazardous chemicals into soils and groundwater from well pad spills
- g. Wildlife disruption and wildlife habitat destruction
- h. PM-10 (airborne particulate matter measuring 10 microns or larger) impacts on crops and human health. To mitigate these impacts, the industry operators agree to participate in appropriate new and ongoing monitoring activities. Parameters selected will be recommended by the state agencies that oversee specific impacted areas, including:

- Colorado Air Quality Control Commission
- Colorado Water Quality Control Commission
- Colorado Division of Wildlife
- Local county weed programs
- Bureau of Land Management
- Saguache County

Working in conjunction with these agencies, monitoring will document changing conditions from drilling as well as other activities, and plans for mitigation of adverse impacts that result from natural gas drilling will be developed and implemented. Results of monitoring activities will be shared with appropriate agencies, as well as Saguache County, for incorporation into ongoing monitoring programs.

- i. We, the BNWR, the POA, and the WWA, reserve the right to have our own team of experts monitor, examine, evaluate, research, and obtain pertinent information and material of the site and surrounding areas in order to determine what is hazardous to our Wildlife Refuge, community, and aquifer and these reports will be made public.

7) Plugging and Abandonment of Gas Wells. With the typical producing life of a gas well between 10 and 20 years, it is recognized that the industry operator that drills the well will likely not be the operator responsible for plugging and abandonment. It is, however, understood that when a gas well is no longer capable of producing economic quantities of gas, and re-stimulation does not produce additional gas flow, the well will be plugged and abandoned, as stipulated in the COGCC regulations.

8) Control of Noxious Weeds via collaboration with Baca National Wildlife Refuge. Noxious weed invasion is a significant threat to agriculture and wildlife habitat, rivaling urban sprawl in acres of habitat lost in many rural counties. Studies document that the number one way weeds are spread is from seeds transported on truck tires. Gas industry developers will develop and utilize a program in collaboration with the Wildlife Refuge and Saguache County to actively control the spread of noxious weeds. In conjunction with local governments, the gas industry must be accountable to mitigate any spread of noxious weeds that may result from drilling operations.

In addition to the County's weed program, this plan will take into consideration the protection of the area's organic agricultural activities. Management of noxious weeds will apply to all areas disturbed by drilling operations, including but not limited to existing roadways and borrow pits, new roads, pipeline cuts, and well pads.

Reseeding will be done with native high desert plants appropriate for the area.

9) Interim & Final Reclamation. When drilling operations have been completed, COGCC rules require "the surface of the land to be restored as nearly as practicable to its condition at the commencement of drilling operations." Two types of reclamation are delineated – interim and final. COGCC rules state "interim reclamation shall occur no later than three (3) months on crop land or twelve (12) months on non-crop land after such operations, unless the Director extends the time period because of conditions outside the control of the operator. This reclamation applies to disturbed areas affected by drilling except what is reasonably needed for production operations. Final reclamation takes place when a well is no longer producing and has been plugged for abandonment. At that time, all equipment must be removed and the land re-contoured and reseeded as near to the original condition as possible.

In the Wildlife Refuge, a third type of reclamation will be utilized. Within 30 days of re-contouring and re-grading a pad or any portion of a pipeline corridor, the operator will loosen all surface soils to a depth of 8 inches and seed that area as per recommendations of the Baca National Wildlife Refuge, unless the season of the year makes such activities undesirable, in which case re-seeding will take place as soon as weather and seasonable conditions are favorable. When seed, at a minimum of 50 seeds per square foot, is applied to freshly disturbed soil with an "organ grinder" or "whirly bird" seeder before crusting and compaction can take place, the success of re-vegetation is very high. This method preserves the soil's health, minimizes dust and is an inexpensive application, even if the sites have additional disturbance in the future. Operators will work closely with landowners on all reclamation matters, including seeding mixture preferences, re-contouring and loosening of compacted soils, which impede the success of re-vegetation. These guidelines will apply to well pads, pipeline corridors, compressor station locations, and any other construction associated with gas development

#### 10) Community Health and Safety

Industrial activities around subdivisions, and within city limits pose a variety of dangers to residents.

Emergency Preparedness measures include:

- a. Participation in the county's emergency response plan for gas development through active participation in the Saguache County or SLVCA Local Emergency Planning Committee.
- b. Education and training of all employees and subcontractors regarding emergency plan information and their ability to respond to emergency situations involving spills, leaks, human injury, fire and explosions.

#### Roads and Traffic

- a. ☒ Work with Saguache County to review and define appropriate industry speed limits and signs and the county's Road & Bridge Department to obtain all permits, post bonds, and coordinate addressing designated routes, inadequate infrastructure and dangerous areas by creating:
  - a plan for traffic management that takes into consideration blind corners and hills, narrow roads and bridges, and dangerous intersections. In addition, school bus routes will be avoided during designated hours by industry traffic during drilling and completion operations. If a school bus route cannot be avoided during drilling and completion operations,

the areas near bus stops will be monitored by flagmen or security personnel during designated hours at industry's expense to protect children loading and unloading from buses.

- a plan for ongoing dust mitigation using environmentally responsible substances.
- b. Provide cost mitigation to the towns and the county for road upgrades and road damage.
- c. The operator and all its subcontractors agree to abide by all traffic rules and speed limits.

#### Water Issues

A plan for avoiding disruption to irrigation, including community and individual systems, will be part of all gas development operations. When drilling operations - including roads, pads and pipelines - cross or in any way impact established community irrigation ditch systems, landowners and industry will include the applicable ditch company in the decision making process and obtain approval for mitigation of any impacts. Considerations include: 1) prevention and repair of any disruption to the flow of irrigation water and irrigation runoff caused by roads and pipelines that cross ditches, and; 2) the possibility of piping water in areas where it is at risk of contamination.

#### Limitations on new industries and industry activities in Crestone/Baca and BNWR

There will be no new gas-related industries or industry activities within Crestone/Baca and BNWR boundaries.

#### 11) Addressing Financial Impacts

The industry agrees to participate as a good neighbor by helping to financially address negative impacts. Priority areas to consider include:

- a. Mitigation of damage to infrastructure, including roads, bridges and irrigation systems caused by drilling activities;
- b. Mitigation of socio-economic impacts to schools, hospitals, emergency services, law enforcement and human service agencies;
- c. ☒ Participate with the county and municipalities on road and intersection improvements and signage.

#### 12) Interagency Team

As soon as possible, assemble an interagency team and commit sufficient funding to enable effective implementation of a system to gather baseline data and to monitor the affects of drilling and development on surface and ground water, air quality, vegetation, and selected wildlife species. Also, the use, disposal, and movement of all listed hazardous chemicals should be tracked, recorded and reported to the BLM.

#### 13) Monitor wells

Within three years determine the effectiveness and longevity of cementing a well bore after it is abandoned.

#### 14) Establish a reclamation guarantee system

As soon as possible, implement a reclamation guarantee system that follows the well regardless of ownership to ensure that sufficient funding is available to plug and abandon the well, to re-contour the disturbed surface to as near its original condition as possible according to state law, and to establish viable populations of native plants. Where

industry pays a mill levy to the state based upon production, provisions must be made to ensure that these funds remain available for the entire productive life of the fields for reclamation of drilling pad and road impact areas, including abandoned wells when needed.

#### 15) Monitor, inspect and enforce lease terms

Make timely inspections and enforcement of all lease terms a high priority. Companies should not be given years in which to come into compliance with lease terms.

#### 16) Bonding

- a. Make sure the amount posted as bond is sufficient to cover the kinds of clean-up costs that are typically associated with gas mining operations.
- b. Bonding reclamation facts, stipulations, and the processes they enact or impede.

#### 17) Lexam costs

- a. Any research reports, flow sheets, or material Lexam provides BNRW, POA, or SLVCA, they will incur the costs of these.
- b. Written lists of Lexam's protocol of weekly cleanup to BNRW and SLVCA (or its future equivalent) and issued as public record to be posted.

#### 18) Full Disclosure

Full disclosure of any buy-outs or leases to other companies or corporations while exploration is in effect and in the event product is found, including in the cleanup phase.

Written notice to BNRW, the POA, and SLVCA (or its equivalent) of any Lexam employees cited for intoxication or drug abuse while on duty.

#### 19) Open door policy

We (the SLVCA or its equivalent) reserve the right to negotiate and revise during and after exploration, production, and cleanup with Lexam officials and the BNRW presented in written format the concerns and guidelines we as a community wish to discuss.

#### 20) NEPA, EIS, or ES Studies on BNRW

It is important that baseline data for the BNRW be established through traditional avenues of conducting NEPA, EIS, or ES studies. We encourage the BNRW to get have these studies, either through government funding or by Lexam, if possible.

References:

1. The Rifle, Silt, New Castle Community Development Plan, January 1, 2006, A Project of the Grand Valley Citizens' Alliance, and
2. Management Guidelines for Oil & Gas Development (August 4, 2005), Colorado Mule Deer Assoc.
3. Oil and Gas at Your Door? A Landowner's Guide to Oil and Gas Development, 2nd Edition, Oil and Gas Accountability Project (OGAP), 2005

## *Water Watch Alliance Press Releases*

**PRESS RELEASE from Water Watch Alliance, Crestone, Colorado**

**2/23/08**

The well-being of Colorado water and Colorado citizens is now threatened to an unprecedented degree by toxic pollutants, potential "blow-outs," and mismanagement by government agencies. While residents in Leadville are fighting for their safety and the life of the Arkansas River, residents in the San Luis Valley are fighting to protect and preserve one of the largest fresh water aquifers in North America. This irreplaceable treasure, containing an estimated 140+ million acre-feet (or 45+ trillion gallons) of potable water, is threatened by the proposed drilling of three 14,000-foot gas test wells on the new Baca National Wildlife Refuge (BNWR) by Lexam Explorations, Inc., a Canadian company.

The San Luis Valley of southern Colorado is considered a sacred place by the Pueblo, Ute and Navajo Indians and by internationally-acclaimed Tibetan spiritual leaders. Senator Ken Salazar states: "I have always told people that the San Luis Valley is more than a home to me. It is a spiritual place unlike any other on earth."

Rather than protecting the Wildlife Refuge, however, The U.S. Fish and Wildlife Service (USFWS) actually attempted to circumvent the NEPA (National Environmental Policy Act) process until they were ordered by a federal judge to comply with NEPA. Lexam then hired the private firm, ENSR, to complete an Environmental Assessment (EA). Not surprisingly, the Draft EA, released on January 18, is a "FONSI" or "Finding of No Significant Impact." If USFWS approves the Draft EA without recommending an Environmental Impact Statement (EIS), Lexam could begin drilling this summer.

Local citizens are challenging the Draft EA and demanding that a full EIS be commissioned by a neutral source. They are also asking Colorado Governor Bill Ritter to impose a moratorium on the drilling in the San Luis Valley until potential impacts to the Refuge and to the aquifer can be fairly evaluated. The Fish and Wildlife Service is accepting public input on the Draft EA until March 2. More information is on this website: <http://WaterWatchAlliance.googlepages.com>

Interested parties are encouraged to write, call and/or email the following:

Michael Blenden, USFWS, 8249 Emperius Road, Alamosa, CO 81131, (719-589-4021), [Baca\\_EA@fws.gov](mailto:Baca_EA@fws.gov)  
Governor Bill Ritter: 136 State Capitol, Denver, CO 80203-1792 (303-866-2471)  
Senator Ken Salazar: 609 Main Street, #110, Alamosa, CO 81101 (719-587-0096)  
Senator Wayne Allard: 411 Thatcher Building, Pueblo, CO 81003 (719-545-9751)  
Representative John Salazar: 609 Main Street, #6, Alamosa, CO 81101 (719-587-5105)  
Senator Gail Schwartz: 200 E. Colfax, Denver, CO 80203 (303-866-4871)  
David Neslin, COGCC, 1120 Lincoln Street, Suite 801, Denver, CO 80203 (303-894-2400)  
David B. Martin, Colorado Department of Public Health and Environment, 4300 Cherry Creek Drive South, Denver, CO 80246-1530, (800-886-7689)  
Saguache County Commissioners, P.O. Box 655, Saguache, CO 81149

Jay Slack, USFWS, 134 Union Ave., Lakewood, CO 80228  
Robbie Roberts, U.S. EPA Region 8, 1595 Wynkoop St., Denver, CO 80202-1129

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**PRESS RELEASE (long version) - Water Watch Alliance, Crestone, Colorado****2/23/08**

The wellbeing of Colorado water and Colorado citizens is now threatened to an unprecedented degree by toxic pollutants, potential "blow-outs," and mismanagement by government agencies.

While residents in Leadville are fighting for their safety and the life of the Arkansas River, residents in the San Luis Valley are fighting to protect and preserve one of the largest fresh water aquifers in North America. The aquifer in the San Luis Valley is an irreplaceable treasure containing an estimated 140+ million acre-feet (over 45 trillion gallons) of potable water. Twice before, local citizens went to court to protect this aquifer; both cases were settled in favor of those in the Valley trying to save the water.

Now two crises threaten the water again. Lexam Explorations, a Canadian firm, owns the mineral rights beneath the new Baca National Wildlife Refuge (BNWR), the Great Sand Dunes National Park, and residents in the San Luis Valley. Lexam wants to drill three 14,000-foot exploratory gas wells through sensitive wetlands into the aquifer on the Wildlife Refuge. Despite the nearly 50,000 letters of protest submitted during the NEPA (National Environmental Policy Act) scoping process last fall, the U.S. Fish and Wildlife Service is poised to allow Lexam to proceed with the drilling. The other threat is that Gary Boyce of Stockman's Water, Inc., is now suing the Colorado Supreme Court to reverse the State Water Engineer's ruling that prohibits extraction and export of our groundwater. If successful in this third bid to export San Luis Valley water to the Denver area (dubbed "AWDI-3" by some), Boyce and his backers could reap 100's of billions, even trillions of dollars.

The spectacular and still pristine San Luis Valley of southern Colorado is considered a sacred place by the Pueblo, Ute and Navaho Indians. This valley is also considered sacred by internationally-acclaimed Tibetan spiritual leaders. Colorado Senator Ken Salazar himself stated: "I have always told people that the San Luis Valley is more than a home to me. It is a spiritual place unlike any other on earth." Farms and ranches produce hundreds of millions of dollars a year. Forty-five rare, threatened, or endangered species live here. All of this is threatened if government agencies cave in to pressure from private, corporate interests and fail to protect this Valley.

Time is running out. The Fish and Wildlife Service is accepting public input on the Draft Environmental Assessment (a "finding of no significant impact," commissioned by Lexam) until March 2. Please write to the officials below and request a moratorium on drilling in the Refuge until a full Environmental Impact Statement (EIS), a Comprehensive Conservation Plan (CCP) for the Refuge, and new water studies are completed. Please write, call, and/or email today:

Michael Blenden, USFWS, 8249 Emperius Road, Alamosa, CO 81131, 589-4021, [Baca\\_EA@fws.gov](mailto:Baca_EA@fws.gov)  
Governor Ritter: 136 State Capitol, Denver, CO 80203-1792 (303-866-2471)  
Senator Ken Salazar: 609 Main Street, #110, Alamosa, CO 81101 (719-587-0096)  
Senator Wayne Allard: 411 Thatcher Building, Pueblo, CO 81003 (719-545-9751)  
Representative John Salazar: 609 Main Street, #6, Alamosa, CO 81101 (719-587-5105)  
Senator Gail Schwartz: 200 E. Colfax, Denver, CO 80203 (303-866-4871)  
David Neslin, COGCC, 1120 Lincoln Street, Suite 801, Denver, CO 80203 (303-894-2400)  
David B. Martin, Colorado Department of Public Health and Environment, 4300 Cherry Creek Drive South, Denver,



Robbie Roberts, U.S. EPA Region 8, 1595 Wynkoop St., Denver, CO 80202-1129

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## Appendix I. Crestone/Baca "Group Dynamics"

*Dr. Eric Karlstrom, Professor of Geography (April 4, 2008)*

There are now three groups in our Crestone/Baca community working specifically on the issue of **Lexam's** proposed drilling for oil/gas on the **Baca National Wildlife Refuge (BNWR)**. **Water Watch Alliance (WWA)** began in August, 2006 and is the group that emphasizes that the San Luis Valley needs to be preserved as a **"NO-GO" (no gas and oil) Zone**. The **San Luis Valley Water Protection Coalition (WPC)**, formed as a subsidiary of Chris Canaly's **San Luis Valley Ecosystem Council (SLVEC)** in the summer of 2007, is directed by Ceal Smith, a former high school teacher from Tucson who has lived in the Crestone/Baca community for only about a year. In October, 2007, Aurielle Andhara led a number of individuals who had been involved in **WWA** to form the **San Luis Valley Citizen's Alliance (SLVCA)**. This proliferation of groups seems to have had both positive and negative consequences. Certainly, the splintering and formation of counter-groups has tended to confuse, polarize, and paralyze our community regarding this issue, probably limiting the effectiveness of our efforts thus far. On the other hand, having three groups, sometimes cooperating and sometimes competing, may, in the end, be more effective than having just one because each group can focus on different issues and strategies.

What has caused the splintering and formation of "counter-groups?" Was this the natural result of strong egos with different visions for how best to protect our valley? Or are other factors at work? As I attempt to comprehend the sometimes murky "group dynamics" here, I try to distinguish objective facts from my own opinion. As an earth scientist, I try to entertain "multiple-working hypotheses" as the best way to sift through alternative explanations. No doubt each member of our community has different perceptions and reflections on what has been happening here.

The place to begin is with a brief history and timeline of events.

### A Brief History of Our "Group Dynamics"

Our community first learned about Canadian corporation, **Lexam Explorations, Inc.'s**, intention to drill two 14,000' test wells on the **Baca National Wildlife Refuge (BNWR)** on July 6, 2006. Some 60 to 100 of us residents were attending a community meeting facilitated by Marjo Curgis of the Grand Junction-based **Sonoran Institute** on the **Great Sand Dunes National Park's** proposed "northern access" route through our Baca community. The entire series of **Sonoran Institute**-facilitated meetings had been quite well attended by our community; local residents were even fed dinner before each meeting. The announcement of **Lexam's** planned drilling for oil on the Willow Creek drainage one mile west of our Baca community came near the beginning of the July 6th meeting, under Agenda item III. *Rumor Mill*. This announcement illicited such a strong response that on July 24th, facilitator Marjo announced that the **Sonoran Institute** would facilitate a separate meeting on the **Lexam** issue on August 9th.

The **Lexam** meeting was rescheduled for August 12th and was facilitated by **Sonoran Institute** director, Jim Spehar. This meeting consisted mostly of lengthy presentations by representatives of **Lexam, Colorado Oil and Gas**

**Conservation Commission (COGCC)** and the **U.S. Fish and Wildlife Service (USFWS)**. **Lexam's** Jim Donaldson summarized the history of **Lexam's** activities, including their purchase of mineral rights beneath the former **Baca Ranch** (now **BNWR**) in 1987, their past drilling activity, and their acquisition of well and seismic data. He informed us that **Lexam** hopes to find commercial quantities of natural gas and described details of the proposed drilling operation, depth of well casing, height of drill towers, etc. Then Brian Macke, **COGCC** director, explained the **COGCC's** role in the permitting and overseeing of oil and gas wells in Colorado. He noted that in 2006, Colorado would issue more oil and gas permits, 5400, than in any other year in history. Then Peggy Utesch, citizen/activist in the **Grand Valley Citizen's Alliance (GVCA)** shared what she'd learned in her four years of protesting gas/oil drilling activities in the Silt/Rifle area. Her message: The oil/gas industry is so rich and powerful that we can't beat them. Even while stressing that there is very little inspection and oversight of permitted wells by the **COGCC**, Peggy said our best strategy would be to help **BNWR** representatives write up "best management practices" that might be written into the **COGCC** drilling permits. Then representatives of the **BNWR** and **USFWS** informed us they were not required to conduct the federally-mandated **National Environmental Policy Act (NEPA)** process because **Lexam** owned the subsurface mineral rights.

Throughout the meeting, **Lexam's** drilling operation was portrayed by all speakers as a "done deal" and a "fait accompli" and our community was advised that our best strategy was to cooperate with **Lexam** and the **USFWS**. Throughout the meeting, an armed sheriff stood in the back of the room while Ron Garcia, manager of the Wildlife Refuge, wore a pistol by his side. At the end of the lengthy presentations, facilitator Jim Spehar called for audience comments and questions. At this point, some interesting and surprising incidents occurred. David Bright, a new member of our community who I'd never seen before, challenged the **Lexam** representatives in a most impressive way. Then, another newcomer, who claimed to have worked in the oil industry, directed even stronger, more emotional words at the **Lexam** representatives, stating vigorously that they were lying and that their drilling activities would destroy the Wildlife Refuge and our community. The Sheriff physically escorted this man from the room, even as he was yelling and resisting. Was this incident meant to intimidate the rest of us and shock us into compliance?

Concluding the long meeting, Spehar suggested that a small number of us local residents ("the fewer the better") should draw up a list of "best-management practices recommendations" to present to Ron Garcia of the **BNWR**. Calling for volunteers, Spehar selected five or six of us to form this group. I encouraged David Bright, the eloquent stranger, to join the group since he had just demonstrated his ability to stand up to Lexam. Also selected were Lisa Cyriaks, JoAnne Kiser, Pavita Decorah, and Clay Bridgford. I did not intend to join the group, but when Pavita asked me directly: "Eric, we need a scientist in the group," I acquiesced. At my last-minute inclusion in the group, I thought I noticed a glimpse of dissatisfaction cross Spehar's face. I wondered if he thought the group was too big or whether he just didn't want me in the group. As Spehar adjourned the meeting, I saw Ron Garcia glance, smile and make eye contact with him. This brief, furtive ("victory?") smile caught my attention. It seemed to say: "We did it. We pulled it off." Now I suspect the other message in this glance was: "They've bought it! Now they'll do a big part of my work for me and they'll be in compliance rather than confrontation mode."

Today, I wonder whether this whole sequence of events, including the series of **Sonoran Institute**-facilitated community meetings, the announced "rumor" of **Lexam's** drilling intentions in the midst of those meetings when we were already focused on an entirely different issue, and even the Sheriff's show of force against the "radical" newcomer, may have been part of a script devised by government/industry to manipulate our community into proscribed and desired behaviors. Certainly, there is no doubt that the Sonoran Institute coordinated the strategy and the presentations of **Lexam**, the **COGCC**, the **USFWS**, and Peggy Utesch. (Indeed, it turns out the **Sonoran Institute** paid Peggy's speakers fee and expenses for her trip to Crestone). By contrast, we, the public, had no advance knowledge or "seat at the planning table." And yet we, the citizens of Colorado and the United States are the

actual owners of the new Wildlife Refuge and most of the rights to groundwater stored in the aquifers underlying the San Luis Valley. Indeed, we have to wonder if perhaps **Lexam** and/or its much larger affiliate in this venture, **Conoco-Philips**, paid for the **Sonoran Institute's** entire facilitation process. Or was it paid, perhaps, by a "public-private partnership" involving **Lexam**, **Conoco-Philips**, and the government? On reflection, it does seem possible, even probable, that the sequence of **Sonoran Institute**-facilitated meetings were designed to manipulate and direct our citizen response and input. If so, was our community "delphied?" (See below for a definition and discussion of the "Delphi Technique.")

One way or another, our small committee was now focused on writing "best management practices recommendations" for the USFWS. Our little group was soon joined by Maya Madrigal and McKenzie Trujillo (who have since moved away from our community), Vince and Mary Palermo, and several others. Meeting weekly, mostly at my house, during the fall of 2006, we accomplished several tasks:

- 1) We organized two community showings of the movie "A Land Out of Time" at Jillian's studio. These events were very well attended and after showing the movie we did our best to educate our community about the issues surrounding gas/oil "development." About 109 people signed up on our contact list to help the cause.
- 2) Four of us (David Bright, McKenzie Trujillo, Maya Madrigal and Eric Karlstrom) drove to New Castle, Colorado to visit Peggy Utesch, of the **GVCA**. We spent a Saturday touring the gas fields south of Silt and learning as much as we could from her. Peggy's \$400 consulting fee was covered by the **Baca Grande Property Association**. As volunteers, we paid our own transportation, lodging and food expenses.
- 3) Drawing largely from books, pamphlets, and resources Peggy gave us, including "The Rifle, Silt, New Castle Community Development Plan" and the **Colorado Mule Deer Association's** "Management Guidelines for Oil and Gas Development," we wrote up "Best Management Practices Recommendations" (see page ) and Lisa Cyriaks presented these to Ron Garcia of the **BNWR**. Garcia, in turn, included many of these recommendations in his suggestions to the **COGCC** during the permitting process.
- 4) We adopted the name, **San Luis Valley Citizen's Alliance**, and decided our group would not apply for 501-C-3 status. Soon thereafter, a number of us realized that our paramount responsibility is to preserve the quality of groundwater in the San Luis Valley aquifers, so we changed our name to **Water Watch Alliance**.
- 5) Since we were not a 501-C-3 non-profit, we began looking for a 501-C-3 organization willing to act as our "financial umbrella" for fund-purposes. Someone mentioned that Christine Canaly, director of the **San Luis Valley Ecosystem Council**, was willing for her **SLV Ecosystem Council** to be our financial umbrella. So in late November or early December, 2006, Chris appeared one of our meetings and it was agreed that we would jointly send out a fund-raising letter to our collective contacts and that Chris would deposit the money in a separate **WWA** account. L. Phillips and I wrote the letter, and I, David Bright, JoAnne Kiser, Pavita Decorah, and Lisa Cyriaks of WWA and Christine Canaly of SLVEC signed it. At that time, we assumed that all work for **WWA** would continue on a volunteer basis. And unfortunately, there was no formal agreement as to how these funds would be dispersed and by whom.
- 6) During the late fall of 2006, we also discussed the issue of getting legal council. In December, approximately when Chris Canaly agreed that the **SLVEC** act as our financial umbrella, she also agreed to contact **NEPA** lawyers Travis Stills and Brad Bartlett of the **Energy Minerals Resource Center** in Durango to see if they would be willing to work on this issue. This very important contact resulted in the lawsuit that was filed against the **USFWS** that resulted in a federal judge ruling that the **USFWS** has to conduct a **NEPA** process. This cooperative effort between **WWA**, **SLVEC**, and the

**Energy Minerals Law Center** was certainly one of our most significant successes to date.

In late December, 2006, I left Crestone to return to my job as a geography professor in California. According to Lisa, she and Chris Canaly conducted several conference calls with **NEPA** lawyers, Travis Stills and Brad Bartlett, in January through March, 2007. However, soon thereafter, Lisa relates: "Chris and Ceal took Pavita and JoAnne and started meeting at the **Manitou Foundation** office, reformulating themselves as **WWA**. I was not invited to these meetings. Supposedly this had to do with **Manitou Foundation** (Hanne Strong) wanting to give **WWA** money, but Hanne not wanting to work with me so they excluded me from those meetings." Apparently, between March and June, 2007, Chris and Ceal Smith more or less took over the **Lexam** issue (for the **Manitou Foundation**, **SLVEC** or both?) and stopped notifying Lisa and most other **WWA** members of the meetings.

When I returned to Crestone in late June, I attended a "**Lexam** meeting" at Savitri House. The handful of people there included Chris Canaly, Ceal Smith, Aurielle Andhara, Pavita Decorah, and myself. This was a much smaller group than had been meeting at my house in the fall of 2006. Chris and new Baca resident, Ceal Smith, nearly totally controlled the meeting, forcefully interrupting others if they tried to speak. Thus, it was almost impossible for anyone else to say anything. I tried to make a joke of this at first. And I succeeded in getting the next several meetings held at my house again. At these subsequent meetings, it became clear that 1) Chris and Ceal had more or less taken over the **Lexam** topic for the **SLV Ecosystem Council** and the **Crestone/Baca Land Trust**, and 2) Chris had spent the entire \$8700 raised for **WWA**, paying herself for her own and **SLVEC** activities. Again, **WWA** had not authorized Chris to spend this money: Chris had not requested our authorization, she did not report to us what she spent the money for, and did not inform us what was accomplished with the money. (It should be noted that directors of non-profits are obligated to follow strict guidelines; expenditure of funds must be approved ahead of time by votes of board members and directors to provide minutes relating to all expenditures of funds and use appropriate parliamentary procedures. Failure to follow these protocols may constitute "**adverse possession**," which is illegal). So in August, 2007, I asked Chris to give us an accounting of what she had done with the \$8700 we had raised for **WWA**. At a subsequent meeting, Chris gave me seven pages that provided a very general accounting of her activities and of how she disbursed **WWA** between January and June, 2007 (Appendix I).

The first three pages provide minimal, usually two to four words, descriptions of her activities on each date entered, the fourth page provides some accounting of total monies spent on different activities, and the last three pages show the dates on which she deposited donations into a bank account. The three pages entitled "Chris's Hours" indicate that she: 1) met numerous times at and produced outreach materials for the **Manitou Foundation**, 2) talked and communicated with **Energy Minerals Law Center NEPA** lawyers and also spoke with lawyer, Robin Cooley, 3) met with Governor Ritter, 4) flew to Washington, D.C. to meet with Senator Salazar and Congressman Salazar and visited unnamed Foundations, 5) wrote a letter to the Rockefellers, and 6) prepared for the "Oil and Gas Forum" held in Crestone/Baca in August, 2007. Although she claims she spent five hours in **Manitou/WWA** meetings between January 16th and 30th, **WWA** is not mentioned in her description of her activities after that. Outcomes of her activities are not listed anywhere. The fourth sheet indicates that the **SLVEC** spent \$3500 (of **WWA**'s \$8700) on legal fees (presumably to the **Energy Minerals Law Center**), and paid \$4,419 to the Executive Director (Chris Canaly) \$692 to the Office Manager, \$168.45 for printing and reproduction, etc. At the bottom of the sheet, in pen, Chris writes that \$2,000 in **SLVEC** general funds went to the "**Lexam** Issue" and that the total "**SLVEC** investment" in the **Lexam** issue was \$10,700.

Certainly, many of these activities benefited the cause of protecting the San Luis Valley from the proposed **LexamWWA** drilling. But a point of contention, of course, is that whereas all the rest of us in have worked and are working as volunteers, Chris Canaly alone has paid herself- with **WWA** money- without our prior approval or even

knowledge. Another question revolves around the possible influence that the **Manitou Foundation**, the Durango legal team, the unnamed Foundations, Governor Ritter, the Salazars, and/or others may have exerted on Chris during this period. It is difficult to assess the nature of these influences because Chris has not shared this information with me or with other current members of **WWA**. There are many unanswered questions. For example, whereas Chris's "Statement of Activities" shows **SLVEC** spent \$3500 on legal fees, **Shumei's** Matthew Crowley told Lisa Cyriaks that the **Energy Mineral Law Center** lawyers are working pro bono and intend to pay themselves through whatever out-of-court settlements they can arrange with the **USFWS** and **Lexam** in the future. That these same lawyers worked with Chris on the Wolf Creek/Ski Area development issue and reimbursed themselves through an out-of-court settlement in that case concerns us. And since neither Chris nor "her" lawyers are communicating with the rest of us regarding the legal strategy, we are uncertain how the legal case will proceed if the **USFWS** decides to honor the **FONSI** ("finding of no significant impact") recommended in the **Draft Environmental Assessment**. Will these lawyers settle out of court in this case too, without the obtaining assurance that the **USFWS** will conduct a full **Environmental Impact Statement (EIS)**? Here, Chris's refusal to communicate basic information with the other groups is a problem, at least for us.

Thus, by the summer of 2007, Chris Canaly had repeatedly tried, but failed, to garner control of "the Lexam project" for her **SLVEC**. Then, on August 17th, the **USFWS** began its EA/scoping process in a meeting held Friday evening from 5 to 8 pm. Based on discussions we'd had at prior, well-attended **WWA** meetings, our group was ready and rehearsed with many different comments to make at the meeting. At this scoping meeting, Kathryn Van Note, another newcomer to our community, transfixed the "packed house" with an impassioned, 17-minute-monologue.

In order to better allow **WWA** members other than Chris and Ceal to be able to influence our activities, **WWA** formed a steering committee at about this time. This was comprised of Lisa Cyriaks, Kathryn Van Note and Aurielle Andhara and myself. This process worked well for a week or two until Aurielle and Kathryn had (or staged?) a fight. Kathryn was about to walk out but I was able to placate her and bring her back to the table. One task we took on was to consider forming a coalition of groups and signing a "memo of understanding" (MOU) as per the model used by the **Coalition to Save the Valle Vidal** in New Mexico.

On August 25, **WWA** and **SLVEC** jointly hosted a day-long educational forum on gas/oil issues. Both groups were involved in setting the agenda and inviting guests. We had vigorous discussions regarding which group should receive the money that we anticipated would be donated. Perhaps mainly because the **SLVEC** had used all the money that **WWA** had raised in our letter-writing campaign, it was finally agreed that would get the money. Forum speakers included **BLM** geologist Diane Geese, local geologist Dr. James McCalpin, Gwen Laschalt of the **Oil and Gas Accountability Project (OGAP)**, Travis Stills of the **Energy Minerals Law Center**, and Jose Lucero, a Santa Clara, New Mexico Pueblo Indian elder. The schedule that we had jointly agreed upon called for a panel discussion/question and answer session from 3 to 4 pm, to be moderated by **WWA** representatives, including Lisa Cyriaks and myself. This never occurred, however, because Chris Canaly, acting as moderator, opened the forum with an unscheduled hour-long presentation high-lighting all the great work that she and the **SLVEC** had been doing on this issue. She actually projected on to the screen time-sheet tables that showed the hours that she and Ceal had put into the project. Due to this unscheduled "commercial" for **SLVEC** and subsequent problems with Chris' computer, the **WWA** panel was eliminated from the schedule. So here was another attempted coup in which Chris Canaly again tried to take control of the "**Lexam** issue." (About a month and a half later, Chris finally allowed the donated money (about \$750) to go to **WWA**, as we had previously agreed).

In early September, during the 30-day scoping comment period, many of us were busy writing our scoping comments to the **USFWS**. Lisa informed me that the Sonoran Institute-appointed "North Access Team" (Christine

Canaly, Christian Dillo, Katie Getchell, Tamar Ellentuck, Joe Vieira, and Randy Arrendondo) had taken upon themselves the authority to recommend to the Saguache County Commissioners that 7 trailheads that access public lands in the **Sangre Cristo Wilderness Area** be closed to public use. As each of these trailheads crosses thin strips of land owned by **Manitou Foundation** land, the hidden hand behind this effort is most probably that of **Manitou Foundation's** owner, Hanne Strong. Although the North Access Team clearly hoped that the County Commissioners would quickly adopt their recommendation as the sentiment of the entire community and make it illegal for anyone to park at those trailheads, this plan was thwarted when Lisa Cyriaks notified other community members, including the editor of the Crestone Eagle. The issue of trailhead closure was then discussed at two more community meetings. Again, Marjo Curgis of the **Sonoran Institute** appeared again from Grand Junction to facilitate these meetings, the first being on September 15th.

At about this time, I sent out articles to the community via email attachments that point out the anti-democratic nature of "**Smart Growth**," "**Land Trusts**," the "**Delphi Technique**," and **U.N. "Agenda 21"** (referenced below). I also freely shared with the community the information sheets and documents I'd compiled on the history of the **Lexam** operation, as well as the informational letters I'd written to officials included in this website.

In early September, I learned from Lisa that Ceal and Kathryn had sent emails to other members of **WWA** that made put me in a poor light. In these emails, Ceal and Kathryn report that third parties outside our community (Jim O'Donnell and Ron Nadeau) had said something derogatory about me to them. (Of course, since Chris and Kathryn wrote the emails, it is impossible to determine if those individuals actually ever said those things). Not surprisingly, Ceal and Kathryn did not send these particular emails to me. At the steering committee meeting the night before the larger **WWA** meeting, Aurielle suggested I not go to the main meeting since I was "the problem." Having nothing to hide and wanting to clarify the situation, I went anyway. The main meeting, held at Savitri House, was unpleasant. Attending were Pavita Decorah, Kathryn Van Note, Aurielle Andhara, Vince and Mary Palermo, JoAnne Kiser, Lisa Cyriaks, Tom Tucker, Chris Canaly, Ceal Smith, Laraine Apple and her husband Ralph, and myself. Ceal and Kathryn, in turn, both read aloud their email messages that quote these third parties putting me down. However, I apparently succeeded in "turning this around" when I clarified the facts in each case. Chris then stated that she could not and would not work with Lisa and began yelling at Lisa in earnest. Lisa said nothing to defend herself, so I came to her defense. At this point, I suggested that we go around the room and each give an account of what we had contributed to the "Lexam issue." Of course, there was no direct correlation between how long people spoke and what they had contributed. However, it was clear that Lisa and I had contributed the most. Chris Canaly waited until last to speak, and then, assuming the role of group leader, rather than relate her accomplishments, she tried to summarize where we were then and where we needed to go. Nonetheless, regarding the issue of Chris' inability to work with Lisa (and me), the membership gave Chris and Ceal the clear message that they'd better "get over it" and work with us. Thus, yet another coup attempt had failed. In this one, however, the number of obvious coup participants had expanded to include Kathryn, Aurielle, and Larane Apple, as well as Ceal and Chris.

Shortly after this meeting, I received a letter from Dave Montgomery, expressing that it will be best if **WWA** and **SLVEC** operate autonomously henceforth. Note that all these dramatic events are occurring during the **USFWS's** 30-day scoping comment period.

On September 19, there was a steering committee meeting at my house. Although I expected three, Lisa Cyriaks, Aurielle Andhara and myself, to attend, Aurielle was over two hours late coming. So Lisa and I had the meeting ourselves and at Lisa's suggestion, I agreed to postpone the main **WWA** until the following week, from 9/20 to 9/27. When Aurielle arrived late, I filled her in on what we had decided, including postponing the meeting. At this point, Aurielle became extremely irate. In fact, she started yelling and screaming. When I tried to escort her by the arm to

the door, she screamed even louder, if possible: "You touched me! You touched me!" At this point, she slapped me quite hard on the face. I asked her then to please leave.

Near the end of September, Bill Sitkin suddenly started taking an interest in **WWA**. At this time, he came to a couple meetings and requested that I send him emails from our contact in the gas/oil industry that basically had provided me with the information and ideas I used to compile our list of action/tasks (see **Water Watch Alliance** Home Page). On September 30, I sent Bill all this information.

The last meeting I had with **WWA** that fall occurred on Oct. 3. Shortly thereafter, I left Crestone for a three-week trip back east, returning on October 28. While I was gone, Bill Sitkin, Aurielle Andhara and several others were very busy. Upon returning, I opened an email from Bill Sitkin announcing a forum "Drilling on the **Baca National Wildlife Refuge**: What We Need to Know and What We Can Do" sponsored by **Crestone Media** (Bill Sitkin), the newly re-constituted **San Luis Valley Citizen's Alliance (SLVCA)**, now headed by Aurielle, and the **Sierra Club**. At the forum, two movies were shown, including "National Sacrifice Zone" directed by Joe Brown and "Rural Impact," directed by Bill Sitkin. Dr. Theo Colborn of [www.endocrinedisruption.org](http://www.endocrinedisruption.org) also spoke. Aurielle made convincing appeals for people to donate their money to the cause. Money collected at the door as well as solicited donations, amounting to at least a couple thousand dollars, went to Aurielle's **SLVCA**. Was this coup number 22? I've lost track now on the number of coup attempts, but I certainly had been ousted from my group again. Even so, in all, this event certainly helped re-galvanize community support for the effort. Aurielle was able to recruit about twenty volunteers from the 50 to 55 people present at the forum. However, it may be telling that the title of this forum ("Drilling on the **Baca National Wildlife Refuge....**"), like the titles of previous forums hosted by **USFWS**, presumes that the drilling is an inevitable "done deal." Was this intentional? Was our community being manipulated again toward a predetermined objective? Did Bill and Aurielle have outside help and advice in setting this up?

What was the result of Bill and Aurielle's formation of this new group? Well, in addition to galvanizing renewed community support, it seems that in succeeding months, the **SLVCA** was primarily focused on participating within the proscribed boundaries of the **EA** process by writing letters to the **USFWS**. The considerably more ambitious tasks that I had identified in **WWA** before I leaving Crestone on my three-week trip in October were abandoned. These more ambitious tasks might have been more effective for us and much more problematic for **Lexam**. However, now we will probably never know, because **WWA** seems to have been "neutralized" once again.

Since then, **WWA** has become a smaller, but much more convivial, level-headed and trustworthy group. We continue to meet weekly and get things done. The **SLVCA**, again, has been the largest group over the past 6 or 7 months, but recently, due apparently to Aurielle's erratic leadership, all the members of the **SLVCA** steering committee have resigned. Aurielle herself has now apparently stepped down and Lisa Cyriaks is now heading the **SLVCA**, at least for the time being. And Chris Canaly and Ceal Smith continue their efforts in the **SLVEC** and **SLVWPC**. Hopefully, this configuration of groups and strong-willed characters will find common ground in the future and succeed in protecting and preserving the pristine quality of the San Luis Valley.

## What Does It All Mean?

### Some Alternative Hypotheses

Having related this general sequence of events, perhaps this is the time to reflect on their meaning. There can be no doubt whatsoever that there have been repeated, successful efforts to: 1) promote fights within the groups, and 2)



form counter-groups in our community. There is no doubt that Chris and Ceal repeatedly and deliberately tried to "take out" Lisa Cyriaks and me from our leadership roles in **WWA**. Similarly, there's no doubt that Aurielle and Bill Sitkin orchestrated a "take over" of the **WWA** membership, even including Lisa Cyriaks. The question is why and whose interests were thereby served. To answer the question of why; I'd like consider four main "working hypotheses."

**Hypothesis I** is that the difficulties we've had are mainly due to the fact that large egos are involved. The second possibility (**Hypothesis II**) is that Chris and Ceal, in particular, want to leverage this issue into a cash-cow money-maker for their non-profit organizations and themselves. Another possibility (**Hypothesis III**) is that Chris, Ceal, Aurielle, and Bill formed counter-groups because they believed the leadership of **WWA** (Lisa Cyriaks and me) was **too ineffective**. **Hypothesis IV** is that these individuals promoted dissension and formed counter-groups because they believed that the WWA leadership was **too effective**. If so, it is important to consider **Hypothesis V**, which is that some outside interests were served by their actions. If these last two hypotheses are correct, we must question whether or not their goal was to set up a "controlled opposition" (to **USFWS/Lexam's** plans) in order to channel and limit the activities of our community for the benefit of a third party, such as **Lexam**, the **USFWS**, **Manitou Foundation** (run by Hanne Strong, wife of billionaire water, energy, and United Nations magnate, Maurice Strong), or some other interest?

### Have "Intimidation Tactics" Been Used?

Some in our community believe that subtle and overt tactics of manipulation and intimidation have been deliberately used here from the beginning. **WORC's (Western Organization of Resource Councils)** pamphlet "How to Deal with Intimidation" identifies five intimidation tactics commonly used by energy companies, corporations, and government agencies to "neutralize" local groups. These tactics include: 1) refuse to deal with leaders, 2) isolate the group, 3) divide and conquer, and 4) promote fights within groups. Most intimidation is subtle; "such as name calling, covertly organizing a "counter group" to polarize your community, trying to weaken your group by making you respond to rumors and lies about your group, and "divide and conquer" tactics to split you from your friends and allies." Certainly, it appears that each of these tactics has been used here, as indicated in the history outlined above. Formation of "counter-groups" certainly seems to have been done to "divide and conquer," and thereby weaken the opposition to the **Lexam** project. Numerous individuals, most notably Ceal Smith, Chris Canaly, Aurielle Andhara, and Kathryn Van Note, seem to have promoted fighting within the groups. These two tactics alone seem to have confused and discouraged many members from our community from participating in the effort. And polarization of the community, in turn, has led many to isolate the group and refuse to deal with leaders, etc.

**WORC's** pamphlet also lists positive ways to deal with intimidation. These include: 1) deal with the problem immediately, 2) take people's fear of intimidation seriously, 3) discuss exactly what is going on and why openly in your group, 4) turn it around-fast- by exposing the tactic publicly, 5) use the opportunity to strengthen your group. Unfortunately, lacking a background in psychology, I was completely caught off guard by the nastiness and sophistication (?) of the intimidation tactics that seem to have been used here. Because until now, I have not understood that government and/or industry commonly employ these tactics, I have not dealt with these tactics effectively, except that I have refused to quit. Now, however, I believe that all of the above tactics as well as many others have and are still being used in our community.

By way of encouragement, however, **WORC's** pamphlet states: "If you are being intimidated, **never forget why it is happening. It means you are going good work**, and that your opponents are desperate."

### Is Our Community Being "Delphied?"

The Delphi Technique is a proven technique to manipulate groups and communities toward "buying in" to predetermined outcomes. The process was developed by the **RAND Corporation** for the **U.S. Department of Defense** in the 1950's. By the 1960's it was being used:

for the purpose of maneuvering segments of the public into accepting predetermined government policies. The goal of the Delphi technique is to lead a targeted group of people to a predetermined outcome, while giving the illusion of taking public input and under the pretext of being accountable to the public.... One variation is to use a series of meetings.... (Another) is to use a series of surveys to bring out "consensus." The surveys are promoted as information gathering regarding the wishes of the targeted public, but in reality they are designed to manipulate the desired outcome.... The surveys serve to "educate" the people taking the survey. After the first survey is taken, the respondents are given an analysis and told that most people agreed or somewhat agreed on the predetermined outcome. Then usually they are given another survey and asked if they can be flexible and try to rethink the "few remaining" areas of disagreement. When the series are accomplished, the respondents are told that the majority of respondents achieved "consensus" with whatever direction the pollers wanted in the first place. ([www.conspiracyarchive.com/NewAge\\_Change\\_Agents.htm](http://www.conspiracyarchive.com/NewAge_Change_Agents.htm)).

Albert Burns notes that the Delphi technique was "originally intended for use as a **Department of Defense** weapon during the cold war. However, it was soon recognized that the steps of Delphi could be very valuable in manipulating ANY meeting toward a pre-determined end ([www.citizenreviewonline.org/nov\\_2002/lets\\_stop.htm](http://www.citizenreviewonline.org/nov_2002/lets_stop.htm)). In "Using the Delphi Technique to Achieve Consensus," Lyn Stuter states:

The Delphi technique is being used very effectively to change our government from a representative form in which elected individuals represent the people, to a "participatory democracy" in which citizens selected at large are facilitated into ownership of pre-set outcomes. These citizens believe that their input is important to the result, whereas the reality is that the outcome was already established by people no apparent to the participants.

In Educating for the New World Order, B. Eakman notes the Delphi technique requires trained facilitators (aka "change agents") who act as organizers, get each member of a group to express their concerns about some program, project, or policy in question. The facilitator then breaks the group into subgroups or "task forces," urging everyone to make lists and so on. Unbeknownst to the participants, each of these groups may also have another facilitator and there may be spotters dispersed in audience to help the facilitator identify trouble-makers, etc. By breaking the groups into sub-groups, the facilitator learns something about each member of the target group and can identify the "leaders" and those who are "weak or noncommittal."

Indeed, a quick glance at "Using the Delphi Technique to Achieve Consensus" ([www.eagleforum.org/edu/1988/nov98/focus.html](http://www.eagleforum.org/edu/1988/nov98/focus.html)) indicates that a modified version of this technique was probably utilized by the Marjo Curgis of the **Sonoran Institute**, by the **USFWS** in their two "community input" meetings, and by Aurielle Andhara in some of her **SLVCA** meetings. Common techniques used include 1) trying to get attendees to break up into smaller groups, each with its own facilitator, 2) participants are encouraged to put their ideas on paper, with the results to be compiled later, etc.

Why would any external group want to sabotage activist groups in our tiny community of less than 1500 people? First, the potential profits from mining hydrocarbons and/or water from our valley could range from many billions to many trillions of dollars, respectively as indicated in this website (home page and [Rio Grande Basin and San Luis Valley Aquifer: Figure 1. Location of Rio Grande River and Rio Grande](#)). Second, our small community successfully fought off two attempts to pipe water from San Luis Valley to the Denver area in the past (see other page). We also persuaded

the **U.S. Air Force** to move the flight path of training flights away from our community. Other possible reasons to "neutralize" local groups could relate to "**Agenda 21**", the U.N.-devised plan to advance the **New World Order** (i.e. "One World Government") through "sustainable development" and corporate take-over of public lands, **Biosphere Reserves and World Heritage Sites**. (<http://www.freedom21santacruz.net/site/article.php?sid=443>, <http://www.newswithviews.com/Levant/nancy106.htm>, <http://oteroresidentsforum.blogspot.com>). In light of this information, it is may be significant that over 65% of the San Luis Valley land is administered by federal government.

### Some Possibly Pertinent Background Information

1) **Manitou Foundation**, founded by Maurice and Hanne Strong and ostensibly run by Hanne, by virtue of having donated significant amounts of land to various spiritual groups and having employed many local residents over the years, is a major force in local politics. Since Hanne is still married to Maurice, his influence can be inferred. The **Project for the Exposure of Hidden Institutions** ([www.pehi.eu/introduction.htm](http://www.pehi.eu/introduction.htm)) lists **Manitou Foundation**, along with many other groups with which Maurice Strong is involved, including **1001 Nature Club, The Club of Rome, Earth Charter Council, IUCN, United Nations, World Resources Institute, WWR worldwide**, etc., as being among the institutions that really run the world.

2) Maurice Strong is an extraordinary man and internationalist. A Canadian by birth, he was the one who, when he owned the **Baca Ranch**, severed the mineral rights from the surface rights. He established **AWDI (American Water Development, Inc.)** and tried to make billions by exporting the water in the San Luis Valley's confined aquifer in the 1980's. According to Henry Lamb, Executive VP of **The Environmental Conservation Organization, Inc.**, Strong was also VP of **Dome Petroleum** by age 25, first executive director of the **UN Environmental Programme**, founder of **Planetary Citizens**, director of the **World Future Society**, founder and co-chair of the **World Economic Forum**, member of the **Club of Rome**, trustee of the **Rockefeller Foundation** and **Aspen Institute**, and member of the **UN Commission on Global Governance**. He heads the **Earth Council**, which works with the UN to implement the **Earth Charter**, that was written by the committee that he co-chaired with Mikhail Gorbachev and that spells out a global code of conduct based on earth-centered spirituality and globalist values ("Meet Maurice Strong," *Eco-Logic*, Nov./Dec., 1995). (Some of his other affiliations are also listed at this site: [Background on Lexam&#39;s](#) &quot;drillplay&quot; on the Baca National Wildlife Refuge (BNWR)Figure 1. Buffalo in we). In addition, according to Canadian Alan Watt, Strong is a long-time associate of David Rockefeller who, while still working at the United Nations, was brought in as CEO of **Ontario Hydro**, the largest public water system in the world. Again, according to Watt, Strong began the process of "water privatization" there in the 1990's.

2) "**Agenda 21**" is a 300-page, 40-chapter, "soft-law" policy document adopted by the **United Nations Conference on Environment and Development** in Rio de Janeiro in 1992 when Maurice Strong was Secretary General of that conference. 179 nations, including the United States, committed themselves to following "Agenda 21- the UN Blueprint for the 21st Century" at that time.

According to Berit Kjos, in "**Local Agenda 21: The U.N. Plan for Your Community:**"

(Agenda 21) binds governments around the world to the U.N. plan for changing the ways we live, eat, learn, and communicate- all under the noble banner of saving the earth. Its regulations would severely limit water, electricity, and transportation- even deny human access to our most treasured wilderness areas. If implemented, it would manage and monitor all lands and people. No one would be free from the watchful eye of the new global tracking and information system.

In his opening speech at the 1992 UN Conference on Environment and Development, Maurice Strong stated:

... current lifestyles and consumption patterns of the affluent middle class- involving high meat intake, use of fossil fuels, appliances, home and work-place air-conditioning, and suburban housing- are not sustainable. A shift is necessary, which will require a vast strengthening of the multilateral system, including the United Nations.

According to Henry Lamb ("**Agenda 21 and the United Nations**",  
<http://www.crossroad.to/Quotes/globalism/agenda-21.htm>)

The document (Agenda 21) is not legally binding; it is a set of policy recommendations designed to reorganize society around the principles of environmental protection, social equity, and what is called "sustainable" economic development. At the heart of the concept of sustainable development is the assumption that government must manage society to ensure that human activity conforms to these principles. The idea that government is inherently empowered to manage the affairs of society is diametrically opposed to the idea that the just power of government is derived from the consent of the governed. As these conflicting principles collide in the arena of public policy, the people who are governed are losing the ability to limit the power of government. Consequently, government power over people is expanding.

Nowhere is the transformation more dramatic than in the policies governing private property rights and the use of land and its resources... This right is being usurped by government, which now dictates to private property owners how their land may- and may not be used...

This transformation is not the result of a deliberate decision made by elected representatives after fair and public debate. It is the result of years of subtle influence and obscure processes relentlessly imposed through the United Nations agencies and organizations, and a multitude of non-governmental organizations accredited by, and sympathetic to the United Nations' agenda.

Among the most influential non-governmental organizations are the International Union for the Conservation of Nature (IUCN), the Worldwide Fund for Nature (formerly the World Wildlife Fund, and still known as WWF), and the World Resources Institute (WRI). (Maurice Strong has served on the Boards of all three of these organizations!). These three organizations, together with various United Nations agencies and organizations, shaped the policies that are now being implemented in the United States, and around the world, under the banner of sustainable development....

Nancy Levant sums it up like this (<http://oteroresidentsforum.blogspot.com/>)

Near the top of the management system is the United Nations. The U.N., through approximately meetings, conferences, and treaties with approximately 180 countries around the world, including the United States, has become the world's land manager. It now dictates land use policies including water use- globally.

The U.N. created a document called Agenda 21, which defines a plan to ready the world for global governance under the U.N. Knowing that the world's countries were not going to want or appreciate the loss of sovereignty and culture, the U.N. had come up with a method to impose global governance that would create the least global chaos. The method they chose to use was global, ecological crisis.

Beginning in the 1960's, the U.N. began a mission to advertise a global environmental doomsday scenario. They partnered with the world's most radical environmentalists and their organizations to impose wild environmental doomsday claims into every country who had signed globalism treaties with the U.N. These doomsday scenarios were not and are not based on scientific evidence much less proof.

The Nature Conservancy, the largest land trust organization in the world, and The Wildlands Project

partnered with the U.N. and began to orchestrate plans to take approximately one-half of the entire North American continent's land and watershed systems for use as uninhabited nature sanctuaries. People were to be removed from massive tracts of American, Canadian, and Mexican land, and were to be relocated into what Agenda 21 calls "human settlements."...

To date, in the United States, there are at least 47 U.N. Biosphere Reserves (including the Great Sand Dunes National Park- my comment, ETK), and with the help of The Nature Conservancy and many, many of our government agencies and departments, many more biosphere areas are being nominated for take-over. The biosphere areas are then surrounded by conservation "corridors," and then the corridors are re-surrounded by "buffer zones." ***Corridors and buffer zones serve one and only one purpose- to keep people out of the Biosphere Reserves, and all biospheres contain massive watershed systems, timber, and below ground resources- like oil, natural gas, gold, silver, uranium, etc.- the very stuff of corporate desire.***

(Are we starting to "get it?" Do we start to see a connection with the Lexam proposed drilling and the attempt to close trailheads that provide access to our public lands?)

3) In his introduction to **The Local Agenda 21 Planning Guide**, Maurice Strong called for leaders around the world to "undertake a consultative process with their populations and achieve a consensus on **"Local Agenda 21"** for their communities." How do you get local communities to acquiesce to plans that are not at all in their best interests?

a) You work through **NGO's** (non-governmental organizations), using the **"visioning process"** to appoint **"stake holder councils"** to move unsuspecting citizens to create **"sustainable communities"** through **"smart growth."**

b) **NGO's** (such as the **The Nature Conservancy**, Land Trusts, etc.) help establish **Ecosystem Management Plans**, thereby justifying transferring large amounts land from private hands to the public domain with designations like **Heritage Areas** or **Corridor Plans, Biosphere Reserves, Wildlands**, etc.

c) You train facilitators, aka **"change agents,"** to manipulate citizens through the **"consensus process"** ([www.freedom21santacruz.net/site/article.php?sid=379](http://www.freedom21santacruz.net/site/article.php?sid=379)), you use the "Delphi technique" to fool groups into buying in to predetermined agendas, etc., you promote **"communitarianism,"** etc.

## Conclusion

Having presented all this history, information, and various hypothesis, and being ready to stop typing, I leave readers to draw their own conclusions for now. I am confident that those with the intelligence and fortitude to read all this can also add 2 +2 and get 4.

## Appendix II. Life in Small Villages- A Norweigan Yoke

A Dane named Jens was a counter-spy against the Nazis in World War II. He was assigned to contact Ole, also a spy, then living south of Oslo in a small village. Jens was told by superiors to locate Ole for some top-secret information. He was to use the secret passwords, "the sky is blue, the sun is shining, the birds sing." After finding the town, Jens searched for Ole, asking several people if they knew him. They all said there were many Oles and advised him to try the tavern. So Jens found the tavern and approached the bartender to see if he knew Ole. The bartender said, "My name is Ole... but there are so many Oles in this town. Which vun do you vant?"

Jens answered: The sky is blue, the sun is shining, the birds sing"

"Oh!" exclaimed the bartender. "Why didn't you say you wanted OLE THE SPY?!"

## Appendix II: Some Pertinent Quotes

***Three things cannot long remain hidden; the sun, the moon, and the truth.***

### ***The Buddha***

#### ***Knowing our Enemy***

On his website ([www.mcewencaptial.com](http://www.mcewencaptial.com)), Robert R. McEwen, CEO of Lexam Explorations Inc., is shown sitting astride a pile of gold bars stacked like cord wood. His personal emblem is the glove and the lash, symbol of the Roman empire. If you go to his website, click on resources and then quotes, we find some other hints about McEwen's entrepreneurial business philosophy. The person he quotes most often is **Sun Tzu**, author of *The Art of War*. **Sun Tzu** quotes on McEwen's website include:

***Speed is the essence of war;  
Take advantage of the enemy's unpreparedness;***

***Travel by unexpected routes and strike where he has no precautions.***

***Hence, when able to attack, we must seem unable;  
When using our forces, we must seem inactive,  
When we are near, we must make the enemy believe we are far away;  
When far away, we must make him believe we are near.  
If your opponent is of choleric temper, seek to irritate him.  
If he is taking his ease, give him no rest.  
If his forces are united, separate him.***

***Attack him where he is unprepared, appear where you are not expected.***

Not listed on McEwen's site, but certainly implied is *Sun Tzu's* most famous dictum:

***All warfare is based on deception.***

McEwen includes several quotes from **John D. Rockefeller**, Robber Baron extraordinaire, oil cartel monopolist, and most hated man in America during the latter 19th century, who stated:

***The way to make money is to buy when blood is running in the streets.***

McEwen's selection of quotes begins with this sage advice from junk bond billionaire and convicted criminal **Michael Milken**:

***You must never count your money. You just have to keep driving yourself to make more.***

**Milken**, of course, was the model for the Michael Douglas' character, Gordon Gekko, in the movie *Wall Street*. In addition to quoting **Sun Tzu** ("All warfare is based on deception"), Gekko also rhapsodized that "Greed is good."

So here we have pretty good evidence that the men that McEwen most admires are amoral plunderers and Robber Barons who deceive, steal and kill in order to take wealth from others. In short, they fit the classic profile of a "psychopath."

McEwen's selected quotes also indicate that to him, we, the American people, are the enemy. We are to be fooled, disabled, conquered, and robbed. Why? Because we have something he wants. U.S. Army Major Doug Rokke notes that, "strategically speaking, all wars are fought to control resources; water, oil, natural gas, food, land." Warfare by deception and stealth, then, simply becomes the most expedient and safest method of appropriating others' wealth. Interesting isn't it, that the wealth of this great nation which up until now, could never be taken by military force, is being now stolen, incrementally, by the forces of international capitalism- and with the full cooperation of our government, it seems.

Of course, this whole process puts us Americans at a certain disadvantage... We tend to be an insulated, naive, and generous people, and most of us regard our Canadian neighbors to the north as good friends. But here, McEwen is telling us otherwise. Let us hope that enough of us can awake from our comfortable delusions to realize that McEwen and others of his ken are working hard to "Rob" us of our national heritage using stealth tactics and treachery. Yes, we are under attack by terrorists. But the real terrorists wear suits and buy and sell our wealth on the Toronto Stock Exchange.

It is particularly unfortunate for us, the American people, that McEwen has some very powerful allies on Wall Street and in Washington, D.C. Indeed, the highest offices of the U.S. government are occupied with like-minded Robber Barons, whose allegiance is to personal acquisition of wealth rather than to serving God or country. To better understand the history and dynamics of the kind of "private-public partnership" alliances that constitute today's brand of neo-fascism, the following quotes are offered for insight, information, and inspiration.

So for Mr. McEwen and his colleagues, I offer these appropriate quotes:

***No one can serve two masters.... You cannot serve both God and Mammon.***

**Matthew 6:24**

**My land I'll defend with my life if need be  
My pastures of plenty must always be free.**

**Woody Guthrie**

## ***On Economics***

The U.S. government is being run like a franchise by private corporations.

**Michael Ruppert**

Capitalism boils down to this: Privatization of profits, socialization of losses.

**Istvan Meszaros, economist**

This a government of the people, by the people, and for the people no longer. It is a government of corporations, by corporations, and for corporations.

**Rutherford B. Hayes, 19th President**

**There can be no effective control of corporations while their political activity remains.**

**Theodore Roosevelt**

**Laws are like cobwebs, strong enough to detain only the weak, and too weak to hold the strong.**

**Anarcharis, 500 B.C.**

**The corporations.... Have successfully leveraged economic power into political power that undercuts the Constitution.**

**Charles Reich**

**The 20th century has been characterized by three developments of great political importance: the growth of democracy, the growth of corporate power, and the growth of corporate propaganda as a means of protecting corporate power against democracy.**

**Alex Carey**

**I hope we shall crush in its birth the aristocracy of our moneyed corporations, which dare already to challenge our government to a trial of strength and bid defiance to the laws of our country.**

**President Thomas Jefferson, 1816**

**These international bankers and Roosevelt-Standard Oil interests control the majority of newspapers, the columns of papers to club into submission or drive out of public office officials who refuse to do the bidding of the powerful corrupt cliques which compose the invisible government.**

**Theodore Roosevelt, 1919**

**We already know that they (the global economic changes) demand that politicians and statesmen accept the unpopular abandonment of sovereignty. I wouldn't say the nation-state is dead, but the sovereignty has been greatly circumscribed.... even for a country as large as the US.**

**W. Michael Blumenthal, chairman of Unisys**

**Free enterprise refers in practice to a system of public subsidy and private profit with massive government intervention in the economy to maintain a welfare state for the rich.**

**On the domestic front, the Cold war.... gave the U.S. a way to compel its population to subsidize high-tech industry (GE and Boeing, etc., through the Pentagon system). It isn't easy to sell all that to the domestic populations. The technique used was the old stand-by- fear of a great enemy.**

**Noam Chomsky, What Uncle Sam Really Wants**

**There is looming up a new and dark power.... The enterprises of the country are aggregating vast corporate combinations of unexampled capital, boldly marching, not for economical conquests alone, but for political power... The question will arise and in your day, though perhaps not fully in mine, which**



shall rule- wealth or man; which shall lead- money or the intellect; who shall fill public stations- educated and patriotic freemen, or the feudal serfs of corporate capital...

Chief Justice of Wisconsin Edward G. Ryan, 1873

There is something fundamentally wrong in treating the earth as a business in liquidation.

There is no point of contact between macro-economics and the environment.

Herman Daly, World Bank economist

Anyone who thinks you can have indefinite growth on a finite planet is either a madman or an economist.

Kenneth Boulding, economist and former president of American Association for the Advancement of Science

Much of the apparent economic growth may in fact be an illusion based on a failure to account for reduction in natural capital.

Colin Clark

There is enough in the world for man's need, but not for man's greed.

Mohandas Ghandi

## ***On Energy***

In 1859, the human race discovered a huge treasure chest in its basement. This was oil and gas, a fantastically cheap and easily available source of energy. We did, or at least some of us did, what anybody does who discovers a treasure in the basement- live it up, and we have been spending this treasure with great enjoyment.

Kenneth Boulding, 1978

We've embarked on the beginning of the last days of the age of oil.

Mike Bowlin, Chairman and CEO, ARCO (1999)

We need an energy bill that encourages consumption.

George W. Bush, 2002

My father rode a camel. I drive a car. My son flies a jet airplane. His son will ride a camel.

Saudi saying

The resulting estimate gives a peak production year of 2003 and a total eventual oil recovery of 2.12 trillion barrels.... No Caspian Sea exploration, no drilling in the South China Sea, now SUV replacement, no renewable energy projects can be brought on at a sufficient rate to avoid a bidding war for the remaining oil. At least, let's hope that the war is waged with cash instead of nuclear warheads.

Kenneth S. Deffreyes, The Impending World Oil Shortage, 2001

From an economic perspective, when the world runs completely out of oil is... not directly relevant: what

matters is when production begins to taper off. Beyond that point, prices will rise unless demand declines commensurately. Using several different techniques to estimate the current reserves of conventional oil and the amount still left to be recovered, we conclude that the decline will begin before 2010.

Colin Campbell, Scientific American,  
1998

The world's present industrial civilization is handicapped by the coexistence of two universal, overlapping, and incompatible intellectual systems: the accumulated knowledge of the past four centuries of the properties and interrelationships of matter and energy; and the associated monetary culture which has evolved from folkways of prehistoric origin... The monetary system by means of a loose coupling, exercises a general control over the matter-energy system upon which it is superimposed. Despite their inherent incompatibilities, these two systems during the last two centuries have had one fundamental characteristic in common, namely exponential growth, which has made a reasonably stable coexistence possible. But, for various reasons, it is impossible for the matter-energy system to sustain exponential growth for more than a few tens of doublings, and this phase is now almost over. The monetary system has no such constraints, and according to one of its most fundamental rules, it must continue to grow by compound interest.

M. King Hubbert, 1950's

We are in a crisis in the evolution of human society. It's unique to both human and geologic history. It has never happened before and it can't possibly happen again. You can only use oil once. You can only use metals once. Soon all the oil is going to be burned and all the metals mined and scattered.

M. King Hubbert, 1950's

M.King Hubbert's solution: If society is to avoid chaos during the energy decline, it must give up its antiquated, debt- and interest-based monetary system and adopt a system of accounts based on matter-energy- an inherently ecological system that would acknowledge the finite nature of essential resources.

Richard Heinberg, The Party's Over, 2003

Continuing to increase our dependency on petroleum consumption is clearly a suicidal course of action. The only intelligent alternative is to begin reducing energy consumption and finding alternative energy sources for petroleum.

Paul Erlich, 1974

Total energy consumption is projected to increase from 96.1 quadrillion British thermal units (BTUs) to 127.0 quadrillion BTU between 1999 and 2020, an average annual increase of 13 percent.

US Department of Energy, 1999

To avoid deprivation resulting from the exhaustion of nonrenewable resources, humanity must employ conservation and renewable resource substitutes sufficient to match depletion.

Ron Swenson, 2001

We can't conserve our way to energy independence, nor can we conserve our way to having energy available. So we've got to do both.

George W. Bush, 2001

## ***On the Environment***

Today, the dramatic threat of ecological breakdown is teaching us the extent to which greed and selfishness- both individual and collective- are contrary to the order of creation, an order which is characterized by mutual interdependence... An education in ecological responsibility is urgent: responsibility for oneself, for others and for the earth. A true education in responsibility entails a genuine conversion in ways of thought and behavior.

Pope John Paul II

The care of the earth is our most ancient and most worthy and, after all, our most pleasant responsibility. To cherish what remains of it, and to foster its renewal, is our only legitimate hope.

Wendell Berry

The power of science without the control of compassion and admiration for life is too intense to be applied merely for the satisfaction of scientific curiosity.

G. K. Russell

Woe to those who add house to house  
And join field to field  
Until everywhere belongs to them  
And they are the sole inhabitants of the land

Isaiah 5:8

We don't have just a failure of one law, but a series of laws. Toxic pollution is such a potent issue, we have been able to enact more than one law. By and large, they've all been failures.

Curtis Moore, former Republican counsel on the Senate Environment and Public Works Committee

In a highly competitive industry, companies cannot afford to spend their resources on environmental protection, however well conceived the rules, unless they perceive that those rules are backed up by credible enforcement policy.

Chemical Week

What we call the "environmental crisis"- the array of critical unsolved problems ranging from local toxic dumps to the disruption of global climate- is a product of the drastic mismatch between the cyclical, conservative, and self-consistent processes of the ecosphere and the linear, innovative, but ecologically disharmonious processes of the technosphere.

Barry Commoner, Making Peace with the

Planet

### ***On Freedom, Tyranny, and Imperialism***

We hold these truths to be self-evident, that all men are created equal, that they are endowed by their Creator with certain unalienable Rights. When a long train of abuses and usurpations, pursuing invariably the same Object evinces a design to reduce them under absolute Despotism, it is their right, it is their duty, to throw off such Government, and to provide new Guards for their future security.

Declaration of Independence

The result of the corporate take-over of our country in the 20th century has been five major wars, a crippling national debt where before there was none, crippling taxes where before there were few, loss of constitutional rule, a huge prison population, and creation of a vast bureaucracy.

Corporate control of the federal government must end.

Garudas

Tyranny, like hell, is not easily conquered.

Thomas Paine

We can have democracy in this country, or we can have great wealth concentrated in the hands of a few, but we can't have both.

Louis Brandeis, US Supreme Court Justice

It is the duty of the people in the event that government is not responsive to the will of the people to overthrow that government.

U.S. Constitution

The spirit of resistance to government is so valuable on occasion that I wish it to be always alive... What country can preserve its liberties if its rulers are not warned from time to time that its people preserve the spirit of resistance.

We need a revolution every other generation.

Thomas Jefferson

There will never be a free and enlightened State until the State comes to recognize the individual as a higher and independent power, from which all its own power and authority are derived, and treats him accordingly... Government is best which governs least.

Henry David Thoreau

We have given you a republic.... if you can keep it.

The price of liberty is eternal vigilance.

Make yourselves sheep and the wolves will eat you.

Ben Franklin

The only maxim of free government ought to be to trust no man living with power to endanger the public liberty.

John Adams

The rich will strive to establish their dominion and enslave the rest. They always did, they always will. They will have the same effect here as elsewhere if we do not, by the power of government, keep them in their proper spheres.

Governor Morris in a letter to James Madison (1787)

### ***On the Importance of the Press***

If a nation expects to be ignorant and free, it expects what never was and never will be.... The People cannot be safe without information. When the press is free, and every man is able to read, all is safe.

Thomas Jefferson

Those who would trade an essential liberty for temporary security deserve neither liberty nor security.

Ben Franklin

The people never give up their liberties but under some delusion.

Edmund Burke

The liberty of the press is essential to the security of the state.

John Adams

Freedom of the Press, if anything, means the freedom to criticize and oppose.

**George Orwell**

Six multinational corporations deliver the majority of all information Americans get from radio, television, newspapers, and the internet.

**Thom Hartmann**

These international bankers and Roosevelt-Standard Oil interests control the majority of newspapers, the columns of papers to club into submission or drive out of public office officials who refuse to do the bidding of the powerful corrupt cliques which compose the invisible government.

**Former President, Theodore Roosevelt, 1919**

The warning of Theodore Roosevelt has much timeliness today, for the real menace of our republic is this invisible government which like a giant octopus sprawls its slimy length over city, state, and nation. It seizes in its long and powerful tentacles, our executive officers, our legislative bodies, our schools, our courts, our newspapers, and every agency created for the public protection.

To depart from mere generalization, let me say that at the head of this octopus are the Rockefeller-Standard Oil interests and a small group of powerful banking houses generally referred to as the international bankers. This little coterie of powerful international bankers virtually run the United States government for their own purposes. They practically control both parties, write political platforms, make catpaws of party leaders, use the leading men of private organizations and resort to every device to place in nomination for high public office only such candidates as will be amenable to the dictates of corrupt big business.

These international bankers and Rockefeller-Standard Oil interests control the majority of newspapers and magazines in this country.

**John Hylan, Mayor of New York, 1922**

Information is the currency of democracy.

The man who reads nothing at all is better educated than the man who read nothing but newspapers. (Or the future man who consumes nothing but TV reality).

Advertisements contain the only truth to be relied upon in the newspaper.

**Thomas Jefferson**

Freedom of the press belongs to the man who owns one.

**Joe (A.J.) Leibling**

Three hostile newspapers are more to be feared than a thousand bayonets.

Napoleon Bonaparte

The liberty of the press is essential to the security of the state.

John Adams

There is no such thing, at this date of the world's history, as an independent press. You know it and I know it.... The business of the Journalist is to destroy the truth; to lie outright, to pervert, to vilify, to fawn at the feet of mammon, and to sell his country and his race for his daily bread. You know it and I know it and what folly is this toasting an independent press? We are the jumping jacks, they pull the strings and we dance. Our talents, our possibilities and/or our lives are all the property of other men. We are intellectual prostitutes.

John Swindon, Editor, New York Times, ca. 1880

Political language... is designed to make lies sound truthful and murder respectable, and to give an appearance of solidity to pure wind... The first step in liquidating a people is to erase its memory.

George Orwell

The media are far more powerful than the President in creating public awareness and shaping public opinion, for the simple reason that the media always have the last word.

Richard Nixon

## ***ON FASCISM***

Fascism should more properly be called 'corporatism', since it is the merger of state and corporate power.

Italian (fascist) dictator, Benito Mussolini

We stand for the maintenance of private property.... We shall protect free enterprise as the most expedient, or rather the sole possible economic order.

Adolf Hitler

Whenever you have private business take over the functions of government from the people, this is fascism.

The liberty of democracy is not safe if the people tolerate the growth of private power to a point where it becomes stronger than their democratic state itself. That, in its essence, is Fascism- ownership of government by an individual, by a group or by any controlling private power.

The real truth of the matter is, as you and I know, that a financial element in the large centers has owned the government ever since the days of Andrew Jackson.

**Franklin D. Roosevelt, 1933**

As a result of the war, corporations have been enthroned and an era of corruption in high places will follow, and the money power of the country will endeavor to prolong its reign until all wealth is aggregated in a few hands, and the Republic is destroyed.

**Abraham Lincoln, 1964**

The money power preys upon the nation in times of peace and conspires against it in times of adversity. It is more despotic than monarchy, more insolent than autocracy, and more selfish than bureaucracy.

**Abraham Lincoln**

To announce that there must be no criticism of the president, or that we stand by the president right or wrong, is not only unpatriotic and servile, but it is morally treasonable to the American public.

**Theodore Roosevelt, 26th President**

The purpose of Fascism is to defend by violence the private ownership of the means of production, even though our modern civilization has become incompatible with a social system based on private ownership.

Fascism is big business armed with bayonets.

The love of money is the root of all Fascism.

**Grant Singleton**

Fascism is capitalism plus murder.

**Upton Sinclair**

Fascism in America will attempt to advance under the banner of Americanism and anti-Fascism.

**Georgi Dimitrov**

Fascism is capitalism in decay.

**V.I. Lenin**

Our forefathers would think it is time for a revolution. This is why they revolted in the first place.

**Republican Congressman Ron Paul, on "The Patriot Act", 2001**

The main enemy of the open society, I believe, is no longer the communist but the capitalist threat.



George Soros

458 billionaires possess more wealth than do half of humanity.

Charles Derber

It would be easy for us, if we do not learn to understand the world and appreciate the rights, privileges and duties of all other countries and peoples, to represent in our power the same danger to the world that Fascism did.

Ernest Hemingway

People who shut their eyes to reality simply invite their own destruction.

James Baldwin

Ultimately, the "war on terrorism" is about global control by US corporations and the World Trade Organization. It wants to strike down public ownership, social organizations and institutions, and substitute control by the strong and rich over the weak and poor.

Alexander Cockburn, *Whiteout: The CIA, Drugs and the Press*

The U.S. harbors more terrorists than any other state.

William Blum

In politics nothing happens by accident, if it happens you can bet it was planned that way.

FDR

The lie can be maintained only for such time as the State can shield the people from the political, economic and/or military consequences of the lie. It thus becomes vitally important for the State to use all of its powers to repress dissent, for the truth is the mortal enemy of the lie, and thus by extension, the truth is the greatest enemy of the State.

Joseph Goebbels. German Minister of Propaganda 1933-1945

Our gross national product now is over 800 billion dollars a year. But that gross national product, if we judge the United States of America by that, counts air pollution, and cigarette advertising, and ambulances to clear our highways of carnage. It counts special locks for our doors and the jails for the people who break them. It counts the destruction of the redwoods and the loss of our natural wonder in chaotic squall. It counts napalm, and it counts nuclear warheads, and armored cars for police to fight the riots in our cities. It counts Whitman's rifles and Speck's knives and the television programs which glorify violence in order to sell toys to our children.

Yet, the gross national product does not allow for the health of our children, the quality of their education, or the joy of their play. It does not include the beauty of our poetry or the strength of our

marriages, the intelligence of our public debate or the integrity of our public officials. It measures neither our wit nor our courage, neither our wisdom nor our learning, neither our compassion nor our devotion to our country. It measures everything in short, except that which makes life worthwhile.

Presidential candidate, Robert F. Kennedy, 1968

The powers of international capitalism had a far-reaching plan, nothing less than to create a world system of financial control in private hands to dominate the political system of each country and the economy of the world as a whole. This system was to be controlled in a feudalistic fashion by the central banks of the world acting in concert by secret agreements arrived at in frequent meetings and conferences.

The apex of the system was to be the Bank of International Settlements in Basel, Switzerland, a private bank owned and controlled by the world's central banks which were themselves private corporations. Each central bank... sought to dominate its government by its ability to control treasury loans, to manipulate foreign exchanges, to influence the level of economic activity in the country, and to influence cooperative politicians by subsequent economic rewards in the business world.

Professor Carroll Quigley, *Tragedy and Hope*, 1966

Banking is conceived in iniquity and born in sin. Bankers own the earth. Take it away from them, but leave them the power to create money and control credit, and with the flick of a pen they will create enough money to buy it back again. Take this great power away from the bankers and all great fortunes like mine will disappear and they out to disappear for this would be a better and happier world to live in. But if you want to continue the slaves of bankers and pay the cost of your own slavery, let them continue to create money and control credit.

Sir Josiah Stamp, Director of the Bank of England, 1920s

A handful of companies now call the shots. They own Congress. They own us... To keep our jobs we have had to give up decent health care, the 8-hour day and time with our kids, the security that we'll even have a job next year, and any unwillingness we may have to compete with a 14-year old Indonesian girl who gets a dollar a day.

Michael Moore

## ***On Truth Vs. Lies***

In our country the lie has become not just a moral category, but a pillar of the state.

Alexander Solzhenitsyn

The lie is biblically portrayed as the first and most poisonous source of injustice. Truth-telling is absolutely essential for the life and health of the whole community.

Andre Dumas

The principles of a free Constitution are irrevocably lost when the legislative power is dominated by the

executive.

Edward Gibbon

American foreign policy is to bomb Third World countries, set up a client government, and establish military bases to control the flow and profits from oil and illegal drugs.

Paraphrase of William Blum

During the past two centuries when the peoples of the world were gradually winning their political freedom from the dynastic monarchies, the major banking families of Europe and America were actually reversing the trend by setting up new dynasties of political control through the formation of international financial combines.

Alan B. Jones, *How the World Really Works*, 1996

The Free Trade Area of the Americas (FTAA) agreement amounts to "an annexation of Latin America by the United States."

Brazilian President Luiz Inacio Lula da Silva, 2002

Henry Kissinger's National Security Council Study Memorandum 200 recommends that a program of population reduction be aimed at a list of 13 countries that produce raw materials that the U.S. needs. (These include Brazil, India, Egypt, Mexico, Ethiopia, Columbia and others)... The elites wish to reduce the targeted Third World populations to a bare subsistence in order to reduce to a minimum the costs of producing the raw materials on the lands which the elites are presently trying to wrest from those target countries in the name of world environmentalism.

Alan B. Jones