

**Adams County
Community and Economic Development Department
Development Review Comments**

	Case Number: USR2016-00005		Case Name: Great Western Ocho	
	Applicant: Great Western		Date Initiated: 1/10/17	
Referral Comment No.	Mapped?	Reviewer Initials	County Comment	Applicant Response (date)
1	TBD	CS	Staff has reviewed comments and is discussing Oil and Gas traffic impacts internally to determine a timeline for an Adams County Transportation Study	<p>GWOG appreciates Commenter's (J. Gamble) commendation on rerouting our traffic access route. We also have revised the Traffic Impact Study to hopefully present a more precise picture of traffic during and post Operations phases. The initial study was based on information and format provided by other operators on previous permits. After discussions with ADCO staff members several activities were added as well as we revised the study to more accurately reflect actual operations phases, including light and heavy truck counts for each activity. The Traffic Impact Study has now also been reviewed and stamped by a Colo. Registered Professional Engineer (P.E.).</p> <p>GWOG agrees that our sites should be secure. Great Western will comply with Colorado Oil and Gas Conservation Commission (COGCC) rule 604.c(2)M regarding site security. At a minimum, GWOC will install appropriate fencing to restrict access by any unauthorized persons. This fencing may vary depending on the site-specific situation. Fencing is noted on facility layout diagrams (page 16 of our site plan) for the production phase of operations. The site is attended 24 hours per day during drilling and completion operations and strict admittance requirements are followed. Great Western plans to have wrought iron fencing around all well equipment as depicted on Page 16 on the proposed Ocho Site plan.</p> <p>Fencing will be installed as per ADCO requirements.</p>
2	TBD	CS	Staff has reviewed comments and is evaluating how Conditionals of Approval (COAs) may be used to	GWOG takes our activities and any related impacts seriously including their potential effect on the environment and the

			mitigate impacts	<p>safety of neighbors and our employees. Colorado has the most stringent regulations relating to oil & gas operations in the U.S., and we are well ahead of most states in regulation and reductions of air emissions. Carbon emissions have declined significantly due to the use of natural gas versus coal for energy generation. The approximate relative ground surface footprint (eg. acres) to produce an equal output of energy from wind turbines is 33 times larger, and from a solar field 6 times larger, than a single average U.S. natural gas/oil well.</p> <p>Environmental Facts regarding Natural Gas use: Natural gas-fired generation has the potential to: -Reduce carbon monoxide and particulate emissions by 90% -Emit 80% less nitrogen oxide (NOx) than burning coal -Emit virtually no SO2 or Mercury</p> <p>Hydraulic fracturing is a proven and safe technique used by industry for over 60 years.</p> <p>GWOG plans to install walls around the site to mitigate and minimize noise and light impacts during the drilling and completions phases of operation. Noise levels from our operations will meet or be below requirements set by the state. In addition light sources will be directed downwards, and away from occupied structures where possible. Once the drilling and completion activities are finished, there will be no permanently installed lighting on site.</p> <p>We agree that the use of ‘sustainable’ energy types is an important piece of the overall energy blueprint. Unfortunately at this time there is not sufficient sustainable generation to meet society’s growing needs, and new generation of sustainable energy sources is a high-cost solution for consumers.</p>
3	TBD	CS	Staff has reviewed comments. Traffic route enforcement lies with the County and will be enforced by an Adams County Code Enforcement Officer or the Adams County Oil and Gas Inspector. Signed Traffic Study has been requested	After receiving citizen input GWOG has abandoned the 144 th access route and replaced it with the I-25 access directly to Highway 7 east to Monaco and south to the pad location. The Traffic Impact Study has been revised and reviewed and stamped by a Colo. Registered Professional Engineer (P.E.). An access route from E-470 to either Monaco or Highway 7 was deemed impracticable.
4	Yes	CS	Staff has reviewed comments and is evaluating how Conditions of Approval (COAs) may be used to	Mineral rights are also ‘property rights’ just as real estate is a property right. Recovering the minerals from mineral leases

			mitigate impacts	<p>is based on where commercially obtainable minerals are located and can be accessed from on the surface. In many cases Operators are very limited in surface location choices to access the minerals.</p> <p>Colorado is known for expansive soils in many areas where oil and gas development has occurred. The COGCC requires, and Industry takes significant steps to avoid the issues of concern raised by the commenter regarding ensuring the protection of ground water resources. Redundant layers of protective steel casing and cement are utilized in the borehole to isolate the borehole and produced fluids and prevent potential releases to the environment.</p> <p>The redundant levels of protection at the Ocho site include a surface casing to a depth of 1700-feet which is cemented in place to the surface. GWOG goes beyond COGCC's minimum requirements for the depth of surface casing and will install surface casing to a depth of 1700-feet. Production casing is then installed and cemented all the way to surface (COGCC requirement is for cement to 200-feet above the shallowest producing zone only) and a cement bond log (CBL) is run to confirm cement density. On the surface all chemical or oil storage vessels are required to have minimum 110% containment capacity for the largest tank inside any containment structure. GWOG uses a minimum 150% containment capacity and it is constructed of corrugated steel with man-made liners underlying each containment structure and welded to the containment walls. GWOG also maintains a Spill Prevention Control Countermeasures (SPCC) Plan and makes regular formal and informal inspections looking for leaks or releases. If a release is encountered it is repaired and cleaned up as soon as practicable (typically immediately) and reported and tested as per state and county requirements until meeting state standards for cleanup.</p>
5	TBD	CS	Staff has reviewed comments- noise and traffic are of significant concern. Staff is evaluating how Conditions of Approval (COAs) may be used to mitigate impacts	<p>GWOG plans to install walls around the site to mitigate and minimize noise and light impacts during the drilling and completion phases of operation. Noise levels from our operations will meet or be below requirements set by the state. In addition light sources will be directed downwards, and away from occupied structures where possible. Once the drilling and completion activities are finished, there will be no</p>

				<p>permanently installed lighting on site.</p> <p>The drilling location will have the required mud-tracking pad to reduce mud tracked onto Monaco Street. Additional measures are being considered to reduce tracking onto Highway 7.</p> <p>The earthquakes mentioned by the commenter are all related to deep injection wells, and are not related to hydraulic fracturing. There are no injection wells near the proposed pad and Colorado has instituted stringent requirements including pre-approval geologic studies and fault identification and also related to injection pressure restrictions and injected water volumes to reduce the chances of earthquakes occurring.</p>
6	Yes	CS	Staff has reviewed comments and is evaluating how visual mitigation Conditions of Approval can mitigate these concerns	<p>Home valuations are typically affected by numerous factors and it is difficult to ever pinpoint any exact or single reason when properties lose value in an area relative to the general market. There have been independent studies in Colorado that show no appreciable devaluation due to oil and gas activity and there may be other studies that show other results. GWOG will utilize low-profile tanks on the proposed pad to help mitigate the potential visual impacts. Wrought iron fencing will be constructed around all pieces of equipment and vegetative mitigation (as per page 16 of our site plan) will also be used to help relieve potential visual impacts.</p>
7	Yes	CS	Staff has reviewed comments; air pollution is of significant concern to the commenter.	<p>GWOG plans to install walls around the site to mitigate and minimize noise and light impacts during the drilling and completions phases of operation. Noise levels from our operations will meet or be below requirements set by the state. In addition light sources will be directed downwards, and away from occupied structures where possible. Once the drilling and completion activities are finished, there will be no permanently installed lighting on site.</p> <p>Please see the above response to Comment # 6 regarding property values.</p> <p>Please see the above response to Comment #6 regarding visual mitigations.</p> <p>All oil and gas facilities are required to have a storm-water runoff permit and to implement both operational practices and install and maintain site border controls to restrict run on and runoff to and from the pad.</p> <p>Please see the above response to Comment # 4 regarding</p>

				<p>protection of ground water resources. Please see the above response to Comment #2 regarding air emissions and protections. We define 'Heavy' vehicles as those rated over 1-ton capacity and 'Light' vehicles as 1-ton or under (typically pickups and small flatbed vehicles).</p>
8	Yes	CS	Staff has reviewed the comments, it is a reiteration of referral comment 7	Identical comments as in Comment 7.

Agency Referral Comments:

- 1) City of Thornton referral comments:
 - a. Request visual mitigation.
 - b. Requests an updated emergency management plan for this site
 - c. Requests fire suppression equipment and supplies on site
 - d. Requests right hand turns only with respect to traffic route

Great Western Response to Comments:

- a. Visual mitigation has been addressed in our application for both the drilling/completions phases and the post completions phase.
- b. Emergency Response Plan has been updated and resubmitted.
- c. Fire suppression equipment is always onsite during the drilling/completions phases of a project. In addition, all Great Western Operations personnel carry ABC fire extinguishers for extinguishing small fires. Great Western has received a "will-serve" letter from the North Metro Fire Rescue Department. Great Western will also meet with the Fire Rescue Department prior to initiating drilling activities to brief them on the site and emergency contacts etc.
- d. While the City of Thornton desires right hand turns only, Adams County Development Review Engineering has reviewed this comment and does not deem right hand turns necessary, and this is addressed in Greg Labrie's comments.

- 2) School District 27J has no objections to the case
- 3) Xcel Energy has no apparent conflict

General comments:

- 1) Traffic concerns for Hwy 7 due to increase of Oil and Gas traffic have alternate routes such as E470/NW Parkway been considered?

GWOG Response:

This concern is addressed above in response to public Comment # 3 above as follows: After receiving citizen input GWOG has abandoned the 144th access route and replaced it with the I-25 access directly to Highway 7 east to Monaco and south to the pad location. The Traffic Impact Study has been revised and reviewed and stamped by a Colo. Registered Professional Engineer (P.E.). An access route from E-470 to either Monaco or Highway 7 was deemed impracticable.

- 2) What is the timeline of the visual mitigation plan which includes landscaping and fencing?

GWOG Response:

Visual and noise mitigation walls will be installed prior to drilling and completions phases at the site. The walls will be removed post completions phase. Great Western will work with Adams County on specific visual mitigation dates. Typically the fencing is installed as soon as practicable after the completions phase and the vegetation planted in the first growing season (spring or fall) after interim reclamation is completed. This is typically less than a year after completions are finished. At present the plan is to fence all site equipment with wrought-iron fencing and plant vegetation, including trees, along the east, west, and north sides of the project area.

- 3) Provide a general timeline for the phases of development, including the estimated date of completion of all of the proposed wells.

GWOG Response:

GWOG will initially complete a Phase 1 drilling/completions program for 4 wells. This is scheduled to begin in approximately April 2017. An additional phase or phases are dependent on numerous factors including but not limited to; initial well results, commodity prices, rig and completion equipment availability, etc. Additional phase(s) might begin in first quarter 2018 but an exact date is impossible to predict at this time.