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Tapping America's Unconventional Oil Resources for Job Creation and Affordable  
Domestic Energy: Technology, Policy and Legislative Pathways

Mr. Chairman Lamborn, and members of the committee. Good morning. I am Jack Ekstrom, Vice President of Whiting Petroleum Corporation, a Denver-based, New York Stock Exchange traded Exploration and Production Company. Whiting was founded in 1980 and has endured the ups and downs of the E&P business since then. Whiting became a publicly traded company in 2003 and through acquisitions doubled the size of the firm in 2004 and again in 2005. Those acquisitions provided three assets that today comprise approximately 95% of our 345 million barrels of oil equivalent (BOE) reserves. Those assets are the Postle Field, located in Texas County, Oklahoma; the North Ward Estes Field located in Ward and Winkler Counties, Texas; and several properties in the Williston Basin of North Dakota that provided Whiting with the toe hold that has allowed us to become the number three oil producer in that state.

What sets Whiting apart from many of our peers is we are an oil company. Based on either production or reserves we are approximately 85% oil. In the first quarter of 2013 our net production was just over 89,000 BOE per day. What has enabled Whiting to grow production from 33,100 BOE per day in 2005 to over 89,000 BOE per day in 2013 is technology. Drilling horizontal Bakken wells in North Dakota is not a new concept. In the late 1980s and early 90s several operators were drilling horizontal wells in the Bakken. However it was taking them XXX days and they were relying totally on Mother Nature to provide the fracturing. Sometimes she provided it, sometimes she did not. That activity was followed by a round of drilling in 2000 through 2005 in the Elm Coulee Field in Richland County, Montana. In this round of drilling, horizontal wells were drilled not in the Bakken Shale, but in a dolomitic section in what was identified the Middle Bakken. These 4000 to 7000 foot laterals were fracture stimulated with one big frac job. This effort was very successful and was responsible for the big production increase that occurred in Montana during the early part of this century.

Whiting did not have a material lease position in the Bakken in Montana, so we tasked our technical staff to look other places in the Williston Basin and in other basins where we might repeat what had occurred in the Elm Coulee field. We had learned that we probably did not want to drill in the shale, we needed a poor grade reservoir rock to provide the conduit for the oil to get from the shale to the horizontal wellbore. Staff identified an area on the Eastern side of the Williston Basin in a very lightly drilled area in Mountrail County, North Dakota. Whiting leased around 100,000 acres and drilled several wells utilizing the same technology that had been employed in Montana and the results were not very encouraging. Other operators were also attempting to get the Bakken to produce in North Dakota and they were also having mixed results. In August of 2007 Whiting drilled a well named the Locken 11-22H. This well was drilled across two sections, two square miles, with a lateral length of approximately 10,000 feet. A new Frac Point technology being developed by Baker Hughes was utilized where we ran 10 swell packers on the outside of the 4-1/2" diameter pipe that was installed in the horizontal portion of the well. When swell packers come in contact with hydrocarbons, they adsorb the hydrocarbon, swell, and create a seal between the pipe and the rock

walls of the borehole. This segregates the horizontal wellbore into 10 separate sections. In between each set of swell packers is a sliding sleeve that is opened by dropping successively larger ceramic balls to activate the sleeves. This allows the horizontal wellbore to be hydraulically fracture-stimulated 10 times, rather than just a single time as earlier technology allowed. This technology was a game changer. The Locken had an initial production rate over 1600 BOE per day.

Today, in the Bakken, Whiting drills down 10,000' vertically, close to two miles, turns and drills a 6-1/4" diameter hole horizontally for another two miles. We run 4-1/2" pipe in the well. Sliding sleeve technology has advanced and now allows us to run up to 40 sliding sleeves and swell packers on the outside of the pipe. The drilling rig is moved off, production facilities are constructed, frac tanks are moved on location and filled with up to 50,000 barrels (2.1 million gallons) of water. A pressure pumping company is moved on location and the wells are frac'd with up to 2 million pounds of sand in 40+/- individual frac stages. This entire fracture stimulation treatment is completed in around 24 hours. The pressure pumping company is moved off location and the well is placed on production.

Our goal is to have zero gas emissions from the well during flowback. The associated gas produced with the Bakken oil must be processed before it can be sold. The gas has a high BTU content in its native state. Whiting has constructed two gas plants in North Dakota; one in Mountrail County and a second in Stark County to process this gas. Liquids are removed from the gas and we sell the residue into the local market. We are processing as much gas from other operator's wells as we are from the wells Whiting has drilled. We have built two oil gathering systems and we are transporting as much of the produced oil as possible from the basin via pipeline.

If the frac job is performed in Sanish Field, a micro-seismic survey of the frac is recorded to determine what portion of the reservoir was frac'd. In March of 2010 Whiting completed the installation of 298 permanent seismic monitors across the Sanish field. This installation allows us to record data and map the fracture stimulations to determine the rock volume contacted with the frac job.

I am going to switch gears and talk a bit about our Enhanced Oil Recovery projects. We are utilizing CO2 to recover an additional 15 – 20% of the oil in these reservoirs. At North Ward Estes, in Texas we are injecting 325 million cubic feet per day of CO2 managing 790 patterns containing more than 2,000 wells total. About one half of the CO2 we inject stays in the reservoir. The CO2 that is recycled is separated, purified utilizing a membrane technology and re-injected. Whiting has recently executed a contract with Summit Energy to utilize the CO2 from their coal gasification plant.

Much of what I have discussed would not have been possible even five years ago. Unconventional resource plays and technology have impacted every facet of our

business from consummating the lease to reporting production. Because of the size of the resource plays we have gone from leasing portions of townships to leasing counties. To assist with this effort we have digitized lease records for entire counties. We routinely drill a 20,000' horizontal well in 15 to 20 days. We utilize technology to send information being recorded at the bit to the surface in real time. The engineers and geologists in Denver can access this information at their desk. Sliding sleeve technology has continued to advance. Whiting was the first company to pump a 24 and 40 stage frac utilizing sliding sleeves.

We have a rock lab located in our Denver office where we have two scanning electron microscopes (SEM) to help us understand how oil is produced from these unconventional reservoirs. The resolution with these microscopes is about a nanometer, about the size of a methane molecule. The Helios Nanolab 650 SEM allows us to create a 3D visualization of a cube of the reservoir rock. With this 3D visualization we can examine the size and shape of the pore throats in the rock. What we have learned is although natural gas will flow through a shale, i.e. the Barnett, oil molecules are too large to fit through the pore throats. We need to find a pseudo-reservoir located in proximity to the shale to allow oil to be produced. Our goal is to transfer what we have learned in North Dakota to other basins. We are actively working in the DJ Basin in Colorado and the Delaware Basin in West Texas. In each of these areas our results are encouraging. We believe there is potential to utilize what we know in several other prospects located in other basins in the Lower 48 states.

How does this translate into jobs? When Whiting went public in 2003 we had 110 employees. As of May 1, 2013 Whiting employed 850 individuals. In Whiting we now have more than 180 open positions. Today we have 24 drilling rigs in operation. A drilling rig employs approximately 25 individuals. A frac crew employs approximately 65 individuals and we have two full time frac crews employed. There are approximately 40 vendors involved in the drilling of a well. If each vendor had one employee, that would be another 40 jobs. Add it all up and it approaches 600 indirect jobs created by our activity. These people need a place to live, they need food, and schools and Wal-marts. The impact of our efforts on the economy is far reaching.

A topic getting a fair share of attention these days is the price of gasoline at the pump. Oil companies get lumped together and get blamed for the price of gas. In this regard, Whiting is similar to the farmer, we are price takers. We try to protect our cash flow utilizing hedges and the commodity markets but we have little influence on the overall price. To impose legislation that would make it more expensive to produce oil would make no sense. Along those lines, the Keystone XL pipeline was (or is) scheduled to transport around 200,000 barrels per day of North Dakota production to the refining markets. This would be most beneficial and help alleviate the high price differentials that have been experienced in North Dakota. This would improve the net backs and increase the royalties paid to the Federal Government, the State of North Dakota and the mineral interest owner.

We are fortunate that oil-bearing shales, such as the Bakken in North Dakota and Montana, the Niobrara in Wyoming and Colorado and the Eagle Ford in Texas exist in the US. Much of the surface and mineral ownership in these locales is by individuals with a minor ownership by the federal and state governments. Obtaining permits from the state agencies is a reasonable process. Areas where we are having difficulty are on Forest Service lands in Stark County, North Dakota and in the Pawnee Grasslands in Weld County, Colorado. The average time to receive an approved federal drilling permit is 298 days. On average we receive an approved drilling permit from North Dakota and Colorado regulators in less than 40 days.

Whiting, like the vast majority of our peers, strives to be a good steward of our assets for our shareholders, for the state and governmental areas where we operate, and for the mineral interest owners who have allowed us to develop their resource. We strive to be good stewards of the environment to preserve the environmental resource for future generations.

I am providing a Whiting map of operations in a portion of Colorado to the committee. It provides graphic evidence of how our operational focus, and many other operators, is on private and state-owned lands. On this map the green shaded acreage is federally owned. Many of these tracts are relatively small and are surrounded by state and private acreage that has been leased. These federal lands have been nominated multiple times in recent years, but they have never been offered, though our conversations with leasing authorities have made clear we as lessees would be happy to accept “no surface occupancy” stipulations. Nevertheless, the lands are not offered and US citizens are denied the multiple benefits associated with their development.

This is not only the case in North Dakota. The federal government owns millions of acres prospective for oil and gas across the Inter-Mountain West. The unmistakable conclusion is that the prosperity, the jobs, the harvest of domestic resources – from unconventional oil and gas plays, enhanced recovery projects and technology breakthroughs to come – can only be realized to their potential by mandating the Department of the Interior devise and publicize a plan to: encourage development, provide leasing certainty and streamline oil and gas permitting.

Thank you for the opportunity to present our views.