ALASKA STATE LEGISLATURE
HOUSE RESOURCES STANDING COMMITTEE
Anchorage, Alaska
November 1, 2011
10:01 a.m.

MEMBERS PRESENT

Representative Eric Feige, Co-Chair
Representative Paul Seaton, Co-Chair
Representative Peggy Wilson, Vice Chair
Representative Alan Dick
Representative Bob Herron
Representative Scott Kawasaki

MEMBERS ABSENT

Representative Neal Foster
Representative Cathy Engstrom Munoz
Representative Berta Gardner

OTHER LEGISLATORS PRESENT

Representative Carl Gatto
Representative Mike Hawker
Representative Charisse Millett (via teleconference)
Senator Tom Wagoner
Senator Cathy Giessel
Senator Lyman Hoffman

COMMITTEE CALENDAR

OVERVIEW(S): IMPEDIMENTS TO FILLING THE TRANS-ALASKA PIPELINE; INTERAGENCY SHALE TASK FORCE

- HEARD

PREVIOUS COMMITTEE ACTION

No previous action to record

WITNESS REGISTER

WILLIAM BARRON, Director
Division of Oil and Gas
Department of Natural Resources
Anchorage, Alaska

POSITION STATEMENT: Provided overviews entitled "Shale Oil Development on the North Slope" and "Changing Dynamics of North Slope Development."

ED DUNCAN, President & Chief Operating Officer
Great Bear Petroleum LLC
Anchorage, Alaska
POSITION STATEMENT: Provided an update regarding the shale play in Alaska.

BOB HEINRICK, Vice President of Finance and Administration
ConocoPhillips
Anchorage, Alaska
POSITION STATEMENT: Discussed impediments to filling the pipeline and achieving the governor's goal of increasing North Slope production over the next 10 years.

ACTION NARRATIVE

10:01:38 AM

CO-CHAIR PAUL SEATON called the House Resources Standing Committee meeting to order at 10:01 a.m. Representatives Seaton, Feige, P. Wilson, and Herron were present at the call to order. Representatives Dick and Kawasaki arrived as the meeting was in progress. Representatives Gatto, Hawker, and Millett (via teleconference), and Senators Wagoner, Hoffman, and Giessel were also in attendance.

Overview(s): Impediments to Filling the Trans-Alaska Pipeline; Interagency Shale Task Force

10:02:15 AM

CO-CHAIR SEATON announced that the committee would receive an overview regarding shale development and impediments to filling the Trans-Alaska Pipeline System (TAPS).

10:05:29 AM

WILLIAM BARRON, Director, Division of Oil and Gas, Department of Natural Resources, began by referring to his presentation entitled "Shale Oil Development on the North Slope". He reminded the committee that the State of Alaska created a multi-agency task force, the members of which represent DNR, the Department of Environmental Conservation (DEC), the Alaska Oil and Gas Conservation Commission (AOGCC), the Alaska Department

of Fish & Game (ADF&G), the Department of Transportation & Public Facilities (DOT&PF), and the governor's office. The intent of the task force was to review the conditions, obstacles, permitting, and requirements associated with shale. The task force was also to consider whether the state was adequately prepared to move forward with shale development, and if not, to identify the gaps. The most critical point is that the state is well positioned to manage the shale resource play based on current statutes and regulations. He then emphasized that the drilling of a shale well is no different than the drilling of a conventional well. The requirements associated with the state's permits and regulations to drill a conventional well more than adequately cover the conditions and issues associated with drilling a shale well. He highlighted that the total well count for a shale development could be about the same as the number of wells currently drilled on the North Slope. Although the shale wells could be drilled in the third of the time it takes to drill a conventional well, the pace and magnitude of permitting could be significant. Therefore, the process is something that will need to be managed.

10:09:27 AM

MR. BARRON then explained that a task force is necessary because there have been a lot of shale plays, many of which have been fairly well known. Although Alaska has never had a shale play, Alaska wants to be sure it's "ahead of the game." The interest in Alaska shale significantly increased after Great Bear secured a 500,000 acre lease sale last year about this time.

10:10:28 AM

CO-CHAIR SEATON recalled that Great Bear proposed 200 wells a year for 15 years for its first phase of development. He then asked if that amount of wells represents what has been drilled on the North Slope in the past 30 years or is DNR not considering Great Bear's proposal as what will go forward.

MR. BARRON stated that if 200 wells are drilled a year over 10 years, that amounts to 2,000 wells and there are roughly 2,000 wells already drilled on the North Slope. However, he pointed out that all those wells won't be active simultaneously.

10:11:44 AM

MR. BARRON, in response to P. Wilson, said that the department doesn't yet know its staffing needs. After only four meetings

of the task force, it has identified the structure and framework of the programs. Now, the task force is addressing the resource load to establish the man power that's necessary. In further response to Representative P. Wilson, Mr. Barron confirmed that he will have a better idea of the man power that's necessary between now and February or March.

10:12:47 AM

REPRESENTATIVE GATTO asked if the 2,000 wells on the North Slope includes those wells that have been discontinued, capped, and out of service.

MR. BARRON responded that he would have to double check the numbers. The numbers he recently reviewed indicate that there have been 2,000-2,500 wells that have been drilled on the North Slope; that is holes in the ground and includes those that are abandoned.

10:13:32 AM

MR. BARRON, returning to the presentation, reiterated that the interest in the lease sale for shale has increased since Great Bear's robust entry into the market. Therefore, successful exploration could lead to immediate development. However, he emphasized that "the true viability of the Great Bear Petroleum acreage is yet unknown until exploration occurs." Until Great Bear does its initial test, the viability of its shale play will remain unknown. Still, he characterized it as a great opportunity. The task force is assuming success and trying to determine what's necessary to be ahead of it and prepared for it.

10:14:50 AM

MR. BARRON informed the committee that the state agencies currently regulate the following:

- Well design and construction
- Gas flaring and venting
- Water discharge and storage
- Air quality monitoring
- Ice road and ice pad construction
- Plans of Operation and Plans of Development
- Habitat and wildlife management

- Environmental safeguards including spill prevention and control

MR. BARRON remarked that the aforementioned basically covers the breadth of a drilling and production operation. He then directed attention to the slide entitled "Future work" and told the committee that the task force's future will focus on the following:

- Water Management - Source, Recycle, Disposal
- Hydraulic Fracturing Chemical Disclosure - FracFocus.org
- Infrastructure - common facilities such as roads, gathering lines, power, transit lines to TAPS, etc.
- Gas Disposition: Use, Vent, Flare

10:17:05 AM

CO-CHAIR SEATON opined that the formation of units based on a pool doesn't seem to have much meaning for shale development because the pool becomes that which is fractured and drained to the pipe. Therefore, he asked whether the division has reviewed how the state will adopt its procedures for unitization. He then requested clarification as to what a unit is [in regard to shale plays].

MR. BARRON reminded the committee that the presentation he is providing now is in reference to the task force. The question of unitization and its purpose would remain under the auspices of the Division of Oil & Gas. In response to Co-Chair Seaton's question regarding [the definition of] unitization, the original and sole intent of unitization is for the proper reservoir management and ultimate increase in recovery of a hydrocarbon in a common pool. He confirmed that the question whether unitization is appropriate for a shale play is in doubt in as much as well-to-well intercommunication and connection doesn't exist. In order to establish a unit for proper reservoir management each well would be its own unit. Therefore, [the task force] is reviewing whether that is the right avenue for proper reservoir management and doesn't interfere with a neighboring unit. Unitization doesn't necessarily encourage or discourage development in this regard, and thus it's not necessarily an advantage or disadvantage for a shale play.

CO-CHAIR SEATON questioned whether [DNR] has the regulatory authority to dispose of the unitization process if it's determined that unitization is of no use.

MR. BARRON answered that at this point it's important for the Division of Oil & Gas to work closely with AOGCC to establish spacing rules for the drilling and the ultimate layout of the wells relative to the shale. He offered to provide further information to the committee as this process is ongoing. He noted that most of his counterparts in North Dakota and Texas have addressed it by "stepping away" from unitization and changing the spacing rules required for drilling.

CO-CHAIR SEATON expressed interest in the committee being kept up to date on that process in case it's necessary for the legislature to be involved.

10:21:57 AM

REPRESENTATIVE P. WILSON inquired as to whether there is a difference between shale drilling and gas.

MR. BARRON replied no, adding that the rules are about the same. The difference is the thermal maturity geologically, which is whether the source rock generated gas or oil. The [division] believes the thermal maturity of Alaska's basin, is an oil play. Although to the north it may be a gas play, it's likely overrun by a migration of oil.

REPRESENTATIVE P. WILSON asked which comes first the oil or the gas.

MR. BARRON answered that it's in situ in the rock/shale itself and depends upon "how it's cooked in geologic time."

10:23:45 AM

REPRESENTATIVE HERRON asked whether there's an exotic chemical that's not currently being used or is it a function of how the state is going to disclose.

MR. BARRON clarified that there is nothing unique about fracking a shale well versus a conventional well. The [task force] is trying to ensure that the state is progressive in its approach to public outreach. Fracking has become a big issue in other states and not necessarily in an appropriate way.

CO-CHAIR SEATON inquired as to whether the disclosure of that information can be made via regulation or legislation.

MR. BARRON explained that currently the disclosure is voluntary for the companies, which is the point of FracFocus.org. The material safety data sheet (MSDS) of any chemical brought onto the worksite can be required. That data is also public information. He opined that at this juncture there aren't any regulatory or statutory requirements to disclose that information, nor is there the necessity to do so if companies are doing so.

CO-CHAIR SEATON asked if that disclosure is occurring in Alaska for fracking on conventional wells.

MR. BARRON related that the companies that are fracking in Alaska have published material regarding the chemical components of wells that they are fracking outside of Alaska.

10:26:27 AM

REPRESENTATIVE P. WILSON related her understanding that in the Lower 48 some companies don't want to disclose the chemicals used in fracking.

MR. BARRON explained that the struggle for those companies is the proprietary mix of those chemicals. The companies are trying to ensure that the public knows what products are used, but not necessarily in which part of the mixture or how the mixture is blended. He mentioned that most of the major service suppliers have identified ways and means to satisfy most organizations in terms of what materials are being used and how much of it is in the product stream without allowing the reverse engineering of their product.

REPRESENTATIVE P. WILSON surmised then that there will be knowledge as to the toxic materials being used, but there won't be any knowledge as to how much is being used.

MR. BARRON said that although that's a fair point, 98 percent of a frac fluid is sand and water. Furthermore, almost all of the chemicals can be found in household products.

10:28:12 AM

SENATOR GIESSEL related her understanding that with fracking work, the companies consider 12-month gravel roads. Therefore,

she inquired as to the implications of fracking in terms of the ice roads in Alaska.

10:28:38 AM

MR. BARRON informed the committee that the best interest findings mitigation standard recommend ice roads for exploration, but not for development. He then opined that shale is interesting in that there will be much development from the inception. In fact, many strongly believe that after Great Bear drills its first four wells to establish the viability of the shale, in concept there will never be another exploratory well drilled for shale. Once the resource has been identified as a payable and frackable resource and it has been mapped, every well drilled will be turned and drilled vertically, then horizontally, and then fracked. "Every well will be produced," he said. He pointed out that all current operations and development on the North Slope is done via gravel roads, except for those roadless operations. Therefore, these [shale developments] will be ongoing development operations.

CO-CHAIR SEATON related his understanding that the size of the area and the number of wells to be drilled over an expansive area are going to make a scale difference. Therefore, he wanted the legislature to be involved from the beginning with regard to the types of roads used and for what purpose as well as any restrictions on the roads.

MR. BARRON indicated that the legislature would be informed.

10:33:13 AM

REPRESENTATIVE FEIGE surmised that if Great Bear's acreage goes into production mode, it would fall under existing production rules and standards on the North Slope. He then asked if there's really reason to change the existing rules for production facilities. There are plenty of roads to access the facilities that are already in place on the North Slope; most of those roads are categorized as industrial use roads and have a security gate. Therefore, he asked if Great Bear's operation will be any different other than the rate and the overall size.

MR. BARRON responded that he didn't foresee any difference in operation.

10:34:41 AM

CO-CHAIR SEATON recalled that at last year's Energy Conference there was an interesting presentation by North Dakota entitled "Fracking 101," which is posted on Co-Chair Seaton's website. He then recalled that when the Department of Revenue (DOR) was considering [the shale play], it included new processing facilities. He asked if [the task force] is also.

MR. BARRON answered that the focus of this work is to identify the infrastructure that can be deemed as common. He pointed out that every company will have a different model in terms of production facilities. In concept, each pad will have its own bit of a self-contained production facility. Still, [the task force] is trying to determine how to assist the companies in terms of a general dialogue regarding minimizing their general footprint and impact on the environment by using shared common infrastructure resources. The aforementioned would be similar to the shared infrastructure resources on the North Slope, such as common roads, gathering lines, delivery points, and power facilities. However, that doesn't necessarily mean shared production facilities.

10:37:52 AM

CO-CHAIR SEATON, regarding water use management, recalled that there has been some discussion of water coming from just below the permafrost. He asked if the task force has addressed the use of subsurface water versus surface water and the recycling or disposal of water from either source.

MR. BARRON said that the task force has identified that water management is an issue. The state's regulatory framework seems to be robust and adequate in terms of a well-by-well basis. Now, the task force is reviewing whether the state has the appropriate process in place for water source management, and disposal. To Co-Chair Seaton, Mr. Baron explained that although the carrying fluid in a frac program can be many different sources, it's typically fresh water. The water immediately below the permafrost is slightly brackish, which isn't necessarily a problem. Many service companies are reformulating their product stream to use the brackish water as the water source. The amount of brackish water on the North Slope is quiet large and wouldn't impact any rivers, streams, or lakes, which would be most helpful. With regard to recycling, it's being done in many of the shale plays in the Lower 48. The task force is reviewing the recycling options, ways in which to encourage recycling, and determine the pros and cons of recycling. In terms of disposal, Mr. Barron stated that at this

point there has been no discussion of surface discharge and disposal as it has all been considered to be reinjected into permitted disposal wells.

CO-CHAIR SEATON expressed interest in the task force maintaining communication with the legislature throughout the process.

10:41:29 AM

REPRESENTATIVE P. WILSON asked if the land at the shale play is similar to the flat land of the North Slope.

MR. BARRON answered that the land is about the same. He then acknowledged the others involved with the task force.

10:42:57 AM

CO-CHAIR SEATON turned the committee's attention to the gas disposition. He related his understanding that currently any gas used on the lease is used for production and power generation. Therefore, he inquired as to the discussion regarding venting and flaring.

MR. BARRON stated that a couple of issues/concerns have arisen in the Bakken shale play in North Dakota. The wells in Bakken are low rate wells. If the oil rate is low, the gas rate is low. Reinjection of gas in a shale development doesn't play the same as it does in a conventional sand stone or carbonate reservoir. Therefore, the question before the task force is: What is the best use of the residual gas that isn't used for fuel?

CO-CHAIR SEATON told Mr. Barron that the legislature will want to be involved in any choice of venting or flaring.

10:45:21 AM

REPRESENTATIVE P. WILSON deducted that if [the shale play] has a lot of oil, then it will have a lot of gas. Therefore, she surmised that the goal would be to save the oil. In such a case, she inquired as to what would occur.

MR. BARRON indicated that he doesn't have answers to some of these questions at this time. He agreed that the more oil that's produced generates more gas, while the more gas there is creates more complexity in its disposition. Furthermore, the more wells one drills, the more power one needs because pumps

have to be used to recover the oil. The more wells, the more pumps, the more power, and the more gas is necessary for power generation. Therefore, it becomes a question of what to do with it once it starts. At this point, there isn't any knowledge of the oil:gas ratio since the wells haven't been tested. At this point, the task force is trying to determine the options based on sound engineering and geoscience. As soon as the resource base is determined, the task force can bring forward ideas on how to utilize the gas.

CO-CHAIR SEATON suggested that there can be some interplays of use such as for heating from the TAPS line oil because low temperature oil is an existing problem. Therefore, a proposal to vent or flare oil would likely meet resistance.

MR. BARRON agreed.

10:49:01 AM

REPRESENTATIVE GATTO related his understanding that AOGCC requires that when there is oil and gas together, the gas must be used to obtain as much oil as possible. He asked if the aforementioned would play into a production scheme.

MR. BARRON said the rules of resource and reservoir management currently used by AOGCC need to be carefully thought through because gas use in a conventional sandstone or carbonate reservoir is uniquely different than it is for shale. Reinjection of the gas for pressure maintenance or enhanced oil recovery doesn't work for shale. At 50 barrels a day, the aforementioned becomes an economic question relative to oil. The aforementioned is why the task force is reviewing how it can assist and encourage the companies to join together and help reduce the overall cost of operations.

REPRESENTATIVE GATTO asked then if a different set of rules for shale are necessary.

MR. BARRON answered that he believes any rule changes will be very subtle, not dramatic. He opined that it's really a matter of what one does with the product; one must find a use for the product. Mr. Barron opined that isn't an issue the AOGCC would "lean into." "That is not a resource management discussion, that is a marketing utilization issue," he stated.

10:51:57 AM

MR. BARRON, returning to his presentation, explained that the key point is that the task force believes at this juncture the statutory and regulatory requirements to drill shale are adequately covered by what is already in place for conventional drilling. He then directed attention to the slide entitled "North American shale plays (as of May 2011)", which illustrates that there are many shale plays within the continental U.S. and Canada. He highlighted the following shale plays: Marcellus, Eagle Ford, and Bakken all of which work fairly well. On the other hand, the Niobrara in the Central U.S. is a shale play that hasn't worked very well and there isn't knowledge as to why. The Barnett and the Woodford shale plays have both worked, but not in the same size, magnitude, or robustness as the Bakken or Marcellus. The North Slope shale play is larger in terms of size than the Bakken or Marcellus. Still, he reiterated that Alaska's shale play hasn't been tested. In terms of comparison, the task force believes that the Eagle Ford shale should be the analog for the Shublik as many of the parameters on the chart entitled "Well Facts" are very similar on a geologic basis. However, there is no clear example of an Eagle Ford production well because they haven't been online long enough to provide any validity. An exhibit of a Bakken well, as related on the graph entitled "Bakken Operator Type Curves", illustrates that EOG has "either figured it out or its acreage is in the sweet spot of the shale play." Mr. Barron emphasized that's what is really important is the decline curve. Even the EOG curve crosses the 100 barrel a day mark within two years and ultimately all the wells end up in the 50 barrels a day range after 30 months. However, the length of that "tail" is unknown. Therefore, when developing an area one must be sure there is an economy of scale based on the number of wells based on 50 barrels a day to increase overall capacity.

10:56:31 AM

MR. BARRON informed the committee that a typical North Slope well will start out at 1,000-2,000 barrels per day. A typical North Slope well stays flat for about three to five years and then they begin to decline at a rate of 5-8 percent per year. The aforementioned is a uniquely different curve than what occurs for shale. The play being reviewed has unique production characteristics that are different than to what the state is accustomed, which drives much of the discussion regarding future development plans. Mr. Barron then turned to the issue of well drainage and informed the committee that well drainage is limited and well-to-well pressure communication doesn't exist, which is why the wells are drilled horizontally and are fracked.

10:57:51 AM

SENATOR WAGONER posed a scenario in which there is a 600 foot shale play and inquired as to how many lateral drillings would be drilled from the vertical drilling.

MR. BARRON answered that currently the plan would be for two lateral drillings.

SENATOR WAGONER surmised then that each lateral drilling could take care of about 300 foot of shale, after fracking. He further surmised that the [600 foot] well would produce double what a single well would.

MR. BARRON noted his agreement. He said that this is similar to a dual completion in that the vertical drillings would go in different directions to recover the same product from the same shale, but from a different fetch basin. Mr. Barron told the committee that lack of well-to-well communication and the low rate requires a high number of multistage frac wells.

10:59:12 AM

MR. BARRON then turned the committee's attention to the slide entitled "Hydraulic Fracturing" and informed the committee that the first "frac" in the United States occurred in 1903. The first commercial application was in the 1940s. Technology has advanced considerably since the 1940s and fracking has become a very common completion technique in the industry worldwide. In fact, over 25 percent of the wells in Alaska have been hydraulically fractured. Per AOGCC records, the earliest fractured well in Alaska was Gubik 1 well in 1963. The well design and construction, he added, is the purview of AOGCC, which is primarily focused on the safety of the well, those drilling the well, and protection of the ground water. He then shared an illustration of a horizontal well and the associated frac zone. He explained that the wells drilled are no different than a conventional well in which a series of steel pipe is drilled and cemented in place, with each pipe decreasing in diameter and fitting inside the next. Therefore, as the drilling goes deeper, the protection for the ground water increases with the depth of the well. Shale plays, natural gas, or oil are deep. Those the state is considering are about 9,000 feet deep. Mr. Barron then shared a slide entitled "Fracturing Height," which is an Eagle Ford frac height model that was developed by microsiesmic technology. The model reviewed the

height of the fracture. He explained that in terms of depth fractures grow vertically. He noted that the fracture height can be controlled by the frac design. In the model presented, the frac is growing about 300-400 feet vertically. Although fracs grow up and down, they mainly grow up. Mr. Barron highlighted that the Eagle Ford example is at 9,000 feet, which is similar to what Alaska's would be, and grows only a few hundred feet. He also highlighted that roughly around 1,500-2,000 feet fracs don't grow vertically but rather grow horizontally. The overburden is to the point at which the fracture is predisposed to spread out like a pancake. Therefore, breaching into the ground water is even a more remote possibility.

11:04:13 AM

REPRESENTATIVE FEIGE, referring to the slide entitled "Horizontal Drilling & Hydraulic Fracturing," related his assumption that it illustrates a maximum performance frac job. If the layer of shale isn't as thick, by dialing back the pressure one can frac less for more.

MR. BARRON said that from recent discussions with service companies he has come to understand that one can "dial in" the fracture such that it can be designed to stay within certain boundaries. In the Cook Inlet, the coal seams work as barriers for fractures because they plastically deform rather than fracture. As the companies frac in the Belugas and Tyoneks to increase gas production, the coal seams that are located at the top and bottom of those sandstones form good barriers because they yield rather than crack. The pad, which is the front part of the pump job, can be designed to induce the frac and the slurry, which contains the sand, holds the frac open.

11:06:32 AM

MR. BARRON moved on to the slide entitled "Wrap-up." He reminded the committee that this will be Alaska's first shale play, which he characterized as an exciting opportunity for the state. However, he emphasized the need to do it the right way. He reiterated that the permitting required for conventional wells is applicable for shale development. Although the state's current permits are sufficient, the pace and load on the agencies needs to be addressed. He concluded by highlighting the importance if planning and management of infrastructure to reduce the impact and decrease the overall cost.

11:07:28 AM

CO-CHAIR SEATON returned to the issue of unitization, which has been used to not only provide continuity but also to hold the play. He asked if the task force is addressing the aforementioned with the shale play. He expressed the need to achieve development without establishing a system by which [acreage] could be warehoused by the new system and not developed.

MR. BARRON reiterated that unitization shouldn't be used as a vehicle to warehouse acreage; rather it should be used as a vehicle to increase overall recovery and proper reservoir management of a known hydrocarbon area. He said the aforementioned is being discussed.

11:09:38 AM

The committee took an at-ease from 11:09 a.m. to 11:13 a.m.

11:13:21 AM

ED DUNCAN, President & Chief Operating Officer, Great Bear Petroleum LLC, began by reminding the committee that Great Bear Petroleum LLC ("Great Bear") started this process officially at the lease sale just a little over a year ago. He then directed attention to the map entitled "Regionally Vested Lease Holders," which specifies the regional distribution of the lease holdings in and around the central North Slope area. The leases of Great Bear are shown in yellow. In general, the core of Great Bear's leases are immediately south of Prudhoe Bay and Kuparuk with a few areas close to the Colville River south of Nuiqsut. These leases were technically chosen based on bountiful data from the State of Alaska and the United States Geological Survey (USGS). At present, Great Bear holds 500,000 acres. He then directed attention to the slide entitled "North Alaska Shale Resource Play Realization: Challenges and Business Development Opportunities," which lists various topics and Great Bear's general position. With regard to water use, Great Bear has performed a considerable amount of work in terms of access to process water that would make 98 percent of the frac. Mr. Duncan related Great Bear's opinion that the brackish water subsurface located in the middle of the North Slope, 2,000-5,000 feet beneath the permafrost, is likely ideal for frac makeup. The aforementioned has been repeatedly confirmed over the past several months of work and Great Bear believes that fact will allow Great Bear to minimize surface water use for frac makeup.

This fact is great for Alaska and is unique in terms of the major shale resource play developments in North America. Alaska has a nonpotable water source and an extremely large volume of recoverable brackish water from the subsurface that may be ideal. Additionally, the recycling and clean stream technologies that are currently employed allow the recovery of about 90 percent of the used water for reuse with the remaining water being disposed of in either existing disposal facilities in North Alaska or Great Bear's own in-field custom-built facilities as Great Bear's program grows and requires such facilities. Mr. Duncan then moved on to the modular processing shared facilities approach. As the presentation will relate, Great Bear has incorporated a hydrocarbon process and fluid process into its forward plan. At this point, Great Bear's plan is comprehensive, he remarked.

11:21:27 AM

MR. DUNCAN, in response to Representative Feige, confirmed that the well would be produced through a separator, much like those in a normal gas producing area. Produced water would be separated, regardless of whether its formation water that comes up with the oil and gas from the subsurface or water that is introduced during the course of fracking. The water will be recovered, separated, processed, and reused to the greatest extent possible. The material that can't be used will be disposed of in existing facilities in North Alaska or in Great Bear's own facilities.

11:23:01 AM

REPRESENTATIVE P. WILSON inquired as to the result of taking water out from under the permafrost.

MR. DUNCAN answered that he expects there to be nominal impact from the water withdrawal from the subsurface at the volumes and spatial distribution that Great Bear is considering. In the context of degradation of the permafrost, Mr. Duncan didn't expect impact as Great Bear isn't injecting anything warm. In fact, something warmer than the permafrost is being withdrawn. He clarified the aforementioned is an assertion on his part and isn't based on independent study and thus would be a good question to pose to industry and academic partners.

11:25:06 AM

MR. DUNCAN, in response to Co-Chair Seaton, said that roads to resources are a topic high on Great Bear's list. Gravel road and pad infrastructure will be fundamentally important, a requirement, for the development of the shale resources. Mr. Duncan said doesn't have a strong opinion in terms of state-funded roads or roads funded by other methods but rather tends to consider safety first. These are busy industrial roads and in fact, will likely be busier than Prudhoe Bay and Kuparuk River Unit during the earlier stages of the shale play. He related his difficulty with the notion that 24/7 absolute public access is safe. Although Great Bear hasn't heavily deliberated this topic, it realizes that a road network to the gravel pads for development is a fundamental requirement and Great Bear is open for discussion on the topic.

CO-CHAIR SEATON agreed that it's a critical issue, but added that the state doesn't want such issues to arise for the first time during the permitting process.

11:28:40 AM

REPRESENTATIVE P. WILSON asked if Great Bear plans to airlift the machinery to begin the process.

MR. DUNCAN informed the committee that over the last several months Great Bear has been in the process of permitting six locations along the Dalton Highway, primarily on previously disturbed gravel. He opined that those locations are environmentally preferred as they don't require any or significant ice road construction or ice pad construction. At this time, the work plan is to regionally test the efficacy of the play. He noted that unconventional resource play testing isn't like conventional prospect testing, which is a singular well drilled and the outcome is usually binary in that the prospect either works or it doesn't. Great Bear's play requires a broader swath of testing to establish thermal gradient. The state and the industry need to establish how much of the fairway is main phase oil productive, natural gas liquids productive, or dry gas productive. Great Bear's early program is designed to build a model of what the subsurface is likely to deliver regionally. Mr. Duncan emphasized that a single well test is philosophically very different from how one would prove productivity in a resource play relative to a conventional prospect that is generally binary.

11:31:01 AM

MR. DUNCAN, continuing his presentation, directed attention to the timeline entitled "Plan of Development" and remarked, "We're all in this together." He began with Phase 1 in 2011-2012, which he referred to as Proof of Concept. As pointed out earlier, until the wells are drilled and tested and they actually calibrate the rocks, the discussion is well-founded theory. This time next year he expected the conversation to be one in which the test results are in hand and backed by real science. The hope is that this time next year Great Bear will construct a pilot development pad with a modular processing unit on it that's capable of processing the produced fluids to tap spec oil. The aforementioned will be a trucking operation. Great Bear is optimistic that in a success case, such a pad will have six or more wells and one processing module that are capable of handling about 5,000 barrels a day of fluid. He clarified that the aforementioned is moving oil to sales to pump station 1 and that development pad will be produced for one year in order to obtain a tight curve. Therefore, the desire, he related, is to have a collection of Bakken well curves for North Slope shale oil development, which will provide a basis for an educated judgment in terms of how aggressively full field development is pursued. During this time, two years from now, Great Bear will be in close contact with the legislature, he said. He explained that one year from now Great Bear will be in the pilot development and a year after that, 2014, the hope is that Great Bear will be sanctioning corridor development, which is the 200 wells a year scenario.

11:37:06 AM

SENATOR WAGONER inquired as to the cut of the 5,000 barrels of fluid per day [that is water].

MR. DUNCAN responded that although he would be able to provide a better answer after the test wells are drilled, he didn't expect it to be significant. He stated that a certain amount of water production and a certain amount of gas production is expected. He emphasized that gas production is good because it provides reservoir energy to lift oil to the surface. Furthermore, virtually all the equipment is run on electricity and thus there will be a large power demand from the in-field operations. Therefore, he expected that much of the gas production will be burned for in-field use. Great Bear's plan, he highlighted, also includes a gasline to Prudhoe Bay. Mr. Duncan clarified that if there is excess gas production, there is no intention to vent it or flare it. Great Bear's gas will be taken to Prudhoe Bay or will be stored in a subsurface facility on its own

acreage. "Our objective is not to waste a molecule," he stressed.

CO-CHAIR SEATON recalled that Mr. Duncan referred to six wells, and inquired as to the design layout of those wells.

MR. DUNCAN clarified that the design and orientation of the bore holes is backed by science. He explained that the horizontal leg will be drilled perpendicular to the principle fracture orientation in the subsurface. Therefore, there will tend to be a specific orientation of the horizontal legs. He said that it's unlikely that there will be a random orientation or a consistent radial pattern around the well heads; the geology suggests the aforementioned isn't an effective way in which to drain/test the resource. In terms of the number of laterals drilled, Mr. Duncan offered that Great Bear will keep those as simple as it can initially in order to ensure that an effective bore hole is drilled and the test is done well. The rocks will guide the process in terms of how complicated it can get, he said. However, he offered that the notion of drilling multiple laterals is something that Great Bear is considering as a strong likelihood.

11:40:59 AM

SENATOR GIESSEL asked if the skill set necessary for fracking in Alaska is available in Alaska.

MR. DUNCAN answered that although such a trained work force doesn't exist today in Alaska, he believes the potential work force is in Alaska. This program will generate thousands of long-term jobs and there will be a constant upward pressure on activity. Furthermore, Great Bear will constantly be reinvesting. The backdrop of activity will require a tremendous number of skilled people and everything that accompanies such work force growth, such as grocery store clerks, teachers, and etcetera. He related that Great Bear is sponsoring a science and engineering education initiative, GeoForce Alaska, which is being run through the University of Alaska Fairbanks. Great Bear was involved with the GeoForce program when it began eight years ago in the Eagle Ford area of south Texas, which was a very depressed area at the time. Now, the Eagle Ford area is exploding with activity, income, and revenue. In fact, he highlighted that unemployment is almost nonexistent in south Texas. The impact of such long-term activity on the regional communities and government as well as the country is huge. He explained that with GeoForce emerging ninth graders are targeted

to excite them about science and engineering because this shale play in north Alaska has "those kinds of legs." Although the Fairbanks Pipeline Training Center is engaged with the [lack of a work force], it's not producing the amount of work force necessary for this shale play. Mr. Duncan then told the committee that Great Bear expects to see a different class of drill rigs in Alaska than those conventional drilling rigs in north Alaska over the last 40 years. Therefore, existing drilling staff would need to be retrained. The sheer lifespan of Great Bear's proposal, 20 to 40 years - plus, creates a generational [work force] that's dependent upon starting now in a focused manner, such that this year 200 new work force members are created followed by 500, 1,000, and 2,000 in subsequent years. The timeline presented considers such activity.

11:47:03 AM

REPRESENTATIVE P. WILSON related her belief that Alaskans will have to be trained in Alaska.

MR. DUNCAN stated his agreement. Drawing upon his experience, he noted that there have been a number of principles of companies that have moved the bulk of their business to North Dakota. When employees feel gainfully employed and are able to provide for their family, those employees are unlikely to return to Alaska. Therefore, Great Bear will have to be very good about how it attracts and trains new people, which will require collaboration across the industry and the state. He emphasized that the development has to be presented such that it illustrates to people that it's a long-term and stable future.

11:48:57 AM

MR. DUNCAN returned to the slide 5 entitled "Plan of Development Proof of Concept - Dual Multi Well Programs." He informed the committee that in the last year Great Bear has worked very hard to develop a testing program that will allow Great Bear to have a technically based, hard science discussion regarding what this shale play means to Alaska. In response to Co-Chair Seaton, Mr. Duncan the blocks on slide 5 form a subset of those on slide 2, specifically the pipeline and Hall Road. The cut out area [on slide 5] matches the key hole in the regional map. He noted that the red dots are schematic and don't relate the specific location. Mr. Duncan opined that although there are challenges, it's important to note that Great Bear's activity is ready. In fact, Great Bear has already spent $1 million on permitting the location.

11:51:15 AM

CO-CHAIR FEIGE asked if Great Bear is partnering with a specific oil field service company.

MR. DUNCAN specified that Great Bear is partnering with Halliburton on an area-limited basis. Halliburton is bringing the best in class technology to the challenges [Great Bear will face with the north Alaska shale play].

11:52:02 AM

MR. DUNCAN moved on to slide 6 entitled "Plan of Development Phased Development Approach - 3 Main Phases," which presumes success in Great Bear's initial testing program. The slide encompasses the concept of a single pilot pad adjacent to the road for easy road access, trucking, and production north to pump station 1. The slide also illustrates what Great Bear considers to be a corridor based, full field development program. However, he emphasized that the corridor illustration is schematic and may not necessarily be north-south continuous but rather may have a series of spurs in other directions. The notion, still, is that once the full field development program is reached, Great Bear will have a large activity set connected with infrastructure. Great Bear's current proposal and budget calls for a dedicated Great Bear pipeline system that connects all of its corridor wells to the north, to TAPS. The aforementioned would result in a parallel system of oil and gas transmission. If others move at the same pace as Great Bear and develop oil and gas in the general area of Great Bear's proposed central processing facility (CPF) simultaneously, discussions regarding shared central facilities could take place. Currently, Great Bear is planning a central processing facility for its production since no one else is doing it now. In response to Co-Chair Feige, Mr. Duncan clarified that the acronym MPU stands for modular processing unit that would be pad specific. The reference to Connected PAD system on slide 7, he further clarified, refers to the multi-wellhead pads. Although the specific number of wellheads on the pads is unknown at this point, he estimated a range of 8 to 24 or more wellheads.

MR. DUNCAN, referring to slide 8 entitled "Drilling and Completion Operations Safety and Environmental," related that Great Bear is a safety first company. The statements on slide 8 relate how Great Bear behaves as a company regardless of whether

there are regulatory or statutory requirements. To the degree Great Bear can aid/assist the state; it's ready to do so.

11:57:40 AM

CO-CHAIR SEATON, returning to slide 3, asked if any one of the issues listed that Great Bear will be addressing is an issue requiring more lead time in terms of the legislature raising awareness in order to avoid an impediment to moving forward in a reasonable manner.

MR. DUNCAN related his high confidence in the Department of Natural Resources and [Division of Oil & Gas] in terms of their ability to capture critical issues and ascertain reasonable solutions. He noted that the enthusiasm at the state agency level is high and their focus is very high. Any concerns held by Great Bear aren't associated with the state understanding the magnitude of what Great Bear is proposing. He expressed confidence that any issues relating to permitting and communication and how unitization will function will be overcome and aren't currently impediments to Great Bear. Great Bear believes its program is ready to go and is appropriate for both Great Bear and Alaska. However, the [shale play] needs to be tested and understood as soon as possible given the enormity of the project. In further response to Co-Chair Seaton, Mr. Duncan suggested the committee encourage an industry that is ready, willing, and able to help the state educate the public regarding what the program is really about. "Let's put good, solid information in front of the citizens of the state and allow them to make decisions from a high knowledge basis rather than some of the scare things that go on or some of the maybe purpose[ful] misinformation that occurs," he said.

12:03:00 PM

CO-CHAIR SEATON stated that's the purpose of this meeting to which all the industry players have been invited to discuss these issues. If matters arise in the future, he encouraged Mr. Duncan to communicate those with the committee.

12:03:31 PM

REPRESENTATIVE P. WILSON, noting that Alaska has quite a few vocational organizations, asked if the state needs to do more in the realm [of vocational organizations that would create the necessary workforce].

MR. DUNCAN relayed that Great Bear is proposing drilling and completing 200 wells per year, which is less than the number of wells that are drilled and completed per month in Eagle Ford or the Bakken. However, drilling and completing 200 wells in Alaska is so much more than has ever happened in Alaska. To Representative P. Wilson's question, Mr. Duncan emphasized the need to begin lining up the work force and how to train them now. He opined that it isn't impossible to recruit people to move to Alaska, although it may be impossible to buy them out of their activity in Eagle Ford, Bakken, or other shale plays. Still, there is a tremendous unemployment problem in the U.S., much of which is highly skilled and underemployed, which is a group that may prove to be a good target. Furthermore, military campaigns are winding down, which will result in lots of veterans returning from overseas. The military would provide a tremendous pool of highly skilled, disciplined, mature workers that bear review. He said that obtaining/creating the work force is something that Great Bear and the state would do hand-in-hand. However, he emphasized that it needs to start now.

12:06:52 PM

REPRESENTATIVE P. WILSON acknowledged that there are potential employees from the Lower 48, but previous experience has illustrated that bringing employees from the Lower 48 leaves Alaskans without jobs. She emphasized the need to train Alaskans for these jobs.

MR. DUNCAN agreed.

12:07:57 PM

SENATOR GIESSEL recalled that Mr. Duncan discussed that Great Bear has spent $1 million on permitting and needing a new style of drill rig. She further recalled that when Great Bear spoke with the legislature eight to nine months ago it was related that Great Bear's financing was from friends and family and it was seeking other investors. Senator Giessel asked if Great Bear has found any other investors.

MR. DUNCAN replied yes, and then pointed out that the Halliburton venture project is a good example of another investor.

12:08:36 PM

REPRESENTATIVE HERRON inquired as to the catalyst that drove Great Bear to propose development in the north Alaska shale resource play.

MR. DUNCAN relayed that he began his career in north Alaska where he studied the rock formations in north Alaska, albeit not in the context of being oil and gas reservoirs. The technology for that evolved in the last four to five years. The epiphany was part of his training as a new ventures geologist with BP in London where he considered how to create new geography. For north Alaska, new technology allowed Great Bear to create the new geography in which it was interested. The rocks in north Alaska are ready for testing, the technology is available, the rocks are drillable, the production infrastructure is present, and the state is a willing partner. He said he didn't see anything technically that's a "show stopper."

12:12:45 PM

CO-CHAIR SEATON announced that now the committee would hear a presentation regarding conventional oil and gas in terms of impediments to filling the pipe.

12:13:39 PM

MR. BARRON directed attention the presentation entitled "Changing Dynamics of North Slope Development." Referring to the slide entitled "Issues Impacting North Slope Development," pointed out that the issues the state and industry have to work through include opposition from local and national environmental groups, remoteness, harsh conditions, and technological issues. However, he highlighted that one man's impediment is another man's protection, which the division considers as it works through issues. He then pointed out that smaller companies new to Alaska are bidding on leases. The new players to the state have little experience in permit sequencing and timeframes; haven't allotted enough time to address public concerns, local government requirements, etcetera; and aren't familiar with conducting business in Alaska, primarily in terms of logistics; and aren't the prime clients for services, etcetera. The last point is critical because companies such as BP, ConocoPhillips Alaska, Inc., and others have been on the North Slope for some time and can establish long-term contracts with the service companies, which places them in a prime position contractually on a financial basis. Since the new companies aren't the prime source for a contractor's revenue, the contractual arrangements tend to be different and it impacts the cost associated with the

newer/smaller players. He then related that roadless developments haven't supported adjacent lease exploration/development.

12:18:03 PM

MR. BARRON moved on to the slide entitled "Permitting." He related that a Permitting Task Force is undertaking a huge effort to improve permitting activities and efficiencies. The department has an aggressive, ongoing public outreach program for which one of the DNR deputy commissioners or directors have traveled to half a dozen different cities and villages within the state seeking public input and comment associated with permitting, whether it is related to oil and gas, mining, land, or water. He then related that 26 of the 27 vacant positions in the Division of Mining, Land and Water have been filled. The department is also reviewing software applications that could be used for the purpose of modeling the actual permitting process and linking those processes regardless of the agency associated with it. The goal is to identify overlaps and gaps in order to streamline and increase the efficiency and effectiveness of the permitting process. Post Alaska Coastal Management Program (ACMP), the applicant is now responsible to independently coordinate the project with local, state, and federal agencies. The aforementioned is an issue and it's a high priority of the task force to develop a way in which individual applicants don't have to coordinate the activities but rather there is a framework that encourages the dialogue upfront in terms of what the project is. In fact, DNR staff will be travelling to Barrow to listen to the concerns and possible solutions for the North Slope Borough. That experience may be helpful in developing the Alaska Project Questionnaire that's intended to serve as a "road map," such that it would identify contacts, timeframes, and the path through the road map.

12:22:19 PM

CO-CHAIR SEATON asked if DNR is considering a regional general permit, which establishes procedures that can be used within an area and requires a report on activities every 90 days, rather than an individual permit on every development [on the North Slope].

MR. BARRON responded that DNR is open to all ideas. In fact, DNR is considering something similar to a regional general permit based on a company's plan of development. The department would consider what's needed in the first three years of the

company's plan of development and permitting all those activities upfront in order to avoid the company having to come to the department annually. The structure around such a permit is still being developed. Mr. Barron then emphasized that the agencies and permits listed on the slide entitled "Oil & Gas Activity Authorizations" isn't a definitive list, although it's a daunting list. Permitting has always plagued the industry and it doesn't seem that has changed, he remarked.

12:25:52 PM

REPRESENTATIVE P. WILSON asked whether any consideration has been given to re-establishing an ACMP.

MR. BARRON explained that DNR is reviewing what has and has not worked successfully in the past. What has worked successfully for large projects has been the Office of Project Management (OPM), and therefore the department is considering "OPM-lite", [a scaled back version of] OPM, that would work for smaller projects/companies. He acknowledged that the aforementioned could be viewed as a twist on ACMP. He noted that it can be helpful to utilize the software applications that map the process, place the information online, hold coordinating meetings upfront at a 20 percent project review, and have periodic meetings with stakeholders. Since the loss of ACMP, there has been a breakdown in communication, which now needs to be the focus.

12:28:07 PM

REPRESENTATIVE HERRON questioned whether OPM-lite would be recognized by DNR's federal counterparts.

MR. BARRON answered that although that's unknown at this point, he believes it's merely a matter of how OPM-lite is structured.

12:28:52 PM

MR. BARRON continued on with the slide entitled "Cost of Operations: Opportunities for Improvement." He stated that the cost of operations is one of the big impediments to development. Anything that can be done to encourage the industry to share common infrastructure; coordination to address all governmental levels; consistency in public notice; appeals provisions, and procedures; and industry cooperation on costs of common needs will all impact reducing the cost of operation. Long-term development, whether on the Kenai or the North Slope, will

require operators to produce at lower production rates while being efficient and effective at those rates to be economic. He then emphasized the need to explore opportunities for extending the drilling season. As described, exploration for shale is a bit different than conventional wells. Although it's doable to drill one or two conventional wells in a season, as the drilling season continues to decrease in time and some sites are farther out, the cost of an ice road comes into play. The cost of an ice road is roughly $25,000 per mile. He recalled discussing with Senator Wagoner whether using ice roads on the Kenai Peninsula for exploration wells would be appropriate. On the Kenai Peninsula there are issues, such that a strong Chinook [wind] could materialize and the ice road would be gone, which would leave a stranded rig or worse. Mr. Barron said there are many things the department is trying to understand. He then emphasized the need to work closely with the industry to develop ways to minimize the impact of development to the environment.

12:32:32 PM

REPRESENTATIVE P. WILSON asked how the cost of a regular road, which wouldn't have to be replaced each year, compares with the cost of an ice road on the North Slope.

MR. BARRON opined that it's prudent that the state, the division, and the department have leaned heavily on ice roads for exploration purposes. He surmised that Representative P. Wilson's question should lead to the discussion regarding whether a roadless development is in the state's best interest once a discovery is made. Many would say that a roadless development such as Badami or Alpine, while technically achievable may not have been in the long-term interest of the state. Badami has three months of the year to build an ice road and supply itself and a two to three month season to receive barges. Therefore, there's a fair amount of time in a year in which anything that isn't on location would require an expensive air transport cost. If there had been a road into Badami since its discovery, all the ice roads that would have been necessary to take an offshoot into an exploration area would have significantly reduced the cost of operation and increased the opportunity for resource development once they were explored, developed, and delineated; they would have been permanent roads that would ultimately be removed through the abandonment process. Those would then branch out and new horizons could be explored and attacked; again, an ice road for exploration and a permanent road for development. While it might make folks feel good that there are roadless developments, ultimately there is a

tremendous expanse of the North Slope that is a large world class hydrocarbon basin that remains unexplored simply because of the cost of doing so.

12:35:12 PM

MR. BARRON, in further response to Representative P. Wilson, explained that [who decides whether these developments should be roadless or not] is based on who owns the land. He relate his belief that over time companies have tried to do the right thing, and some time ago the concept of roadless development was deemed appropriate for development [on the North Slope] and the state. At the time, the aforementioned was probably appropriate. However, for a long-term view of overall development roadless development may not be appropriate. The impediment of a roadless development is the lack of infrastructure in a world class basin. He opined that roadless development needs to be an option as does roads. He further opined that roads to resources need to be encouraged as a viable option and not discouraged.

12:36:46 PM

REPRESENTATIVE FEIGE surmised then that simply by having a road to an area makes more projects more economic, and thus more projects will be developed. In the case of oil, more oil on the North Slope would be available to put in the pipeline.

MR. BARRON concurred.

REPRESENTATIVE FEIGE asked whether there are other areas besides the North Slope that would immediately benefit from other roads to resources projects. He recalled that an example of such is the road to Umiat [Meridian], which the governor has given much attention.

MR. BARRON offered his belief that the west side of Cook Inlet would also benefit from having a common road through the area. He said he didn't believe one would find a Kenai sized gas field on the west side of the inlet or it would've been found by those targeting the area. Still, having an existing road and pipeline with access increases the opportunity for exploration.

REPRESENTATIVE FEIGE surmised, then, that a road through the west side of the Cook Inlet would make more projects economic, specifically gas projects. Therefore, the state's supply of gas

would be increased and potentially eliminate the need for a bullet line through the Anchorage bowl in the near future.

MR. BARRON specified that a line from the North Slope relative to the operational opportunities of Cook Inlet is a different discussion, although it wouldn't necessarily be an impediment to this discussion. The intent is to have available land and available access to that land in order to perform exploration work. Markets, he noted, will drive overall development. He informed the committee that Apache is performing its 3-D seismic shoot and their exploration efforts would be enhanced if a natural infrastructure system existed on the east and west side of Cook Inlet. The east side, not the west side, of Cook Inlet already has a robust road structure that has resulted in development along the road and pipeline corridor.

12:40:22 PM

SENATOR WAGONER questioned why permits for wells of the same geographical area and same geological structure [to the same applicant] couldn't be batched.

MR. BARRON explained that the permit for each individual well is different than the permitting and plan of development for a group of wells. Each well needs to be permitted relative through AOGCC to ensure the well is designed appropriately for the area, which provides protection for the ground water and the resource. He emphasized the need to avoid a cookie cutter, rubber stamp approach toward well construction. However, he confirmed that there is a lot that can be done in terms of batching, such as addressing regional issues relative to wetlands. The aforementioned is similar to permitting by plan of development. Therefore, activities are known upfront and permitting after that occurs by exception rather than by rule.

12:43:22 PM

CO-CHAIR SEATON inquired as to how roads are [built, owned, and paid for] such that the roads are accessible to more than one industry player in order to enhance further exploration.

MR. BARRON indicated that to date the discussion has been one regarding the North Slope model for roads, such that the roads are industry roads for the purpose of industry. Currently, there is very little, if any, issue between the two primary operators regarding the use of those roads. The roads to resources idea is trying to promote the idea from the Umiat

Meridian discussion. The existing issue is that there are no roads at this point, but once there are roads the industry would share those roads.

CO-CHAIR SEATON pointed out that in the past all the same players have been involved [in the development]. However, now there would be a number of new players performing exploration and using roads from developments from which they aren't a part. Therefore, he opined that the state should review the aforementioned because it's like the access to facilities to get oil through and into TAPS with a facilities agreement. He questioned whether the state has a role in permitting the roads such that other industrial players would or wouldn't have access to the roads or is that going to be left to the company/company group that built the road. Co-Chair Seaton expressed his desire to proactively address road use before it's brought to the legislature.

MR. BARRON noted his agreement, and then added that the commercial arrangements between two private companies relative to road access are significantly simpler than having the discussion about process facilities. Currently, shared facilities, including airplanes, airports, hotel space, camps, power systems, and roads, already occurs and seems to be working fairly well. However, he acknowledged that there may be exasperation over time as there are more new players.

The committee took an at-ease from 12:48 p.m. to 12:53 p.m.

12:54:18 PM

BOB HEINRICK, Vice President of Finance and Administration, ConocoPhillips, acknowledged that the intent of today's meeting is to focus on the impediments to filling the pipeline and achieving the governor's goal of increasing North Slope production over the next 10 years. He then related ConocoPhillips' support for the governor's goal and belief that North Slope production can grow, albeit the primary driver for increased production will be a change to Alaska's Clear and Equitable Share (ACES). Mr. Heinrick said that ConocoPhillips' observations will focus on state issues, not federal issues, with regard to access and permitting. Alaska is a unique and environmentally sensitive place and in order to minimize the impact to the environment ConocoPhillips holds itself to very high standards in all aspects of its operations, particularly in areas of safety and the environment. In order to minimize the impact of development in the Arctic, there are complex

regulations to which the industry must adhere. He acknowledged that it can be difficult to strike the right balance between overregulation and appropriate regulation. Mr. Heinrick then relayed ConocoPhillips' appreciation for the current administration, particularly the work DNR has done with resource companies to facilitate permitting of development related activities while protecting the interest of the state and its citizens. An example of such is a recent Division of Oil & Gas issue of 2011 general permits for generally approved activities in the Kuparuk River Unit in the North Slope borough. This general permit authorizes routine and common activities associated with oil and gas development on the North Slope, such as on pad removal and installation of well lines, bollards, thermo cyclones, bull rails, and guard rails, all of which are now included in one annual permitting process. Therefore, it significantly reduces the amount of effort needed to obtain authorization for typical day-to-day maintenance and development activities. Mr. Heinrick also related ConocoPhillips' appreciation for DNR's recent improvements to the permitting process due to filing 37 new positions within the Division of Mining, Land and Water. He related further appreciation for the efficiency review initiative to inventory, categorize, and prioritize the current backlog of permits. The aforementioned will speed up the review and authorization of activities necessary for resource development. Additionally, there are plans to expand the use of general permits for routine activities, such as online permit applications, online data submittal, linkage of permits to other databases, and other automation efforts. ConocoPhillips, he relayed, greatly appreciates this noticeable and ongoing effort to make the process more efficient.

MR. HEINRICK announced that his testimony would now turn to access in terms of access to resources. "What is important to ConocoPhillips is a regular opportunity to acquire perspective acreage and lease sales," he stated. Since the implementation of the state's areawide leasing program in June 1998, ConocoPhillips has been a regular participant in the state's leasing program. ConocoPhillips believes that the state's areawide sales provide the state the best opportunity to make minerals potentially available to the industry for exploration and potential development. Therefore, ConocoPhillips doesn't view access to state acreage as an impediment to the governor's goal. To summarize, Mr. Heinrick related ConocoPhillips support of the governor's goal for growth on North Slope production and to boost throughput through TAPS. Furthermore, ConocoPhillips believes that the state's access to acreage and the permitting

systems aren't the key hurdles in meeting the governor's goal. As experience has shown ConocoPhillips when it attempted to obtain a permit to construct a roaded bridge in one of the Alpine sites, there are issues at the federal level. The most significant impediment to filling the pipeline is the state's fiscal structure, he opined. As ConocoPhillips has testified in the past, it believes that ACES needs to be modified as it's the most leveraging action the state can take to attract the type of investment necessary to stem the decline. The passage of HB 110 was a step in the right direction, he remarked. He then encouraged the Senate to pass the [companion] or similar legislation. Mr. Heinrick informed the committee that if the business environment is improved, ConocoPhillips will participate with its partners to develop more of Alaska's challenged oil.

12:59:58 PM

REPRESENTATIVE FEIGE requested an update regarding the current status of CD 5 in terms of the Corps of Engineers.

MR. HEINRICK answered that it feels as if there has been a lot of progress in the last few months. He further related that discussions are ongoing for the permit approval and progress is expected in the near term.

CO-CHAIR SEATON asked whether the bridge at CD 5 was necessary for access to the area or was the bridge denied because of the pipeline along the bridge.

MR. HEINRICK offered his understanding that by burying the pipeline under the river, the ability to visually inspect it or adequately pig it to keep it clean is lost. There is also a safety aspect to having roaded access to the pad that wouldn't exist were the pipeline buried under the river. He reminded the committee that frequently there are days when planes can't land in the CD 5 area because of fog and weather, and therefore it's important to have road access to the facility via the roaded network in an alpine area that isn't actually connected to the road system that reaches the rest of the North Slope.

1:02:34 PM

SENATOR GIESSEL inquired as to the cost of a gravel road.

MR. HEINRICK relayed that he would research that issue.

CO-CHAIR SEATON recalled that ConocoPhillips doesn't believe that restrictions on building roads have been an impediment for its development, other than the federal denial of the permit to build a bridge across the Colville River.

MR. HEINRICK noted that for Alpine ConocoPhillips uses ice roads extensively for connectivity in the winter months for supplies, rig moves, and etcetera. The aforementioned does add substantial incremental costs to the operations in terms of construction and removal of ice roads each year. Permanent roads are an advantage in those types of developments. He informed the committee that ConocoPhillips has 15-20 different agreements in which third parties use those roads for various reasons. The aforementioned isn't viewed as a significant issue because ConocoPhillips has been able to work with those third parties.

1:04:21 PM

CO-CHAIR SEATON asked whether there are any other benefits to using ice roads. He also asked whether ConocoPhillips would prefer to have year round roads in those areas and whether there would be any detrimental impact to year round roads.

MR. HEINRICK opined that the main benefit of ice roads is that it minimizes the footprint of gravel on the tundra. The aforementioned was viewed as the appropriate solution at the time.

CO-CHAIR SEATON, referring to the Alpine site, asked whether it would've been preferable for ConocoPhillips to build year round roads and have the demo and mediation costs at the end. He also asked whether ConocoPhillips applied for gravel to the development. Co-Chair Seaton clarified that he was trying to find where the ice road policy was controlling.

MR. HEINRICK said that he didn't know the history of the [Alpine] field, which was developed in the late 1990s and went online in 2000. Therefore, he would need to review what decisions made at that time. Regardless, Mr. Heinrick related that year round access would be preferable to the ice road structure so that supplies and crews can continually be brought to an area.

CO-CHAIR SEATON expressed interest in receiving further information, and suggested that the committee is considering how the state can obtain the most economical and best development on

the North Slope to activate the pipeline. Therefore, the industry would need to relay to the committee any impediments to development on the North Slope.

1:08:25 PM

MR. HEINRICK, in response to Co-Chair Seaton, informed the committee that ConocoPhillips doesn't have a water shortage. At Kuparuk River Unit, there is a salt water treatment facility that provides much of the water for Kuparuk, Alpine, and some of the other users in the area.

CO-CHAIR SEATON related his understanding that the facilities at Prudhoe and Kuparuk are maxed out as far as water since the fields have matured and more water comes up. He asked if that is the case.

MR. HEINRICK answered that it depends upon the facilities to which he doesn't have specific knowledge on the individual assets. He explained that as fields age they produce more water and more water is injected to increase reservoir pressure. Therefore, the volume of fluids handled increases substantially. There may be some parts of a processing facility that are underutilized, while other parts such as water handling create a "bottle neck" to further volume. He related that [the industry] is continually optimizing those production facilities, in terms of trying to eliminate the bottlenecks or performing expansions on limiting factors. The aforementioned is an ongoing process since the fields were put into production 30 years ago.

1:10:15 PM

REPRESENTATIVE FEIGE asked whether adding new fields would result in an improved oil:water ratio.

MR. HEINRICK indicated that it's possible, and noted that the aforementioned is being utilized with Pioneer. Such agreements are complex because of the issues regarding whether the [new fields] are providing the type of quality volumes expected and impacts that may have on the company's production. Therefore, a company must first protect its unit holders and provide the appropriate capacity for unit holders. He noted that currently ConocoPhillips has a model in place for these complex agreements.

1:12:10 PM

SENATOR TOM WAGONER related his understanding that it's not totally in ConocoPhillips control what it produces because the AOGCC requires production to continue in some areas.

MR. HEINRICK said he wasn't familiar with that part of the regulations, but offered to research it.

1:13:17 PM

CO-CHAIR SEATON noted that members' packets include written testimony from James Weeks, Managing Member, UltraStar Exploration, LLC, who discussed lowering the state take by passing HB 110, a rail extension of the Alaska Railroad to the North Slope and points east and west, and ice roads and pads. The members' packets also include comments from the Alaska Oil and Gas Association, much of which discusses the changing tax structure.

1:16:15 PM

ADJOURNMENT

There being no further business before the committee, the House Resources Standing Committee meeting was adjourned at 1:16 p.m.