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May 27, 2009

Ms. Karlene Fine
North Dakota Industrial Commission
600 E. Boulevard Avenue
Bismarck, ND 58505

Subject: Grant Application for the North Dakota Petroleum Council's Oil and Gas Education Program

Dear Ms. Fine:

Enclosed is a grant application requesting the North Dakota Industrial Commission to approve funding from the Oil and Gas Research Council to help fund the North Dakota Petroleum Council's Oil and Gas Education Program. The proposal combines three existing education and outreach programs developed by the Petroleum Council over the past two decades. This program includes the Teacher Education Seminar, Energy Career Awareness Partnership, and the Oil & Gas *Tidbits*. These education efforts have a proven track record of success and have been nationally recognized and modeled by other industries in North Dakota. These education efforts successfully partner private industry with state and federal entities to develop and deliver education programs in a balanced and effective manner to the target audiences.

Total project costs are \$243,000. We are requesting \$72,000 to help fund these educational programs from June 2009 through June 2012. A \$100 check is enclosed to cover the application fee.

The Petroleum Council is committed to complete the oil and gas educational program detailed in this grant request. Please contact me if you have any questions or need additional information for the enclosed grant application.

Sincerely,

Ron Ness

enclosures

Applicant: **North Dakota Petroleum Council**
PO Box 1395, Bismarck, ND 58502
701-223-6380 / 701-226-0006 (fax)
Principal Investigator: **Ron Ness, President**
Date of Application: **May 27, 2009**

North Dakota Petroleum Council
Oil and Gas Education Program

Grant Requested from the
North Dakota Oil and Gas Research Council

Project Expenses: \$243,000
Amount Requested: \$72,000
Grant Deadline: June 1, 2009

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1.0 Abstract

The objective of the North Dakota Petroleum Council's (Petroleum Council) Oil and Gas Education Program is to increase the understanding of the oil and gas industry by the citizens of North Dakota. The Petroleum Council has been developing, delivering, and engaging in public education of oil and gas for several decades and continues to build upon its successes by enhancing the education efforts by improving existing programs and adding new ones. The education programs in this grant have three primary components which provide targeted education to students, teachers, parents, policy-makers and the general public. The first component is a continuation of the Energy Career Awareness Partnership (ECAP). This private/public partnership was initiated with the assistance of Governor Hoeven in 2002 and has become a popular program for educators and students across the state. ECAP has been nationally recognized as a program that effectively educates students, teachers, and parents in classrooms and educational venues about the energy industry and the career opportunities that exist in the state. ECAP has reached over 50,000 North Dakota students, teachers, and parents over the past eight years and we are confident it is starting to have an impact on the career choices students are considering.

The second component of the Petroleum Council's Oil and Gas Education Program is the Teacher Education Seminar (Seminar). The objective of the Seminar is to educate teachers about exploration, development, pipeline, refinery, and distribution of oil and gas in North Dakota. The seminar focuses on hands-on learning and provides multiple examples for teachers to replicate the use in their classrooms. The target audience for the seminar is middle school math, science, and history teachers, along with fourth grade teachers and school counselors. The response from teachers in recent years has been excellent. They find great value in using what they learn to show students real North Dakota-based examples of why math, science, and other curricula are valuable to learn.

The third component of the Petroleum Council's Education Program is an educational outreach publication called *Oil & Gas Tidbits (Tidbits)*. *Tidbits* is a publication distributed quarterly to North Dakota policy-makers and interested parties in the oil and gas industry to keep them informed about technical and educational aspects of the oil industry. *Tidbits* is developed by the Petroleum Council with past editions featuring key issues such as the crude oil transportation bottleneck, geology of the Bakken, oil and gas economic impacts, the workforce needs of the oil industry, and numerous other topics. The Petroleum Council feels this direct approach of reaching out to policy-makers across the state is an important step in educating the public about North Dakota's oil and gas industry and informing them of key issues facing industry as it expands. It is

also a great way to showcase the tremendous technological advancements that industry has developed to make Bakken-type development feasible and successful.

The Petroleum Council's Education Program funding request is for a three-year program from June 1, 2009 to June 30, 2012. The total budget for the education program described in this grant request is \$243,000, of which \$72,000 is requested from the Oil and Gas Research Council. Bismarck Public Schools is the managing partner of ECAP. The funding for ECAP is passed through the Petroleum Council along with ECAP partners' contributions to the school to fund ECAP. Partners include the lignite industry, colleges, state agencies, and other interests. A list of partners is included later in this grant.

2.0 Project Description

The mission of the Oil and Gas Research Council is to promote the growth of the oil and gas industry through research and education. The Petroleum Council's Oil and Gas Education Program, outlined in this grant request, is an effective way for the Research Council to accomplish this mission. The Petroleum Council has taken an active role in providing educational programs for more than two decades. These initiatives are costly and time-consuming, but the feedback received is always positive and these programs become more critical each year as the oil and gas industry strives to improve its image.

Education is critical to the future success of the energy industry in our state. A 2005 study of the oil and gas industry workforce needs indicated that industry would create 1,800 new jobs and have thousands of workers retire over the next four years. In fact, the survey revealed that to fill the need for new jobs, retirements, and replacements, the industry in North Dakota would need to hire nearly 12,000 new people, or eight people per day, over the next four years. This study was done prior to the Bakken activity really taking off, which drove the rig count to a peak of 98 in November 2008 and dropped to 34 in May of 2009. It appears as though with recent success in the Bakken, despite the unforeseen peaks and valleys in activity, that the industry, when factoring in the retirements, will need a substantial amount of new workers for a decade or more. Other segments of the energy industry have similar needs. This eminent demand for workers makes programs such as ECAP and the Teacher Seminar even more important as we educate North Dakota students about the wide variety of high-wage job opportunities in North Dakota's energy industry.

ECAP has developed into a year-round program that puts someone in classrooms across the state on a regular basis to make presentations, conduct seminars, attend trade-shows, and hold training sessions about careers in the energy industry. ECAP encourages students to consider career opportunities in North Dakota's energy industry when they begin thinking about what careers paths

and courses to take in high school and college. The key to ECAP is that the message is delivered in classrooms throughout the state as a result of the partnership with the Bismarck Public Schools. The coordinator of ECAP, Kent Ellis, works for the Bismarck Public School District and is engaged in the career and technical education community. As one of his tools, the Coordinator utilizes a collection of industry equipment, graphics, and visual aids that he brings directly to students in their classrooms. This classroom approach allows teachers in those schools the ability to supplement their coursework around this presentation and provides students real world examples and visuals of why math, science, geology, and economics are important in the workplace in life, and are essential for many career choices in North Dakota. ECAP has been an important tool in helping foster better energy education outreach and bringing the information directly to students in their classrooms and at student gatherings across the state. ECAP is effective in demonstrating to the public, teachers, students, and parents the value of North Dakota's energy industry and the career opportunities that exist in our state's energy industry. Most importantly, ECAP helps students identify careers in North Dakota that exist for a surprisingly wide variety of different skills and talents. Some may determine work in this industry is something they are not interested in and will help them direct their interests elsewhere. However, others may find something that peaks their interest and create an interest in a field such as engineering or geology. In addition, seeing and hearing about energy industry careers and why math, science, welding, and other skills are needed to do this type of work might encourage them to work hard in school to get their diploma and pursue a job or seek a higher education degree. The message that workers in the energy industry need to be drug-free and the choices they make in high school may impact their ability to get a job later in life is also valuable.

Day one is spent in the classroom learning about the history of the industry, geology, physics, engineering, and production issues. Lynn Helms does a great job of teaching geology, physics, and engineering. Kent Ellis also did a great job in following up on these topics and leading into industry simulation events. Industry representatives join the participants for an oil and gas industry stock simulation game and there is an annual Oil Trivia Bowl that is used to educate teachers about the history of oil and gas.

On the second day of the Seminar, teachers tour an oil rig and a working oil well. The rest of the day is spent at an industry facility with a group of 25–40 industry representatives who provide lunch and short presentations on their company's involvement in the oil extraction business. They also discuss their employment needs and the skills they are seeking in workers. This day is the highlight of the Seminar, where what they learn in the classroom fits together when they see the drilling rig and the amount of work and cost it takes to produce a barrel of oil. The teachers value

the time they get to spend with industry representatives and ask many questions. Visiting an active oil rig is an extremely valuable learning experience that few people get to do.

The third day focuses on the refining and marketing of a barrel of oil. Teachers tour the Mandan Tesoro Refinery and spend the morning at the refinery learning about the refining process, transportation of petroleum products, how retailers price the products, and discuss in great detail the various components reflected in the price of gas and how gasoline is priced. Teachers are also given an overview of the value and importance of pipelines in bringing product to market and ultimately to the consumer. To ensure we are engaging teachers in new topics of interest, a discussion and debate on global warming has been added to the agenda the past few years. In addition, an overview of the impact of oil taxes on state tax revenues, policy decisions, and the state's budget surplus is discussed by tax experts from the State Tax Department and the State Treasurer.

The final day provides teachers an opportunity to explore the prehistoric beginning of oil and gas in North Dakota by looking at the state's geological and paleontological resources. State Archeologist Dr. John Hoganson provides a detailed historical look at the dinosaurs, animals, and plant life that have become the fossil fuels that power our society today. This presentation includes a tour of the "travel through time" section of the North Dakota Heritage Center. This day is held at the North Dakota Heritage Center and provides an excellent background for teachers to utilize state resources and facilities to use in their classrooms or as a tour.

As a result of the Seminar, the teachers gain a better understanding of the complexity of the oil and gas industry and develop a factual basis and background of the substantial cost and risk required to explore, produce, and refine a barrel of oil. Teachers seem to understand that rewards don't come without substantial risks in the oil and gas industry, which is a contrast to what they thought when arriving on day one. This understanding of the business side of oil and gas may be the most valuable lesson teachers gain from the Seminar. To receive the two graduate credits for attending the course, the teachers are required to submit a lesson plan on how they will incorporate what they learned into their classroom. The lesson plans submitted always indicate they learned a great deal about the oil and gas industry. As a result, they create unique methods of incorporating their new knowledge into the classrooms ranging from grade school through high school.

The third element of the Oil and Gas Education Program is the quarterly one-page educational flyer called *Oil & Gas Tidbits*. This publication is designed to provide short articles on the use of new technology and items of interest to policy-makers across the state to educate them about the oil and gas industry. Topics are selected for *Tidbits* based on what are the hot topics, what are key issues facing industry, or what's the latest and greatest technological advancement. Future editions of *Tidbits* are likely to focus on the newest hydraulic fracturing technology, Oil Can!

program, refining, natural gas gathering, Bakken water management, Three Forks formation, and other topics as they develop.

3.0 Standards of Success

The measuring stick of success in educating students and the public is difficult, but not impossible, to quantify. This is an area where the program managers continue to seek improvement.

ECAP is gaining recognition across the entire state and the 2007 Legislature even provided funding for the Department of Commerce to try and replicate the program with other industries. Schools across the state continue to schedule the ECAP coordinator to visit their schools and it is becoming part of the routine annual schedule at some schools. Responses from the companies and state agencies funding the program have been positive. The energy industry supports such an effort and understands that we must be educating our youth at early ages in order to have an impact on their career decisions. The partners evaluate the program each year and schools provide feedback on the program throughout the year. The Career & Technical Education Department is committed to developing a measurement of success during the next three-year period. This agency tracks many career-related programs and has the experience to develop an effective measurement process.

To monitor and track the success of the Seminar, the teachers are given an “Oil Industry Pop Quiz” when they arrive on day one. Four days later, at the completion of the Seminar, they are given the same pop quiz to determine if their opinions and understanding of the industry has changed. Past quiz results revealed that our industry has much work to do on improving its image in North Dakota. Participants indicate basic knowledge of the importance of the industry in North Dakota and the fact that it offers good jobs, but the opinion of the industry in North Dakota mirrors the less favorable national opinion. The latest quiz revealed that participants that attended the Seminar, with the exception of a few from areas with oil activity, have virtually no concept of the size or scope of the industry in the state or how the industry conducts its business. However, the results of the quiz changed drastically after four days of intense education about the industry. Therefore, we know that negative opinions about the oil industry can be changed with proper education. The participants also evaluate the Seminar through an evaluation form each day to provide precise feedback of each day. The evaluations at the end of the seminar are extremely positive. In addition, to receive the two graduate credits, teachers must complete a lesson plan which explains what issues they find of the greatest value for their classroom instruction and what they learned in those areas.

A measurement tool for *Tidbits* needs to be developed and the Petroleum Council will conduct a survey of policy-makers to determine the value they find in *Tidbits* and to identify areas of key interest. The survey will be conducted at the beginning of this project and will be followed up with two additional surveys to the same target group to determine the level of satisfaction, preferred

method of receipt (mailed hard copy or emailed link or copy), and the topics of greatest interest for future issues.

4.0 Background/Qualifications

The North Dakota Petroleum Council is a nonprofit trade association that has represented the industry in North Dakota since 1952. The Petroleum Council represents more than 160 companies involved in all aspects of the oil and gas industry including oil and gas production, refining, pipeline, mineral leasing, consulting, legal work, and oil field service activities in North Dakota, South Dakota, and the Rocky Mountain Region. Our member companies produced 80% of the 62 million barrels of oil produced in North Dakota in 2008.

The Petroleum Council has been working to educate the public about the oil and gas industry for decades. The association has continually worked to enhance our education programs and communication with the public and has recently initiated a new education program called Oil Can! which focuses on working to improve communication in communities where the impacts of daily oil and gas operations are occurring. The programs outlined in this grant are core programs that have proven successful. Funding support from the Research Council is valuable and critical to the success and continuation. The teacher seminar for 17 years and has had 633 teachers complete the seminar. *Tidbits* was initiated in 2006 and has become a valuable tool to educate policy-makers about key issues and technological advances by industry.

In 2002, the Petroleum Council, along with other energy industry entities and Governor Hoeven, started ECAP, which is a nationally-recognized energy education program. ECAP partners include the Bismarck Public Schools, Petroleum Council, Montana Dakota Utilities, Tesoro Petroleum, Basin Electric, Great River Energy, Ottertail Power, Bismarck State College, the Association of Oil and Gas Producing Counties, Career and Technical Education Department of Bismarck State College, and the Associated General Contractors. The Governor has been extremely supportive of ECAP and was instrumental in the creation of the program. ECAP is housed at the Bismarck Public Schools office and the coordinator is an employee of the school district. Having this direct link to the schools has allowed this program to be fully engaged in all school career education programs and has opened doors statewide for acceptance of the program. Kent Ellis, the coordinator for ECAP, is employed by the Bismarck Public Schools and is also a petroleum landman and the owner of Aurora Land Services, a company located in Bismarck, North Dakota. Ellis is also a former classroom teacher and School-to-Work Coordinator. His knowledge of the industry and teaching skills provides an invaluable combination that allows him to present the information to students of all ages in an intriguing way.

5.0 Management

The Petroleum Council will manage and oversee the project. Ron Ness, President of the Petroleum Council, is the manager of the Oil and Gas Education Program. The Bismarck School Board authorizes the agreement between the energy program partners and pays the wages and expenses for Kent Ellis, the coordinator of ECAP. Dale Hoerauf, Director of Career and Technical Education for Bismarck Public Schools, supervises the coordinator of ECAP.

Lynn Helms, the Director of the Department of Mineral Resources, and Kent Ellis assist with the planning and management of the Teacher Seminar. They are experts in their respective fields and bring great knowledge and expertise in the form of presentation skills to the seminar.

Feedback and comments on the value of ECAP to specific classes and schools are solicited each year from schools where presentations are made. Financial supporters of the program are involved in an annual review process. ECAP has a steering committee comprised of partners. The steering committee meets several times per year to review the program and make recommended changes as needed.

Ron Ness, with assistance from Agency Mabu, manages and develops *Tidbits* and communication efforts. Mabu is a Bismarck-based consulting firm owned and operated by Mike Mabin, a communications consultant with vast experience.

6.0 Timetable

Petroleum Council's Oil and Gas Education Program, described in this grant request, run from June 1, 2009 through June 30, 2012. ECAP's activities primarily follow the school calendar with summer activities focusing on the petroleum and lignite teacher seminars and tours for summer school students and teachers. ECAP's partners meet annually to review the program's activities and determine the path forward for the coming school year. All partners have made a commitment to fund the program for another three-year cycle.

The Teacher Seminar is held each June and planning and recruitment is done throughout the year. There has been a waiting list of teachers for the Seminar the last several years.

Tidbits is published and distributed on a quarterly basis and this grant request includes funding for *Tidbits* from January 2010 through June 2012.

7.0 Project Budget

The Petroleum Council's Oil and Gas Education Program budget for June 1, 2009 - June 30, 2012 is \$243,000. The three-year proposal allows for planning, development, and implementation of the Teacher Seminar for three years and allows the Bismarck Public School District to plan their budget and personnel needs for ECAP for three school years. The ECAP partners have all been asked to make a three-year commitment to renew the program. Bismarck Public Schools

administers ECAP and the Petroleum Council makes annual contributions for the oil industry's share of the partnership. The Teacher Seminar and *Tidbits* are the sole fiscal responsibility of the Petroleum Council.

PETROLEUM COUNCIL OIL AND GAS EDUCATION PROGRAM BUDGET

EXPENSES:

ECAP Expenses (Three school years)

Salary/Benefits (36 months)	\$ 123,000.00	
Travel	\$ 32,000.00	
Training/Equipment/Staff Development	\$ 6,000.00	
General Office Expenses	\$ 4,000.00	
Printing/Postage/Material Production	\$ 6,000.00	
Total ECAP Expenses		<u>\$171,000.00</u>

Teacher Seminar Expenses (Four years 2009 – 2012)

Printing/Postage/Material Production/Website	\$ 6,200.00	
Facilities/Food/Lodging	\$ 22,000.00	
Transportation/Tour	\$ 8,800.00	
Energy Education Materials/Handouts/Kits	\$ 6,000.00	
Facts & Figures (2009 – 2012)	\$ 3,000.00	
Administrative Costs (Four days per month Petroleum Council staff time)	\$ 6,000.00	
Total Expenses		<u>\$ 52,000.00</u>

Oil & Gas Tidbits Expenses (10 issues from January 2010 – June 2012 – 30 months)

Production/Lay-out	\$ 4,500.00	
Printing	\$ 2,200.00	
Mailing/Distribution/Website	\$ 5,000.00	
Consultant	\$ 6,400.00	
Administrative Costs	\$ 1,900.00	
		<u>\$ 20,000.00</u>
Total Expenses		<u>\$ 243,000.00</u>

The Petroleum Council request is based on a match for this project.

Total Project Expenses	<u>\$243,000</u>	Total Grant Request	<u>\$ 72,000 (30%)</u>
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8.0 Matching Funds

The Petroleum Council request is based on a match for this project.

ECAP

Supporting partners	(79%) \$135,000
Oil and Gas Research Council	(21%) <u>\$ 36,000</u>
Total Project Expenses	<u>\$171,000</u>

Matching Contributions:	<u>Cash</u>	<u>Other non-enumerated</u>
Petroleum Council		
Landmans' Association		
Williston API Chapter		
Oil and Gas Producing Counties		
Associated General Contractors		
Bismarck State College		
Bismarck Public School District		Secretary/Classroom
Career and Technical Education		
ND Lignite Plants		
Basin Electric		
MDU Resources Group		
Great River Energy		
Ottertail Power Company		
ECAP Total Matching Contributions	<u>\$135,000</u>	

Teacher Seminar Matching Contributions

Petroleum Council	\$26,000 (50%)
Oil & Gas Research Council	\$26,000 (50%)

Matching Contributions:	<u>Cash</u>
Petroleum Council	
North Dakota Landmans' Association	
Williston API Chapter	
Dickinson API Chapter	
Total Matching Contributions	<u>\$ 26,000</u>

Other non-enumerated contributions:

Petroleum Council office support
Petroleum Council membership contributes prizes and staff resources
Staff support from Department of Mineral Resources
Energy Career Awareness Partnership resources
Forest Service staff support

Tidbits Matching Contributions

Petroleum Council	\$ 10,000 (50%)
Oil & Gas Research Council	\$ 10,000 (50%)

9.0 Tax Liability

I, Jeff Herman, certify that the North Dakota Petroleum Council does not have any outstanding tax liability owed to the State of North Dakota or any of its political subdivisions.

Jeff Herman
Treasurer, Petroleum Council

Date

10.0 Confidential Information

The Petroleum Council does not request any of the information related to this application be confidential.

11.0 Patents Rights to Technical Data

The Petroleum Council does not request to reserve any patent rights to technical data.

12.0 Appendices

Energy Career Awareness Partnership Brochure

2009 Teacher Education Seminar Brochure <http://www.ndoil.org/?id=88>

Tidbits <http://www.ndoil.org/?id=48>