

North Dakota's

Petroleum Industry Workforce

“Needs and Skills”

Assessment Project

Executive Summary

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dba Electronic Media

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Phase I Introduction and Background:

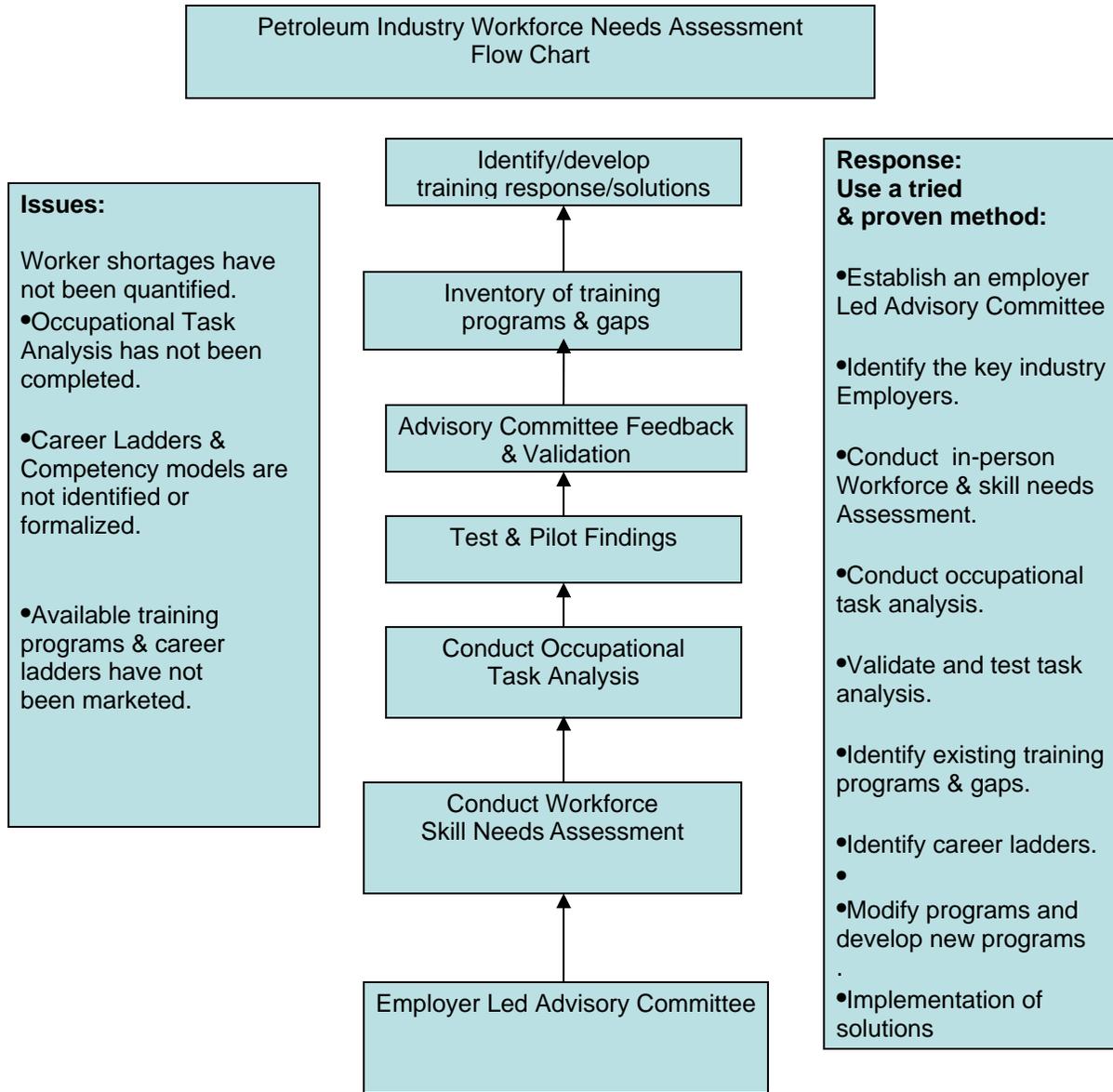
In May of 2005, the North Dakota Workforce Development Council through the use of Workforce Investment Act, Incentive Award funding identified \$20,000 as matching funds to assist the North Dakota Petroleum Industry in conducting an Oil and Natural Gas Industry Workforce and Skills Assessment Study.

The purpose of this Study was to actively engage key employers from the petroleum industry in identifying and quantifying their current and future workforce and skill needs, the challenges they were facing as an industry in attracting the talent they need, and to assess the impact of an aging workforce on the industry.

In December 2005, the North Dakota Workforce Development Council, North Dakota Petroleum Council, Job Service North Dakota, Williston State College and Bismarck State College became actively engaged with the Rockies Energy Workforce Collaboration to determine interest and readiness to submit a multi-state competitive grant application under the Workforce Innovations in Regional Economic Development (WIRED) being solicited through the U.S. Department of Labor. At that time the industry representatives quickly realized that they did not have good quantitative intelligence around the workforce and skills needs of the industry in the Rocky Mountain Region.

To respond to the workforce intelligence needs of the Oil and Natural Gas Industries in North Dakota a model was developed which served as a guide in developing a plan of action and method to deliver the qualitative and quantitative workforce intelligence needed by the industry to position themselves for future competitive grant offerings.

Industry Needs Assessment Model



In February of 2006, the North Dakota Workforce Development Council, the North Dakota Petroleum Council, North Dakota Department of Commerce, North Dakota Department of Career and Technical Education and Williston State College met and agreed to jointly fund an Oil and Natural Gas Workforce Needs Assessment Study for North Dakota. Job Service North Dakota was also identified as a key partner and provided in-kind resources to the project.

Mr. Ted Renner, Electronic Media, was selected as the consultant for the North Dakota Project. The project was divided into three separate phases.

Phase I - Establish an “Industry Based” Project Advisory Committee

Phase II – Conduct “In-Person” Workforce Needs and Skills Assessments with “Industry Identified’ firms.

Phase III - Conduct “On-Site” Task Analysis, if needed, to determine training guidelines and verify results with other Industry identified training resources.

The scope of work for Phase I, II, and III included:

Phase I

1. Establish an Industry based “Project Advisory Committee”
 - a. The President of the ND Petroleum Council served as the Chairperson.
 - b. Appoint Ex-Officio “Project Advisory Committee” representatives:
 - i. ND Dept. of Commerce Division of Workforce Development
 - ii. Job Service North Dakota Labor Market Information Department
 - iii. ND Department of Career & Technical Education
 - iv. Williston State College Division of Workforce Training
 - v. Two North Dakota State Legislators from Western North Dakota
2. Have the “Project Advisory Committee” identify key employers within North Dakota and Eastern Montana whose process will have the greatest impact; and , consequently; whose workforce skills/needs assessment will identify their most current; as well as; their future; workforce skills/needs requirement.
3. Develop an “In-Person” workforce skills/needs “Assessment Form” which will delineate the petroleum industry’s skills/needs “Expected Employment” for the present year; 2006 and ; project that “Expected Employment” through the year 2010. The developed “Assessment Form” will also:
 - a. Reflect their employment requirements taking into consideration their current aging workforce.
 - b. The protection of their proprietary employment data.

- c. A disconnect from their proprietary wage scale data.

Phase II

1. Upon the approval of the proposed Workforce Skills/Needs “Assessment Form” by the “Project Advisory Committee” and their recommendations as to the specific petroleum industries that will be solicited to provide employment information via an “in-person” industry employment scan, such, “in-person’ interviews will be conducted.
2. Once the targeted industry “in-person” scan data has been collected it will be congruently projected through the other identified associated industry employers so as to obtain a more realistic workforce/skills requirement profile for the entire petroleum industry in the geographically targeted area.
3. The workforce skills/needs “Assessment Form” will be structured in such a way so as the specific workforce skills/needs can be identified; but, not, duplicated; regardless of the coding utilized; namely the SOC (Standardized Occupational Classification) coding system, the O*Net Classification system and the ND Workforce Safety and Insurance coding system.

Phase III

During phase III of the “Project” and “Occupational Task Analysis” will be conducted involving the workforce skills/needs areas identified by the “Project Advisory Committee”; and, which, would; be most able to address their major shortages. The “Occupational Task Analysis” will also identify the basic training needs that need to be addressed in order to develop the worker skills; and, consequently; develop a more productive and effective petroleum industry employee, thus, mitigating the worker shortage within the identified skills/needs areas.

The Oil and Natural Gas Industry Project Advisory Committee was identified and appointed by Mr. Ron Ness, President, North Dakota Petroleum Council.

North Dakota Petroleum Industry Advisory Council
Oil and Natural Gas Workforce Needs and Skills Assessment
Project

Advisory Committee Members:

Brent Eslinger	Halliburton
Gary Johnson	Hess
Bill LaCrosse	Empire Oil
Ryan Leininger	S & S Sales
Ron Ness	North Dakota Petroleum Council
Beth Nodland	Earthworks
Leif Peterson	Tesoro
Scott Reid	Nabors Drilling
Scott Shackelford	Key Energy
Dick VandeBossche	Bear Paw
Gene Veeder	McKenzie County Economic Development

Ex-Officio Members:

Duane Broschat	Job Service North Dakota
David Drovdal	State Representative
Jim Hirsch	ND Workforce Development Council
Wayne Kutzer	ND Dept. of Career & Technical Education
Stan Lyson	State Senator
Deanette Piesik	ND Workforce Training
Ted Renner	Consultant

Phase II Executive Summary

This report is only made possible because of the tremendous support and effort put forth by; Mr. Ron Ness, President, North Dakota Petroleum Council, the Project's Industry based Advisory Committee and other oil industry leaders who have provided Ron with input and guidance relative to the data gathering process, as well as, Mr. James J. Hirsch, Director, Division of Workforce Development, ND Department of Commerce, and Mr. Duane Broschat, Director, Labor Market Information Center, Job Service North Dakota; and the cooperating staff; of North Dakota's Industrial Commission's Oil and Gas Division.

With the help of the Projects Advisory Committee, and other oil industry leaders a list of petroleum oil/gas companies, and, their specific contacts was provided. These companies were asked to complete a Petroleum Industry "Workforce Needs and Skills "Assessment Form which had been approved by the employer led Project's Advisory Committee (**Phase I – Attachment II**). The form was so constructed that it would be representative of the entire petroleum industry workforce, namely; all the way from land leasing, to exploration, to pre-drilling, to drilling, to transport via pipeline, to refining, as well as, transport of refined oil and gas.

Of the (51) identified petroleum oil/gas companies (11) declined t participate in the "Project"; however, from the remaining participating petroleum oil/gas companies; suggestions were made that (6) additional specific petroleum oil/gas companies should be added, because, they could provide us with some very important data. Consequently, we were able to garner a 90% petroleum oil/gas companies participation rate; utilizing the "Projects" Advisory Committee approved "Workforce Needs and Skills" Assessment Form.

Consequently, utilizing the Project's Advisory Committee approved "Workforce Needs and Skills" Assessment Form; 100% of the Project's Advisory Committee's oil/gas companies responded, by, completing the approved "Workforce Needs and Skills" Assessment Form; and by; identifying their employee needs via a Standardized Occupational Code (SOC) coding guide developed with the help of Mr. Duane Broschat and the Labor Market Information Center at Job Service North Dakota (**Phase I – Attachment I**)

In addition to the Project's Advisory Committee membership response, the other identified oil/gas companies responded very favorably; so that, of the total oil/gas companies tasked via a "in-person" contact to complete the "Workforce Needs and Skills" Assessment Form a slightly over 70% oil/gas industries response rate was achieved.

From the responding oil/gas industries completed "Workforce Needs and Skills" Assessment Forms, and North Dakota's Industrial Commission's Oil and Gas Division data it was determined that approximately 364 companies were involved in some way in the development of North Dakota's oil and gas exploration, production and refining; as well as,; the transportation of its' waste products, its' crude products; as well as; its refined product via either pipeline and/or trucking. Through, these same resources of information; 92 distinct SOC/O*Net coded occupational titles were able to be identified as needed employees by the oil/gas companies; as, either "Expected Employment" needs, or as "Imminent/Replacement"; employee needs.

The primary data from the 33 firms surveyed indicated that their 2006 expected employment level was 2,037.

The 33 firm's survey indicated that they expected to increase their employment level in each of the next four years.

- 13% in 2007
- 3% in 2008
- 7% in 2009
- 3% in 2010

The following chart provides an "Illustrative/Integrated Summary", and is a detailed analysis of the projected number of the "Expected Employment" workforce needs; as, well as; the number of "Imminent/Replacement Employee Needs" for each year for the years 2006 through 2010 for the top (16) most noted SOC/O*Net identified occupations of the responding oil/gas companies who participated in the "in-person" survey.

Expected Employment Levels:
The number reported in each "Employee Occupational Title" area is the number of employees that the company projects that it will need each reporting year in order for it to meet its targeted production goals, and/or, in the case of sub-contractors, or service providers, the number of employees they will need in order to meet its service providing requirements.

**Illustrated/Integrated Summary Analysis
Of
North Dakota's Petroleum Industries
Work Force Needs and Skills Assessment/Requirements**

Imminent/Replacement Employee Needs:
The number reported in each "Employee Occupational Title" area is the number of employees that the reporting identity is in need of within each reporting year, with special consideration, given to, the reporting company's "Employee Aging Factor" and it's historical "Employee Turnover" rate.

2006	2037 "Expected Employment"	
	801 – 39%	"Imminent/Replacement Employee Needs"
	740 – 92%	Percentage Representation of the Top 16 SOC/O'Net Coded "Imminent/Replacement Workforce Needs", as Identified via the Petroleum Industries
	699 – 87%	Percentage Representation of the Top 8 SOC/O'Net Coded "Imminent/Replacement Workforce Needs", as Identified via the Petroleum Industries

2007	2327 "Expected Employment"	
	944 – 41%	"Imminent/Replacement Employee Needs"
	824 – 87%	Percentage Representation of the Top 16 SOC/O'Net Coded "Imminent/Replacement Workforce Needs", as Identified via the Petroleum Industries
	796 – 84%	Percentage Representation of the Top 8 SOC/O'Net Coded "Imminent/Replacement Workforce Needs", as Identified via the Petroleum Industries

2008	2383 "Expected Employment"	
	959 – 40%	"Imminent/Replacement Employee Needs"
	855 – 89%	Percentage Representation of the Top 16 SOC/O'Net Coded "Imminent/Replacement Workforce Needs", as Identified via the Petroleum Industries
	821 – 86%	Percentage Representation of the Top 8 SOC/O'Net Coded "Imminent/Replacement Workforce Needs", as Identified via the Petroleum Industries

2009	2554 "Expected Employment"	
	964 – 38%	"Imminent/Replacement Employee Needs"
	845 – 88%	Percentage Representation of the Top 16 SOC/O'Net Coded "Imminent/Replacement Workforce Needs", as Identified via the Petroleum Industries
	809 – 84%	Percentage Representation of the Top 8 SOC/O'Net Coded "Imminent/Replacement Workforce Needs", as Identified via the Petroleum Industries

2010	2627 "Expected Employment"	
	966 – 37%	"Imminent/Replacement Employee Needs"
	832 – 86%	Percentage Representation of the Top 16 SOC/O'Net Coded "Imminent/Replacement Workforce Needs", as Identified via the Petroleum Industries
	788 – 82%	Percentage Representation of the Top 8 SOC/O'Net Coded "Imminent/Replacement Workforce Needs", as Identified via the Petroleum Industries

Imminent Replacement Workforce Needs: The number of new hires, excluding the hires for expansion, needed to sustain expected employment levels.

O' Net Occupations: = the number of new and replacement workers needed by the top 16 and top 8 O' Net Occupation.

% of O' Net Occupations = the percentage to the total O' Net occupations that are in the top 16 and top 8 demand Occupations as reported by the survey respondents.

It is of particular importance to note that; as presented, that, in any given year between 2006 through 2010 that; the survey responding oil/gas companies have indicated an “Imminent/Replacement Employee Needs” of about 40% of their identified “Expected Employment”. That is a terrific employee needs statistic!!!

Of equal importance to note;, is that; almost 90% of the “Imminent/Replacement Employee Needs” can be met by addressing (8); or less; of the identified SOC/O*Net coded occupational areas.

Phase II – Attachment I delineates some skill preparation requirements as set forth; primarily, by; the O*Net occupational classification data base. Further investigation and verification of those specific skill set requirements will be made during Phase III of the Project through Advisory Committee identification of oil/gas companies who are willing to accommodate a “task Analysis” protocol at their specific work sites; and, through; the investigation of presently identified training programs in other States who have been identified as having training programs in place to meet similar problems of addressing their “Imminent/Replacement Employee Needs”.

In addition to the data, several additional observations need to be presented.

- (1) There seems to be a direct employee requirement to the increase in oil and gas production, namely; a 10% increase in production will require a 10% increase in the workforce.
- (2) About 90% of the “Imminent/Replacement” workforce consists of entry level workers in about 6 or 7 occupational areas; all requiring; a “hands – on” skills based foundation in the basic sciences; such as, mechanical systems, pneumatic systems, hydraulic systems, as well as basic concepts of electricity, as well as computer competencies up the level of how to handle database and spreadsheet operations. These entry level employees must be able to pass mandatory drug tests and be able to read and write to the extent of mastering the required safety procedures required by the industry. During the “in-person” interviews, it was also identified that; in addition to the truck drivers (SOC) Code 53-3032 and O*Net Code 53-3032.00, that about 20% - 30% of the entry level “Imminent/Replacement” workforce will also need to have CDL’s; in addition to current and non-restricted drivers licenses.
- (3) Of the identified, approximately 90% of the “Imminent/Replacement” entry level employees; (See Phase II Attachments I and II); the second highest employee demand is for CDL truck drivers. The present turnover rate of truck drivers is somewhere between 2.5 to 3 times per year, which means that the “Imminent/Replacement” employee needs are about two to three times the “Expected Employment” level in that industry.
- (4) Virtually every one of the responding petroleum oil/gas companies indicated that most of their supervisors and field managers are filled from within; and are advanced through experience, either within their own companies or through experience within other like petroleum oil/gas companies.
- (5) Some of their special engineers and management people are recruited from the outside and from known institutions of higher learning, with which they’ve had prior successful experiences with; and/or with whom they’ve done some research with, and/or had some project related training partnerships.

Report Summary:

The Oil and Natural Gas Industry in North Dakota is facing a number of Human Resource challenges which are limiting the full potential of the industry: These Human Resource challenges include:

- Workforce/Skill Shortages
- Worker Retention
- Aging workforce
- Industry Expansion
- Industry Perception
- Lack of public awareness about opportunities in the industry.

The Human Resource Challenges of the Oil and Natural Gas Industry is further complicated by the Human Resource challenges faced by the state of North Dakota. These Human Resource challenges include:

- Low population bases in Western North Dakota;
- Low unemployment rate in the counties in Western North Dakota;
- High labor force participation rate;
- Aging population;
- Youth out-migration;
- Expanding economy in most sectors.

To respond to these Human Resource challenges the Industry and State must focus on “core” priorities which include:

- Developing a pipeline of young workers;
- Building competency models and career ladders within the industry;
- Expanding post-secondary training alternatives, including apprenticeship;
- Accessing new and untapped labor pools;
- Transitioning workers from declining industries; and
- Developing strategies to retrain incumbent workers and low wage workers.

The Oil and Natural Gas Workforce and Skills Needs Assessment gleaned primary data from 33 firms involved in Western North Dakota's Oil and Natural Gas Industry. The data from these 33 firms represent:

- 18% of total employment in Oil & Natural Gas Industries in ND
- 35% of total employment in Oil & Natural Gas Industries in Western ND.

The Primary data obtained from the 33 participating firms provides some very challenging data for North Dakota. In order to determine what this means to the Oil and Natural Gas Industry located in Western North Dakota, the primary data was projected across all of the Oil and Natural Gas Industry firms located in this area.

A projection across the industry is possible using Job Service North Dakota Labor Market Information and Unemployment Insurance data to establish the total employment levels in each industry sector.

Assumptions:

1. The projected increase in employment, the new hires needed to maintain expected employment levels, and the skills requirements obtained from the businesses surveyed will be the same or similar in businesses not included in the survey.

Projection Procedure:

1. Businesses surveyed were classified using the NACIS classification system.
2. JSND LMI and UI data was used to identify the % of total employment by industry the surveyed firms were of the total employment of all similar industries in the State and Western ND.
3. The % of increase in employment and the % of new hires needed to maintain the expected employment levels reported by the survey respondents were projected across the oil & natural gas firms operating in Western North Dakota.

Oil and Gas Workforce Needs Assessment

NORTH DAKOTA OIL & NATURAL GAS INDUSTRY WORKFORCE NEEDS ASSESSMENT

(Survey Respondents Primary Data as compared to Job Service LMI Data on Statewide Employment Averages and Average Employment in Western North Dakota).

Primary Data projection to account for workforce needs in Western ND

NAICS Classification	Statewide Average Employment for ND	Average Employment In Western ND	Average Employment Reported by Survey respondents	% of Total Employment respondents accounted for Statewide	% of total Employment respondents accounted for in Western ND
211111 Crude Petroleum and Natural Gas Extraction	832	424	292	35.150%	68.838%
213111 Drilling Oil and Gas Wells	857	843	553	64.591%	65.665%
213112 Support Activities for Oil and Gas Operations	1874	1715	443	23.639%	25.826%
238912 Non residential Site Preparation Contractors	628	279	42	6.691%	15.072%
324110 Petroleum Refineries	477	235	234	49.057%	99.574%
424690 Other Chemical and Allied Products Merchant Wholesalers	387	222	60	15.04%	27.027%
425120 Wholesale Trade Agents and Brokers	944	228	50	5.298%	21.930%
484230 Specialized Freight (except Used Goods) Trucking, Long-Distance	2022	599	243	11.999%	40.535%
486110 Pipeline Transportation of Crude Oil	116	61	9	7.736%	14.835%
523910 Miscellaneous Intermediation	35	32	1	2.857%	3.125%
523999 Miscellaneous Financial Investment Activities	34	33	17	49.020%	50.505%
532412 Construction, Mining, and Forestry Machinery and Equipment Rental and Leasing	248	8	1	12.500%	0.403%
Total All NACIS	11423	5685	2016	17.648%	35.461%

The following table is a projection of workforce needs in Western ND using secondary data from the Job Service North Dakota Labor Market Information Center.

	2007	2008	2009	2010
Expected Employment Reported by Survey Respondents	2327	2383	2554	2627
Projection of employment across all firms in Western North Dakota	6224 Represents a 13% Expected employment growth from 2006	6411 Represents a 3% expected employment growth from 2007	6860 Represents a 7% expected employment growth from 2008	7065 Represents a 3% expected employment growth from 2009
Total projected employment increase for firms in Western ND	739	187	449	206
Number of new hires needed to support the expected employment levels for firms in Western ND	2552 41% =Expected new hire employment rate to maintain the expected employment levels for 2007	2564 40% =Expected new hire employment rate to maintain the expected employment levels for 2008	2607 38% =Expected new hire employment rate to maintain the expected employment levels for 2009	2614 37% =Expected new hire employment rate to maintain the expected employment levels for 2010
Total Employment Needs in Western ND	3291	2751	3056	2820

Based on the primary data and using this data to project needs across the industry in Western North Dakota, we can see that in order to maintain the projected employment level needed by the Oil and Natural Gas Industry between 2,700 and 3,300 new hires must be achieved each year for the next four years. This is a tremendous challenge for the State of North Dakota.

During the in-person data collection phase of the project, several observations are worth mentioning.

- Some firms reporting indicated that they had between a 200 – 300% turnover rates.
 - They classified new hires in the category of 5 hours, 5 days and 5 weeks. The 5 hour and 5 day category did not provide any potential for retention. Those who stayed 5 weeks were the best bet for retention.
- Overall, the firms contacted reported a 37 – 41% worker replacement rate needed to maintain their expected employment levels.
- Over 80% of the entry-level positions for the Oil and Natural Gas Industry is covered in 8 O*Net Occupational codes.
- Floor Hands was the highest demand area with CDL Truck Drivers being second. The top 8 O*Net occupational classification include:
 1. Motor Man, Floor Man, Helpers-Production Workers O*Net Code: 51-9198.00
 2. Truck Drivers; Lead Transport Driver, Transport Driver, Stock Point Truck Driver O* Net Code: 53-3032.00
 3. Crew Worker, Floor Hands, Chain Hand, Long Tong Hand O* Net Code: 47-5081.00
 4. Derrick Worker, Field Professional, Drilling Fluids Field and Service Representatives O*Net Code: 47-5011.00
 5. Crew Chief; Fishing Hands; Service Unit Operator, Oil & Gas Mining Operators, Frac Acid Operator, Nitrogen Operator; Service Tools Operator/Specialist, Pipeline Corrosion Specialist, Rig Operator. O* Net Code: 47-5013.00

6. First Line Supervisor, Tool Pusher; Directional Drilling Specialist, Frac Acid Supervisor/Leader, Nitrogen Supervisor, Drilling Superintendent. O*Net Code: 47-1011-00
7. Driller O*Net Code: 47-5012-00
8. Roustabouts, Oil & Gas O*Net Code: 47-5071-00

Based on the results of the study, it is evident that there are a number of Partnership opportunities that are available to the industry and the workforce development, workforce training and talent attraction system to address some of these challenges.

1. Talent Attraction – Conducting Talent Stream Pipeline Mapping would assist the industry with identification of where their talent is currently coming from and provide opportunities to explore development of new pipelines.
2. Talent Expansion - The Oil and Natural Gas Industries have an opportunity to become more closely engaged with local education to promote career opportunities they have to offer and help expand the pipeline of new job entrants choosing careers in the Oil and Natural Gas Industry.
3. Talent Retention – The Oil and Natural Gas Industry has an opportunity to explore their hiring practices and to implement a formal short-term training orientation and safety program to help reduce turnover in the early stages of employment.

The next steps for the Study are to have the Advisory Committee take the lead in the following areas:

1. Develop a plan to provide solutions to challenges identified.
2. Identify key partners who can help with resolving challenges
3. Develop the metrics to measure accomplishments
4. Conduct Talent Pipeline Mapping for Industry
5. Disseminate information from the study.

It is evident that the Oil and Natural Gas Industry in Western North Dakota will need to have access to an available pool of talent in order to meet their expected employment needs over the

next four years. The State's workforce development and workforce training systems are proactively working with the industry to establish the needed training courses and special recruitment campaigns to help address this need. Beyond what is currently underway, the industry, the workforce development and workforce training system needs to become much more aggressive in connecting with Primary and Secondary Education to help influence the pipeline of new workers electing to pursue careers in the Oil and Natural Gas Industry.

A recent Policy Alert (**Phase II- Attachment II**) put out in 2004 by The National Center for Public Policy and Higher Education addresses the "Educational Pipeline Success Rate". This report is of importance to the Oil and Natural Gas Industry because it documents a significant potential Talent Pipeline which is not being fully tapped in the State of North Dakota. The Policy Alert tracks the Educational Pipeline loss rate at certain points.

- In North Dakota for every 100 9th Graders
 - 83 will graduate from High School on time
 - 57 will immediately enter a postsecondary program
 - 41 will be still enrolled their Sophomore year
 - 25 will complete a postsecondary program within 150% of normal completion time.

The 75% of ninth graders who do not complete a postsecondary program should be a population group that the Oil and Natural Gas Industry targets for their entry-level positions. Connecting these young people with quality jobs early in their working careers would benefit the industry, the individual and the communities in which they live.

In summary, it is of paramount importance that one doesn't lose sight of the facts; that over the last 4 quarters, (8) major drilling companies drilled over 90% of the oil and gas wells in our State; and consequently, using some of those companies employment as a survey base, should add to the validity and accuracy of the presented data. And, it is of equal importance that, as illustrated via Phase II Attachment III, that special attention be given to the challenge of getting out the message of the oil/gas industry career employment opportunities; as well as career requirements, and that the message be made available not only to K-12 students, but also to

North Dakota's adult population if we are going to attract a reliable workforce for this important and expanding industry; and, consequently, stem North Dakota's "Out-migration"!

PHASE III

Following the presentation of the final "Project Summary" by Mr. Ted Renner, to the Project Advisory Committee, a visit was made to a Workforce Training facility in Casper, Wyoming. The visit was made at the urging of larger oil drilling companies who are, presently, very active in North Dakota; and who participated in the "Project's" "in-Person" survey; and consequently; are extremely interested in the "Project" because of their problem of recruiting and retaining entry-level workers; especially in: our identified SOC code 51-9198 and O*Net code 51-9198-00 "Floorhand" and our identified SOC code 53-3032 and O*Net code 53-3032.00 CDL "Truck Drivers".

These identified SOC and O*Net occupations codes were identified as the number 1 and number 2 workforce needs in the "Imminent/Replacement Needs" summary of the North Dakota Petroleum Industry Workforce Needs and Skills Assessment Requirements.

Consequently, Mr. Renner was asked to visit and look at how the industry in Wyoming was mitigating their workforce recruitment problems through the utilization of a very unique the training facility, the WCA McMurry Training Center in Casper, Wyoming. The WCA McMurry Training Center provided the content of a 50 hour "Floorhand" course, and a description of their recruiting efforts and placement data for their program.

The trainees who participated in the 50 hour long "Floorhand" training program are not charged any tuition fees. The oil companies who hire the program completers pay the WCA McMurry Training Center \$1,500 for each of the trainees that they hire. The trainees who successfully complete the 50 hour long training are awarded Certifications and Credentials that are nationally and internationally recognized. Each trainee who successfully completes the program is awarded an IADC Rig Pass (International Assurance of Drilling Contractors)

certificate, and, a HSE Orientation (Health, Safety, and Environment) certificate. The successful trainee must also have passed a mandatory drug test.

The WCA McMurry Training Center’s outline for the 50 hour long training guide and the requirements are in complete alignment with the (5) page O*Net curriculum guide.

The major oil companies who hire the trainees from the program state that the McMurry Training Center saves them \$2,000 to \$4,000 in training costs.

The McMurry Training Center recruitment efforts are targeted toward the 24 – 35 age groups. The Center targets Veterans, through the Veterans Employment and Training Transitional Centers and students at the State’s Alternative High Schools, as well as other adult training centers. Career Promotion and recruitment of high school students is done during their “Career Days” programs and the Center maintains close contact with various Chambers of Commerce and/or other community assistance and support organizations.

The success of the recruiting efforts at McMurry Training Center are demonstrated by the fact that the class size is limited to no more than (10) trainees per week and that the Center has awaiting list that varies from 3 to 6 months.

The McMurry Training Center conducts a 90 day follow up and a 180 day follow up one each of their trainees’ completers. Below are the follow up statistics that were provided for their 50 hour “Floorhand” training program:

Statistics for 2007 as of 2/23/07:

Total Students	56
Students Graduated	49
Veteran Students	31
Graduation Rate	87%
Placement Rate	100%
Average Wage	\$20.43

Complete Students Totals as of 2/23/07

Total Students	972
Students Graduated	831
Veteran Students	469
Graduation Rate	83%
Graduation Placement Rate	100%
Average Wage at Placement	\$20.60

90 Day Follow up Statistics:

Job Retention	90%
Retention in Oil & Gas Jobs	72%
Vets Job Retention	90%
Vets Retention in Oil & Gas Jobs	72%

180 Day Follow up Statistics:

Job Retention	88%
Retention Oil and Gas Jobs	72%
Vets Job Retention	89%
Vets Retention in Oil & Gas	63%

The WCA McMuury Training Center “Floorhand” training program if replicated in North Dakota would appear to be a solution to addressing some of the “employee retention” issues faced by North Dakota employers. This model should be explored with industry leaders in North Dakota to determine if there is interest in attempting to replicate both the training and the talent pipeline development used in Wyoming.

Attachments:

Phase I – Attachment I -	Summary of (4) Classification Systems: <ul style="list-style-type: none">• SOC (Standard Occupational Classification)• O’Net Classification• ND Workforce Safety & Insurance Coding• NAICS (North American Industry Classification System)
Phase I – Attachment II-	Petroleum Industry Workforce Needs and Skill Assessment Form
Phase II-Attachment I-	North Dakota Workforce Needs and Skills Integrated Summary Analysis
Phase II-Attachment II	National Center for Public Policy and Higher Education Report

Phase I – Attachment I

Summary of (4) Classification Systems:

SOC (Standard Occupational Classification)

O'Net Classification

ND Workforce Safety & Insurance Coding

NAICS (North American Industry Classification System)

SOC

(Standard Occupational Classification)

Oil and Gas Mining/Refining

And

Support Services

Coding Guide

Oil and Gas Mining and Support Services

47-5021 Earth Drillers, Except Oil and Gas

Operate a variety of drills – such as rotary, churn, and pneumatic-to tap sub-surface water and salt deposits, to remove core samples during mineral exploration or soil testing, and to facilitate the use of explosives in minor or construction. May use explosives. Include horizontal and earth boring machine operators.

47-5031 Explosives Workers, Ordnance Handling Experts, and Blasters

Place and detonate explosives to demolish structures or to loosen, remove, or displace earth, rock, or other materials. May perform specialized handling, storage, and accounting procedures. Include seismograph shooters. Exclude “earth Drillers, Except Oil and Gas” (47-5021) who may also work with explosives.

47-5071 Roustabouts, Oil and Gas

Assemble or repair oil field equipment using hand and power tools. Perform other tasks as needed.

47-5081 Helpers – Extraction Workers

Help extraction craft workers, such as earth drillers, blasters and explosives workers, derrick operators, and mining machine operators, by performing duties of lesser skill. Duties include supplying equipment or cleaning work area. Exclude apprentice workers and report them with the appropriate extraction trade occupation (47-5011 through 47-5099).

47-5099 Extraction Workers, All Other

All extraction workers not listed separately.

49-1011 First-Line Supervisors/Managers of Mechanics, Installers, and Repairers

Supervise and coordinate the activities of mechanics, installers, and repairers. Exclude team or work leaders.

49-2094 Electrical and Electronics Repairers, Commercial and Industrial Equipment

Repair, test, adjust, or install electronic equipment, such as industrial controls, transmitters, and antennas. Exclude “Avionics Technicians” (49-2091), “Electronic Equipment Installers and Repairers, Motor Vehicles” (49-2096), and “Electrical and Electronics Installers and Repairers, Transportation Equipment” (49-2093).

49-3031 Bus and Truck Mechanics and Diesel Engine Specialists

Diagnose, adjust, repair, or overhaul trucks, buses, and all types of diesel engines. Include mechanics working primarily with automobile diesel engines.

49-3042 Mobile Heavy Equipment Mechanics, Except Engines

Diagnose, adjust, repair, or overhaul mobile mechanical, hydraulic, and pneumatic equipment, such as cranes, bulldozers, graders, and conveyors, used in construction, logging, and surface mining. Exclude “Rail Car Repairers, (49-3043) and “bus and Truck Mechanics and Diesel Engine Specialists” (49-3031).

49-9012 Control and Valve Installers and Repairers, Except Mechanical Door

Install, repair, and maintain mechanical regulating and controlling devices, such as electronic meters, gas regulators, thermostats, safety and flow valves, and other mechanical governors.

49-9041 Industrial Machinery Mechanics

Repair, install, adjust or maintain industrial production and processing machinery or refinery and pipeline distribution systems. Exclude “Millwrights” (49-9044), “Mobile Heavy Equipment Mechanics, Except Engines” (49-3042), and “Maintenance Workers, Machinery” (49-9043) who perform only routine tasks.

49-9042 Maintenance and Repair Workers, General

Perform work involving the skills of two or more maintenance or craft occupations to keep machines, mechanical equipment, or the structure of an establishment in repair. Duties may involve pipe fitting; boiler making; insulating; welding; machining; carpentry; repairing electrical or mechanical equipment; installing, aligning, and balancing new equipment; and repairing buildings, floors, or stairs. Exclude “Maintenance Workers, Machinery: (49-9043).

49-9043 Maintenance Workers, Machinery

Lubricate machinery, change parts, or perform other routine machinery maintenance. Exclude “Maintenance and Repair Workers, General” (49-9042).

Phase I – Attachment II – 1

Petroleum Industry Workforce Needs and Skills Assessment Form

Company Name: _____ Survey Address: _____

Contact Person: _____

Address: _____

Telephone: _____ Fax: _____ E-mail: _____

Confidentiality Statement

The information in this “in-person” assessment form will be entirely confidential. The data collected will be only presented in aggregate form; so, that, no individual participant’s workforce needs can be separately identified. Likewise, it is not the purpose of this workforce needs and skills assessment to identify any employee’s wages or benefits package, consequently, no request for wages and benefits information will appear within this assessment document.

Expected Employment Levels

The number reported in each “Employee Occupational Title” area is the number of employees that the company projects that it will need each reporting year in order for it to meet its targeted production goals; and/or, in the case of sub-contractors, or service providers; the number of employees they will need in order to meet its service providing requirements.

Imminent/Replacement Employee Needs

The number reported in each “Employee Occupational Title” area is the number of employees that the reporting identity is in need of within each reporting year; with, special consideration, given to; the reporting company’s “Employee Ageing Factor” and it’s historical “Employee Turnover” rate.

Phase I – Attachment II – 2

Petroleum Industry Workforce Needs and Skills Assessment Form

Petroleum Industry Workforce Needs and Skills Assessment

*You need to provide one of the code #'s. If you can't provide any of the requested code #'s, please, provide a short job description of the "Industry Employee Occupational Title"; and, delineate, as clearly as possible; some basic skill requirements, as well as, some industry specific certification and/or licensing requirements.	<i>*SOC (Standard Occupational Classification)</i>	<i>*O'net Classification System</i>	<i>*Workforce Safety and Insurance Coding System</i>	<i>*Brief Industry Job Description</i>	<i>For the Year 2006</i>	<i>For the Year 2007</i>	<i>For the Year 2008</i>	<i>For the Year 2009</i>	<i>For the Year 2010</i>	
Industry Employee Occupational Title										Expected Employment Levels
										Imminent/Replacement Employee Needs
Industry Employee Occupational Title										Expected Employment Levels
										Imminent/Replacement Employee Needs
Industry Employee Occupational Title										Expected Employment Levels
										Imminent/Replacement Employee Needs
Industry Employee Occupational Title										Expected Employment Levels
										Imminent/Replacement Employee Needs
Industry Employee Occupational Title										Expected Employment Levels
										Imminent/Replacement Employee Needs

Phase II – Attachment I - 1

North Dakota Workforce Needs and Skills Assessment Integrated Summary Analysis Skills Sets Needs Assessment

Petroleum Industry Workforce Employee Occupation Titles	(SOC) Code	O'Net Classification	
Managers; Wellsite Project Leader/Foreman/Service Leader	11-3051	11-3051.00	16
O'Net Classification Skills Set Requirements Extrapolated from SOC, O'Net Classification Systems & Respondents Job Descriptions			
<p>Industry/O*net general job description: Plan, direct, or coordinate the work activities and resources necessary for extraction, transport and refining oil and gas products in accordance with cost, quality, and quantity specifications. Knowledge: Production and Processing: Knowledge of the processes, quality control, costs and other techniques for maximizing the effective extraction of oil and gas products. Knowledge: Administration and Management: Knowledge of business and management principles involved in strategic planning, resource allocation, human resources modeling, leadership technique, production methods, and coordination of people and resources. Knowledge: Engineering and Technology : Knowledge of the practical application of engineering science and technology. This includes applying principles, techniques, procedures, and equipment to the design and production of oil and gas products and the refining of those products. Job Training: Employees in these occupations usually need several years of work related experience, on-the-job training, and/or vocational training. Education: Most of these occupations require a four year bachelor's degree, but, some do not.</p>			
Office Clerks; Administrative Assistant; Inspection Assistant; Administrative Associate/Specialist	43-9061	43-9061.00	16
O'Net Classification Skills Set Requirements Extrapolated from SOC, O'Net Classification Systems & Respondents Job Descriptions			
<p>Industry/O*net general job description : Clerical duties may be assigned in accordance with the office procedures of individual companies, and, may include a combination of answering telephones, bookkeeping, typing or word processing, office machine operation, filing, as well as, knowledge of office management systems and procedures, and, the handling of employee interviews, and, the keeping of employee training and work experience records. Sample of other O*net related reported job titles: Administrative Assistant, Office Clerk and/or Office Coordinator. Knowledge: Clerical: Knowledge of administrative and clerical procedures and systems, as well as, other office procedures and terminology. Knowledge: English: Knowledge of the structure of the English language including the meaning and spelling of words, rules of composition, and grammar. Knowledge: Economics and Accounting: Knowledge of economic and accounting principles and practices, and, the analysis and reporting of the collected data. Knowledge: Technology: The effective utilization of Calendar and scheduling software, Data base user interface and query software, Graphics or photo imaging software, Inventory management software and Office suite software (Microsoft Office). Job Training: Employees in these occupations need anywhere from a few months to one year of working with experienced employees. Education: These occupations usually require a high school diploma and may require some vocational training or job-related course work. In some cases, an associate's or bachelor's degree could be needed.</p>			

Phase II – Attachment I - 2

Petroleum Industry Workforce Employee Occupation Titles	(SOC) Code	O'Net Classification	
First Line Supervisor; Tool Pusher; Directional Drilling Specialist; Frac Acid Supervisor/Leader; Nitrogen Supervisor; Drilling Superintendent	47-1011	47-1011.00	8/6
O'Net Classification Skills Set Requirements Extrapolated from SOC, O'Net Classification Systems & Respondents Job Descriptions			
<p>Industry/O*net general job description: Directly supervise and coordinate activities of oil and gas extraction workers. Administration and Management Knowledge: Knowledge of business and management principles involved in strategic planning, resource allocation, human resources modeling, leadership technique, production methods, and coordination of people and resources. Education: Most of these occupations require a GED or high school certificate, as well as, "hands on" training at vocational schools or fairly long periods of related on-the-job experience; or, in some cases; an associate's or a bachelor's degree. See attached Notes # (1) (2) (3)</p>			
Equipment Operator	47-2073	47-2073.00	16
O'Net Classification Skills Set Requirements Extrapolated from SOC, O'Net Classification Systems & Respondents Job Descriptions			
<p>Industry/O*net general job description: Operate one or several types of power construction types of equipment, such as motor graders, bulldozers, scrapers, compressors, pumps, derricks, shovels, tractors, or front-end loaders to excavate, move, and grade earth, to accommodate drilling sites or create other surfaces to accommodate structures, concrete or other paving and/or gravel type surfaces. May also be required to repair and maintain equipment in addition to other duties. Knowledge: Mechanical: Knowledge of machines and tools, including their designs, uses, repair, and maintenance. Education: These occupations usually require a GED or high school certificate; or, in some cases; extensive "hands on" vocational training; or, in some cases; extensive related on-the-job training. Related Occupations: (47-5071.00) Roustabouts, Oil and Gas and (49-3042.00) Mobile Heavy Equipment Mechanics. See attached Notes # (1) (2) (3)</p>			
Derrick Worker; Field Professional; Drilling Fluids Field & Service Rep	47-5011	47-5011.00	8/4
O'Net Classification Skills Set Requirements Extrapolated from SOC, O'Net Classification Systems & Respondents Job Descriptions			
<p>Industry/O*net general job description: Rig derrick equipment and operate pumps to circulate mud through drill hole. Knowledge: Mechanical: Knowledge of machines and tools, including their designs, uses, repair, and maintenance. Mathematics: Knowledge of arithmetic, algebra, geometry, statistics, and their applications. English Language: utilization of the English language; including the meaning and spelling of words, rules of composition, and grammar. Training skills: Knowledge of training design for the instruction of individuals and/or groups, and the measurement of the effects of the training. Education: These occupations may require a high school or GED certificate; or, in some cases; short term "hands on" vocational training, as well as, in some cases, formal training, so as to, effectively train others in procedures requiring specific licenses, certificates and/or permits. Related Occupation: (47-5071.00) Roustabouts, Oil and Gas, (47-5012.00) Rotary Drill Operators, Oil and Gas. See attached Notes # (1) (2) (3)</p>			

Phase II – Attachment I – 3

Petroleum Industry Workforce Employee Occupation Titles	(SOC) Code	O*Net Classification	
Driller	47-5012	47-5012.00	8/7
O*Net Classification Skills Set Requirements Extrapolated from SOC, O*Net Classification Systems & Respondents Job Descriptions			
<p>Industry/O*net general job description: Set up or operate a variety of drills to remove petroleum products from the earth and to find and remove core samples for testing during oil and gas exploration. Knowledge: Mechanical: Knowledge of machines and tools, including their designs, uses, repair and maintenance. Mathematics: Knowledge of arithmetic, algebra, geometry, statistics, and their applications. Administration and Management: Knowledge of business and management principles involved in strategic planning, resource allocation, human resource modeling, leadership technique, production methods, and coordination of people and resources and instruction for individuals and groups, and the measurement of training effects. Education: These occupations may require a high school or GED certificate; or, in some cases; short term “hands on” vocational training; and, in some cases; an associate’s or bachelor’s degree could be needed. Related Occupation: (47-5011.00) Derrick Operators, Oil and Gas. See attached Notes# (1) (2) (3)</p>			
Crew Chief; Fishing Hands; Service Unit Operator, Oil, Gas & Mining; Operators; Frac Acid Operator; Nitrogen Operator; Service Tools Operator/Specialist; Pipeline Corrosion Specialist; Rig Operator	47-5013	47-5013.00	8/5
O*Net Classification Skills Set Requirements Extrapolated from SOC, O*Net Classification Systems & Respondents Job Descriptions			
<p>Industry/O*net general job description: Operate equipment to increase oil flow from producing wells or to remove stuck pipe, casing, tools, or other obstructions from drilling wells. Sample of other related O*net reported job titles: Rig Operator, Pulling Unit Operator, Service Rig Operator, Fishing Tool Supervisor, Service Rig Operator, Reverse Unit Operator-Fisherman, Tool Pusher, Well Servicing Rig Operator, work over Rig Operator Knowledge: Mechanical: Knowledge of machines and tools, including their designs, uses, repair, and maintenance. Knowledge: English Language: Knowledge and structure of the English language to a level ; so, that; relevant equipment , policies, procedures, and strategies can be properly utilized to assure public safety and to effectively implement company, local, state and federal rules, regulations and directives to insure a safe and legal working environment. Education: These occupations usually require a high school diploma; or, in some cases; “hands on” vocational training; and, in some cases; an associate’s or bachelor’s degree could be needed. See attached Notes # (1) (2) (3)</p>			

Phase II – Attachment I – 4

Petroleum Industry Workforce Employee Occupation Titles	(SOC) Code	O’Net Classification	
Roustabout, Oil & Gas	47-5071	47-5071.00	8/8
O’Net Classification Skills Set Requirements Extrapolated from SOC, O’Net Classification Systems & Respondents Job Descriptions			
<p>Industry/O*net general job description: Assemble or repair oil field equipment using hand and power tools. Perform other tasks as needed.</p> <p>Knowledge: Mechanical: Knowledge of machines, including their designs, uses, repair, and Maintenance. Physics: Knowledge and prediction of physical principles, laws, their interrelationships, and applications to understanding fluid, material, and atmospheric dynamics, and mechanical, electrical, atomic and sub - atomic structures and processes. Education: These occupations usually require a high school and/or a GED certificate; or, in some cases; short term “hands on” vocational training; and, in some cases; training to an Associate Degree level. See attached Notes# (1) (2) (3)</p>			
Crew Worker; Floor Hands; Chain Hand; Long Tong Hand	47-5081	47-5081.00	8/3
O’Net Classification Skills Set Requirements Extrapolated from SOC, O’Net Classification Systems & Respondents Job Descriptions			
<p>Industry/O*net general job description: Help extraction craft workers, such as, earth drillers, derrick operators and drilling machine operators, by performing duties of lesser skill. Duties include supply equipment in support of operation and/or cleaning work areas. Knowledge: Mechanical: Knowledge of machine tools, including their designs, uses, repair, and maintenance. Physics: Knowledge and prediction of physical principles, laws, their interrelationships, and applications to understanding, fluid, material, and atmospheric dynamics, and mechanical, electrical, atomic and sub-atomic structures and processes. Education: These occupations usually require a high school and/or GED Certificate; or, in some cases; short term “hands on” vocational training. O*net identified Related Occupations: (47-5011.00) Derrick Operators, Oil and Gas and (47-5071.00) Roustabouts, Oil and Gas. See attached Notes# (1) (2) (3)</p>			
Mechanics; Mobile Heavy Equipment Mechanics; Mechanical Technician	49-3042	49-3042.00	16
O’Net Classification Skills Set Requirements Extrapolated from SOC, O’Net Classification Systems & Respondents Job Descriptions			
<p>Industry/O*net general job description: Diagnose, adjust, repair, or overhaul mechanical, hydraulic, and pneumatic equipment, such as cranes, bulldozers, graders, forklifts and backhoes used in oil and gas extraction and well maintenance. Knowledge: Mechanical: Knowledge of machines and tools, including their designs, uses, repair, and maintenance. Mathematics: Knowledge of arithmetic, algebra, geometry, statistics, and their applications. Job Training: Employees in this occupation usually need several years of work-related experience, on-the-job training, and/or “hands on” vocational training. Education: Some in this occupation; in lieu of the “Job Training” described above may, in some cases, require an associate’s and/or a bachelor’s degree.</p>			

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Petroleum Industry Workforce Employee Occupation Titles	(SOC) Code	O'Net Classification	
Maintenance Workers, Machinery; General Mechanic	49-9043	49-9043.00	16
O'Net Classification Skills Set Requirements Extrapolated from SOC, O'Net Classification Systems & Respondents Job Descriptions			
<p>Industry/O*net general job description: Lubricate machinery, change parts, or perform other routine machinery maintenance. Knowledge: Mechanical: Knowledge of machines and tools, including their designs, uses, repair and maintenance. Engineering: Technology: knowledge of the practical application of engineering science and technology. This includes applying principles, techniques, procedures, and, the understanding of equipment design of tools and machinery utilized for oil and gas extraction and well maintenance. Education: These occupations may require a GED or high school certificate. In some cases a formal "hands on" vocational training course may be required in order to obtain a required license.</p>			
Gas Plant Operators; Railcar Loading Facilities Operator	51-8092	51-8092.00	16
O'Net Classification Skills Set Requirements Extrapolated from SOC, O'Net Classification Systems & Respondents Job Descriptions			
<p>Industry/O*net general job description: Distribute or process gas for utility companies and others by controlling compressors to maintain specified pressure on main pipelines. Knowledge: Mechanical: Knowledge of machines and tools, including their designs, uses, repair, and maintenance. Education: These occupations may require a high school or GED certificate; or, in some cases; short term "Hands on" vocational training; and, in some cases; an associate's or bachelor's degree could be needed. Related Occupation: (53-7073.00) Wellhead Pumpers; and, also; industry workforce survey identified; (51-8093.00) Petroleum Pump System Operators, Refinery Operators, and Gaugers and (53-7071.00) Gas Compressor and Gas Pumping Station Operators. See attached Notes# (1) (2) (3)</p>			
Cementing Operator	51-9023	51-9023.00	16
O'Net Classification Skills Set Requirements Extrapolated from SOC, O'Net Classification Systems & Respondents Job Descriptions			
<p>Industry/O*net general job description: Set up, operates, or tends machines to mix or blend materials, such as chemicals, liquid, color pigments, or explosive ingredients. Knowledge: Mechanical: Knowledge of machines and tools, including their designs, uses, repair, and maintenance. Mathematics: knowledge of arithmetic, algebra, geometry, statistics, and their application. Education: These occupations may require a GED or high school certificate; or, in some cases; they may require a formal "hands on" vocational or industry approved formal training course in order to obtain a license and/or required permit .See attached Notes # (1) (2) (3)</p>			

Phase II – Attachment I – 6

Petroleum Industry Workforce Employee Occupation Titles	(SOC) Code	O’Net Classification	
Motor Man; Floor Man, Helpers-Production Workers	51-9198	51-9198.00	8/1
O’Net Classification Skills Set Requirements Extrapolated from SOC, O’Net Classification Systems & Respondents Job Descriptions			
<p>Industry/O*net general job description: Help oil and gas extraction workers by performing duties of lesser skills. Duties include supplying or holding materials or tools, and cleaning work areas and equipment. Knowledge: Mechanical/General/Technology: Knowledge of machine and hand tools, including their designs, uses repair and maintenance. In some cases basic computer competencies will also be required; such, as; data base user interface and query software (Data entry software), spreadsheet software (Microsoft Excel) and Word processing software (Microsoft Word). Skills: The ability to master the controlling of operations of equipment and systems. Education: These occupations may require a GED or high school certificate, a long time of on- the-job training; or, in some cases; a formal “hands on” vocational or industry approved training course in order to obtain a license and/or required permit. See attached Notes# (1) (2) (3)</p>			
Truck Drivers; Lead Transport Driver; Transport Driver; Stockpoint Truck Driver	53-3032	53-3032.00	8/2
O’Net Classification Skills Set Requirements Extrapolated from SOC, O’Net Classification Systems & Respondents Job Descriptions			
<p>Industry/O*Net general job description: Drive a tractor-trailer combination or a truck with a capacity of at least 26,000 GVW to transport goods, materials, supplies; as well as; oil and gas product and waste product; as well as; rig construction equipment, supplies and materials. May be required to unload and load the trucks, and, may be required to use automated routing equipment. Requires commercial drivers license (CDL). Knowledge: Law and Government: Knowledge of laws, legal codes, court procedures, precedents, government regulations, executive orders, agency rules; as well as; industry specific rules, policies and restrictions. Education: This occupation usually requires a GED or high school certificate and may require some “hands on” vocational training or job related course work and/or training in order to acquire a (CDL) license. In some cases, an associate’s or bachelor’s degree could be needed. (Employees in this occupation can be expected to submit to random, or, mandated periodic drug testing).</p>			
Wellhead Pumpers; Lease Operator	53-7073	53-7073.00	16
O’Net Classification Skills Set Requirements Extrapolated from SOC, O’Net Classification Systems & Respondents Job Descriptions			
<p>Industry/O*net general job description: Operate power pumps and auxiliary equipment to produce flow of oil or gas from wells in oil field. Knowledge: Mechanical: Knowledge of machines and tools, including their designs, uses, repair, and maintenance. Mathematics: Knowledge of arithmetic, algebra, geometry, statistics, and their application. Education: These occupations may require a high school or GED certificate; or, in some cases; short term “hands on” vocational training; and, in some cases; an associate’s or bachelor’s degree could be needed. Related Occupation: (51-8092.00) Gas Plant Operators. See attached Notes# (1) (2) (3)</p>			

Phase II – Attachment I – 7

Note # 1

Physical - Attributes: Persons in these occupations need **Multipliable Coordination**, namely; the ability to coordinate two or more limbs (for example, two arms, two legs, or one leg and one arm) while sitting, standing, or lying down. **Static Strength**, namely; the ability to exert maximum muscle force to lift, push, pull, or carry objects. **Near Vision**, namely; the ability to see details at close range (read gauges and meters within a few feet of the observer). **Far Vision**, namely; the ability to see detail at a distance. **Endurance:** the ability to work long hours within a structured schedule or timeframe based on production goals, and, be willing to work under all kinds of climatic conditions. **Restrictions:** Most of the employees in these occupations must be willing to under go periodic and/or mandated drug testing.

Note # 2

Worker Activities - Attributes: Persons in these occupations need to be able to **Handle and Move Objects** by using their hands and arms in handling, installing, positioning, and moving objects, and manipulating things. **Repairing and Maintaining Mechanical Equipment** - employees in this occupation need to know the servicing, repairing, adjusting, and testing machines, devices, moving parts, and equipment that operate primarily on the basis of mechanical principles. **Operating Vehicles, Mechanized Devices, or Equipment** - employees in these occupations need to know how to run, maneuver, navigate, or, drive vehicles or mechanized equipment, such as, forklifts, front end loaders, and, trucks of various sizes. (In some cases a CDL may be required).

Note # 3

Worker Communication - Attributes: Persons in these occupations must be able to **Read and Comprehend** instructions of operational manuals an repair texts; they, must also; for **Public Safety and Security** have knowledge of relevant equipment, policies, procedures, and strategies to promote effective local, state, or national security operations for the protection of people, data, property, and institutions. All workers in these occupations must be able to take or follow directions and directives; and, be able to, when required; to communicate with co - workers in such a manner so as to promote a **Team - Workforce Environment** which will result in meeting effective and efficient production goals.

Phase II – Attachment II - 1



Policy Alert Supplement

April 2004

NORTH DAKOTA's Educational Pipeline



In North Dakota, for every 100 ninth grade students ...



... 83 students graduate from high school four years later.



... 57 students immediately enter college.



... 41 students are still enrolled in their second year.



... 25 students graduate with either an associate's degree within three years or a bachelor's degree within six years.

Data are from 2002. Source: ACT, "Institutional Data Questionnaire 2003." Unpublished analysis prepared for the National Center for Public Policy and Higher Education, Iowa City, Iowa, 2004; National Center for Education Statistics, "Common Core of Data": <http://nces.ed.gov/ipeds/> (accessed Jan. 26, 2004); —, "IPEDS Fall Enrollment Survey 2002": <http://nces.ed.gov/ipeds/> (accessed Jan. 26, 2004); —, "IPEDS Graduation Rate Survey 2002": <http://nces.ed.gov/ipeds/> (accessed Jan. 26, 2004); —, "IPEDS Retention and Migration File 2002": <http://nces.ed.gov/ipeds/> (accessed Jan. 26, 2004); Western Interstate Commission for Higher Education, *Knocking at the College Door: Projections of High School Graduates from 1988 to 2028*. Boulder, CO, 2004. For more detailed source information, see our website at <http://www.highereducation.org/reports/pipeline/>. The concepts reflected in this supplement are from *Conceptualizing and Researching the Educational Pipeline*, by Peter T. Ewell, Dennis P. Jossé, and Patrick J. Kelly of The National Center for Higher Education Management Systems. For most current data, see The National Information Center for Higher Education Policymaking and Analysis website at www.higheredinfo.org.

Workforce Intelligence



But, Did You Know?

- Of every 100 9th graders, 83 graduate from high school
- 57 Immediately enter college
- 41 are still enrolled their sophomore year
- 25 graduate from a postsecondary program
- Where are the other 75%?