ALASKA'S OIL INDUSTRY

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INTRODUCTION

In recent years interest in the oil industry has grown rapidly due to the Arab oil embargo and the Prudhoe Bay oil field discovery and development. This article discusses the structure, occupational mix, occupational opportunities, and supply and demand of those oil related occupations; in addition to education and/or training available in Alaska for a career in the oil industry.

Since the 1973-74 Arab oil embargo, the exploration and production of domestic sources of oil has significantly increased in the U.S. This increase, in turn, boosted employment in the oil extraction industries. Alaska has also seen large increases in oil employment since the 1973-74 period with the development of the Prudhoe Bay oil field. In fact, by the end of 1980, employment in Alaskan oil extraction industries (crude petroleum production, drilling, exploration firms and oil field services) had grown by more than 127% (3,300 jobs) since 1974 to a total of over 5,900 jobs. Over the same period of time, employment in the same industries for the U.S. as a whole increased 84%. Texas, Louisiana, and Oklahoma are the three largest oil and gas extraction employment states, and accounted for 70% of the nationwide growth. While Alaska ranks 12th in national oil extraction employment, it experienced the second highest growth rate between 1974 and 1980. Other states that experienced large relative employment increases since 1974 were North Dakota, Montana, and Colorado. (See Table I).

Table 1
Oil Extraction Employment
By State

1980 Rank	State	1974	1980	Percent Change
1	Texas	115,400	227,000	97%
2	Louisiana	49,900	83,300	67%
3	Oklahoma	37,900	68,300	80%
4	California	22,700	32,800	44%
5	Colorado	8,200	17,100	109%
6	Wyoming	8,800	16,700	90%
7	New Mexico	8,300	13,400	61%
8	Kansas	7,700	13,300	73%
9	Ohio	5,400	9,800	81%
10	Mississippi	4,800	9,500	98%
11	North Dakota	1,100	6,600	500%
12	**Alaska**	2,600	5,900	127%
13	Utah	4,000	5,400	35%
14	Montana	1,800	3,800	111%
	U.S. Total	300,200	552,000	84%

Oil employment in Alaska represented 2.2% of total nonagricultural employment in 1974 and 3.5% in 1980. Not only has Alaska's oil employment been growing faster compared to the national industry average, it has also been increasing faster than overall employment in the Alaskan economy. Even with these dramatic increases in employment, oil employment represents only a small portion of total employment.

Assuming a 50% growth rate over the next five years, which the North Slope producers have estimated will occur, oil employment will still represent less than 5.0% of total wage and salary employment in Alaska. Job opportunities in the oil industry are limited in comparison to opportunities elsewhere in the Alaskan job market. But the importance of the oil industry extends beyond direct job opportunities as infusion of oil money into the economy also creates secondary jobs in Alaska.

OCCUPATIONAL STRUCTURE OF THE OIL INDUSTRY

People with many different skills are needed to explore for oil, drill new wells, maintain and improve existing wells. Some of the occupations are typically perceived as oil related, such as a driller or petroleum engineer. Others, such as secretaries or accountants are not strictly oil industry occupations but are found throughout the economy.

For simplification, occupations discussed here will be lumped into 6 occupational groups; managers and officers, professional and technical, maintenance and production (crafts), clerical, service, and sales. Of these groups, maintenance and production is the largest group representing 55% of the total oil extraction jobs. While the clerical and professional and technical groups represent between 12% and 13%, managers represent 5%, service 1.5%, and sales less than 1%. Through a survey of the oil establishments, the Department of Labor has identified over 60 major occupations in the oil industry.

OCCUPATIONAL MIX

The occupational mix in the industry varies according to the location of the operation and the type of firm. Ninety-six percent of the oil jobs in Alaska are located in Anchorage, North Slope and Kenai. In 1980, Anchorage and the North Slope each represented 42% of the total oil industry jobs, while Kenai supported 12%. The major portion (57%) of the jobs are with the crude producers (SOHIO, ARCO, EXXON, UNION, and AMOCO). Drilling, exploration, and oil service firms represent 16%, 13%, and 14% of the oil employment in Alaska.

There are basically two types of operations—field and support operations. Employment in Anchorage is primarily made up of support staff for the field operations throughout the state, particularly Kenai and Prudhoe Bay. The support staff consists of managers and officers, professionals, technicians, clerical, and sales personnel. The professional staffs in Anchorage and the field offices include geologists and geophysicists, and a wide range of engineers, including petroleum engineers.

Only in Anchorage do the professional staffs include purchasing agents and accountants. The vast majority of the technical workers in Anchorage and the field are engineering

aides or drafters. The remainder are electronic and electrical technicians and computer programmers. Clerical occupations, which are concentrated in the Anchorage offices, consist of positions varying from accounting clerks and bookkeepers to a wide range of clerks and secretaries.

The field staff consists of maintenance and production workers, technicians, professionals and service staff. The service, and maintenance and production occupations, range from diesel and maintenance mechanics to electricians, heavy equipment operators, welders, and other skilled craftsmen and supervisors.

The producers are the largest employers in the industry, and run the occupational gamut of the oil industry; whereas the occupational mix within the drilling industry consists primarily of maintenance and production jobs related directly to drilling operations.

Exploration firms generally are engaged in seismic testing operations. Occupations are primarily those of maintenance and production jobs related to the seismic testing, such as surveyors and their helpers, blasters or vibrator operators, observers, and other skilled and unskilled workers.

Service companies have a broad occupational mix. A few companies offer a wide range of occupations and are active in an array of oil related activities, while the majority of firms are small and specialized. Specialized firms range from mud engineering to oil well cementing and directional drilling.

OCCUPATIONAL SUPPLY AND DEMAND

In 1981, one major oil company in Alaska received more than 7,000 applications from individuals hoping to land jobs in the oil industry. In 1981, the industry created approximately 1,160 new jobs. There is obviously no dearth of people wanting to work for the industry in Alaska. In most cases the industry is having little difficulty finding qualified people to fill most openings. However, it is difficult to fill a few highly specialized or technical positions that do open, despite the deluge of applications.

A large variety of occupations is found in the oil industry, and the supply and demand varies dramatically from a lack of

qualified applicants in one occupation to a surplus of applicants in others. National and statewide economic trends, skill levels, technological changes, pay scales, and working conditions are major determining factors influencing the supply and demand for jobs in the oil industry.

The first occupational group that often comes to mind when discussing the oil industry are the drilling crews. On a drilling crew, the occupations range from the roustabout to the top person on the drilling rig, the tool pusher. The term "roustabout" is often used synonymously with "laborers." Most other jobs on the rig are acquired through experience and moving through the ranks. Because little formal education and training are needed for a roustabout, virtually any able bodied person can theoretically qualify for the job. This makes the potential labor pool very large. According to a number of the drilling firms, there is a minimum of 100-200 applicants for every job opening. Many of the drilling companies have ceased accepting applications from walk-ins, because they have simply been overwhelmed by applicants. Because the pool of applicants is large, the drilling companies can pick and choose, which means they generally hire individuals who already have drilling rig experience.

During the past 5 years, the pool of experienced drilling hands has grown dramatically. This comes from both growth in the number of Alaskans that have acquired experience in the oil fields and from individuals who have had oil experience elsewhere, and have followed the "oil patch" to Alaska. Because the pay is significantly higher here than elswhere in the nation's oil fields, many oil workers are attracted to Alaska. As a result seasoned oil rig people have been willing to take a demotion in job status on a rig, to nab a job on the North Slope or in Cook Inlet.

Presently Alaska has no problem attracting enough experienced drilling rig workers. However, according to knowledgeable people in the industry this is not the case outside Alaska due to a concentration of drilling in the overthrust belt along the Rocky Mountains which has resulted in a shortage of qualified workers in other areas of the country.

Another occupational group, not as specialized as the drilling crews, but which can be found in most phases of the oil

industry, is the crafts. Craft-related occupations range from carpenters and welders to heavy equipment operators. Construction has always been a dominant industry in Alaska therefore, a shortage of crafts people rarely exists. The oil industry has had a similiar experience, and has seldom had trouble finding qualified crafts people in the local Alaska labor market. Because they are usually paid top wages, there is stiff competition to land one of these jobs. Nevertheless, in a select number of cases, the industry does have a difficult time finding qualified workers. Welders are plentiful, but welders with specific, specialized training may be somewhat more difficult to locate. For example, welders who can weld stainless steel and pipe rapidly, definitely stick out of the crowd of competition. Experienced sheet metal workers with a wide variety of experience are also in more demand. Qualified crane operators are plentiful, but those who can operate a 100 ton crane are more difficult to locate. It should, however, be remembered that there is a limited demand for these highly skilled occupations.

Because there is a surplus of qualified individuals in most of the crafts, a specialized skill beyond the normal call of duty is one of the keys to landing a job as a craftsperson with the oil industry. Otherwise being at the right place at the right time, or being a member of a union will be necessary to gain employment in this industry.

The technical fields of employment are diverse, therefore, supply and demand for these occupations varies. In most cases, the oil industry reports it has had few problems finding qualified individuals, and here again it is probably because they are paid top dollar. The military, or more specifically the Air Force, trains a large number of electronic technicians, many of whom remain in Alaska when they complete their duty. Other technicians are either recruited from the local labor market or from outside Alaska by the industry. Due to the rapid technological changes the technicians who can work on the latest equipment have a far better chance of finding a job than those who do not have the experience

Drafters, another technical group, are employed by both the producer and service companies. The general drafters with little experience are not hard to find in the local labor market. However, some of the more experienced and specialized drafters are more difficult to find.

A drafter with a great deal of pipelaying or pipe design experience should not find it difficult to land employment in the industry. A drafter capable of designing flow lines and gathering lines is more employable. Some structural drafters are also in demand by the industry. Presently there is little demand for computer aided drafters in Anchorage, but during the next year one of the major producers will be hiring people in this profession. To date there has been little need for drafters with these skills in Alaska, therefore, they are difficult to find. In the future this will likely become a demand occupation. Job opportunities for drafters with years of experience in specific areas such as piping, structural or computers are generally good, but for general drafters with little experience, finding work with the oil industry will be extremely difficult.

Though not typically thought of as oil related occupations, the clerical positions are well represented in the industry. Generally, the oil industry pays above the average for these positions, and therefore has little problem finding an adequate supply of clerical workers. The competition can be tough, with 50 or more applicants applying for one opening. Clerical skills with word processing or computer experience definitely help a person stand out in a crowd of job applicants. Education helps, and experience is a definite must before a person will even be considered.

An occupation often brought to mind when the oil industry is mentioned is engineer. The engineer is often thought of as the premier of all occupations—where the employer must go begging for qualified applicants. In some cases this is exaggerated, but in others it is not. Any newly graduated petroleum engineer major will find work with the oil industry, but engineers in other disciplines will not find it so easy. Presently there is a national and worldwide shortage of petroleum engineers. A petroleum engineer with experience can practically write their own ticket and command very high wages. These engineers are constantly being lured away by other companies with larger and better offers. The new graduate, however, will have to acquire some experience before bundles of cash are offered.

For two other professional occupations, geologist and geophysicist, the picture is somewhat different. For entry level positions, there are plenty of applicants to choose from. However, it is generally a good degree (at the masters level) to

have today because of both increased oil and mineral exploration. For the geologist or geophysicist with a good deal of oil experience, the prospects are at least as bright if not brighter than the the opportunities for the petroleum engineer since they actually locate potential oil fields, making their talents seemingly priceless to the industry.

For the other professional and managerial occupations, the possibility of capturing a job with the oil industry is not quite as easy. For example, competition for accounting jobs is stiff, despite the fact that a degree in accounting is presently very marketable. Good experience and/or an exceptional record in school is necessary to even be considered. To move into a managerial position, a person has to either come through the ranks of the company or be recruited from other companies' managerial ranks. The latter method is the most common way local residents have been able to work for the oil industry.

The supply and demand for all these occupations is by no means a static affair. Presently the seasoned geologist and engineer are very marketable occupations and the crafts are suffering from a surplus. The dynamics of the labor market could change this situation quite rapidly. This is particularly true in Alaska because of the small size of its labor market. A deluge of students could move into the demand fields and flood the market. This could be compounded by a contraction of the industry. At the same time the nation could enter a boom era for construction, creating a shortage of skilled crafts people. The demand for occupations has waxed and waned in the past and there is little reason to believe this won't continue to be the case—few if any occupations are insulated from these changes.

EDUCATION AND TRAINING

Formal education is not always necessary, but in all cases it helps to crack open the door for individuals pursuing job opportunities in the oil industry. In Alaska there are a number of training and educational programs which are specifically oriented to meet educational needs relating to the oil industry. The Alaska Petroleum Extension Program coordinates these programs which are taught at the Kenai Peninsula Community College, the Alaska Vocational Education and Technical Center (formerly the Alaska Skill Center) at Seward, the Tanana Community College, and the University of Alaska in Fairbanks. These programs include training for engineering aids, opera-

tors, instrument technicians, roustabouts, general petroleum technology, and petroleum engineering. The length of training varies from 16 weeks for the roustabout to four years of formal college for the petroleum engineer. Petroleum engineering is a new program at the University of Alaska which graduated its first petroleum engineer in December 1981.

The placement rate has been good for the graduates of the various programs, often because they work closely with the industry. Training for other occupations represented in the oil industry, such as clerical and crafts can be acquired at union apprenticeship programs, various vocational schools, and community colleges. Competition for jobs in the oil industry can be extremely tough, therefore, the right training and experience are necessary if a person wishes to be noticed within an overcrowded supply of job seekers.

NONAGRICULTURAL EMPLOYMENT INDEX REVISED

The method for producing the nonagricultural employment index for Alaska, Anchorage, and Fairbanks has been revised effective January, 1982. Previously only the nonagricultural employment total was seasonally adjusted in developing the index. The new method seasonally adjusts each industry prior to summing to the total which is then indexed. This revision in methodology will more appropriately weight each industry in the total. If the revised historical series is desired, please contact Sally Saddler, Editor, Alaska Economic Trends.