

## LESSON PLAN

### CAREERS IN THE OIL INDUSTRY

Submitted by: Charles Cheney - Teacher Lompoc High School, Lompoc, California  
Derrick to Desk Seminar - August, 2001  
Curriculum Area: Reading, writing, speaking, and career planning  
Grade Levels: 11-12

**Length:** Two to three class periods.

**Objective:** The students will gain knowledge of careers in the oil and gas industries. They will also learn what training they need and where to get that training in order to secure those positions in the oil industry.

#### **Introduction:**

1. Have students brainstorm through class discussion on what jobs they think are available in the oil industry. The instructor writes those jobs on the chalkboard.
2. Ask the students where they think people gain the skills needed for those jobs.
3. Ask the students how much money people get paid for those jobs.
4. Ask students if they have any family members that work in the oil industry.

#### **Procedure:**

1. Pass out to each student a copy of "Oil Field Careers" by Claude D. Fiddler, a petroleum engineer and guest speaker at Derrick to Desk Seminar August 2001. See attached.
2. Write additional careers on the board from the above handout from page three. By raising hands, ask students to pick a career they think they may be interested in knowing more about. Write the student's name next to the career he or she has chosen. Only allow two students per career to make sure most of the careers get picked and that not all the students are doing reports on the same career.
3. Handout to each student the worksheet title "Report on a Career in The Oil Industry." See attached. At this time explain to the students that they will each give a short oral report on their career choice. Tell the students they are allowed to research their career choice and fill out the worksheet by using the handout titled "Oil Field Careers." Review this handout with the students. Show them that there is lots of information on careers in the oil industry. For example: income, training, and job description.
4. Also, you can use other resources gathered from the Derrick to Desk Seminar and have available for the students to go through in their research. You can put up the posters that were given to us. They are very colorful. In addition, borrow some information from your career center and have available to the students for research.
5. If you have the time, have the class take a trip to the career center and have them research on their career choice.
6. **For homework**, have the students get some information off the internet using the Derrick to Desk web page: **[www.wspa.org](http://www.wspa.org)**.
7. Lastly, students will then give their oral report. You might want to give them a five-minute time limit.

**Review:** After the oral reports have been completed review and discuss as a class what they have learned about careers in the oil industry.

**Evaluation:** The students will be evaluated on his or her report worksheet, oral report, and class participation. If you would like you could give a ten-question quiz on the oral reports to the class to evaluate their listening skills.

## Report on a Career in The Oil Industry

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Period: \_\_\_\_\_

1. Career you have chosen: \_\_\_\_\_

2. What does this person do? Explain or describe this person's job? \_\_\_\_\_

\_\_\_\_\_

3. What kind of working conditions does this job have? Does the person have to work outdoors, indoors? Is there a lot of paper work or a lot of hands on things to do? For example, writing reports or working with tools.

\_\_\_\_\_

\_\_\_\_\_

4. What kind of skills does this person need to have? What kind of training does he or she need to have?

\_\_\_\_\_

\_\_\_\_\_

5. Where can this person get the kind of training needed for this job? Does this person need to go to college?

\_\_\_\_\_

\_\_\_\_\_

6. Where can this person apply for this type of job? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

7 How much does this job pay? \_\_\_\_\_

8. What are the future job market demands? Will there be a lot of these types of jobs in the near future?

\_\_\_\_\_

\_\_\_\_\_

9. After your research do you still feel you would be interested in this type of job? Explain why or why not.

\_\_\_\_\_

\_\_\_\_\_

10. What is the biggest thing you have learned from this report? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

# **OIL FIELD CAREERS**

## **DERRICKS TO DESKS SEMINAR**

August 8, 2001

## FIELD OPERATING CAREER PATH

The new oilfield worker usually starts as a Roustabout or Well Puller for a company that contracts these services to the operating oil companies. Drilling rig workers follow the same path. From this pool of people the operating companies hire their Lease Operators.

### **ENTRY-LEVEL** (in training)

Healthy, willing to work outdoors and **DRUG FREE** -----\$7.00/hr to \$11/hr

### **NINETY DAYS**

Completion of first safety training, basic skills training, with on-the-job training and **DRUG FREE** -----\$13.75/hr to \$15.75/hr. Drilling rig "hands" earn up to \$18.90/hr.

### **ONE YEAR OR MORE**

More job experience to reach the "experienced hand" level and **DRUG FREE**-----\$15.75/hr. A rig operator on a well servicing rig earn up to \$17.75/hr.

**Currently the contract workers are getting 8 to 16 hours per week overtime. Contractors working for the major oil companies are granting \$700/quarter safety bonuses to crews that work accident free for the quarter.**

Usually from one to three years are spent working for a contractor that provides well service or construction service. Drilling rig "hands" tend to stay on the rigs and advance to Derrickman and Driller. Job experience in these areas plus Community College courses in petroleum- and/or craft- related subjects will prepare the worker for operator positions with oil producing companies.

Operators perform the day to day operation tasks in the oil fields like: surveillance of pumping and injection wells, operation of steam generators, compressors and tank batteries, testing individual wells, shipping production, performing water quality tests, environmental compliance activities, performing minor mechanical and electrical repairs etc. Operators are the eyes and ears of the oil field operation. They can take initiative to have a well or facility repaired by a service company.

The usual job progression of an operator with a major oil company is: **OPERATOR B**----\$ 19/hr. Perform Operator A relief and work independently on problems. When openings occur the B moves to **OPERATOR A** -----\$21/hr. Responsible for the day-to-day operation of wells and facilities on a lease or an area within a field.

Opportunities beyond the operator position include Foreman, Tool Pusher, technician, safety and environmental jobs and other management type jobs related to the oil fields. Some experienced operators start their own business and provide contract operator service to independent oil producers. They are usually compensated on a per well basis or on a lease basis. Example: \$150/well/month

## FIELD OPERATING CAREER PATH

**CRAFT POSITIONS** These positions encompass the traditional crafts used in the oil fields: electricians, instrument technicians, pipe fitters, millwrights, mechanics, welders and heavy equipment operators. Most job opportunities are with contractors who provide these services to the oil producers. Some major oil companies hire experienced craft people for their field work force.

The craft career path is similar to the operator path often starting with work for a construction or well servicing contractor. Inexperienced hands will start at the \$8/hr rate and progress to the \$14/hr rate as electrician helpers, welder helpers etc. If they are working for a union contractor or a merit shop contractor that contractor can sponsor the worker into an apprentice program to train the worker for journeyman status. This process takes three to four years of night school. Craft training opportunities also exist at the Community Colleges. Electricians and mechanics can earn \$22/hr. Certified welders can earn \$25/hr. Crane operators for routine work earn around \$18/hr.

Craft workers are getting the 8 hr to 16 hr per week overtime that the roustabouts and well pullers are getting. They also get the safety bonuses.

Many current oil field contractors that provide craft services started in the career path noted above. They became independent business people with compensation opportunities much greater than they would have had working for others.

### **EDUCATION NEEDS FOR OILFIELD OPERATIONS CAREERS**

- Good reading, writing and comprehension skill
- Computation skill
- Reasoning and analytic skill
- The ability to learn and change with changing technology
- The ability to work independently and also on a team
- Computer operation skill

# Petroleum Industry Careers

## Operations

Supervisors  
Facilities operators  
Craft persons  
Maintenance  
Office Assistants

## Technical

Geological  
Engineering  
Environmental/Safety  
Computer Specialists  
Chemists

## Management & Support

The Boss  
Financial  
Legal  
Logistics  
Human Resources  
Government & Public Affairs

## TECHNICAL CAREERS

- All oil companies, large and small utilize the skills and services of technically trained people. These technically trained people can be on the company payroll or contractors (outsourced).
- Large petroleum companies have a wide range of technical people on their staff. As you move down in company size, usually, the number of technical staff and spread of technical disciplines on staff decreases. Outsourcing fills the technical needs. A small oil company may only have an operating staff and get all their technical needs from consultants and contractors.
- There are opportunities for experienced technical people as consultants. Consultant ranks are usually staffed by 10+ years experienced people or retirees from major oil companies.
- The K through 12 education gives future technical people a solid grounding in science and math. Technical specialization starts at the college level.
- Most Geologists and Geophysicist enter the oil industry with an MS Degree. These people develop exploratory "plays" and do the geologic work associated with developing and producing the successful "plays". Starting salaries are in the \$50,000 to \$60,000/ year range.
- Petroleum Engineers do the "downhole" work to drill wells and do the technical work to efficiently produce the oil and gas. Petroleum Engineers can specialize as the Reservoir Engineers who are concerned with the underground flow of oil, gas and water to the well bore. They are usually skilled in computer simulation work There is strong synergy between the Geologist and Petroleum Engineer. BS Degree Engineers are starting in the \$55,000/year range.
- A limited number of universities have distinct Petroleum Engineering Departments. Most prominent are Stanford, USC, Texas A&M, Texas, Penn State Tulsa, Oklahoma and LSU. Some universities offer Petroleum Engineering as an option of a Chemical or Mechanical Engineering Degree.
- Chemical, Mechanical, Electrical, and Civil Engineers are utilized in both the oil production and refining/pipeline areas of the petroleum industries. They do the facility and process design work, supervise construction and perform the day to day engineering work to safely, environmentally acceptably, and efficiently produce, transport and refine petroleum. They usually enter industry at the \$50,000/year level.
- Environmental and Safety people develop programs and procedures to protect the environment where petroleum operations occur. They can be Geologists, Engineers, Biologists, Chemists or other specialties germane to the environment. Most Safety and Environmental people are "grown" from company ranks. The environmental and safety people have oversight and audit responsibilities, obtain permits and coordinate response work to accidents.
- Computer specialists are usually the liaison between hardware and software contractors and company support coordinators. Geologists and engineers skilled in computer simulation operate the computers and evaluate output. Computer specialists are paid commensurate with their skill level in the Geologist-Engineer range.

# FIELD SUPERVISORS

- Also known as operations supervisors. In "ancient oil industry times" they were called Foremen. They supervise the day-to-day oil production, transport and refining operations. They can have responsibility for a wide range of operations-oil well production, craft support, oil, gas and water processing, refinery unit operations, pipeline systems etc.
- Field supervisors develop from the roustabout, well servicing, well operations and craft ranks. They are the "cream " of the operating work force. Most have continued their education at the Community College level. They are usually computer literate. They move to the Field Supervisor positions after five or more years of experience. They earn in the \$50,000 to \$80,000/year range depending on their "scope of operation".
- Engineers are afforded the opportunity to be Field Supervisors in their training process for management positions. They gravitate to "Foreman" jobs that require a level of technical knowledge.

## Support

- Financial - Accounting and Business degrees. Most of this work has been centralized in major oil companies. Smaller companies outsource this work. There are a number of accounting firms, large and small, that specialize in "oil patch" work.
- Legal - Most medium to small companies outsource their legal work. Major companies have corporate legal staffs and also outsource.
- Land leasing and right of way work are handled by staff in major oil companies. Other companies contract this work. People can be developed from legal staffs or come from universities. A few USA schools offer the Landman Degree.
- Logistics - Purchasing, transport, and materials coordination are handled by staff in major oil companies. Companies with offshore or remote operations will employ fixed wing and helicopter pilots. The military "supplies" most of these people.
- Human Resources - Handle hiring, benefits, retirement, relocation, and termination work. Major companies utilize company staff. Other companies will have one or two coordinators or outsource the work Liberal Arts and Business degrees usually occupy these positions. Some companies develop people from support staff.
- Government & Public Affairs - Act as company spokesperson, coordinate company giving, deal with the politicians. Larger companies have their own people. Other companies utilize organizations like WSPA, API, CIPA and IOPA or consultants.

After forty-five years in this business I would stress to you important people who are educating the next generations of oil field "hands" to solidly ground them in the communications, computational, and comprehension skills. They need the education to be flexible, adaptable to change and have an inquiring mind. YOU WILL EDUCATE THEM! THE INDUSTRY WILL TRAIN THEM.

# OIL FIELD OPERATOR JOB APPLICATION TEST

Oil field operator Sam puts the production from well #18 into test tank # 5 at 7AM and notes that the fluid level in the tank at that time was 4 feet 10 1/4 inches. At 2 PM Sam takes the well off test and notes the tank level has increased to 6 feet 1 3/4 inches. From the Tank Strapping Tables Sam know that each inch of fluid in tank #5 equals five barrels of fluid. How much fluid production did well # 18 make during the test? If well # 18 continued to produce at the calculated rate what would the tank level be for a day?