

Driver training program steers BJ Services employees to improved safety on the road

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INCREASED DRILLING. Rising rig count. Upward market trends. Expanded pumping capacity. From the oilfields to corporate offices, these are the words that define the nature of the oil and gas industry today — and suggest continued robust growth in the coming years.

While the outlook is positive, the industry faces significant challenges. The surge in drilling and well site activity means greater demand for equipment and supplies, newer technology and qualified employees to deliver the product faster and more efficiently. Nowhere is this more evident than behind the wheels of the rigs, trucks and machinery upon which the oil and gas industry so greatly depends.

BJ Services knows that well: "Safety training is critically important to BJ Services, in terms of our ability to meet our production goals and in building morale and professionalism among our employees," said **Donald Kaminski**, US manager of field safety for BJ Services. "And it all starts with our drivers, who face unique and difficult challenges," he continued. "BJ Services recognizes it has a responsibility to ensure these drivers are equipped with the training and confidence to handle the day-in and day-out rigor of the job."

A typical workday for the average oil service driver/equipment operator begins before dawn, driving a highly specialized large vehicle over terrain that can range from interstate highways to mountain passes to rural roads to get to a drilling site. After putting in a 12- to 14-hour shift at the drilling site, the worker resumes his driving responsibility, transporting the equipment to the next well site. The equipment operator may be additionally challenged by inclement weather or poor visibility at nighttime.

Oil and gas companies are realizing that without qualified, specially trained drivers, they face not only reduced production but also huge risks. The perceived risks are backed by statistics showing that, in addition to the human toll, the financial impact of vehicle accidents is staggering:



Following a surge in activity in the Rocky Mountain region, BJ Services teamed up with Center for Transportation Safety to develop a training program for heavy vehicle driver/equipment operators. "Driving represents a small percentage of what oil and gas production workers do, but it also poses the greatest risk from both a human and financial standpoint," said George Chedsey, Center for Transportation Safety vice president.

- The federal Occupational Health and Safety Administration (OSHA) reports that vehicle accidents account for approximately 30% of all workplace-related fatalities.
- A 2003 report by the National Highway Transportation Safety Administration states that the costs associated with a fatal accident can exceed \$500,000.
- The National Safety Council estimates that motor vehicle crashes cost employers \$60 billion annually in medical care, legal expenses, property damage and lost productivity.

Most oil and gas companies traditionally have had training programs (in-house programs, contracts with local firms or truck-driving schools) for employees who must drive large vehicles. But with the growing demands of the oil and gas industry, conventional programs could not keep up with the volume of vehicle/equipment operators needed.

OILFIELD-SPECIFIC

For BJ Services Rocky Mountain Region, the predicament became apparent in fall

2004 when the company identified the need to expand its existing driver/equipment operator ranks to meet production demands.

Prior to 2004, BJ Services had been able to ensure it had an adequate number of drivers with commercial drivers licenses (CDL) who could safely operate oilfield machinery. The company already had in place a comprehensive health and safety and driver safety program, with such components as annual driver evaluations, journey and fatigue management, behavior-based safety and recognition of good safety records. The company also is aware of the impact of vehicle accidents and had always been responsible in its reporting of accidents.

But with the dramatic surge in drilling and well activity in the Rocky Mountain region, the company's qualified labor pool could not keep pace. BJ Services decided to partner with Denver-based **Center for Transportation Safety** to develop a program that would result in a strong labor force of competent heavy vehicle driver/equipment operators.

"Our decision to go outside the company for help with our safety training was not a difficult one to reach," said **Jeff Kaufmann**, BJ Services' Rocky Mountain Region operations manager. "The move was not an abandonment of our existing program but a way to enhance what we were already doing."

The rationale for developing the program and the specifics on how the program was administered were outlined in a paper presented at the SPE E&P Environmental and Safety Conference in Galveston in March 2007.

From the outset, it was determined that the training program must reflect the company's strong culture of health and safety. BJ Services specified that the training feature a minimum 14-day program (10 hours/day) that would reinforce the company's existing health and safety policies, procedures and methods.

As outlined in the SPE presentation, Center for Transportation Safety used a multi-tiered approach to devise a course geared to novice drivers that blended key features of BJ Services' existing program with classroom, high-tech simulation and behind-the-wheel experience, using such features as:

- Driving simulators.
- Training in areas that replicate oilfield conditions, such as mountains, tight oil well locations and dirt roads.
- Vehicles similar to oilfield equipment, such as heavy equipment and bulk tankers.

"Driving represents a small percentage of what oil and gas production workers do, but it also poses the greatest risk from both a human and financial standpoint," explained **George Chedsey**, Center for Transportation Safety vice president. "Using the key components of BJ Services' existing program as a starting point, we were able to bring in the technology and develop a comprehensive course menu to train large numbers of workers and still ensure that they are prepared for a job that requires them to operate heavy vehicles and transport big machinery in all kinds of conditions, on varied terrain."

By October 2006, Center for Transportation Safety had trained 315 BJ Services vehicle and equipment operators, who now hold CDLs and can safely operate vehicles and machinery throughout the company's Rocky Mountain Region, including Colorado, Wyoming, Utah and northern New Mexico.



Simulators in the program featured high-tech graphics that allowed students to "drive" in three virtual worlds — off-road, rural/small town and large city — and in a variety of vehicles, including oilfield-specific frac pumps, N₂ tankers and bulk sand trailers.

The success of the venture has effectively "raised the bar" for driving safety at BJ Services, Mr Kaminski said. "By partnering with Center for Transportation Safety, we were able to more than meet our own rigorous safety standards and effectively train the large workforce of drivers we need to meet production demand."

SIMULATION IS KEY

The course for BJ Services features three days of classroom instruction and 11 days of simulated and behind-the-wheel instruction focusing on:

- Heavy vehicle operation familiarization.
- Defensive driving.
- Railroad crossing safety.
- American Trucking Association Highway Watch training that equips students with tools to accurately report safety and security concerns to authorities. These include matters of national security, stranded vehicles or accidents and unsafe road conditions.
- Entry-level driver training requirements of the federal Motor Carriers Safety Administration regarding driver qualification, hours of service, driver wellness and whistleblower protection.
- Air brake adjustment and certification.

The course set competency goals for students to master, including the ability to:

- Select the proper gear and consistently shift smoothly.
- Set up and make proper turns.
- Understand, demonstrate and maintain a safe space cushion around the vehicle and proper speed/space management.
- Safely drive a partially loaded truck and trailer up and down a mountain pass.
- Properly handle a partially loaded bulk trailer on all road types.
- Properly maneuver a truck from a multi-lane road to a two-lane road across a cattle guard.
- Back up a vehicle on their own for the CDL test and with ground guides for compliance with company policy.
- Safely and properly make air brake adjustments and pass the air brake certification.
- Understand and execute proper emergency maneuvers in the driving simulator.

With the simulator as the cornerstone of the program, Center for Transportation Safety brought in four state-of-the-art units, three of them mounted in tractor/trailer units that served as mobile training laboratories. These units traveled

among the various BJ facilities to provide training.

The training program was developed for the “typical” oil and gas service industry driver. Specifically, BJ Services and Center for Transportation Safety were able to build a profile of the typical student as 21- to 33-years-old, with limited or no previous technical training. Because the students tend to be tactile and visual learners who achieve success through hands-on, repetitive training techniques, the simulator and behind-the-wheel experience are critical. Finally, the program builds in flexibility to allow students extra time if necessary.

“We understand that each employee is a unique individual and learns at a different pace,” Mr Chedsey said. “If a new employee passes the state CDL but has not mastered the core driving competencies, he is not released from the program.” About 20% of the new drivers were held over until their skills met course requirements. Students who exhibit a poor attitude or are deemed to be unsafe drivers are dismissed.

The simulators feature high-tech graphics that allow students to “drive” in three virtual worlds — off-road, rural/small

town and large city — and in a variety of vehicles, including oilfield specific frac pumps, N₂ tankers and bulk sand trailers. The simulators have full-size truck cabs in instructor selectable automatic, 1-, 15- or 18-speed transmissions.

The simulator manufacturer estimates its clients have seen a 22% reduction in “washout” of new drivers when initial training includes driving simulators.

“Controlling a 48-to-53-ft long top-heavy trailer is a difficult task that students learn at different paces,” Mr Chedsey explained. “The simulator places the student in a virtual environment with no traffic where they can execute numerous right- and left-hand turns with minimal pressure. The simulators are ideal for training shifting, trailer tracking and emergency maneuvers training.”

The same is true when it comes to shifting. “Learning to shift a 15-speed transmission with double clutching on a public road can be a nerve-racking experience,” he said. Again, the simulator provides a non-threatening environment where drivers can learn at their own pace and make mistakes without dire consequences.

Simulators can be programmed to address specific hazards or areas of concern for clients. In the case of BJ Services, soft road shoulder rollovers and mountain driving were identified as key hazard areas for its drivers. With the help of the simulators, instructors were able to repeatedly put the students into those simulated emergency situations.

Once students reach the level where they can operate the vehicles competently on the simulator, they are ready for behind-the-wheel training, which is done on public roads that are carefully chosen to meet the needs of the student, depending their ability and stage of training.

The students experience driving on terrain ranging from straight country roads with no traffic, to narrow county roads, to mountain passes and finally inner-city and interstate driving. Often, the final week of training occurs at the students’ assigned locations, where they have an opportunity to practice driving from their facility to the oil and gas fields.

Students also have the opportunity to practice pre-trip inspections, coupling and uncoupling, chaining up tires, backing and close quarter maneuvering.

With the training components successfully in place, BJ Services decided, in the fall of 2005, to take the new approach to the next level by developing an outsourced employee staffing and training program called the Industry Training Program. This includes:

- Recruiting.
- Driver qualification (criminal and employment background checks, drug testing and motor vehicle background check).
- Health and safety training.
- BJ Services human resource introduction.
- CDL novice driver training.

When students enroll in the program, they sign a promissory note covering the cost of the training and become BJ Services employees at the end of the training. The promissory note is repaid by BJ Services when the employee completes 12 months of employment.

Since the Industry Training Program was launched, 95 employees have completed the requirements, and only eight have failed to complete their year of employment. The program has reduced employee turnover for BJ Services' Rock

Springs, Wyo., facility from 45% to about 25%.

MEASURING SUCCESS

By October 2006, 43% of BJ Services' heavy vehicle drivers in the Rocky Mountain Region had completed the program training. To measure the effectiveness of the training, an analysis was conducted of accident rates in 2005 and 2006 in three categories:

- Preventable accidents.
- Department of Transportation reportable accidents.
- Accident cost.

The analysis compared "existing drivers" (those who were trained prior to October 2004 or who had received training and/or a CDL prior to joining the company), with "new program drivers" (those trained under the new program). The data revealed:

- In 2005, 40% of the company's drivers had received the new training but accounted for only 27% of the preventable accidents and were not involved in any of the DOT reportable accidents.
- In 2006, 43% of the company's driv-

ers had received the new training but accounted for only 33% of the preventable accidents and only one of the DOT reportable accidents.

Data also showed that when new program-trained drivers had a vehicle accident, the accident tended to be less severe and represented only 2% to 4% of BJ Services' total vehicle losses.

- In 2005 and 2006, new program-driver accidents cost the company \$32,000 while the accident cost among existing drivers totaled \$1.4 million.

"We knew we were on the right track with our driver training program, but these numbers validated that the program was really working," Mr Kaminski said. "Knowing that our drivers are safe, professional and confident in their jobs, is key to our success as a company. By providing a comprehensive and high-quality training program for our drivers, we are showing them that what they do is important to our business."

"It's a win-win for everyone."

Reference: "Focused Oil Field Specific Training Reduces Accident Costs by Over 10 Times," Donald Kaminski, Jeff Kaufmann, George Chedsey, SPE E&P Environmental and Safety Conference, Galveston, Texas, March 2007. ♦