

# Effective Training

## A Case Study From the Oil & Gas Industry

By Elaine T. Cullen

**C**ulture can mean many things to many people. The word can be used to talk about the fine arts or social competence, as in, "She is certainly a cultured person." It can describe social structures and practices that appear to be uniquely different, as in, "The Maori culture of New Zealand can be very intimidating to outsiders." SH&E professionals talk about safety cultures, by which they mean the values, norms and practices of an organization that deal with the safety of its people.

These definitions share a common thread, the idea that culture is socially constructed. In other words, members of the culture in question create, define, protect and teach it to new members.

Humans cannot operate without cultures. These systems provide roadmaps for their members to know how to make sense of what is happening in their lives and how to deal with it. Patton (2002) defines culture as:

[T]hat collection of behavior patterns and beliefs that constitutes:

- standards for deciding what is;
- standards for deciding how one feels about it;
- standards for deciding what to do about it;
- standards for deciding how to go about doing it. (p. 81)

Culture has been described as "the collective programming of the mind which distinguishes the members of one group or category of people from another" (Hofstede, 1997, p. 5). Simply, culture is "the way we do things around here."

An individual can be a member of

many different cultures. A person may be a member of a family that has its own rules and traditions; s/he may be a member of a church that provides definite guidance on what constitutes moral behavior; s/he may be an alumnus of a school with well-defined customs; and s/he may work for an organization with established policies and procedures. Each culture differs from the others, with different members, and with rules and standards that govern different elements of a person's life.

All of these cultures share common traits, however. Cultures:

- are socially constructed systems;
- have developed over time;
- are shared by all of the members;
- define who is a member and who is not;
- provide a social road map on what is acceptable and what is not;
- can be difficult to describe but are quite obvious to both members and outsiders.

Cultures are important because they control, to a large degree, the actions of everyone inside of them. Arnould and Wallendorf (1994) describe culture as "the cumulative total of learned beliefs, values, and customs that serve to order, guide, and direct the behavior of members . . . [it is] that which one needs to know to behave in a manner acceptable to its members" (p. 485). A member of a culture cannot go against that culture and expect to

### IN BRIEF

- This case study discusses how new training videos were developed for high-risk, blue-collar workers in the oil and gas extraction industry.
- NIOSH's Oil and Gas Injury Reduction project is focused on developing culturally relevant and acceptable materials for workers.
- Steps for undertaking an occupational ethnography or work culture study are examined, as are ideas on why work stories matter, and who might be the most effective people to star in training videos.
- Tips on creating training videos in the field are offered as well.

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remain a trusted insider. The culture will always have penalties for rule breakers; in extreme cases, those penalties will include banishment.

### Occupational Ethnography

Occupational cultures have particular significance for SH&E professionals because they control how workers behave on the job. Workers in high-risk industries such as mining, commercial fishing, or oil and gas extraction do not generally define themselves by who they work for, but rather by what they do. In many of these industries, workers are fairly transient, moving from mine to mine, boat to boat, or rig to rig, looking not only for better pay, but also for better working conditions or, sometimes, to do something different.

Hard rock mining has a term for these miners, calling them *tramp miners*, because they tramp from site to site, or *gypos*, a term generally believed to derive from their gypsy nature. Workers who refer to themselves as gypos, roughnecks or *seiners* are more strongly connected to their occupational norms than to any company policies. If they do not like the company rules, they simply move on. Policies and procedures that are not acceptable to a work culture will not be adopted by the workforce, regardless of organizational consequences. Therefore, it makes sense for a person trying to convince workers to change the way they do things to understand their work cultures and to use those cultures rather than struggle against them.

Ethnography is the study of human cultures. While sociologists often use ethnography to learn why young people start smoking, for example, or how fraternal orders attract new members, it is an excellent tool to learn how occupational cultures work. It is the primary tool used in a NIOSH project focused on developing effective safety and health training for the land-based oil and gas (O&G) extraction and production industry, commonly known as the upstream portion of that industry (which includes exploration, drilling and all servicing operations for the wells themselves). Research included in this project is qualitative rather than quantitative in nature in that researchers are more interested in discovering what is going on and why than in measuring or evaluating.

### Gathering Information on Work Cultures

If occupational culture is a key to worker behavior, then it makes sense that a safety trainer, training developer or operator should understand the norms and values, the expectations and prohibitions, the heroes and the villains, and, particularly, the stories shared among members of the culture. All of these factors provide clues about what controls the culture has on the workers, and all can be used to craft training that not only will be accepted, but also valued.

How does one begin to study a work culture? A work culture cannot be studied effectively from a distance. To learn the culture and what really matters to workers, one must visit worksites and spend time with workers, whether on fishing boats or at construction sites, mines or oil rigs.

When NIOSH funded the project to study the culture of O&G extraction and production workers, the first step was to create an organized plan to gather information on key topics. This plan was based on experiences and knowledge gained while studying mining cultures. This included:

- demographic patterns;
- environmental issues;
- work practices;
- occupational norms and values;
- workplace taboos and prohibitions;
- language unique to this culture;
- beliefs common to workers, particularly beliefs about safety;
- geographical differences from one oil field to another;
- recognized heroes and mentors;
- stories told by members;
- differences in company cultures.

Ethnographers gather this type of information in three primary ways (LeCompte & Schensul, 1999). They study:

- 1) what people say (this includes the “tribal language” or jargon commonly used);
- 2) what people do;
- 3) what artifacts (or documents) they choose to create.

Studying any culture *in situ* requires immersion of the researcher, to some degree, in the work culture itself. While SH&E personnel may be tempted to make suggestions or try to influence workers’ actions when observing, it is critical to stay out of the way and make no attempt to change or bias the culture at this stage of the process. (This does not include situations where workers’ lives are in danger. SH&E professionals must address those immediately.) To develop a valid picture of work culture that is useful for creating culturally acceptable training materials, the researcher must stay neutral, and confine his/her actions to asking questions, seeking clarification and watching.

Those accustomed to fast responses to any situation may initially perceive an ethnographic study as a long, drawn-out process, particularly if they have no prior knowledge of the work or the culture of the workers. However, learning about workers in order to create safety training that is unique to their needs is not a waste of time. The most obvious benefit is the ability to create more effective training.

### Learning About the O&G Industry

The data gathering plan for this project began with going into the field and talking to workers. The O&G extraction industry in the U.S. is divided

**Photo 1: Walking rigs are large land-based rigs used on locations where numerous wells are drilled in a small area.**



into distinct fields that are tracked and reported by the Energy Administration Information office of the Department of Energy ([www.eia.doe.gov/oil\\_gas/rpd/topfields.pdf](http://www.eia.doe.gov/oil_gas/rpd/topfields.pdf)). Certain fields were selected as starting points, including the Permian Basin in west Texas, the Piceance Basin in western Colorado, the San Juan Basin in northwest New Mexico, the Barnett Shales in central Texas, the Jonah Fields of northern Colorado, and the TX-LA-MS Salt Province of east Texas and Louisiana. These fields included both natural gas and oil formations, and shallow as well as deep reserves.

O&G companies do not generally drill their own wells. Specialized companies are contracted to do this, along with numerous well servicing contractors that help bring a well into production. For the early phases of this project, the primary focus was on the drilling operations rather than the service tasks. Later phases of the project will include other types of rigs as well as other operations such as the trucking companies that move rigs from site to site.

In July 2008, site visits were set up to learn about drilling operations and to begin gathering information on the workforce. Drill rigs come in many sizes, and companies hire rigs depending on the depth of the hole to be drilled and the geologic complexity that will be encountered. For wells that are shallow (e.g., less than 1 mile deep), rigs are smaller and may even be truck-mounted, similar to water well drilling units. Larger rigs are more complex, but the processes used to drill a hole and to move the rig to new locations are largely the same, regardless of size.

Most drill rigs use five- or six-person crews, with either two or three crews per rig, depending on shift

(or *tower* as it is known in the industry) length. The rig boss, known as the *tool pusher*, lives on site in a house trailer provided by the company so that he is always available. Each rig usually has two tool pushers, and these men rotate their *hitches* (number of days worked before going on leave) so that a supervisor is always on site.

For the rigs visited, the hitches for tool pushers ranged from 3 days to 2 weeks, while the hitches for the men ranged from 1 to 3 weeks. Use of the word “men” is purposeful. In more than 2 years and visits to more than 40 rigs, the author has not encountered a woman working on a rig. This is a male-dominated work culture.

Learning about a new industry takes more than a few visits to worksites. One must systematically gather information. Consequently, a list of questions was developed to help identify cultural norms. The initial list was based on the author’s experiences in the mining industry; it was meant to be general enough to provide a broad introduction to the industry that could subsequently be refined to capture more subtle cultural data.

Information was gathered on the following:

- drill rig site, name, company and method;
- location and size of workforce;
- union affiliation (if any);
- contractors (if any);
- rough percentage of new hires (workers with less than 1 year of experience);
- general workforce demographics;
- training required and who provided it (both for career and for this rig);
- preferred materials/media for training, including available facilities;
- common beliefs and perceptions about safety and work hazards;
- work practices and how work is assigned to different workers;
- best practices and/or company policies concerning operations;
- recognized “masters” (who do people look up to and why);
- incidents, injuries and near misses workers have experienced or witnessed.

Some items fell out fairly quickly. For example, labor unions are not common, and every rig visited was contracted rather than owned and operated by the energy company. In addition, this industry reacts rapidly to commodity prices. When prices are high, a site will have a significant number of new hires with little experience; when prices drop, new hires are the first to lose their jobs, as the rigs they work on are *stacked* and no longer available for hire. Therefore, the percentage of inexperienced workers was a moving target.

The original questions served as a starting point. Workers provided much information that was used to refine the data gathering necessary to begin developing a picture of this unique work culture.

Over the next 2 years, the research team visited more than 40 rigs in seven different areas of the country. These included small, mobile rigs, rigs in service for more than 60 years (most still using manual methods), others that were only months old as well as much more automated, and large “walking” rigs. Walking rigs are large land-based rigs used on locations where numerous wells are drilled in a small area. Rather than dismantling the rig to move it to a new site, workers “walk” it forward to its intended location. This relatively new technology is more commonly found in western oil fields, where many wells are clustered on a single site (Photo 1).

More than 1,000 photographs were taken of rigs, sites, workers, and any other signs or artifacts that would provide clues about the culture. Standard ethnographic tools were employed, including interviews, observations, field notes, informal conversations, and review of documents such as company policies, safety posters and training materials.

In all cases, the primary gatekeeper for access to the sites was the safety director for the energy company or the drilling company. These individuals provided a wealth of information on tasks and procedures as well as access to the rigs. In all cases, they were invaluable to the project’s success.

### Why Stories Matter

High-risk work cultures share a love of stories. Stories provide more than entertainment on worksites; they are used to share information about cultural norms and expectations, and provide graphic illustrations about what happens if those norms are violated (Cullen, 2008).

The roughnecks working in the O&G drilling industry are no exception. They shared stories about people they had met, about near misses (called “near hits” by most of them), about weather extremes, and about many incidents that provided harsh but valuable lessons on how to do this work. They also talked about what they do when not working, including stories about family, friends and leisure-time activities. All of these provide keys to what these workers value.

Stories share important features that make them valuable to an ethnographer. First, they are always culturally-based. This means that they are *situated*; they are about *someone*, who is doing *something* located *somewhere*, during a *specific time*. Stories reveal much about the culture, through the language used, the actions of heroes and villains, and the reactions of listeners.

Stories also help people organize information in a way that is understandable. New hires in the O&G industry often have a difficult time *breaking out* (a term used for entering the workforce for the first time) because of the unfamiliar tools, terms, work practices or expectations they must master in order to perform the job (Livo & Rietz, 1986). It can be bewildering to be new on a jobsite where even

the tools have unfamiliar names. To remain safe while they learn the job, new workers need a way to deal with an abundance of information; stories help them do so (Cullen & Fein, 2005).

If the goal of safety training is to educate new employees on work hazards and convince all employees to act safely on the job, stories are an excellent tool. Haven (2007) presents the results of several research studies on the power of stories to provide information and help create meaning. He says research shows that stories are effective teaching tools because they evoke prior knowledge; provide details that may be otherwise ignored; and improve comprehension (p. 92).

Stories are remembered by listeners because they are more interesting than facts or statistics. Listeners can learn vicariously, putting themselves into the story to not only think about what is happening, but also to feel the emotions and decide what they would have done had they been the protagonist. Trainees listen with different levels of consciousness, according to Neuhauser (1993), who believes that using the whole brain allows learners to understand what they are hearing, as well as to feel it.

For safety trainers, stories are one of the most powerful tools available. The good news is that stories are everywhere. Every incident/injury statistic has a story behind it, and every SH&E regulation is “written in blood.” Workers are eager to share their stories if they believe they will not be penalized for doing so.

### Insiders & Gatekeepers

One primary role of cultures is to define who is/is not a member (Van Maanen & Barley, 1984). High-risk work cultures are particularly adept at this because members believe they are the only ones who “have what it takes” to perform the work. They be-

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### Occupational Culture

Occupational culture and organizational culture are not the same. While an organization’s rules—its policies and procedures—are usually written and distributed, occupational rules are not. Work culture rules are pragmatic in that they are developed over time by workers themselves, and provide a road map for survival for members of the culture to follow. Insiders instruct new members in “the way we do things around here” and provide both rewards for following cultural rules, and sanctions for violating them. Members tie their identity closely to their work (not their company), and share values, norms and perspectives with those who perform the same type of work, often choosing to socialize exclusively with fellow workers. Occupational cultures that involve shared danger, such as firefighters, the military or high-risk industries, are strong and will resist changes suggested by outsiders. The sense of fraternity that shared danger creates is part of the identity of insiders, who do not believe others could do the work, or that they understand those who do. Occupational cultures are powerful tools that can be used to create effective training.

lieve that outsiders do not understand the dangers and the difficulty and, therefore, have little credibility inside the culture. For workers in these industries to learn from safety messages or trainers, the messages/trainers need to be perceived as being knowledgeable about and sympathetic to the culture.

Gatekeepers can be both formal and informal leaders. For this project, the formal leaders provided access to worksites and to other insiders. Initially, contacts were safety directors or supervisors, who were generous with their time and were willing to spend days in the field, visiting different rigs in the area.

On a rig site, visitors must check in with the site manager (the tool pusher). Some sites also had a company man who represented the energy company's interests. He was also concerned with safety, but the drilling operations were the tool pusher's responsibility.

On the rig floor, the driller was generally the first-line supervisor and in charge of the safety of the work team, which was made up of a motor man, a derrick man (who also was responsible for checking on drilling fluid, or mud), and one or more floor hands. This is a hierarchical team,

with workers breaking out as floor hands and moving into other positions when ready and as positions become available. More experienced workers often have performed all of these jobs and can fill in for others as necessary.

When a new hire first breaks out, he is known as a *worm*, a position he will hold for several months until he reaches a level of knowledge and expertise at which point he can be a floor hand. Worms usually wear hardhats of a different color (e.g., green or orange) so that other workers can immediately identify them and can watch out for and teach them.

Informal leaders are almost always present on high-risk worksites. These individuals have earned the respect and admiration of peers, usually by mastering aspects of the job with which others struggle. They may have many years' experience or may have a special talent for performing a certain task. They may also have survived an incident that gives them authority to speak about specific hazards and what can happen if safety precautions are ignored.

It is easy to identify these people. Others on the team may tell stories about them (the "hero stories" that include information about valued attributes in the culture) and they are usually the go-to people when someone needs advice or information. Workers may hang back when asked to do something, waiting to see what the masters do.

These people can be powerful gatekeepers into

occupational cultures. If they refuse to cooperate for whatever reason, it is unlikely that other members will cooperate. They are also excellent choices to be spokespersons or informal trainers if one is producing safety training products. They are trusted insiders and will command others' attention, while outsiders have yet to establish any credibility and could be viewed with skepticism if not disdain.

As information was gathered, the author talked to workers with only a few days experience to those who had been there nearly 40 years. Believing that roughnecks were similar to miners and would appreciate hardhat stickers, several stickers were designed. Workers were asked to provide input on which stickers they thought would work in their industry. These designs used some "tribal language" encountered in the oil fields, including the term *worm* for an inexperienced hand, and *patch dog* for those who had been in the oil patch and were tough enough to do the job (Photos 2 and 3). These were handed out at every rig visited, and were always enthusiastically accepted.

### Creating Effective Training Videos in the Field

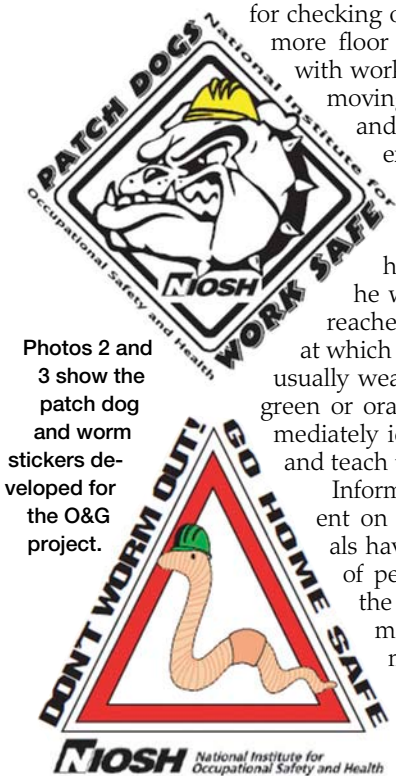
The underlying goal of the NIOSH ethnographic study was to learn enough about the culture of O&G drillers to develop safety and health training that would resonate with and be accepted by workers, and memorable enough to change how they think and act about safety hazards. NIOSH successfully used video to develop training for the mining industry, so this medium was selected for the oil fields.

### Compelling Content Is Key

For new training to be effective, it must be interesting, credible and compelling. Lessons learned in the mining industry proved to be significant in the O&G industry. These include the following:

- Workers are all adults and must be trained as adults (using adult learning theories).
- They perform the job every day and are familiar with the dangers and challenges.
- They are good at what they do and proud of it.
- Not everyone has what it takes to be a roughneck. Those who do are admired and accepted as members of the work culture.
- Roughnecks can be transient, moving from rig to rig, or oil field to oil field.
- Work culture controls, to a large degree, how they do their jobs.
- Workers value safety and understand that one wrong move by anyone can put everyone in danger.
- This is a macho culture, with few (if any) women.
- Roughnecks are proud of their ability to solve unexpected problems.

Any training product developed must respond to these norms to be accepted. Like mining, construction, commercial fishing or other high-risk industry, O&G drilling includes many hazardous operations that would be good candidates for safety training.



Photos 2 and 3 show the patch dog and worm stickers developed for the O&G project.

Unlike mining, however, no federally mandated standard regulates which topics must be presented nor establishes a minimum number of hours of safety training required before people can start work.

The U.S. mining industry has access to a comprehensive incident/injury database because MSHA mandates that every injury or incident be reported. Penalties for failure to do so are severe, so the database includes a wealth of information a trainer or training developer can use to identify specific areas where additional safety training would be valuable.

No such database exists for the land-based O&G industry. Data are gathered by agencies at state and federal levels, or by associations and individual companies, but no comprehensive database captures injuries occurring in the upstream O&G industry. Fatality data are available, but comprehensive injury data are not. Therefore, a systematic review of incident/injury information was not possible.

As a result, the best way to learn what topics to include in training was to ask the workers themselves. Tool pushers and drillers are responsible for training rig workers in most cases. During site visits, they were asked to identify topics about which they would like to have more training materials.

Based on their responses, the NIOSH team developed a potential list of topics. After further questioning about dangerous operations, the team decided to make a training/hazard recognition video on rig moves. It is important to note that while new hires can benefit from safety training, people who have performed this work for long periods are often disdainful of training.

Research conducted in the mining industry shows that experienced workers are insulted by traditional training, particularly if it is provided by people who do not perform the work they do each day. However, the need to remind them about hazards remains. Stories can bridge the knowledge gap between new employees and experienced ones.

Drill rigs can be massive pieces of equipment. When all necessary peripheral equipment is added (which could include mud tanks, the dog house, mixing sheds, diesel engines, fuel tanks, tool sheds, offices and house trailers), these operations are similar to small towns. Photo 4 shows an overview of a drill site. Equipment on these sites must be dismantled and moved quickly to the next site when the hole is finished. Workers agree that taking rigs down and reassembling them in a new location is dangerous work, with a high potential for injury.

### Identify the Players

Before moving to the development phase of the project, the NIOSH team had to take several steps:

- Find an industry partner who would allow filming of the rig move operation.
- Identify a master who would act as narrator for the video, describing what was going on and what the hazards might be.



- Interview the identified expert at length to identify topics to cover.
- Schedule a shoot on location, using a professional videographer.

Another step in the development phase was to capture as many stories as possible during shooting (Photo 5) while being mindful that those who did not wish to participate would not be required to do so. The most valuable training stories often fall in the “fool stories” category (Cullen, 2008). These usually result in near misses, but can also include injuries to the storyteller or others. These stories must be respected and used in the spirit in which they are shared—to prevent someone else from suffering similar consequences. If people are punished for disclosing these stories, they will never share them and valuable occupational wisdom will be lost.

The video on rig moves was filmed in west Texas in November 2009, and in western Colorado in March 2010. Devon Energy provided excellent support and access to several sites in the Midland-Odessa, TX, area, and EnCana did the same for the Colorado shoot. McVay Drilling and Bandura Drilling were the drilling contractors on the Texas segment, while Patterson-UTI was the drilling contractor in Colorado.

Sterling Crane was also present on the Colorado site; this contractor placed the different pieces of the rig, tanks and man camp as they were brought up the mountain. These contrac-

**Photo 4: Drill rigs can be massive pieces of equipment. When all necessary peripheral equipment is added these operations are similar to small towns.**



**The research team gathered as many stories as possible while filming (Photo 5, above). Willie Stephenson (Photo 6, left), a tool pusher on a McVay rig, was the primary narrator.**

A rig move is a complex task (Photo 7, right) involving many people, primarily roughnecks who do the assembly/disassembly, and a trucking crew (Photo 8, below) to move parts from site to site.



tors were instrumental in helping the team to film various operations and capture 32 interviews.

Willie Stephenson (Photo 6, p. 45), a tool pusher on a McVay rig, agreed to be the primary narrator and he was interviewed on camera for several hours. Other narrators were used to add depth and breadth to the story. Devon, McVay, Bاندورا, Patterson-UTI, Sterling and EnCana were true partners in this project, and it could not have been completed without their guidance, suggestions, assistance and support.

The original plan was to develop a single video, but because a rig move is a complex task involving many people (Photos 7 and 8), the team realized it would be difficult to make a single all-encompassing safety awareness video. After watching several rig moves, it was noted that two primary groups are involved: 1) the roughnecks, who assemble and disassemble the rigs; and 2) the truckers, who load and transport all the pieces to the new site. Because these tasks were fundamentally different and equally dangerous, it seemed logical to make two videos, one for roughnecks and one for truckers.

At the time of this writing, the first video, *Move It! Rig Move Safety for Roughnecks*, had been completed and released at a large safety conference in late 2010 (Photo 9). The second video, *Move It! Rig Move Safety for Truckers*, is scheduled for production in the first half of 2011. Both videos will follow the process and schedule developed by the author while working in the mining sector. This process/schedule includes the following steps:

- Gather as much footage as possible on location.
- Interview insiders on what is going on and what is important to the process.
- Log all B-roll footage gathered.
- Transcribe all interviews.
- Create a story line from the master interviews.
- Select shots from the B-roll to illustrate the points included in the narratives.

- Edit it all together into two separate videos.
- Send drafts out for review by safety and operations experts in the O&G sector.
- Revise the drafts to reflect the experts' comments and suggestions.
- Gain final approval for the videos from NIOSH.
- Release the videos.
- Market and distribute free of charge to industry stakeholders.

### Avoid Common Mistakes

To develop training that high-risk workers will accept and find memorable, it is best to keep a few basic guidelines in mind. First, workers know much more about the work than an outsider ever will, so be sure to include them in the process.

Based on the author's experiences in the mining and commercial fishing industries, workers eagerly share what they have learned if given a chance. Their own safety is at stake if someone is working unsafely, and they understand that they have a vested interest in making sure everyone knows how to do things correctly. Ignoring them or underestimating their interest in safety is a mistake.

Many training developers select the wrong spokesperson. The person providing the lessons must look, walk and talk like those who will be watching the safety video. Using a "talking head" who is disconnected from the industry or who does not perform this type of work is not a good idea.

Professional actors, while arguably more comfortable in front of a camera than workers might be, are not credible as occupational teachers. They do not understand industry jargon or the nuances of the work, which will be obvious to the trainees. Using a company executive as a spokesperson is also ineffective. A CEO talking about how to perform specific tasks while wearing a clean, pressed shirt and shiny hardhat will not be convincing to workers.

The best choice for the master trainer is someone who looks the part and speaks with occupational (not organizational) authority. The master trainer should use language understandable to trainees, who will understand quickly that he is a cultural insider who knows what he is talking about.

Even new hires are generally adept at identifying people who can keep them safe and teach them, and they will gravitate toward those people, regardless of who the company assigns as a mentor or trainer (Machles, Bonkemeyer & McMichael, 2009). Putting recognized, knowledgeable insiders in a training video, if they are willing, makes a lot of sense.

Once the decision is made to create a training video, consider the topic. It is much easier to proceed if the topic is narrowly focused. For example, "entering confined spaces" is probably a better choice than "oil and gas safety."

Duration is another consideration. Some trainers believe that no video should be more than 5 to

6 minutes long. NIOSH research has shown that this perceived limitation may be due to the fact that some videos simply do not hold people's attention. If the story is well-told and the storytellers are credible, training videos can be longer.

In fact, one NIOSH video about a disastrous fire in an underground silver mine that killed 91 people runs more than 60 minutes (Cullen, 2002). It is used in training sessions, and has also been used by other industries, such as firefighters, the military, occupational nursing and tunneling. The story is compelling because the 27 "stars" tell the story based on their own experiences during the fire; its length is not considered a negative.

Using industry experts, such as SH&E professionals and some workers, as technical reviewers is also recommended. They will identify elements that are not quite accurate or information that be left out or added. The video must be technically accurate.

Different companies have different policies that should be considered. For example, if one company requires workers to wear green hardhats, the video should not feature new hires wearing red hardhats. Such differences are opportunities to discuss with trainees geographic or organizational differences in how certain tasks are performed (e.g., state or provincial regulations, environmental issues, workforce issues, multiple factors). While impossible to show how everyone does things, strive to show best practices as defined by industry experts.

When NIOSH was developing safety videos for the mining industry, a premier was held so people in the video could attend. This was a way to thank them for participating and an opportunity to introduce the new video to the industry.

Because workers move around so often in many of these industries, the informal grapevine is active. Marketing and distribution efforts are often boosted when the "stars" tell colleagues and co-workers about the video and that it will be shown during a safety meeting. Miners looked forward to seeing the videos and actually started asking when the safety meetings might be held rather than trying to avoid them.

It is hoped similar informal marketing will occur in the O&G industry. If workers are eager to see new safety videos, they will pay attention to the messages included and remember them longer, which is a major goal of any training program.

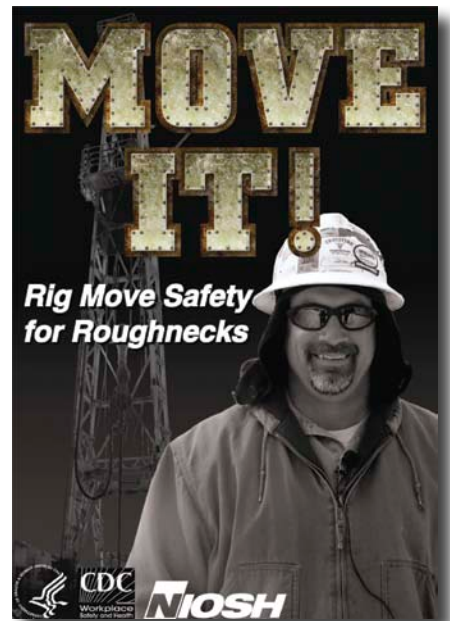
## Conclusion

Workers in high-risk industries face hazards that most people never experience. While these industries have higher injury rates than other industries, perhaps it is noteworthy that they perform their work with as few injuries as they do. This must be attributed to the efforts of safety directors and trainers, regulatory agencies, managers and operators, supervisors and the workers themselves.

Training for workers is both mandated and nec-

essary, but training will not work if it is not acceptable to the workers. Trainers who utilize the power that occupational cultures have to control and change the actions and beliefs of their members will be more effective in reducing injury rates.

No one wants to get hurt on the job. Therefore, SH&E professionals need to provide the most effective training possible to help keep people safe. Occupational cultures, and the norms, beliefs and stories they include, are always present on worksites. They can be valuable keys to creating training that works, sending everyone home safely at the end of the shift. **PS**



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Because the workers involved in rig moves perform fundamentally different and equally dangerous tasks, the research team decided to make two videos, one for roughnecks (Photo 9) and one for truckers.