Good Work Safety is No Accident - the Health, Safety and Employment Act in the High Pressure Pipeline Industry

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Abstract

An examination is made of the Health, Safety and Employment Act 1992 (HSE) as it applies in the high pressure pipeline industry. The industry is one where HSE needs to be endemic in every action that is undertaken. The paper discusses the consequences of a failure to apply HSE and the lessons that are to be learned. A summary of the way that Natural Gas Corporation (NGC) manages all aspects of HSE is provided as is information on major incidents on pipelines in the United States of America. Emphasis is placed on the role of Natural Gas Corporation in exercising responsible management of the pipeline easements to ensure that the risk of third party interference is minimised.

Introduction

It must be the objective of every employer to make sure that the workplace in which their staff work is safe. A company does not bring their staff to work to hurt them. Unfortunately this may be the objective of management and even the staff but injuries occur. This paper outlines the way that the health and safety of the employees in the high pressure pipeline industry is managed and the processes and procedures that are used to protect others from the affect of an incident within the industry. The industry is strongly driven by procedures and codes and the HSE. A detailed evaluation and explanation of the various definitions and clauses of the HSE is not offered and it is recommended that this be done by the individual.

Background

Before examining the specific actions taken in the industry the following example on what can occur when there is a breakdown in procedures and adherence to HSE procedures is offered.

On 21 March 1996 a person died as the result of an accident on a pipeline construction site in Western Australia. There was a Coroners Inquisition and in part of the findings the Coroner stated "The deceased died by way of accident".[1]

The Coroner did however go to some length to comment on the circumstances of the "accident" and the actions of various people. The person who died was a contractor. A brief summary of the findings, realising these are in hindsight, is as follows.

- "There was symptomatic sloppiness with regard to safety with employees regarding safety inductions as `It's a load of crap in any case'."
- "The Safety Superintendent was unaware of the competence of the contractor and was attempting to determine what the procedure was for the work when the fatality occurred. An instruction had actually been issued that the work was not to proceed until a Job Safety Analysis, a work method and a hazard awareness, had been completed and approved. This was not done and the Coroner treated this as a serious matter."
- "The single point of gravest concern arising from these events is of course that the site instruction was not obeyed. There seems to be little point in having a system if a responsibly issued site instruction can be ignored."

The Coroner concluded that there should be no exemptions when it comes to safety briefings and inductions of employees and contractors. It is in this context that the following is offered as a way to make sure that accidents or incidents such as this never occur in the High Pressure Pipeline Industry as managed by NGC.

Health and Safety in NGC

NGC has always held safety in high regard, yet as with many companies the danger is that the importance of safety becomes diluted at the work face. Having trained staff is not sufficient in itself. Clear records must be kept of training and various safety induction so that a proper paper trail is available.

To address the first issue NGC has made HSE the first topic of any and every meeting. All HSE data and all accidents are thoroughly investigated and corrective actions followed through. Safety is everyone's business.

Specific initiatives of NGC are provided under the NGC Health and Safety Environmental Policy. This is issued under the signature of the Chief Executive and states:

> "Natural Gas Corporation is committed to providing a safe and healthy workplace, and to protecting the environment both through sound management practices and the promotion of natural gas as an environmentally advantageous energy form. The Company is also committed to complying with and trying to exceed statutory requirements for health, safety and the environment."

The objectives are achieved through sustained Company support and the involvement of everyone in:

- Ensuring that effective procedures are in place to identify and assess workplace hazards and environmental effects.
- Managing workplace hazards and environmental effects through monitored programs based on measured criteria and backed by good work practices and proven emergency procedures.
- Ensuring that employees are involved in, trained in and informed about safety, health and environmental issues.
- Adopting safe and healthy lifestyle practices outside the workplace.
- "All staff, contractors and any party on a Company work site, are encouraged to take pride in, and a responsibility for ensuring that all activities are performed without endangering the environment or the health and safety of themselves, their work colleagues, visitors, customer or the local community".

The Take Care program takes a holistic approach to health, safety and environmental issue for NGC staff and their families both in the work environment and at home. The program has sponsored initiatives dealing with:

- Safe PCB Removal: This involved information packs for home use and provided a means of disposal for any PCB's found at home. In parallel to this was a systematic workplace identification and removal of PCB's.
- CPR and First Aid: All employees and families were given the opportunity to attend a basic first aid and CPR course. All employee training records for first aid training were updated. Subsidised first aid kits for the home were made available.
- Water Pollution: All drains at NGC sites were marked to identify their outlet point, i.e. Tip No Waste - Drains to Stream.
- Arbour Day: The company arranged a planting of native trees at local reserves and also sponsored the purchase of native trees to staff. This is an annual event.
- Driver Awareness: Safe driving information was distributed and driver training was given.
- Lead and Lead Removal: Information to all staff explaining the facts about lead poisoning and information on safe ways to remove lead based paint from homes.
- Melanoma: Information to all staff on melanoma and the health nurse provided checks with some people being referred to doctors.

- Fire Prevention: Information on fire prevention was made available to all staff. Subsidised fire extinguishers and smoke alarms were also provided.
- Oil Disposal: A safe means of oil disposal for staff was provided.

This program is ongoing.

This system establishes policies, procedures and management practices for the consistent and continual improvement of health, safety and environmental effects. The focus is on prevention rather than correction after the event.

Due to the nature of our business, our staff often have to work on other company's sites. To do this work they all must undergo a site specific induction and be familiarised with site specific hazards. They also have a requirement to have current training in some common safety issues, eg CPR and First Aid. In order to save on duplication of effort, a Safety Passport is used by our staff which contains details of their training. This passport will remain their property and is transferable to other companies who are listed in the passport.

There is a "no blame" reporting system for all events. This has been very successful and has provided us with valuable information on hazards. The information gained from the event reports is input into a database.

A systematic identification of all hazards on the transmission system was undertaken and the information collected has been incorporated into a purpose built database.

The Workplace

NGC owns easements through many properties and has an obligation to maintain these and the integrity of the pipeline which runs through them. Consequently we have an ongoing need to enter the properties. Often, we cannot enter the property along our easement and are forced to cross the property. This resulted in some land owners being concerned as to their obligations under Section 16 of the Act (Duties of persons in control of a work place) and refusing access to some of our easements over their property. This problem has of course affected other parties such as hunters, trampers, mountain bikers and similar people.) NGC has dealt with this.

Under the principal Act, we and landowners have a responsibility to our staff visiting farms. The HSE places prime responsibility for safety of visiting employees in the hands of their employees.

NGC and its contractors maintain their own competency in their knowledge about typical farm hazards and means of avoiding harm from these.

While employees are at work they have duties under the Act as well;

- They must take all practicable steps to ensure their own safety and the safety of others including using safety equipment as instructed.
- They must not knowingly expose themselves or others to harm.

NGC has a close working arrangement with landowners and ensures that staff have a clear understanding from the farmer if any farming hazards are present, equally the farmer is aware of the activities of NGC staff.

The focus on HSE relates to employees undertaking line flights - fixed winged or helicopter, and the pilot and his/her employer.

The Civil Aviation Act 1990 provides for functions, powers and duties of participants in the Civil Aviation System.

Section 5.13 Duties of pilot-in-command states

The pilot-in-command of an aircraft shall-

- Be responsible for the safe operation of the aircraft in flight, the safety and wellbeing of all passengers and crew, and the safety of cargo carried; and
- Have final authority to control the aircraft while in command and for the maintenance of discipline by all persons on board.[2]

For line flights, all staff are made aware of the following prior to commencement.

- Safety procedures/rules are explained to our employees undertaking the line flight and are signed off prior to the flight by both parties - copies are returned to each.
- Helicopter embarking safety issues are also explained (as above).
- That when on-board the aircraft, the passenger must follow the pilots commands as per S.13 and this is clearly set out in pre-flight arrangements as per our formal arrangement.
- Thus, any safety and compliance with HSE is met by both parties.

Often reports are published of the causes of incidents that are reportable under the Department of Transportation Regulations on High Pressure Transmission Pipelines and Gathering Lines. In 1997 a summary of these for the 1996 calendar year in the USA showed the following.[3]

	Number
Internal Corrosion	5
External Corrosion	4
Damage From Outside Forces	27
Construction/Material Defect	13
Other	15
Total	64
Number of kilometres	2,936,000

The category for Outside Forces is clearly the most significant source of failure and as a consequence NGC has stringent procedures in place to ensure that the risk to pipelines is minimised.

NGC has developed a procedure that covers the following Codes and Acts:

- Health and Safety in Employment Act 1992 and Regulations Code of Practice for High Pressure Gas and Petroleum Liquids Pipelines NZS5223, AS2885.
- Proposed Health and Safety in Employment (Pipelines) Regulations. Confined Spaces AS2865 1995.

The work types that are covered by this procedure are defined in AS2885 Part 3 Clause 3.2.5.4 The approach of NGC has been not to permit any works on the easement or in the vicinity of the pipeline and then evaluate any request in accordance with this clause. This process is exhaustive and in fact has 28 steps to it. The procedure details the responsibility as well as the action to be taken at each step. It covers everything from the initial request through Hazard Identification Field Induction of the person completing the work, and the recording of the completion of the task.

Employees authorised to issue these permits have been trained in the process and take it very seriously. Breaches are reported to the Ministry of Commerce Pipeline Inspectorate who determine if these require further action.

Attention is required to ensure that there is a proper signing off of the permit by all parties and that the responsibility of each is well understood.

Development of Field Practices

In order to assist staff in being able to access procedures and communicate readily with the permit base in Bell Block, all field staff have been provided with motor vehicles equipped with two-way radios, cell phones and a lap top computer with Internet access to databases held by NGC. This has made it far easier for staff to communicate with third parties and combined with a computer based induction program keep control of the activities along the pipeline easement.

There are four types of easement surveillance used to ensure the integrity of pipelines. These are:

- Aerial patrol
- Vehicle patrol
- Foot patrol
- Water craft for underwater pipelines.

NGC has reviewed it's practices and has determined that all of these have their place in the management of the pipeline system and in some cases more than one is used due to the location of the pipeline. A plan has been put in place to ensure that the appropriate methods are used and the reports are written in such a way as to show proper compliance.

Interference is often caused by people who know that the pipeline is present. Landowners, public utilities such as water and electricity, telephone companies, local councils and transmission employees present the greatest risk. These all believe that they know best. Consequently NGC has a program in place to ensure that each of these groups is continually reminded of the presence of pipelines. Some incidents have occurred even resulting in prosecution. Fortunately the integrity of the system has been preserved.

Safety Performance

The whole issue of safety does not become one of importance unless there is total commitment. There are many competing forces on the operating cost and compromising in this area can have serious results. There has been growing concern about the number of workplace deaths that have been occurring. This was observed in the ICHEME Loss Prevention bulletin in December 1997, where when referring to the level of workplace deaths in British Industry it was observed:

> "The rise in workplace injury rates suggest that cuts in the Health and Safety Executive funding and business complacency developed in a deregulatory climate are a dangerous and false economy".[5]

In the high pressure pipeline industry there is no room for compromise. This is the approach of NGC.

Conclusion

High pressure pipelines require special attention in their management. NGC has developed processes to ensure that the risk to employees, contractors and the public has been minimised.

This has covered the whole process of making employees aware of safety in their everyday life through the workplace and then into the broader work environment. Continual vigilance backed by an uncompromising management on the application of health and safety best practice has ensured that a high standard is maintained and that staff take on the issues at a personal level. This has been supported by the provision of better communication processes and equipment enabling the required result to be attainable. We do not want a repeat of the Western Australian fatality.

Footnotes

1 Coronial Inquiry, JR Packington SM, February 1997.

2 Civil Aviation Act 1990, RS Vol 32.

3 Pipeline & Gas Industry, March 1997.

4 Australian Standard AS2885, Part 3 1997.

5 ICHEME Loss Prevention Bulletin 138, December 1997.

Author

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