

JARGON OF THE NUCLEAR INDUSTRY* : A FOMENTER OF NEGATIVE PUBLIC PERCEPTION

Harley W. Reno, Ph.D.
Idaho National Engineering Laboratory
Joseph C. Walters, Ph.D.
Northern Arizona University

ABSTRACT

The common language (jargon) of the nuclear industry evolved from necessity surrounding development of nuclear weaponry. Unfortunately, many commonly used words of the language have negative connotations, especially when used in routine conversations with news media and public. People in the nuclear industry do not assign negative meaning to the words anymore. The jargon is transparent to the user, but the general public is attuned to the words. This paper identifies some negative words and recommends their elimination from the language. It concludes that such an action would be a step in improving the public image of the industry.

INTRODUCTION

SKELETON, COFFIN, POISON, and MORGUE are words the public associates with death. Unfortunately, the nuclear industry uses the same words in its everyday language. The jargon of the nuclear industry--its origination and influence on public perception--is the issue addressed in this paper. The paper offers alternatives to the communication style of the nuclear industry and the Department of Energy.

ORIGIN

Out of necessity, the nuclear industry was conceived and born out of the secrecy and urgency of World War II. At that time, the close-knit scientific society that spawned the industry had little concern for the language it was creating. According to Cherry (1), "Words are signs which have significance by convention, and those people who do not adopt the conventions simply fail to communicate." Lutz (2) defined jargon as the specialized language of a trade, profession, or similar group. Jargon, however, when used to communicate to those outside the group is "doublespeak". Lutz believed that doublespeak is not the product of careless language or sloppy thinking. He felt that "most doublespeak is the product of clear thinking and is the language carefully designed and constructed to appear to communicate when in fact it does not." Perception by the lay public is that the jargon is an act by the nuclear industry to appear as communicating, but in reality it is "doublespeaking." If a small group of people in a society (i.e., scientists and engineers of the Manhattan Engineering Project) used words in a certain way to describe events and phenomena, and the greater section of society gave a different meaning to those words, then the smaller group fails to communicate the intended meaning. When secrecy is required, as was the case more than two score years ago, it makes good sense to shroud communication by the use of jargon. However, when

nuclear energy became a citizen of the public as a generator of electricity, the industry failed to rewrite the language of its antecedent. People in the nuclear industry do not assign negative meaning to the jargon they use, but the general perception of this jargon seems different.

The English language is not precise, and users/articulators thereof must be careful in selecting the "correct" words to place the audience in the right frame of mind. Cherry (1) points out that "A word is more than an arbitrary written or spoken sign, it is all that it carries in association as well. Words can play upon our feelings and tap our memories." We suggest that the nuclear industry has not always put the greater section of society in the right frame of mind. When the nuclear industry talks to itself, it usually understands what is being said. However, when the public, news media, and others are "listening," they often get a different understanding of what was or is being communicated. The nuclear industry cannot afford to have an insensitive attitude toward the public, nor can the nuclear industry afford a negative perception by news media.

INFLUENCE ON PUBLIC PERCEPTION

In the minds of the public, anything associated with "nuclear" became synonymous with bombs and death. The jargon that nuclear pioneers coined produced far-reaching consequences affecting public perception and acceptance of the nuclear industry. Furthermore, in the forty plus years since "the bomb," continued and even expanded use of jargon by the industry has done little to alleviate that negative perception.

The following is a paraphrased conversation recently overheard by the senior author between a nuclear engineer and a newspaper reporter visiting the Idaho National Engineering Laboratory. The conversation illustrates the negative connotation that can be caused by jargon and why the

* Work supported by the U.S. Department of Energy, Assistant Secretary for Nuclear Energy, Office of Light Reactor Safety and Technology, under DOE contract No. DE-AC07-76IDO1570.

public has basis for resisting acceptance of anything related to the nuclear industry. The conversation began:

As you may know, a nuclear reactor is designed to shut down automatically anytime an off-normal event occurs. The reactor also can be shut down manually, at which time the operators are said to **SCRAM*** [the reactor]. In both situations control rods containing neutron **POISON** are inserted into the core of the reactor to **ABORT** the **CHAIN REACTION** and **ARREST** further **CRITICALITY**. As the reactor operates, its nuclear fuel is progressively **BURNED-UP**. Eventually, the fuel must be removed and replaced. The head [of the reactor] is removed, and the fuel is pulled out and stored in a **WATER PIT** or **MORGUE**, which contains **POISON** to prevent a criticality. After a while, the fuel is retrieved and put in a **CASK** for transport to a storage vault or **CRYPT**. There, the fuel is taken out of the cask, placed in a **COFFIN** or storage rack, and lowered into the **MORGUE**. Sometimes the fuel is retrieved and **DISMEMBERED**. During the process of **DISMEMBERING** a fuel assembly, the operator controlling the **MASTER-SLAVE** manipulator must be careful that **CRUD** adhering to the fuel pins and **SKELETAL COMPONENTS** of the assembly does not scatter and **CRAP-UP** or **CONTAMINATE** the facility. After **DISMEMBERMENT**, the fuel pins are either packed together, put in a coffin, and returned to the morgue, or they are sent to a special facility for reprocessing so that the fissile elements can be recycled into new nuclear fuel. The **WASTE** material and **SKELETONS** are repackaged and stored or, in some instances, placed in casks and sent to the **BURIAL GROUND**, where they are **DUMPED** into a **PIT** or **TRENCH**. The **SHORT-LIVED** radioactive isotopes **DECAY**, while the **LONG-LIVED** radioactive isotopes persist--for all practical purposes--forever. Plans are being formulated which evaluate **EXHUMING BURIED WASTES** contaminated with long-lived radioisotopes. Exhumed wastes eventually will be **ENTOMBED** in a federal repository.

In that conversation, if the engineer had used less negative or more positive words, perhaps he would not have been incensed when the conversation was summarized in print. Words with normally negative or macabre connotations (e.g., poison, critical, shroud, coffin, cask) certainly will result in apprehension by the public, if not outright negative perception and reaction.

With a little forethought and scrubbing the language of negative words, the conversation might have flowed thusly:

After the power plant is shut down by means of control rods, the depleted nuclear fuel assemblies in the reactor

are removed, stored, transported in specially designed vessels, and sometimes disassembled. Any deposits on the assemblies or fuel rods are removed mechanically using remotely operated equipment. Special care is taken so the fuel pool and adjacent *facilities* are not soiled. Pieces of fuel assemblies are placed in racks and stored underwater. That allows the radioactivity to decrease naturally. The deposits removed from the assemblies are packaged, loaded into transport vessels, and hauled to a facility for underground disposal as radioactive waste. In some instances, disposed materials may be recovered, recharged, and transported to the repository for final disposition.

In other places of the world (e.g., United Kingdom), the negative impact of jargon on the nuclear industry has been recognized and is being remedied. For example, in the UK, nuclear fuel and radioactive wastes are transported in **FLASKS** instead of **CASKS**.

REMEDY

Bisconti and Livingston (3) reported the findings of a survey conducted for the U.S. Council for Energy Awareness in which the respondents indicated that jargon and technical language were not as acceptable as common phrases. An example was the choice of *safer* over the more technical *transparently safe*, or the subjects preference of *Advanced-Design Nuclear Energy Plants over Next Generation Reactors*. As the authors pointed out, "The findings indicate clearly that non-technical language works best with the public" (*and probably writing between the scientific and regulatory communities*).

The damage done to the nuclear industry by jargon, technical language, and poor communication over the past 40 years has left its mark on the general public as well as news media. Wicker (4) showed his bias in *The Arizona Republic*, by stating:

The federal government's decision to abandon its current development of the Yucca Mountain Nuclear Waste Depository in Nevada and to start again on a new plan for the same site repeats an old, discouraging story: a ballyhooed "solution" to the radioactive waste problem that turns out to be just one more flop.

After 30 years of failure this latest fiasco--two years of effort and \$500 million down the drain--involves more than another American technological failure.

Just ask yourself if you want highly radioactive material, that will remain so virtually forever, stored in your vicinity; and even if you are willing, ask yourself if, after 30 years of failure, inept management and deception (remember when nuclear power was going to be "too cheap

* SCRAM is an acronym meaning Safety Control Rod Ax Man.

to meter?"), you could believe the assurances of either government or industry that the problem finally has been solved.

Mr. Wicker goes on to say that he is neutral in the argument over a safe nuclear-power program. When a leading journalist is neutral, yet indicates he has no love for the nuclear power industry, is it any wonder that the general public has difficulties with its feelings toward the site for storage of nuclear waste from power generation?

The U. S. Department of Energy, nuclear power industry, and scientists and engineers seeking answers to the high-level waste storage questions facing the United States must overcome the negative stance taken by some environmentalists, state legislators, and journalists. Bisconti and Livingston (3) cite a poll conducted by Cambridge Reports in August 1988, in which a majority believes nuclear power plants are reasonably safe. If a majority of the American public believes nuclear power plants are safe, then why are so few (environmentalists, legislators and journalists) able to influence so many when it comes to waste disposal?

We are suggesting the use of jargon and poor communication practices may make decisions about siting radioactive waste disposal facilities unnecessarily difficult. The United States has an acceptable track record in nuclear power generation and the on-site storage of high level waste. The United States does not have a similar experience with disposal of spent nuclear fuel from commercial nuclear reactors. The 1982 Nuclear Waste Policy Act recommended "burying" such wastes. Loux (5) suggested that, until the impasse in repository siting is overcome, utilities could use on-site, dry storage. If his suggestion is followed, then the utilities and DOE could have 30 years to resolve the present siting difficulties. During that time, the nuclear power industry and DOE should be able to overcome negative public perception. The question is how? The answer is positive communication!

CONCLUSION

In the words of Carlyle (6), "Wholly a blessed time: when jargon might abate, and ... genuine speech begin." Any current dictionary will tell you that jargon is the language peculiar to a particular profession. Jargon creates a pseudoscientific air by using indirect, impersonal constructions and technical-sounding Latin and Greek terms. The New English Handbook, Second Edition, published by Wadsworth (7) notes that jargon tries to make the trivial seem important. What seems to have happened: the federal and state governments as well as nuclear industry have continued using the jargon that was adopted during World War II. The "jargon" words are negative and passively en-

courage mistrust by the public. The government and industry should purge the language of the nuclear industry of negative words and start communicating with neutral or positive words, as illustrated in the revised dialogue above. That will alter the educational process of society regarding disposal and/or storage of nuclear wastes. Admittedly, it will take some time before society adopts this innovation, but it will occur. Rogers and Shoemaker (8), in a discussion of the communication of innovation, report several characteristics of the adoption process: Members of a society must perceive some relative advantage to the innovation, and the innovation must be compatible with their existing values and past experiences. The general public must perceive a single repository for safe, long-term storage of all high-level waste from nuclear power plants over on-site storage at the several nuclear power plants in the United States. A permanent solution to the siting of nuclear waste fits into the existing value system of society; however, our past experiences carry much emotional baggage. The nuclear power industry has done a good job of providing needed power to the public. In the main, the public feels nuclear power plants are safe. It is the siting of a nuclear waste disposal facility about which the public feels uneasy. It will be a formidable task to convince some environmentalists, legislators, and communities about the worthiness of a commercial nuclear waste disposal facility in their area. It can be done with positive communication directed toward the appropriate elements of society.

REFERENCES

1. C. CHERRY, On Human Communication, 2nd ed., The M.I.T. Press (1966).
2. W. LUTZ, "Language, Appearance, and Reality: Doublepeak in 1984," Et cetera, 44(4), 382 (1987).
3. A. S. BISCONTI and R. L. LIVINGSTON, "Speaking about advanced designs: Simple is best," Nuclear News (Sept. 1989).
4. T. WICKER, "Nuclear 'solution' is a flop," The Arizona Republic (Dec. 12, 1989).
5. R. LOUX, "Overcoming the impasse over disposal of spent nuclear fuel," The Arizona Republic (Dec. 10, 1989).
6. F. KERTESZ, The Language of Nuclear Science, ORNL/TM-2367 (Sept. 1968).
7. H. P. GUTH, New English Handbook, 2nd ed., Wadsworth Publishing Company (1985).
8. E. ROGERS and F. SHOEMAKER, Communication of Innovations, New York: Free Press (1971).