



Snake Oil Safety (SOS)

In the Old Wild West, “quick buck” peddlers sold colored water spiked with alcohol and opium as a cure-all tonic. These elixirs were touted for their ability to stop everything from baldness to toenail fungus, along with all diseases, aches and pains in between. These sweet-tasting nostrums were always in demand because they made the user feel good. A common name for these concoctions was “snake oil.”

A recent feature article in *Engineering News Record (ENR)* offered an amazing revelation of how modern day “quick buck” condo developers are pushing risk onto other parties without addressing the hazards. In their contracts for construction, they use terms such as “the highest standard of care.” This work product of contract writers makes developers feel good, but drives up the cost of insurance and the potential liability for the bidding contractor. Overlooked is the fact that the broad term of “risk” includes many unlisted hazards, and allows the developers’ management to feel enough to ignore the need for design-based safety. To dispel this concept, management needs to retain system safety specialists at the time of design to identify each and every hazard — and ensure for their control.

It is “snake oil safety” (SOS) practitioners who push risk onto other parties and fail to identify hazards in the dormant stage. They fail to ensure that hazards cannot become armed so that when a change of circumstance occurs, a hazard cannot become active and cause a disaster. Developers should not remain silent about environmental safety hazards such as buried drums filled with toxic substances or improperly compacted ground that is unable to support a structure. Contracts should not be worded to push these hazards off onto an unsuspecting contractor who bids to build condos on unsafe property. Contracts that require contractors to waive their rights are an unethical means of shifting these cost hazards to other parties. These

“wise guys” are always proposing that court awards to injured parties should be capped, as they believe this fraud makes them the best friends of contractors. These actions make them today’s “snake oil safety” proponents, who hide hazards and use this SOS, which is no help in hazard prevention.

The recipe for a monstrous hazard of uncontrolled consequences is to ignore history. Japan has always had earthquakes with their epicenters either on land or offshore, caused when tectonic plates merge. Years ago, when Japan was a rural agriculture culture, farmers placed stone markers on hillsides to warn how far and high inland a tsunami had traveled. The recent meltdown of four nuclear power reactors in Japan is a classic example of how developers ignored the known hazard of a tsunami at the time of design.

Perhaps risk managers considered that, with a frequency of tsunami occurrences several thousand years apart, this was therefore an acceptable risk. The assumption that a single sea wall is sufficient protection against a high tsunami tidal wave never considers “what if it is overtopped?” What is needed are several parallel sea walls, each designed with huge culverts at the base, with flappers to allow the floodwater to return to the sea. This alone will stop most of the force of the tsunami and can reduce its violence. Most important is to locate emergency generators and water pumps in the upper stories of the nuclear power plant above the flooding of the tsunami. Each nuclear reactor needs redundant safety systems to ensure for cooling water to prevent the nuclear reactor from overheating in the event of a tsunami. In this age of nuclear power generation, risk management should be considered to be “snake oil safety” and replaced with reliable, safe design.

System safety specialists have marketable skills to identify the hazards inherent to the exposure of a tsunami. Their approach to design-based safety in-



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cludes possible elimination, guarding from damage and providing safety features to establish reliable prevention of a nuclear reactor meltdown in the event of a tsunami.

On a much smaller scale, construction deaths and crippling injuries occur on hydraulic telescoping boom cranes when the jib boom falls off its stored position on the side of the main telescoping boom. Manufacturers of these unsafe storage attachments are being sued for this design defect. When the jib is swung to the storage position, a basic system safety analysis would provide an automatic latching device to hold the jib boom onto the main crane boom. Pins are currently provided to anchor the jib boom to the main boom in the storage mode. For safe storage of the boom, the blatant hazard is that it is easy not to properly line up the pinholes on the jib boom with the anchor pin holes on the main boom. There are no *red-line* markers to tell the workers that pin holes are all correctly lined up for the securing pins. For the telescoping feature on the main boom, the swing pin at the base of the jib boom needs to be removed. If the pins are not aligned to anchor the boom, and there is no redundant automatic latch device, the jib boom falls off and can maim or kill a worker attempting to store the jib boom.

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neers reveal that they never knew of such occurrences because corporate lawyers would not inform designers of their lawsuits involving defective design. Corporate defense attorneys use protective orders to keep this type of litigation out of public view. The result of these two actions becomes “snake oil safety.”

There is a new chemical class of pesticides called neonics. The collateral side effects of neonics are claimed to endanger bees and other pollinators. Immediately, public-interest protest groups were organized to ban neonics, even though they did not conduct field tests in a controlled area to determine the actual effect of neonics on bees. Recently, an environmental not-for-profit agency made a large mailing for contributions and for signatures on a letter of protest to the administrator of the Environmental Protection Agency (EPA) to ban the use of neonics. The claim proposes a risk to honeybees and other pollinators, stating that neonics would endanger 70 percent of our food crops. The agency predicts a honeybee crisis as a full-blown environmental catastrophe, adding that there are many studies indicating that neonics are a suspected killer of bees, but providing no bibliography of where this literature can be obtained by the curious reader. These protesters then made a threatening statement that their agency has 500 attorneys, scientists and other professionals, so they can sue the government if neonics are not banned. Their claim is that neonics are absorbed in plant tissue, and then emit toxins that kill

roots and poison the nectar, killing the plants and the bees that feed on this nectar.

As a result of this activity, the EPA has announced the investigation of the harm to honeybees. Recently, two Canadian honey producers have filed a lawsuit against Bayer-Agro and Syngenta Canada on behalf of Canadian beekeepers. The lawsuit claims neonicotinoids are 10,000 times more toxic than dithiothreitol (DTT), and are banned in Europe. It is postulated that the dust gets in the air or in puddles on the ground and exposed bees die or proceed to contaminate the hive. The defendants who manufactured the pesticide should have conducted better testing to determine the hazards to bees and methods to protect bees before marketing the new pesticide. Using the marketplace as a guinea pig is “snake oil safety.”

Members of the military and aerospace enterprises, in developing and implementing reliable design-based safety concepts, avoided being involved in snake oil safety. In the long haul, safe products, safe facilities, safe production and safe response development design overcome inherent hazards.

The most flagrant examples of “snake oil safety” are the community “wannabe” leaders who gather petition signatures to ban red-light and speed cameras. These advocates for lawlessness endorse freedom from traffic citations for running red lights and speeding. They falsely allege that red-light cameras cause rear-end collisions for stopping on the yellow light. They speculate that the reduction of red-light running is because drivers choose alternate travel routes to avoid traffic cameras. They cannot deny that cameras record the license plate of the cars driven by hit-and-run drivers who cause a collision when they run a red light. Freedom from automated traffic enforcement is a recipe for more crippling injuries and/or deaths.

There is a light at the end of the tunnel to protect the economy and the environment. Recently, the renowned consulting firm SNL Metals and Mining prepared a study on “Permitting, Economic Value and Mining in the United States” for the National Mining Association. This study showed where “snake oil” environmental safety advocates delayed mining permits for up to 10 years on various projects, reducing the value of ore bodies by 50 percent or more.

It is with interest that the Resources Safety Division of the Government of Western Australia’s Department of Mines and Petroleum have addressed auton-

omous driverless mine haul trucks. In their 1994 “Mine Safety and Inspection Act,” requirements for safe systems are summarized for autonomous mobile equipment. Manufacturers must design the equipment to:

- a. Be fit for purposes
- b. Recognize the potential for causing human error
- c. Have the system automatically stop in the event of a critical hazard
- d. Rigorously test the system to ensure that fail-safe measures work
- e. Validate exclusion zones for autonomous activities and for a re-start process

The *New York Times* columnist David Brooks hit the nail on the head, saying that capitalism is the real endangered species when contemporary critics become bolder and kill our economic engines. He reported that the recent Aspen Action Forum highlighted capitalism’s rough edges, but the underlying system should not be questioned. Not mentioned was the good professional practice of the International System Safety Society, whose members use design-based safety to eliminate hazards. The core issue in the coming age of automation is the need for a licensed professional. Developers must address what the design will reliably provide at the time of design or assembly. The engineer must identify shortcomings that create hazards or compromise the utility. Hazardous shortcomings should not be transferred to the operator, the user or the public to avoid. Safe design has the sole criteria to ensure reliable performance without transferring the exposure of danger to others as an acceptable risk.

As information and autonomous development creates a new economy and society, the need for system safety specialists will increase exponentially. The “snake oil” safety tactics of spreading the blame and forcing government to implement stupid requirements will fail in the capitalist marketplace. System safety examines the entire spectrum of hazards and provides management with a choice of design-based safety or “snake oil safety chaos.” When we hear of “snake oil safety,” it is really an SOS call for help.

Some managers only tolerate the need for safety and welcome the practice of “snake oil safety.” It makes these managers feel good to be able to blame the victim, assume the hazards are an acceptable risk and show how they have saved money. What goes around in avoiding design-based safety eventually comes around with a full-blown disaster. ●