

Pollution as Ammunition

By Colonel Ed Badolato

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While coalition forces scored a stunning victory against Iraq, reducing much of Baghdad to rubble, Saddam Hussein may have the last laugh. Damage caused by oil and fire has yet to be assessed. We could have prevented it.

Saddam Hussein brought a new weapon to the arsenal of modern warfare during Operation Desert Storm. On 25 January 1991, he ordered the wholesale pollution of Persian Gulf waters by releasing millions of barrels of crude oil, a flagrant act of environmental terrorism ostensibly to support his military operations. In concert with this "mega spill," Saddam also directed that nearly all of the 600 working oil wells in Kuwait be set afire or damaged, part of an adopted "scorched earth" policy.

This was the first time in history that oil has been used deliberately on such a scale and with such disastrous results against an entire range of air, land, and water ecosystems. Petroleum engineers estimate that it could take years to put out all of the well fires, and the environmental effects from the hazardous smoke, contaminated surface soil, and spilled oil will take much longer to rectify. The enormity of such damage begs the questions: "Could we have done anything to prevent such catastrophes? Can we learn any lessons from them?"

These questions should come under intense scrutiny in the Pentagon. With the "New World Order" and increased emphasis on low-intensity conflict, we are likely to see more of the same in the future. Even after Operation Desert Storm ended, Iraq's major oilfield in the Kirkuk area sustained severe damage from subsequent fighting between the Kurds and Iraqi government forces. Other areas of instability around the world-the major oil-producing nations of the Middle East, Africa, Asia, and Latin America-are potential sites of future environmental terrorism.

What Could We Have Done?

During Operation Desert Storm, a range of actions could have deterred or mitigated the overall size of the oil catastrophe. First, the huge amount of crude pumped from five tankers tied up at the oil loading facility at al Ahmadi in late December could have been stopped by special operations forces, numbers of which were quite adequate. **Various sources reveal that Desert Storm was one of the largest special operations campaigns ever conducted, with Special Operations Command, Central Command (SOCCent) comprising some 3,000 troops.**

A clandestine raid at al Ahmadi could have disabled shipboard pumps and thus destroyed the tankers' ability to pump oil into the Gulf through the Sea Island Terminal. As a backup, a preemptive incendiary bombing attack on the tankers could have set the oil on fire and reduced the amount spilled into the water. Various schools of thought consider the conditions required to maintain a serious tanker crude oil fire and the amount of oil actually consumed by such fires. As the *Mega Borg* fire off Galveston, Texas, in 1990 demonstrated, tanker fires are very difficult to extinguish, and they can consume nearly half of the crude cargo.

Send in the SEALs

The millions of barrels of oil released from the al Ahmadi storage tanks through the Sea Island Terminal and the oiling buoy could possibly have been slowed or stopped by using special operations forces to close or block any intermediate sea floor valves. The United States has spent millions of dollars on sophisticated underwater submersible vehicles and training for Navy sea, air, and land special forces (SEALS) for just this type of mission. Why not use them?

The approximately 600 burning oil wells presented and are still presenting a challenging tactical problem, but one that we should have been able to deal with more effectively. A detailed postwar assessment of the sabotage techniques employed by the Iraqis against the oil wells reveals that they were very thorough in their placement of explosives at nearly every well and critical oil facility in Kuwait. The actual sabotage systems used, however, were unsophisticated and susceptible to covert intervention.

Iraqis Were Inept Saboteurs, Too

The low-tech methods and off-the-shelf explosives that the Iraqi army used to sabotage the oil wells had been described in detail to our intelligence operatives by Kuwaiti resistance sources and were confirmed by other means. If preventing the destruction of Kuwait's oil infrastructure and stemming environmental damage had been accorded a higher operational priority, special operations forces could have put together an effective counter-sabotage operation.

Various countermeasures were at their disposal; they had the capability to replace explosive components with harmless inert look-alikes and to counter the electronic wiring systems using non-lethal systems. Military planners were aware that operating behind enemy lines in mined, well-guarded areas would have presented a severe challenge, and the risks would have needed to be considered carefully. Recent analysis of Iraqi army activities in the Kuwaiti oil fields, however, point out that most of the wells were not protected by minefields at all, and they were generally not heavily - guarded.

What Oil Companies Could Do

An even better solution would have been for the oil companies themselves to take preventative engineering measures-down-hole safety valves and blow out preventers, for instance. Petroleum industry experts agree that this would have made the extensive number of oil field fires unlikely, and it would have been very difficult, if not impossible, for the Iraqis to remove the down-hole devices.

Four Steps Against Environmental Terrorism

What are the lessons to be learned and studied from Saddam's ruthless exploitation of the Gulf's environment and the destruction of Kuwait's oil industry?

First, as the oil industry and environmentalists have known for years, prevention of oil-related accidents is the most cost-effective way to deal with them. A relatively few thousand dollars spent in advance on spill prevention measures by Exxon at Valdez could have saved billions of dollars and heavy ecological damage. The same held true for Saddam's "mega spill" and his torching of Kuwait's oil wells. Preventative technologies must be studied, understood, and practiced by both the public and private sectors.

Second, the military must adopt as operational art the tactics and understanding of the industrial processes required to deter or mitigate massive destruction and damage. The military must improve its thinking about operations involving critical industrial facilities so that it can better understand the scope of the problem and effectively orchestrate the tasks that it might be called upon to perform. Technical and tactical weaknesses in understanding the dangers and consequences of such combat induced catastrophes were evident in Desert Storm.

Third, the technological expertise of the scientific community should combine with the oil industries and focus on the problem. Famous fire eater Red Adair is a master at putting out oil field infernos, but available new technologies could make even his talent more formidable by reducing the preparation time to kill the fires and blowouts. This is a perfect opportunity for government industry cooperation among the Department of Energy, the U.S.-dominated oil field equipment industry, the scientific community, and the well firefighting specialists - all working together to solve the problem.

Fourth, oil facilities in potentially unstable areas should have the necessary engineering safety designs built in to ensure that destructive acts of sabotage cannot cause the levels of damage that we have seen in the Gulf. Such items as down-hole safety valves, underwater shut-off valves, and other safeguard devices, should be included in the design of facilities, especially in regions of the world where we could face another oil catastrophe.

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