Top U.S. Expert Explains Use of Nuclear Device to Seal BP Well

Nuclear physicist Dr. Milo D. Nordyke is the leading U.S. expert on peaceful nuclear explosions. He is a scientist emeritus of Lawrence Livermore National Laboratory, and a veteran of the U.S. Operation Plowshare program for peaceful use of nuclear explosions. He authored a 100-page study of the Soviet program for peaceful explosions, which included use of nuclear devices to seal four runaway gas wells and reduce pressure in a fifth.

Dr. Nordyke was interviewed at his home in Livermore, CA on June 14, 2010 by Alli Perebikovsky of LPAC-TV. The following is excerpted from a longer discussion.

LPAC-TV: So, just to focus in on what's going on with British Petroleum, and the crisis there ... It's almost like a "slow Katrina," where you really do have, not only the environmental disaster, but you have some estimates say, 100,000 gallons of oil leaking out every day.

NORDYKE: Well, it's an economic disaster as well: It's an ecological disaster *and* an economic disaster for the region. And it really has to be brought under control in some way.

The present scheme that they're using seems to have some partial control, but it's kind of difficult to find out exactly how well it's working. Maybe it's 10%, maybe it's 50% that it's containing. But in any case, even if that were 100%, it would only be a temporary fix, because you have to have something there which will survive hurricanes and all other things like that.

And so the relief wells, right now, are the primary source of the solution. They're drilling down wells from a few thousand feet away, and then tapering them so that they will, hopefully, will intersect the well at a depth of 15,000 feet or so. And be able to intercept the well, and divert the flow from the well up through the relief well, to the surface, or perhaps try to stem the runaway well.

They may or may not be successful. That's something that they've done, I think, sometimes in the past, but it's difficult.

And that's what really led the Russians to carry out their experiments and their projects: They have, the first well was one that was a runaway well for some three years, and was putting out a tremendous amount of gas—it was just gas, it wasn't oil, and it was not beneath the ocean, it was just on the surface. But it was burning, and you could see it from 50 miles away. It was very obvious, it was out in the middle of the desert, so you didn't have a large ecological disaster associated with it, but it was wasting a tremendous amount of energy. That was the problem. And they tried intercepting the well, and, because they didn't know where the original well may be—I don't know quite why they weren't able to intercept for a three-year period.

And so finally they got the idea of putting a nuclear explosion *near* the escaping well. And that sealed it off. It squeezed the escaping well shut, and of course, all the rock around it was crushed and then squeezed, to put out the well within 30 seconds or so. And they did that another four times, of which three of them were successful. The fourth one they've never really said why it wasn't successful.

In none of these cases was radioactivity detectable at the surface. You're talking about explosions which are thousands of feet beneath the surface of the Earth, and in the case of the Gulf one, it would be thousands of feet beneath the bottom of the ocean. You would probably be down to—you know, the well itself is like 18,000 feet, and so you would probably go down to a depth of 15,000 feet, which would be 10,000 feet beneath the bottom of the ocean. And so, there's essentially *no* concern that you would have radioactivity released to the surface of the ocean. The only concern that one has, and it would have to be addressed, is the seismic result. If there are other wells close—but I don't think there are—it could damage them, and it could cause a small ripple in the Gulf. But I don't think that—that certainly is something that can be calculated beforehand, to see what the extent of the concern would be.

LPAC-TV: Now, for the BP, we would basically use the Russian model, or have we made studies ourselves for setting off these nuclear explosions under the water?

NORDYKE: Well, there's not much to be learned from the

Russian experiments: They did it, and it worked. And it's pretty simple. One of the difficult problems is, you have to have an explosive which will be workable at these pressures and temperatures. We did develop explosives that would take 7,000 psi [pounds per square inch], at 250 degrees, for the Rio Blanco experiment, which I mentioned earlier. So, we have designs for such things, and it could be made, but that would take some time.

LPAC-TV: What was the Rio Blanco experiment?

NORDYKE: Rio Blanco was a gas-stimulation experiment, in which we put three 30-kiloton explosions down to depths of like 5,500, 6,000, and 7,000 feet beneath the surface in Colorado.

LPAC-TV: And then also, how would we actually get the nuclear explosive down there?

NORDYKE: Well, you could perhaps use one of the relief wells.

LPAC-TV: Right.

NORDYKE: If they're large enough in diameter, I would guess it wouldn't take a very large diameter. The Rio Blanco explosive was 7.8 inches in diameter, so it was relatively small. Most of the holes, I think, are like a foot, or so, in diameter.

LPAC-TV: The other thing that someone was telling me about is that it's possible that there are submarine devices that can shoot a nuclear warhead, essentially, down through water: That they'd actually shoot it down at high-velocities through liquid into the well itself.

NORDYKE: Well, but you have to get thousands of feet beneath the bottom of the ocean. And nothing which you do like that would go down to thousands of feet.

LPAC-TV: So if we were to actually—and we should—begin immediately preparations to use this type of option, do we have the capability at Livermore or the Army Corps? What would we have to do, essentially, to make this happen? How soon could we begin?

NORDYKE: Well, number one, you would have to make an

explosive, that we would use for that. It's possible you could use an existing artillery shell, or something like that, but my guess is that you would have to build one to sustain the pressure and temperature that you're going to have at the depth of 15,000 feet. You would have to carefully look at the possible effects, the seismic effect on the region of the well, as we said. And, you would have to follow the relief wells, to see how we're doing. If they aren't big enough, if they're only 3 or 6 inches, then you would have to drill another well. That's about the amount of preparation we would have to do. I mean it's just a straightforward type of function.

LPAC-TV: This is leaning to immediately pretty much expropriate BP, and use our, in a sense, government intervention to do this, this kind of experiment, this kind of solution.

NORDYKE: Well, this would certainly be a government-controlled project.

LPAC-TV: Right. Do you think it can be done by the scientists at Livermore or Los Alamos?

NORDYKE: Well, I think Livermore has the most experience in this area.