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Polygraph Testing and the DOE National Laboratories

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Most scientists who have studied polygraph testing are deeply skeptical of its usefulness in screening employees as a way to enhance security. However, many security professionals have an equally profound commitment to the polygraph and view it as an indispensable counterintelligence tool. The collision between these two views, accelerated by a congressional mandate that required polygraph testing for certain employees, has arguably diminished both science and security at the weapons labs of Los Alamos, Livermore, and Sandia National Laboratories, which are all supported by the Department of Energy (DOE).

The conflict begins with sharply differing assessments of the polygraph itself. Does the polygraph work? In a trivial sense, of course, it does. The polygraph machine will accurately measure cardiovascular activity, depth and frequency of respiration, and changes in skin conductance due to perspiration. It will also separately record how each of these factors changes after verbal stimuli. (The term "polygraph" refers to the "many writings" that the machine records.)

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More to the point, counterintelligence officials insist, the polygraph really does work as an investigative tool. In practice, it elicits significant admissions of misconduct or problem behavior during both the pretest and posttest interviews. It has deterrent value, helping to discourage casual indiscretion. It reduces the perceived need for other more arduous and expensive investigative techniques, and it may replace some other unwelcome approaches such as random drug testing. It even contributes to a sense of camaraderie among cleared insiders, serving as a kind of initiation ritual.

Needless to say, critics see matters differently. They point out that there is no unique psychophysiological response associated with lying or deception. Although the data recorded by polygraph testing may be completely accurate, the proper interpretation of the data will always be uncertain. As a result, some individuals will be incorrectly flagged as deceptive. And some who are deceptive will pass testing with no problem, as did Aldrich Ames, the Central Intelligence Agency (CIA) employee who acted as a spy for the Soviet Union.

A DOE security contractor who administered a 1998 polygraph test to Los Alamos scientist Wen Ho Lee found him to be innocent of committing espionage, providing classified information to an unauthorized person, or intending to harm the United States. Unusually strong readings indicated an absence of deception. The test was reviewed by two additional polygraphers, who concurred with the finding. But then the Federal Bureau of Investigation (FBI) examined the very same data and concluded that Lee had failed the test.

Clearly, if a single polygraph test can be used to support claims of both deception and nondeception, as in the unfortunate Dr. Lee's case, then this is not a mature methodology, to say the least. Or it is simply a fraud. It is hard to understand why anyone would voluntarily gamble their professional standing on a favorable "reading." After surveying the scientific literature, the U.S. Supreme Court concluded in a 1998 ruling that "there is simply no way to know in a particular case whether a polygraph examiner's conclusion is accurate, because certain doubts and uncertainties plague even the best polygraph exams."*

The deterrent effect of polygraph testing, is also open to question. In U.S. intelligence agencies, where polygraph testing is ubiquitous, the frequency of unauthorized disclosures of classified information ("leaks") has only increased. "Our government is hemorrhaging [sensitive information] in a way that I have never seen in my lifetime," said Director of the CIA, George J. Tenet, in 1999. It is likely that the CIA's erratic and unpredictable classification policies are partly to blame for this. However, polygraph testing has failed to deter such leaks or, as far as is known, to apprehend the leakers.

When President Reagan ordered polygraph tests for Cabinet officials in 1985 to discourage leaks, Secretary of State George Shultz threatened to resign rather than undergo testing, in a famous outburst. "Management through fear and intimidation," he said, "is not the way to promote honesty and protect security."

But Congress, not overly concerned with questions of scientific integrity or management philosophy, came to a different conclusion. Last year, legislators enacted a provision in the National Defense Authorization

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*_United States_ v. _Scheffer_, 523 U.S. 303 (1998).
†Scientific validity of polygraph testing: A research review and evaluation, Office of Technology Assessment, U.S. Congress, Report No. OTATMH15, November 1983. Available online at www.fas.org/sgp/othergov/polygraph/ota/index.html
‡64 Federal Register 242, p. 70961, 17 December 1999.
§Report of the Redmond Panel: Improving counterintelligence capabilities at the Department of Energy and the Los Alamos, Sandia, and Lawrence Livermore National Laboratories, House Permanent Select Committee on Intelligence, 21 June 2000. Available online at www.fas.org/irp/congress/2000_rpt/hr106-687.html
‖Section 3135 of H.R. 5408, National Defense Authorization Act for FY 2001. Available online at www.fas.org/sgp/congress/2000/defauth.html#3135

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Act requiring a counterintelligence polygraph examination for those DOE employees and contractors who have access to certain high-risk programs.

It is worth recalling here that one of the best critical studies of polygraph testing was performed in 1983 by the Congressional Office of Technology Assessment.† That office was abolished by the new Republican-majority Congress in 1995.

With the new legislative mandate, disputes about the validity and reliability of the polygraph became moot. Polygraph testing may not make sense, it may even be counterproductive, but it's the law. "Due to enactment of this nondiscretionary mandate, DOE concludes as a matter of law that it is no longer free to act favorably on comments arguing generally against establishment of a...polygraph examination program because of...deficiencies in polygraph reliability," the department stated in its new polygraph regulation.‡

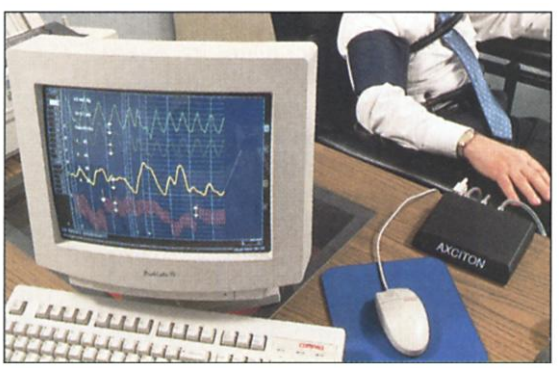
As soon as the DOE announced its plans to comply with the new requirement, the response from the weapons labs was vocal and hostile. "The Department of Energy has failed to gain even a modicum of acceptance of the polygraph program in the laboratories," according to a report to Congress from a panel chaired by former CIA counterintelligence chief Paul Redmond.§ "The attitude toward polygraphs at the laboratories runs the gamut from cautiously and rationally negative to emotionally and irrationally negative."

The Redmond report went on to state the opinion that "Scientists are most comfortable when dealing with techniques that are scientifically precise and reliable. The polygraph, useful as it is as one of several tools in a [counterintelligence] regime, does not meet this standard.... DOE's efforts at explaining the utility of the polygraph...have been ineffectual."

DOE's efforts were effective, however, in catalyzing a new degree of activism among scientists and others concerned over polygraph testing. Dozens of individuals testified at four public hearings on the new requirement last year, and over a hundred submitted written comments. More than half of the employees of the Los Alamos X-Division, the lab's nuclear weapons design center, endorsed a petition asking Energy Secretary Bill Richardson "to reconsider your apparent recent decision to begin extensive polygraphing of Q-cleared employees."

This turmoil, in turn, appeared to be successful in reducing the scope of the new requirement. Instead of several thousand lab employees being subject to testing, said Secretary Richardson, "we narrowed down the polygraph so that it would be [applied] only to those with access to the most sensitive information," including participants in so-called special access programs and those with access to special nuclear material, projected to number around 800.

Counterintelligence officials were displeased at the change, since it implicitly cast doubt on the polygraph. The power of the polygraph to elicit voluntary admissions of embarrassing or compromising information depends on the subject's perception that the testing process is practically infallible. "DOE Headquarters, by vacillating and changing the policy over time, appeared inconsistent and unsure where the opposite is essential to instill confidence in the program parameters and professionalism," the Redmond Panel report declared. Recently, Congress quietly modified the polygraph provision to impose testing on thousands of additional DOE and contractor employees.‖



The polygraph (or "lie detector") records changes in respiration, cardiovascular activity, and skin resistance. Polygraph theory presumes that deception produces a marked change in physiological response.

On the surface, implementation of the new DOE polygraph policy has been remarkably smooth so far and without incident. DOE reports that between January and September of this year approximately 900 counterintelligence polygraph examinations have been conducted. No one who is subject to the new requirement has refused to undergo testing. In no case has testing led to transfer or termination of an employee.

Under other circumstances, the national laboratories would probably learn to accommodate polygraph testing more or less well, as have intelligence agencies such as CIA and the National Security Agency. The labs' essential work would proceed even if, as in those agencies, the occasional spy would still penetrate security and the careers of some innocent individuals would be derailed by polygraph testing. But at the laboratories, the polygraph controversy is merely symptomatic of a deeper conflict over security policy that continues to fester.

According to the Society of Professional Scientists and Engineers, an employee organization at Lawrence Livermore National Laboratory, "polygraphy is not about increasing security or catching spies, it is solely about exercising political control through intimidation." It is this perception of an arbitrary exercise of power that offends so deeply. This is not to be misunderstood as a conflict between science and security. After all, there have been no complaints at the labs about the classification of sensitive nuclear weapons information. There have been no objections to requirements for background investigations, security clearances, or nondisclosure agreements—all long accepted as reasonable precautions.

But the polygraph, with its evanescent empirical foundation, symbolizes the defeat of reason by the national security state. The frenzy over security in Congress last year, including the new polygraph requirement, has caused institutional damage that cannot yet be fully assessed. In what might be considered a Republican plan for unilateral nuclear disarmament, the uncontrolled security apparatus is now endangering the future of the weapons labs. Polygraph testing is not the root of the problem, but it is one of the most visible manifestations of it.

"The morale problem [at the labs] is so bad that the superscientists are beginning to quit," Senator Pete Domenici of New Mexico (R–NM) reported on 7 September. "They just do not like the FBI treating them all like criminals or even suggesting that, as patriotic scientists, they ought to take their lie detectors and be treated as if there is some criminal in their midst. Frankly, some have decided they are just not going to do that."

Polygraph testing as a symbol of security run amok also threatens recruitment of new scientists to the weapons programs. "If we will have to tell candidates that they may be subject to a scientifically questionable polygraph exam every few years," said C. Paul Robinson, director of Sandia National Laboratories, "I am sure that many good people will be dissuaded from considering employment in the national laboratories."

If any good can be said to have come from the latest security controversies, it would be that more and more individual scientists feel entitled to doubt the credibility of official security policies. If the government can get it so badly wrong with respect to such issues as polygraph testing, Wen Ho Lee, and restrictions on foreign visitors, then maybe there is also room to question the size of our nuclear arsenal, for example, or the structure of our plans for fighting a nuclear war. Maybe the voices of scientists will be raised with new force and clarity in the important national security debates that lie ahead.

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