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Polygraph Use by the Department of Energy: Issues for Congress

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Summary

Department of Energy (DOE) Deputy Secretary Kyle E. McSlarrow recommended on September 4, 2003, that the DOE issue a proposed regulation by the end of the year that would sharply curtail the use of the polygraph for screening DOE employees with access to classified information.¹ McSlarrow said that he has recommended to Energy Secretary Spencer Abraham a mandatory polygraph screening program only for individuals with regular access to the most sensitive information. The result would be to reduce from more than 20,000 to approximately 4,500 the number of DOE and contractor personnel potentially subject to mandatory polygraph tests. McSlarrow cited a 2002 study by the National Academy of Sciences (NAS) that questioned the validity of polygraph testing.

In the wake of the Wen Ho Lee case, DOE in March 1999 initiated and later announced a screening polygraph implementation plan affecting approximately 800 DOE federal and contractor employees in certain high-risk programs.²

Congress in October 1999 mandated DOE polygraph testing (P.L. 106-65, Sec. 3154) and expanded the program to cover 13,000 DOE employees. The following year, Congress further expanded polygraph testing to cover approximately 20,000 DOE employees (P.L. 106-398, Sec. 3135). In part because of continuing opposition by some DOE nuclear weapons laboratory employees, Congress in 2001 requested that NAS review the scientific evidence regarding the validity and reliability of the polygraph, particularly when used for personnel security screening. Congress directed DOE to institute a new polygraph program that takes into account the NAS findings (P.L. 107-107, Sec. 3152).

The NAS study concluded that while polygraph testing is more effective when used in connection with event-specific investigations, its accuracy is insufficient to justify reliance on its use in screening current and prospective federal agency employees — DOE's principal purpose in using the polygraph.

Although acknowledging the NAS findings, Energy Secretary Abraham announced on April 14, 2003, that DOE would continue to employ screening polygraphs. Some Members of Congress urged that the DOE adopt a more focused polygraph program. McSlarrow's recommendation appears to reflect agreement with that approach. In the meantime, Congress might assess several possible approaches, including retaining the status quo, establishing a more focused polygraph program of the kind proposed by McSlarrow; researching alternatives to the polygraph; and eliminating the polygraph for screening purposes altogether. This report will be updated as warranted.

¹ Statement of Kyle E. McSlarrow before the Senate Committee on Energy and Natural Resources, *Department of Energy Polygraph Policy*, September 4, 2003.

² United States Department of Energy News, *DOE Polygraph Implementation Plan Announced*, December 13, 1999.

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Introduction

Since its establishment in 1977, the Department of Energy (DOE) has been frequently criticized for adopting a lax approach to counterintelligence (CI), particularly in connection with its nuclear weapons laboratories.³ Years of increasingly critical CI reviews culminated in 1998 when intelligence evidence suggested that the People's Republic of China (PRC) had stolen secrets from DOE's national security laboratories.⁴ President Clinton responded by issuing Presidential Decision Directive (PDD) 61, which fundamentally restructured DOE's CI program. The President directed DOE to develop and implement specific security measures, including the possible use of polygraph testing, to reduce the threat to classified information.

In March 1999, DOE began to develop a CI-scope polygraph to screen federal employees requiring access to certain high-risk programs. Questions asked as part of a CI-scope polygraph are limited to topics concerning the individual's involvement in espionage, sabotage, terrorism, unauthorized disclosure of classified information, unauthorized foreign contacts, and deliberate damage to or malicious misuse of a U.S. Government information or defense system. In August 1999, DOE proposed expanding the CI polygraph program to include contractor as well as Federal employees at its facilities who occupied positions with access to the most sensitive and classified information and materials.⁵ In October 1999, the Congress mandated what until then had been a DOE-discretionary polygraph testing program (P.L. 106-65, Section 3154). Congress also expanded the number of those required to take the polygraph to 13,000.⁶ In December 1999, Energy Secretary Bill Richardson announced that CI interests could be satisfied by subjecting approximately 800

³ DOE has three nuclear weapons laboratories where classified nuclear weapons research is conducted: Los Alamos National Laboratory, Los Alamos, NM; Lawrence Livermore National Laboratory, Livermore, CA; and Sandia National Laboratories, Albuquerque, NM and Livermore, CA.

⁴ For a comprehensive review of this issue, see CRS Report RL30143, *China, Suspected Acquisition of U.S. Nuclear Weapons Secrets*, by Shirley Kan. See also *Attorney General's Review Team on the Handling of the Los Alamos Laboratory Investigation*, May, 2000, at [<http://www.FAS.org>].

⁵ *Federal Register* 64, no. 242 (Dec. 17, 1999), p. 70963.

⁶ United States Department of Energy News, *DOE Polygraph Implementation Plan Announced*, Dec. 13, 1999.

individuals to polygraph testing.⁷ DOE originally had intended its program to cover approximately 3,000 employees, but the number was reduced after protests from national laboratory employees.⁸ Richardson said he would seek legislation to ensure consistency between DOE's implementation plan and congressional direction.⁹ Instead, Congress in the year 2000, prompted by continuing security concerns, approved legislation (P.L. 106-398, Section 3135) further expanding the program to cover approximately 20,000 DOE employees and contractors.¹⁰

In 2002, Congress instructed NAS to review the scientific evidence regarding the polygraph's validity and reliability and directed DOE to institute a new program that took into account the NAS findings (P.L. 107-107, Section 3152). Congress said a new program should "minimize the potential for release or disclosure of classified data, materials, or information."

Background

Debate continues over the validity and reliability of the modern polygraph, first developed early in the 1900s. What is undisputed is that the polygraph machine is not a lie detector but rather an instrument that charts changes in an individual's respiration, heart rate, blood pressure, and sweat gland activity in response to a series of yes or no questions.¹¹ Polygraph examiners determine whether a person's physiological reaction is stronger in responding to certain questions when contrasted with recorded reactions to a series of comparison "control" questions. Stronger reactions indicate that the individual may be deceptive. It is these physiological responses which are at the heart of the ongoing debate over the validity of polygraph testing.¹² Scientists studying the polygraph further note a distinction between the polygraph test and the polygraph examination, which includes the test and the interrogation surrounding it. The first represents an attempt to capture accurate psychophysiological indicators of deception. The second is a tool for revealing truth.¹³

⁷ Ibid.

⁸ Andrea Widner, "DOE Lab Employees Protest New Law Mandating Polygraph Tests," *Knight Ridder/Tribune News*, Nov. 9, 2000.

⁹ United States Department of Energy News, *DOE Polygraph Implementation Plan Announced*, Dec. 13, 1999.

¹⁰ *Federal Register* 68, no. 71 (April 14, 2003), p. 17887.

¹¹ A polygraph instrument will collect physiological data from at least three systems in the human body. Convuluted rubber tubes that are placed over the examinee's chest and abdominal areas will record respiratory activity. Two small metal plates, attached to the fingers, will record sweat gland activity, and a blood pressure cuff, or similar device, will record cardiovascular activity.

¹² National Research Council of the National Academy of Sciences, *The Polygraph and Lie Detection*, 2002, p. 13.

¹³ Ibid., p. 21.

The polygraph is used for three principal purposes: event specific or exculpatory — for example, when a crime has been committed; preemployment screening; and screening current employees. The Intelligence Community (IC) uses the polygraph as a screening device and investigative tool. The Department of Defense (DOD) uses it almost exclusively as an investigative tool. The DOD does use polygraphs for employee screening, but only for individuals granted exceptional clearances for highly sensitive programs.¹⁴

Although DOE has long used the polygraph as an investigative tool, it has been employed as a screening tool for access to high-risk programs only since 1999. The Energy Department turned to polygraph testing after President Clinton issued PDD 61 in response to long-standing concerns about security at DOE weapons labs and specifically because of intelligence evidence indicating that the PRC may have stolen secrets from DOE's weapons labs. The President directed the Energy Department to consider establishing a polygraph program as one component of a comprehensive CI program that could include background checks, periodic reinvestigations, monitoring of financial records, restrictions on publishing materials, and, for some employees, mandatory drug testing and medical assessments.¹⁵ Under current DOE regulations, neither DOE nor its contractors may take an adverse personnel action against an individual solely on the basis of a polygraph result indicating deception.¹⁶

The Energy Department cited three principal reasons when it proposed polygraph screening in 1999.¹⁷ First, a CI-scope polygraph, according to DOE, serves both as means to deter unauthorized disclosures of classified information and to detect early any disclosure of classified or sensitive information. The latter, DOE argues, allows it to promptly take steps to mitigate any damage to the national security. Second, the Department suggested that the polygraph examination is essential in granting interim personnel security clearances on an expedited basis. Finally, DOE argued that a polygraph examination provides an important tool that is available upon employee request to expeditiously resolve any outstanding issues in a CI or personnel security investigation.

Some See Polygraph's Utility But Many DOE Scientists Are Skeptical

Many DOE laboratory personnel have a "very negative" attitude towards the polygraph, according to the report of the Redmond Panel, a panel of experts which reviewed DOE CI capabilities at DOE's national security laboratories on behalf of

¹⁴ Commission on Science and Security, *Science and Security in the 21st Century, A Report to the Secretary of Energy on the Department of Energy Laboratories*, Apr., 2002, p. 54.

¹⁵ *Federal Register* 64, no. 242 (Dec. 17, 1999), p. 70962.

¹⁶ *Ibid.*, p. 70962.

¹⁷ *Ibid.*, p. 70963.

the House Permanent Select Committee on Intelligence.¹⁸ The attitude toward polygraphs at the laboratories, according to panel findings, runs the gamut from cautiously and rationally negative to emotionally and irrationally negative.¹⁹ The Panel noted in its findings that never before have so many cleared employees of a government organization had to have their clearances threatened by the institution of the polygraph.²⁰ The Panel also noted that scientists do, in fact, represent a particular problem with regard to the administration of polygraphs. “They are most comfortable when dealing with techniques that are scientifically precise and reliable,” according to the Panel. “The polygraph, useful as it is as one of several tools in a CI regimen, does not meet this standard. Accordingly, many scientists who have had no experience with it are skeptical of its utility.”²¹ The Panel went on to note, however, that “...polygraphs, while not definitive in their results, are of significant utility in a broader comprehensive CI program. The polygraph is an essential element of the CI program and it will not work until it is accepted by those who are subject to it.”²² In its report, NAS said that polygraph testing has some utility in “detering security violations, increasing the frequency of admissions of such violations, deterring employment applications from potentially poor security risks, and increasing public confidence in national security organizations....Such utility derives from beliefs about the procedure’s validity, which are distinct from actual validity or accuracy.”²³

The Society of Professional Scientists and Engineers, an association of current and retired scientists at Lawrence Livermore National Laboratory, argues that the polygraph is not only scientifically invalid and unreliable but lacks utility as well. “Their unreliability renders polygraphs incapable of catching spies and can lead to false accusations of innocent workers who may find themselves defenseless against the machine’s oscillations,” according to the Society.²⁴ Other critics argue that the polygraph has failed to uncover such prominent spies as Aldrich Ames and maintain that spies know how to employ countermeasures against the polygraph.

¹⁸ U.S. Congress, House Permanent Select Committee on Intelligence, *Report of the Redmond Panel*, June 21, 2000, pp. 7-8.

¹⁹ *Ibid.*, p. 7.

²⁰ *Ibid.*, p. 7.

²¹ *Ibid.*, p. 8.

²² *Ibid.*, p. 8.

²³ The National Research Council of the National Academy of Sciences, *The Polygraph and Lie Detection*, 2002, p. 6.

²⁴ Society of Professional Scientists and Engineers, *SPSE Speaks Out on Polygraphs*, Aug. 13, 1999.

Dearth of Scientific Evidence Underlying the Polygraph

As distinct from the utility of the polygraph, supporters and critics of the polygraph agree that the scientific evidence relevant to the accuracy of polygraph screening tests — the principal purpose of DOE’s polygraph program — is extremely limited. NAS said it found only one flawed field study that provided evidence directly relevant to accuracy for preemployment screening.²⁵ The American Polygraph Association (APA), the largest polygraph association consisting of examiners in the private, law enforcement, and government fields, blames the paucity of research into the scientific basis for the polygraph or any other deception detection technique on a lack of resources.²⁶ NAS agreed, noting that the lack of serious investment in such research is “striking,” given the heavy reliance of the government on the polygraph, especially for screening for espionage and sabotage.²⁷

What The Available Evidence Does Show

NAS, in its study, arrived at a number of conclusions. First, it concluded that polygraph testing, particularly with regard to personnel screening, yields an unacceptable choice for DOE employee security screening between too many loyal employees falsely judged deceptive and too many major security threats left undetected. The polygraph’s accuracy, according to NAS, in distinguishing actual or potential security violators from innocent test takers is insufficient to justify reliance on its use in employee security screening in federal agencies.²⁸

Second, NAS concluded that, based upon field reports and indirect scientific evidence, polygraph screening may have some utility for achieving such objectives as deterring security violations, increasing the frequency of admissions of such violations, deterring employment applications from potentially poor security risks, and increasing public confidence in national security organizations. Such utility, however, derives from beliefs about the validity of the procedure, and are distinct from “actual validity or accuracy,” according to the Academy.²⁹ NAS also concluded that the proportion of spies, terrorists and other major national security threats among the employees subject to polygraph testing in DOE labs presumably is very low, and that polygraphs therefore should not be counted on for detection when screening population with low rates of the target transgressions, because “screening populations

²⁵ The National Research Council of the National Academy of Sciences, *The Polygraph and Lie Detection*, 2002, p. 3.

²⁶ American Polygraph Association, *Statement of the American Polygraph Association Pertaining to the National Academy of Sciences (NAS) Report on the Use of the Polygraph*, undated.

²⁷ The National Research Council of the National Academy of Sciences, *The Polygraph and Lie Detection*, 2002, p. 8.

²⁸ *Ibid.*, p. 6.

²⁹ *Ibid.*, p. 8.

with very low rates of the target transgressions (e.g., less than 1 in 1,000) requires diagnostics of extremely high accuracy, well beyond what can be expected from polygraph testing.”³⁰ NAS also stated that countermeasures pose a potentially serious threat to the performance of polygraph testing because all the physiological indicators measured by the polygraph can be altered by conscious efforts through cognitive or physical means. NAS noted that “there is enough empirical evidence to justify concern that successful countermeasures may be learnable.”³¹

The NAS findings essentially track the results of a similar research review completed by the Congressional Office of Technical Assessment (OTA) in 1983, which concluded that there was not adequate evidence at that time to establish the scientific validity of the polygraph test for personnel security screening. OTA went on to more broadly state that establishing the overall validity of the polygraph is not possible. OTA cited two reasons. First, the polygraph is a very complex process that is much more than the instrument. The types of individuals tested, examiner’s training, purpose of the test, and types of questions asked, among other factors can differ substantially, according to the OTA report. Second, OTA noted, the research on polygraph validity varies widely in terms of results and the quality of the research design and methodology. “... conclusions about scientific validity can be made only in the context of specific applications and even then must be tempered by the limitations of available research evidence,” according to OTA.³²

Polygraph supporters such as the APA in turn cite 80 research projects, published since 1980, showing accuracy ranges for the polygraph from 80 to 98 percent.³³ While conceding that there has been only a limited number of research projects on the accuracy of polygraph testing for screening, the APA argues that “real world conditions are difficult if not impossible to replicate in a mock crime or laboratory environment for the purpose of assessing effectiveness.”³⁴ The APA further argues that the same physiological measures are recorded and the same basic psychological principles may apply in both the event specific and pre-employment screening examinations and therefore there is no reason to believe that there is a substantial decrease in the accuracy rate for the preemployment circumstance. The few studies that have been conducted on pre-employment testing support this contention, according to the APA.³⁵

U.S. intelligence community agencies, however, continue to believe the polygraph is a useful screening tool. The CIA claimed to have classified research to

³⁰ Ibid., pp. 5-6.

³¹ Ibid., p. 216.

³² Office of Technology Assessment, *Scientific Validity of Polygraph Testing*, Nov. 1983, p. 4.

³³ American Polygraph Association, *Polygraph Issues and Answers*, undated.

³⁴ American Polygraph Association, *Statement of the American Polygraph Association Pertaining to the National Academy of Sciences (NAS) Report on the Use of the Polygraph*, undated.

³⁵ American Polygraph Association, *Polygraph Issues and Answers*, undated.

support their use of polygraph tests but would not share it with OTA at the time of its study.³⁶ According to the 1983 OTA report, the CIA and the NSA use the polygraph not to determine deception or truthfulness per se, but as a technique of interrogation to encourage admissions. OTA reported that the polygraph examination results that are most important to NSA security adjudicators are the data provided by the individual during the pre-test or post-test phase of examination. The Director of Central Intelligence Security Committee concluded that polygraph was the most productive of all background investigation techniques. But OTA said that the study was one of utility, not validity.

DOE Proposes To Revise Polygraph Program

The National Defense Authorization Act for FY2002 (P.L. 107-107, Section 3152) directed the Energy Department to issue a notice of proposed rule-making for a new polygraph program that takes into account the findings of the NAS polygraph review. The Act also stated that the purpose of any such new program would be to minimize the potential for release or disclosure of classified data, materials, or information.

To satisfy the congressional directive, DOE on April 14, 2003, published a notice of proposed rule-making “to begin a proceeding to consider whether to retain or modify [DOE’s] current Polygraph Examination Regulations.”³⁷ Secretary Abraham made clear that DOE intended to retain polygraph screening as one of several tools of the Department’s CI program. In doing so, he acknowledged NAS’s recommendation against using the polygraph for employee screening and the congressional directive that he take the Academy’s views into account. But he said that maintaining polygraph testing was “consistent with the statutory purpose of minimizing the risk of disclosure of classified data.”³⁸ He also said that the Energy Department uses the polygraph only in conjunction with other information and only as a trigger for a detailed follow-up investigation, not as a basis for personnel action. This, according to Abraham, is compatible with NAS’s conclusion that if polygraph screening is to be used at all, it should be used in this fashion.³⁹

Critics of the Secretary’s decision, including Senator Jeff Bingaman (D-NM), said relying on a technique as inaccurate as the polygraph could produce a false sense of confidence. That overconfidence, Bingaman suggested, “can be the real danger to national security.” Applying polygraphs to employee screening could lead to either too many loyal employees who will be judged deceptive, or too many major

³⁶ Office of Technology Assessment, *Scientific Validity of Polygraph Testing*, Nov. 1983, p. 100.

³⁷ *Federal Register* 68, no. 71, p. 17886.

³⁸ United States Department of Energy News, *DOE Issues Notice of Proposed Rulemaking on Polygraph Use*, Apr. 14, 2003.

³⁹ *Ibid.*

security threats undetected, Bingaman noted.⁴⁰ Senator Pete Domenici said, “I continue to believe that the system is too much an affront[,] especially since the polygraph program was so thoroughly criticized by the National Academy of Sciences. I hope the department will rethink this situation.”⁴¹

Apparently the Energy Department did rethink its approach. DOE Deputy Secretary McSlarrow said on September 4, 2003 that he had recommended to Secretary Abraham that a new regulation be issued before the end of the year that would sharply curtail polygraph screening.⁴² In testimony before the Senate Energy and Natural Resources Committee, McSlarrow said DOE should retain a mandatory polygraph screening program only for individuals with regular access to the most sensitive information. The result, according to McSlarrow, would be to reduce from 20,000 to 4,500 the potential number of personnel receiving DOE polygraph screening tests. In announcing his recommendation for a more focused program, he cited the NAS study that concluded that the accuracy of the polygraph is insufficient to justify reliance on its use in screening current and prospective federal agency employees. But he went on to cite NAS’s recommendation that in light of inherent fallibility of the polygraph instrument, any agency that employs a screening polygraph should do so only in conjunction with other information, and only as a trigger for further testing and investigation.⁴³

Specifically, McSlarrow said he had recommended retaining mandatory polygraph screening already in place for those occupying:

- ! all counterintelligence positions;
- ! all positions in the Headquarters Office of Intelligence and at the Field Intelligence Elements; and
- ! all positions in the DOE Special Access Programs (and non-DOE Special Access Programs if a requirement of the program sponsor).

Individuals with routine or continuing access to all DOE-originated Top Secret information, including Top Secret Restricted Data and Top Secret National Security Information also would be subject to polygraph screening. This group — probably less than 1,000 complex-wide — would not include everyone with a “Q” or a Top Secret clearance, nor would it include all weapons scientists, according to McSlarrow. Rather, it would include only those whose positions require continuing,

⁴⁰ Press Statement of Senator Bingaman, Apr. 14, 2003

⁴¹ News release of Senator Domenici, *Domenici: DOE Worries Shouldn’t Mean Continuation of Flawed Polygraph Policy*, Apr. 15, 2003.

⁴² Statement of Kyle E. McSlarrow before the Senate Committee on Energy and Natural Resources, *Department of Energy Polygraph Policy*, September 4, 2003

⁴³ *Ibid.*

routine access to Top Secret Restricted Data or other DOE-originated Top Secret information.⁴⁴

McSlarrow said he also had recommended that certain managers, with input from the Office of Counterintelligence and subject to approval of either the Secretary or the Administrator of the National Nuclear Security Administration, be granted authority to include additional individuals within their offices or programs in the mandatory polygraph screening program. These individuals would be limited to those with regular access to information or other materials presenting the highest risk.

Although the FY2000 National Defense Act Authorization and the current proposed regulation published on April 14, 2003, mandated polygraph testing for all individuals in the Personnel Assurance Program and the Personnel Security Assurance Program, McSlarrow said he has recommended eliminating mandatory polygraph screening for those two categories.

McSlarrow also said he had recommended instituting a random screening program affecting those positions whose level and frequency of access, while not requiring mandatory screening, nevertheless warrant some additional measure of deterrence against damaging disclosures.⁴⁵ McSlarrow estimated that 6,000 individuals would be eligible for a random polygraph, but that only a minimum percentage of that number would be subject to a polygraph during any single year. Those subject to a random polygraph would include:

- ! all positions in the Offices of Security, Emergency Operations, and Independent Oversight and Performance Assurance that are not designated for the mandatory screening program;
- ! positions with routine access to Sigma 14 and 15 weapons data (Sigma 14 and Sigma 15 refer respectively to vulnerability information and use control information in connection with the nuclear weapons program); and
- ! system administrators for classified cyber systems.

In advocating a random polygraph testing program, McSlarrow cited the NAS finding that “polygraph screening may be useful for achieving such objectives as deterring security violations, increasing the frequency of admissions of such violations, [and] deterring employment applications from potentially poor security risks,” and that predictable polygraph testing probably has less deterrent value than random testing.⁴⁶

Senator Domenici commended DOE for radically revising its polygraph test policy. “I have been appalled by DOE’s continued massive use of polygraph tests in

⁴⁴ Ibid.

⁴⁵ Ibid.

⁴⁶ Ibid.

the wake of a national study condemning the reliability of these tests...I commend DOE for announcing plans to substantially reduce the number of people subject to polygraphs and to ensure that no negative actions are taken based on a single polygraph result,” he said.”⁴⁷

Senator Bingaman, however, said that although DOE’s new polygraph policy is a step in the right direction, he reiterated his serious reservation that scientific evidence does not support the use of polygraphs as a screening tool.⁴⁸

Issues for Congress

A More Focused Polygraph

One issue for Congress is whether the Energy Department’s polygraph screening program should focus on a smaller number of individuals occupying only the most sensitive positions. More than 20,000 DOE employees and contractors, falling into eight separate categories, are currently subject to polygraph testing. Critics argue that the program requires a screening polygraph for virtually every DOE employee and contractor who holds a security clearance, without regard to the level of sensitivity of that person’s activities or access. Such a program exposes a large population to polygraph examination without regard to the risk associated with that person’s access. One result, according to critics, is that polygraphs have caused, and may continue to cause, severe morale problems and thereby ultimately undermine the very goal of good security.⁴⁹

On the other hand, some of those same critics acknowledge that in the case of the IC, the polygraph is an integral — “and more important, an accepted — part of the intelligence community’s security practices and culture. People are aware of this practice before accepting employment in intelligence organizations, and they accept it as an integral part of a more comprehensive security architecture.”⁵⁰

McSarrow’s recommendations apparently signify a willingness by DOE to consider a more focused program.

⁴⁷ Press statement of Senator Domenici, *Domenici Commends DOE for Sharply Reducing Number of Employees Subject to Polygraph Testing*, September 4, 2003.

⁴⁸ Press statement of Senator Bingaman, *Bingaman Raises Concerns About DOE’s New Polygraph Policy*, September 4, 2003.

⁴⁹ See Commission on Science and Security, *Science and Security in the 21st Century, A Report to the Secretary of Energy on the Department of Energy Laboratories*, April 2002, pp. 55-56. The Commission points out in its report that DOD does use the polygraph for screening purposes, but only for individuals granted exceptional clearances for highly sensitive programs.

⁵⁰ *Ibid.* P. 54

Additional Research

Critics and supporters alike agree that further research into the scientific basis for psychophysiological detection of deception by any technique is warranted. NAS, in its report, suggests that if the government continues to rely heavily on the polygraph, some research effort should focus on putting the polygraph on a firmer scientific foundation. The Academy cautions, however, that given the inherent ambiguity of the physiological measures used in the polygraph, further investments in improving polygraph technique and interpretation will bring only modest improvements in accuracy.⁵¹ Rather, NAS recommends the development of a broader research program to detect and deter security threats, rather than focus on polygraph research.⁵² NAS points out that potential alternative techniques such as measurements from brain activity and other physiological indicators, facial expressions, voice quality and other aspects of demeanor show some promise, but that “none has yet been shown to outperform the polygraph. None shows any promise of supplanting the polygraph for screening purposes in the near term.”⁵³ According to the Academy, any such research program should be largely administered by “an organization or organizations with no operational responsibility for detecting deception and no institutional commitment to using or training practitioners of a particular technique.”⁵⁴

NAS pointed out two particular areas worthy of more research — computerized analysis of polygraph records to improve the accuracy of test results by using more information from polygraph records than is used in traditional scoring methods; and combining polygraph information with information from other screening techniques. NAS also concluded that more research needs to be conducted with regard to countermeasures, but pointed out that policy makers must weigh the danger of public knowledge of countermeasures against the benefits of a robust public research program.⁵⁵

Supporters, while claiming that the polygraph now provides satisfactory detection and deterrence, favor enhanced research on grounds that it will expand the capacity to improve the polygraph’s validity and reliability.⁵⁶ At the same time, supporters note that real world conditions are difficult if not impossible to replicate in a mock crime or laboratory environment for the purpose of assessing the

⁵¹ See the National Research Council of the National Academy of Sciences, *The Polygraph and Lie Detection*, 2002, p. 213.

⁵² *Ibid.*, p. 9.

⁵³ See the National Research Council of the National Academy of Sciences, *The Polygraph and Lie Detection*, 2002, p. 8.

⁵⁴ *Ibid.*, p. 229.

⁵⁵ *Ibid.*, p. 231.

⁵⁶ American Polygraph Association, *Statement of the American Polygraph Association Pertaining to the National Academy of Sciences (NAS) Report on the Use of the Polygraph*, undated.

polygraph's validity. A lack of resources, according to supporters, also has impeded research efforts.

Responding to the NAS research recommendation, the Senate Select Committee on Intelligence in its fiscal year 2004 intelligence authorization bill authorizes \$500,000 for the National Science Foundation and the Office of Science and Technology to lead a more focused research effort on alternatives to the polygraph.⁵⁷ A conference on the Intelligence Authorization Act for FY2004 (H.R. 2417) is pending.

Discard Use Of Polygraph For Screening

Another issue for Congress is whether to discard the use of polygraph screening — as opposed to event specific use where the accuracy is well above chance but below perfection⁵⁸ — altogether. Critics label the screening polygraph as misguided and suggest that it be shelved in favor of more thorough examination of financial records and travel, and more frequent reinvestigation by traditional means. These critics argue that the screening polygraph gives a false and dangerous sense of over confidence to authorities that they have adequately screened for spies.⁵⁹ They believe that this, in turn, could lead to a relaxation of other methods of ensuring security, such as periodic security re-investigation and vigilance about potential security violations in facilities that use the polygraph for employee security screening.⁶⁰ Critics also argue that polygraph test accuracy can be undermined by countermeasures, seriously undermining the value of polygraph security screening.⁶¹

Supporters argue that the polygraph is the best tool currently available to detect deception and that it remains an important tool to detect deception in selected national security and law enforcement matters. Some supporters distinguish between the polygraph's utility and its scientific validity and reliability. While not definitive in its results, they argue, the polygraph is of significant utility in a broader comprehensive CI program.⁶² Some government organizations further claim to have classified information which supports their use of polygraph tests.⁶³ And virtually

⁵⁷ S.Rept. 108-44, p. 29.

⁵⁸ National Research Council of the National Academy of Sciences, *The Polygraph and Lie Detection*, 2002, p. 4.

⁵⁹ See comments by the Society of Professional Scientists and Engineers to proposed polygraph examination regulations, 10 CFR Pat, 709, Federal Register 68, p. 17886, Apr. 14, 2003.

⁶⁰ National Research Council of the National Academy of Sciences, *The Polygraph and Lie Detection*, 2002, p. 7

⁶¹ *Ibid.*, p. 5.

⁶² U.S. Congress, House Permanent Select Committee on Intelligence, *Report of the Redmond Panel*, June 21, 2000, pp. 7-8.

⁶³ Office of Technology Assessment, *Scientific Validity of Polygraph Testing*, Nov. 1983, p. 100. OTA said the CIA did not permit it to review the Agency's classified research on (continued...)

all supporters of polygraph screening argue that polygraph testing is just one tool among several used as part of a comprehensive CI program.

⁶³ (...continued)
the subject.