

Testimony on
Health and Safety Issues Related to the
Paducah Gaseous Diffusion Plant
before the
Subcommittee on Oversight & Investigations
of the
House Commerce Committee
by
Thomas B. Cochran, Ph.D.

September 22, 1999

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My name is Thomas B. Cochran. I am Director of the Nuclear Program and hold the Wade Greene Chair for Nuclear Policy at the Natural Resources Defense Council, Inc. ("NRDC"). NRDC is a national environmental public-interest organization with over 400,000 members that has been extensively involved in monitoring the environmental activities of the U.S. Department of Energy's ("DOE's") nuclear weapons complex. I am one of four relators in the civil action filed against Lockheed Martin Corporation, et al. under the *qui tam* provisions of the False Claims Act related to these DOE contractors' operation of the Paducah Gaseous Diffusion Plant ("Paducah GDP"). A summary of my qualifications are set forth in the front of my *qui tam* disclosure statement, which I submitted to the committee with exhibits in response to a subpoena *duces tecum*.

Summary of the Issues Surrounding the Paducah Case

The Paducah case involves four categories of health and safety issues:

- a) excessive exposure and poor or unlawful control of radiation exposure of workers;
- b) excessive releases and insufficient or unlawful control of radioactivity released off-site;
- c) unlawful disposal of radioactive wastes; and
- d) improper recycling into commerce of scrap materials contaminated with radioactivity.

In association with each of these categories of health and safety issues:

- i) the contractors at the Paducah GDP have engaged in systematic falsification of reports to the Federal and State governments and to the public; and
- ii) the Department of Energy ("DOE") relied too much on what its contractors were telling it, and obviously failed to provide adequate oversight of those contractors.

Finally, there is a need for Federal legislation to prevent similar abuses in the future.

Next, I will briefly summarize the health and safety issues.

Excessive Exposure and Unlawful Control of Radiation Exposure of Workers

There has existed at the Paducah GDP an appalling lack of health physics protection for workers. For many years, the plant apparently had no professional health physics program. Workers were not properly advised of the hazards of working with uranium, particularly uranium in particulate and gaseous form. Workers were not properly monitored for exposure to uranium and other

radioactive isotopes. The workplace was neither properly monitored nor were there proper controls over contaminated spaces. Clearly, the plant managers were grossly violating DOE Orders and the basic health physics tenet to keep radiation exposures “as low as reasonably achievable” (“ALARA”). (See Appendix A of my Disclosure Statement) This week, I interviewed a former plant worker who left the site in 1992 after working there for 39 years. He had never heard of the terms “ALARA,” “as low as reasonably achievable,” “as low as practical,” or “ALAP.” “It’s all Greek to me,” he said of the concept.

Some of the more telling pieces of evidence of the appalling working conditions at the plant are:

- a) reports that the bed sheets of workers turned green from the radioactive uranium tetrafluoride (UF₄, or “greensalt”) that was carried home on their clothing and bodies;
- b) reports by workers of conditions in buildings where chemical conversion activities took place—where they worked without respirators in rooms densely filled with radioactive dust;
- c) extremely high measurements of uranium deposited in the bones of Mr. Joe Harding, a deceased worker whose bone tissues was assayed after his death;
- d) reports of lunchrooms, locker rooms, computers, and kitchens significantly contaminated with radioactivity; and
- e) reports that uranium concentrations in sanitary sewage at the site were so high that a special project (Project GLIT) was instituted to recover uranium from sewage sediment.

While health physics conditions at the plant may have improved somewhat in recent years, my observations at the site, my review of documents, and my discussions with the other relators indicate that the Paducah GDP’s managers still are not complying with DOE Order 5400.5, 10 C.F.R. Part 835, or following the rudiments of good health physics practices. In fact, based on my discussions with the other relators the following deficiencies are noted:

- i) Monitoring of workers for internal exposure to radioactivity is inadequate. The frequency of urine, fecal and perhaps whole-body counts is inadequate to reliably establish worker exposure. Workers are not properly advised of their radiation exposure, and in any case, historical exposure records would be erroneous and incomplete because of the failure to adequately monitor for internal and external exposure. Documents reveal shocking inadequacies as recent as this month.
- ii) Some areas within the security fence that are excessively contaminated with radioactivity are not properly marked and secured as radiation-controlled areas, and

there is no health physics program in place to control adequately the movement of workers into and out of controlled areas.

- iii) There is inadequate monitoring and control of personnel and vehicles leaving the site to prevent or limit the transport of radioactivity off-site.
- iv) Radiation survey instruments are not adequately calibrated.
- v) There are insufficient numbers of certified health physicists and trained health physics technicians on site and inadequate and in some cases inappropriate supervision of the technicians.

Some or most of these conditions appear to have been confirmed by a recent DOE audit that led to the Secretary of Energy ordering a 24 hour stand down at the plant while the workforce received additional health physics training. Sadly, if the Secretary thinks he can solve the worker health problems in 24 hours he is being very ill-advised by his staff, or is offering up a political rather than a substantive fix. Indeed, my review of DOE's auditors' findings this week lead me to believe that the factual allegations of our lawsuit are being affirmed in most of their key particulars. The audit also illustrates that the problem is a current problem, and not just a historic one.

These worker conditions would be bad enough had uranium been the only significant radioactive element handled at the plant. A report in *Nuclear Fuel*, March 16, 1992, summarizing from a Martin Marietta report, indicated that 101,268 tons of feedstock were brought to the Paducah GDP site principally from Hanford, but also from DOE's Savannah River Site. This feed was separated uranium recovered from processing at Hanford and Savannah River irradiated production reactor fuel. This uranium was contaminated with fission products as well as neptunium, plutonium and other transuranic isotopes.

This material, according to Martin Marietta, was found to be far more contaminated than commercially reprocessed reactor fuel—which itself is generally significantly contaminated. For example, the report notes that between 175 and 700 times the levels of technetium-99 that are found in commercially reprocessed fuel were found in the Paducah GDP feedstock material. Concentrations of transuranics (principally plutonium and neptunium) were measured at 20 to 450 times the levels normally found in reprocessed fuel.

There were four chemical separation plants (B, T, REDOX and PUREX) at Hanford. These used at least three separate chemical separation processes, each of which went through modifications and upgrades. Therefore, it is safe to assume that over the years there were improvements in the capability to separate out radioactive contaminants from the uranium. In fact, the first chemical separation technique did not even separate the uranium from the fission products. This was only done later when improved processing techniques became available.

We respectfully request Congress to ensure that a competent independent firm systematically searches the historical records at Hanford, Paducah, Savannah River, and Oak Ridge for information that could shed light on the contamination levels of this recycle uranium feed and on how the contamination levels changed over time, and who was responsible for sending highly contaminated and unfit recycled spent reactor fuel feedstocks to Paducah.

It would also be possible to obtain additional useful information by sampling the residual contamination in the most contaminated chemical processing buildings at the Paducah GDP. I was appalled to learn that Bechtel-Jacobs, DOE's cleanup contractor, may have destroyed some of the most valuable evidence by recently washing down some of the contaminated processing buildings' walls in order to avoid the inconvenience and expense of providing building workers with proper respiratory protection. Reportedly, outside personnel have recently been interviewed to assist in destroying some files at the site, although I do not know the relevance of these files to the issues we have raised. **In any case, we respectfully request the Congress to immediately demand that DOE order its staff and its contractors at the Paducah, Portsmouth and Oak Ridge GDPs to maintain the integrity of any physical and electronic evidence at these plants, as well as any documents and electronic files that could be useful in reconstructing worker exposures and contractor and DOE culpability. Congress should do the same with regard to the Nuclear Regulatory Commission ("NRC") in its regulatory oversight capacity over USEC.**

Excessive Releases and Unlawful Control of Radioactivity Off-Site

I visited the Paducah GDP site earlier this year, on February 24-25, 1999. This visit revealed the sub-standard circumstances that are in violation of DOE health and safety requirements. I found the following:

- a) Areas outside the security fence that are contaminated with radioactivity were not properly labeled and the public had access to areas that are, or may be, contaminated with radioactivity in excess of appropriate levels.
- b) Significant areas of the off-site environs around the Paducah GDP are generally contaminated with radionuclides and should no longer be used for recreational purposes without a comprehensive off-site characterization, immediate access controls for radiologically contaminated areas, proper placarding and marking, removal of radioactive sources, and remediation of streams, ponds, and sediment banks, at a minimum. The lack of protective measures I witnessed off-site (given what I know is present on-site) is astounding.
- c) There is inadequate effort by Paducah GDP management to minimize the transport of radioactivity off-site by controlling the flow of contaminated water off-site via numerous ditches.

On February 25, 1999, I took radiation measurements and collected sediment samples in publicly accessible areas outside of the Paducah GDP security fence. Most of the radiation measurements that I took in the environs around the Paducah GDP, outside the security fence, were at or near background levels. A few readings were higher than background. Inside a section of concrete culvert sitting on top of the ground in an area accessible to the public, I measured radiation levels that were between 10 and 20 times background. I did not determine whether the radioactivity, the source of this radiation, was easily removable or fixed.

I also collected 12 sediment samples in areas accessible to the public. An analysis of these samples indicated that the U-238 (i.e., depleted uranium) concentration in various ditches in publicly accessible unmarked areas was found to be between 10 and 80 times background or between 0.3 and 2.5 times the Nuclear Regulatory Commission's ("NRC's") draft release criteria for decontamination of a site. The high end of this range is comparable to the concentration one might encounter in phosphate ores containing uranium.

The measurements I took are not inconsistent with earlier recorded off-site readings presented in the *qui tam* disclosure statement of Mr. Deuschle (See Deuschle's Exhibits 3 and 4), one of the other relators, though many substantially higher readings are recorded in past data. The data indicate contamination levels in off-site sediment (through at least 1994) that far exceed federal requirements for plutonium, neptunium, thorium, uranium, and technetium, at a minimum. The data show plutonium-239 measurements of up to 240 pCi/g, exceeding the NRC standard by a factor of 127, and neptunium-237 measurements of up to 63 pCi/g, exceeding the NRC standard by a factor of 335.

I regard the soil data for the actinide isotopes as particularly troubling in one respect, because these heavy isotopes like plutonium-239 and neptunium-237 are not generally mobile and do not generally migrate in water as easily as many other isotopes. The high readings off-site suggest to me that relatively large quantities of such isotopes must have been deposited through effluent releases. Slow migration would suggest such contamination may be present for many, many more years. The isotopes are generally very long-lived as well. Neptunium-237 has a half-life of 2.14 million years. Plutonium-239 has a half-life of 24.4 thousand years. While technetium generally passes relatively quickly through the body, plutonium is one of the more toxic isotopes, and is a bone and liver seeker in humans.

There is no question that readings of the levels disclosed by Mr. Deuschle would require immediate posting, and should have led to prompt removal or remediation in many circumstances. Had the contractors been in compliance with DOE Order 5400.5 pertaining to ALARA, it is unlikely that these contamination levels would have occurred. Even if significant releases had occurred due to some unforeseen event, once detected through an adequate health physics program, immediate steps would have been undertaken to minimize further releases and obviate these high contamination levels.

I have reviewed numerous documents prepared by Lockheed Martin or Martin Marietta for DOE suggesting that the maximally exposed individual off-site from Paducah GDP operations could

expect to receive no more than 100 millirems, and, indeed, a far lesser number (in some cases only 2 millirems) in any year. In my opinion, which I believe any respectable nuclear scientist would concur in, the actual measurements recorded, though not subsequently reported, suggest that the maximally exposed public individual could have received over 100 millirems per year. Moreover, the contractor is required by DOE Orders to maintain exposures as far below 100 millirems per year as is reasonably achievable. Lockheed Martin and the previous Paducah DGP contractors were clearly in violation of this ALARA requirement. We now know from DOE's auditors that the sampling data reported to DOE by the contractors apparently omitted "fugitive" emissions from the plant, which may have amounted to thousands of kilograms of contaminated material.

The risks to the general public due to these off-site releases are considerably less than the risks to the workers from on-site exposure to radioactivity. Nevertheless, these off-site releases are in clear violation of DOE Order 5400.5, which requires that radiation exposures be ALARA. Together with the on-site conditions these violations indicate that the contractors at Paducah have been and are today operating in callous disregard for the basic tenets of the health physics profession, and are failing to keep exposures to radiation as low as reasonably achievable taking into account technical, practical and economic considerations.

Uranium-238, the predominant radioisotope at Paducah, is not the most hazardous radioisotope either on the basis of mass (i.e., gram for gram) or specific activity (i.e., curie for curie). However, it is carcinogenic. It is unwise and unlawful to expose people to uranium unnecessarily, and one is not permitted to release it into the accessible environment indiscriminately. Congress should investigate whether an ALARA analysis was performed and documented, for example, before contaminated buildings were recently hosed down at the site. How did Bechtel-Jacobs dispose of the contaminated water? Was it processed, or dumped into the sewer or ditches?

There is the separate but related issue of off-site atmospheric emissions of radioactivity. Since I do not have firsthand knowledge of these matters I place the following in the category of issues that call for thorough investigation:

- a) There are accusations that there were massive releases of radioactivity to the atmosphere that typically occurred at night.
- b) Reportedly, the air monitoring stations around the Paducah GDP that were operated by the State of Kentucky were turned off during a recent period for lack of money. This also calls into question the adequacy of the State's monitoring of ditches and streams that received liquid effluent from the Paducah GDP.
- c) There was reportedly a high and unexplained reading at an air monitor at a nearby high school as recently as last fall.

Unlawful Disposal of Radioactive Wastes

According to workers at Paducah, including the other relators, the contractors illegally buried materials contaminated with radioactivity off-site, including in what has been characterized as a "sanitary landfill."

In *The Washington Post*, August 29, 1999, it was reported that just outside the so-called "sanitary landfill" workers recently discovered radioactive "black ooze" seeping from the ground where a drilling rig had become stuck in the soft earth. DOE denies that this is related to the landfill. If that is true, it suggests a second unlicensed, unlawful, radioactive waste dump off-site in the area. There are probably more. Again, a thorough investigation is needed. The landfill should be adequately sampled with core samples.

Documents obtained by our attorneys (see Attachment No. 1) reveal that a Kentucky police investigator reportedly found criminal dumping activity at and around the site in 1992, and DOE contractor personnel were reportedly told by their contractor bosses that if they did not dump radioactive wastes illegally onto Kentucky land they would be fired. This demands a thorough investigation. Was DOE aware? Was the report followed up? If not, why not? Is a new criminal investigation warranted?

With DOE's approval, radioactive wastes that have not been dumped off-site illegally are apparently now being shipped to a site -- Envirocare of Utah, Inc. -- that obtained its license to operate during a time in which its owner paid the top regulatory official in Utah more than \$600,000 in cash, gold coins, and a ski condominium. DOE apparently believe it is appropriate to continue to enrich this owner with taxpayer funds so long as he merely declines to participate in the day-to-day management of the company.

Unlawful Recycling into Commerce of Scrap Materials Contaminated with Radioactivity

Apparently enormous quantities of radioactively contaminated steel, nickel, aluminum, and significant quantities of contaminated gold (and possibly silver) were recycled by the contractors into the stream of commerce. This was apparently done a) without adequate monitoring of the radioactive contamination remaining in these recycled materials; b) without adequate DOE or national radiation protection standards for limiting the permissible volumetric contamination of the recycle material; and c) without an ALARA analysis and documentation of the same.

This problem persists today. As part of a \$238 million contract with BNFL, Inc., the DOE is subsidizing the recycling of thousands of tons of radioactively contaminated scrap metal from a former nuclear weapons plant in Oak Ridge, Tennessee. Since last October BNFL has been recycling radioactive scrap metal and selling it for use in commercial products such as cookware, orthodontic braces, medical devices, and children's toys; some 100,000 tons of scrap metal will be recycled.

The DOE contract protects BNFL from fluctuations in market prices of scrap aluminum, copper, and nickel by requiring DOE to cover 80% of BNFL's losses when market prices drop below 95% of the contract baseline price for the metals. According to a BNFL estimate, under recent market conditions, this would result in a \$9 million DOE subsidy for the recycling of 6000 tons of nickel alone.

DOE's subsidy violates DOE, Environmental Protection Agency, and Nuclear Regulatory Commission requirements that public exposure to radiation be "as low as reasonably achievable." DOE's artificial support of radioactive metals recycling not only unnecessarily increases the public's exposure to radiation—there are other options—but makes no sense economically. There is no justification for DOE to subsidize the recycling of nuclear waste into commercial products.

In a recent court decision, a federal district judge expressed serious concern that "[t]he potential for environmental harm [from the BNFL recycling project] is great, especially given the unprecedented amount of hazardous materials the Defendants seek to recycle."

The court raised serious concerns about the impact of its ruling, acknowledging the significant risks posed by the DOE plan and "the fact that no national standard exists governing the unrestricted release of volumetrically contaminated metals."

The court also criticized DOE's exclusion of the public from its decision to permit recycling of radioactive metals, concluding that it is "starting and worrisome that from [an] early point on, there has been no opportunity at all for public scrutiny or input on a matter of such grave importance." The court noted in closing that "the proposed [recycling] plan is exactly the type of action which would come within the scope of NEPA."

The radioactive contaminants in the metals pose a long-term threat, as they remain hazardous for more than 200,000 years. The BNFL project poses significant risks because (1) surveying methods for radioactivity are imperfect and could result in the improper release of contaminated metals; (2) the recycling method for the Oak Ridge nickel is experimental and untested for large-scale production; and (3) the health effects of low-level radiation are the subject of significant scientific controversy.

The recent revelations about the failed environmental, safety and health oversight at DOE's facility in Paducah, Kentucky, which like the Oak Ridge facility is a gaseous diffusion plant, raises further concerns about the risks of the Oak Ridge scrap project. The DOE office responsible for oversight of the Paducah facility is also overseeing the Oak Ridge recycling project. After 50 years of demonstrated chronic mismanagement of the nuclear weapons complex, DOE claims that it can safely recycle radioactive materials for use in products for the general public. With so much evidence to the contrary, the last thing DOE should be doing is subsidizing the dumping of its nuclear waste into commercial products. **Congress should pass legislation that precludes the recycle of radioactively-contaminated materials when they may come into intimate human contact.**

The Contractors Have Engaged in Systematic Falsification of Reports to the Federal and State Governments and to the Public

The heart of the *qui tam* action against Lockheed Martin, et al., to which NRDC is a party, is that the contractors were aware of unlawful activities related to worker exposure, off-site releases, burial of radioactive waste and recycling of contaminated material, and yet proceeded to present false and misleading statements about these activities, representing that they were complying with DOE orders and all applicable laws and regulations. We assert that the DOE contractors were willfully, illegally, recklessly, in bad faith, imprudently, and /or negligently: (1) dumping significant quantities of radioactive and/or mixed waste in unauthorized locations; (2) exposing workers at the Paducah GDP site to unnecessary and unlawful levels of radioactivity through contact, proximity, contamination, inhalation, and ingestion, failing adequately to monitor worker exposures properly, and failing to report radiation hazards to the workers and to the authorities; (3) failing adequately to report accurately to the proper authorities regarding levels of radioactive contamination; (4) failing adequately to properly remove contamination in recycled materials, monitor for radiation prior to shipment of these materials off-site, or inform recipients of contamination; (5) failing to properly measure off-site contamination and control public access where necessary; and (6) failing to meet federally proscribed radiation protection standards. While engaged in these activities the contractors made numerous false statements to the DOE, the State of Kentucky and the public. We ask for Congress' assistance in ensuring that the full compendium of such false statements is found and preserved.

The Department of Energy Has Failed to Provide Adequate Oversight, Though This Does Not Excuse the Contractors

We understand that at most times the Department had no more than 6 to 12 personnel on site, to oversee contractor work force of nearly 2000. The improper and illegal activities at the Paducah GDP occurred throughout its 46 year history of operation. The failure of DOE and its predecessor agencies, the Energy Research and Development Agency and the Atomic Energy Commission, to prevent these activities demonstrates the quality of the Government oversight over the nation's uranium enrichment enterprise. One cannot of course presume that one's contractors are lying to you. But the fact that some of these improper and illegal activities have occurred right up until the present is a measure of the degree and quality of the DOE oversight even today.

NRDC Notification to DOE

On or about May 27, 1999, we informed the staff of DOE that in a matter of a few days we would be filing under seal a *qui tam* action related to activities at the Paducah GDP. The disclosure statements of the four relators were provided to the DOE staff at that time, and we briefed the staff on the technical and legal issues. On May 28, 1999, I hand-carried a second copy of the four disclosure statements together with a cover letter to the office of the Secretary of Energy. In the cover letter, I said,

I am writing to inform you of the serious health and safety risks at the Paducah, Kentucky, gaseous diffusion plant. These violations require your immediate attention. Yesterday we presented our concerns and the facts supporting our proposed *qui tam* action against the Paducah contractors to members of your staff from the Environmental Management, Environmental Safety and Health, and Nuclear Energy programs and the General Counsel's office. We are providing you with copies of the relevant documents to ensure that you are fully informed of the gravity of the issues at the Paducah facility.

We are grateful that finally, more than 14 weeks later, DOE's auditors have confirmed our findings and allegations. Sadly, however, the Paducah Manager of Projects for Bechtel-Jacobs -- the contractor in charge of cleaning up the Paducah site -- in anticipation of the one-day-long safety stand down at the facility last week, announced to his personnel: "More to come -- I still have season's tickets to the circus for sale if anyone still needs one." Clearly, far more than a just a day will be required to change the culture of the Paducah contractors.

Who Should Pay?


We have suggested, and we believe the evidence does and will continue to show, that DOE, notwithstanding its own shortcomings, was seriously misled by the contractors operating the Paducah facility and site. We hope the government will seize the opportunity to hold the contractors accountable for what surely will be a massive, and massively expensive, cleanup and worker monitoring and compensation project. The taxpayers should not have to foot this bill. It is my understanding that DOE indemnity provisions for contractors do not apply in cases of contractor misconduct, such as is the case here.

ATTACHMENT No. 1

MEMORANDUM

12 April 1991

To: Capt. J.W. Pennington, U/10
Special Operations, KSP

Fr: Investigator D. W. Senf, U/1903 
Special Operations- Hazardous Devices

Sub: Alleged Criminal violations- Illegal dumping of toxic hazardous Uranium waste at the Paducah Gaseous Diffusion Plant location by federal agency contractor with the knowledge known by the U.S. Department of Energy.

Pursuant to my telephonic discussion on 10 Apr 91 at 0845 and 1150 hrs with Lt. Ken Hardin, Unit 91, I am submitting this source information at his direction, for your consideration, evaluation, and action. For approximately the past 14 months, I have been provided varying pieces of confidential source information regarding alleged illegal toxic waste disposal at the DOE-Paducah Gaseous Diffusion Plant location. This nuclear operation has been in production since 1955, with the most recent DOE independent contractors being Union Carbide, and Martin Marietta Energy Systems. Within the past three months, information provided to me had become greater in detail, and concerned me enough for my personal safety and fellow officers at the KSP Range, causing me to submit a memorandum to you on 4 Mar 91 detailing those concerns with attached supporting documentation.

Within the past week I have been provided additional confidential information which in my opinion, if true, constitutes gross criminal violations both under the United States Code and the Kentucky Revised Statutes, in that it jeopardizes the very lives of those residing and traveling through the Commonwealth of Kentucky. The gross violation is the alleged illegal dumping of very hazardous toxic uranium waste substances outside the Dept. Of Energy compound onto public lands, much of which is controlled by the Commonwealth of Kentucky; which would encompass or possibly include the Kentucky State Police Firing Range.

It would appear at this juncture in time, this alleged information is so sensitive that for the purposes of safety and security, the names of witnesses, dates, and principals involved be withheld. It is my understanding affidavits and subsequent grand jury testimony would be forthcoming if the proper security is provided. I was reminded that violations have occurred over a long period of time and DOE, EPA, OSHA, nor any other federal investigative agency has initiated an investigation into the following alleged elements constituting a criminal act.

ELEMENTS:

1. Contract employee(s) of the Dept. of Energy with more than 8 years experience have been given direct orders to dump hazardous uranium waste illegally.
2. Contract employee(s) were advised if they refused the order, they were no longer employed.
3. Direct verbal orders were given that the toxic hazardous waste be removed from the DOE compound(outside the fence) and placed outside the plant location on public grounds; which was done.
4. Solid toxic uranium hazardous waste was disposed of on a regular basis on lands adjacent to the DOE site, with exposure to the general public, wildlife taken as game, and aquatic life.
5. Said materials had to be moved through the Department of Energy Security Check Points to reach the outside area of the compound.
6. There are no known records identifying the illegal dump sites, permits for movement off site, nor authorization for that movement.

It was also noted there are continued toxic waste releases of radio active materials into the air; reportedly, on 18 Mar 91, 35 pounds was released. With the prevailing westerly winds, that product no doubt traveled across Paducah, and possibly into the direction of Owensboro, Louisville, or even Frankfort, Kentucky.

I have been requested that the Kentucky State Police conduct a comprehensive investigation into the foregoing alleged violations, due to the grave health risk to the citizens of the Commonwealth.

I would appreciate a timely reply to their request, in that their concerns have been expressed to me for sometime. Thank you for your attention to this matter.




Don Smith
Hazardous Devices Investigator
Special Operations
Kentucky State Police

MEMORANDUM

4 MAR 91

TO: Capt. J.W. Pennington, U/16
Special Operations KSP

FR: Investigator D. W. Senf, U/1903 
Special Operations - Hazardous Devices

SUB: Employee exposure to hazardous substances at DOE-Paducah Gaseous Diffusion Plant location, ie; trichloroethylene and radioactive waste.

Pursuant to our discussion of 5-6 Feb 91 regarding the above captioned subject material, I am submitting to you at your request the enclosed documents regarding the U.S. DOE operation adjacent to the Kentucky State Police firing range and explosive bunker location. This property was formerly controlled by the Kentucky Ordnance Works during WWII; followed by the U.S. Dept. of Energy, who subsequently released certain land areas to State control on which the KSP firing range is now located.

In the spring of 1990, I received source information regarding both groundwater and airborne contamination of this area. At that point I became concerned with my health exposure, as well as all KSP personnel using the range past and present, and requested Lt. Ken Hardin obtain the necessary instruments to check and monitor possible soil and air contamination. It should be noted, I must be at the bunker location at least every 7 days for a security check, or more frequently if explosives must be stored or removed; and personally maintain the area by cutting the grass and weeds as needed; not to mention the 13 years of mandated exposure for required firearms training. At some point later in the summer of 1990, I asked Lt. Hardin if he was able to secure the equipment, and he informed me via telephone that the proper authorities would check it for us. As of this reporting date, I have not been advised as to whether any tests have been made, or any results were received.

As you will see in the enclosed materials, there is a real health risk at the DOE Paducah location and surrounding area which is inclusive of KSP Range property.

In January, 1990, I attended a DOE public meeting in Paducah, Ky in which a 1985 DOE document styled TIGER TEAM REPORT sighted violations, yet we as state employees have never been informed of the risks or provided any health protective equipment. In fact, the meeting suggested there are very serious on going health exposure violations not only to State of Kentucky employees, but other governmental agencies who have used our range.

Again, I am making a formal written request for the necessary instruments so that I might check and monitor the KSP location for hazardous substances. If that is not possible, I request an independent laboratory not affiliated with the US DOE or Ky State EPA to conduct those tests. I would appreciate a reply to this correspondence as soon as possible.

Thank you,


Don Senf

Attachments

1. US House of Rep. Subcommittee on Oversight & Invest. of the Committee on Energy & Commerce 6-3-88
2. Ready Defense - Radioactive Waste Campaign 1988
3. US DOE Office of Environmental Audit- Paducah Jan 1989
4. ICF Technology Inc. Memo. Ky Ord. Wks. 2-2-88
5. Coalition for Health Concern US DOE PEIS Scoping Hearing Pad. Gaseous Diffusion Plant 2-22-91

Memorandum sent to
- MAS dated 4/12/91

Fr. D. W. Senf
KSP - Hazardous Devices Inves.

P 681 559 451

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece next to the article number.

3. Article Addressed to:
Capt. J. Pennington
Special Operations
Ky State Police
~~Frankfort, Ky 40601~~
Frankfort, Ky 40601

4a. Article Number
P-681-559-451

4b. Service Type:
 Registered Insured
 Certified COD
 Express Mail Return Receipt for Merchandise


7. Date of Delivery
APR 15 1991

8. Addressee's Address (Only if requested and fee is paid)

5. Signature (Addressee)
J. Pennington

6. Signature (Agent)
C

PS Form 3811, October 1990 *U.S. GPO: 1990-273-681 DOMESTIC RETURN RECEIPT

 **Certified Mail Re**
No Insurance Coverage P
Do not use for International
(See Reverse)

Sent to CAPT. J. Pennington
Special Ops, Ky State Police
Street & No.
919 Versailles Rd
P.O., State & ZIP Code
Frankfort, Ky 40601

Postage	\$ 2
Certified fee	60
Special Delivery Fee	
Restricted Delivery Fee	25
Return Receipt Showing to Whom & Date Delivered	10
Return Receipt Showing to Whom, Date, & Address of Delivery	
TOTAL Postage & Fees	\$ 4

Postmark of Date
APR 12 1991
MUN

PS Form 3800, June 1990

Mailed:
From Murray, Ky
at 1200 hrs 4/12/91
FRIDAY

16.055

*Key Section
Police Statute*

Board may adopt pursuant to the provisions of this section.

HISTORY: 1988 c 344, § 1, eff. 7-15-88
1978 c 154, § 2; 1974 c 74, Art V, § 25; 1966 c 255, § 12;
1952 c 57, § 2; 1948 c 80, § 5

16.055 Promotions; terms and conditions

- (1) Promotions to sergeant within the department shall be on the following terms and conditions:
 - (a) The applicant must have served as a commissioned State Police officer for a period of five (5) years to be eligible for promotion to sergeant;
 - (b) Promotions shall be based on the highest cumulative score computed from thirty percent (30%) on personnel performance evaluation, twenty percent (20%) on oral examination, and fifty percent (50%) on a written examination;
 - (c) The promotional list shall continue in existence for one (1) year and promotions shall be made in consecutive order beginning with the highest numerical ranking to fill an interim vacancy. When two (2) or more applicants receive the same numerical score, the order of placement on the list shall be determined by seniority of service. Upon the determination of a new numerical ranking following a new examination, all previous rankings shall be null and void;
 - (d) The written examination shall be prepared and administered by an individual designated by the commissioner. The materials and textbooks will be selected by the commissioner and his staff. The commissioner will inform all applicants at least three (3) months prior to the examination date of the exact material from which test questions will be taken;
 - (e) The written test shall be administered to all applicants at the same time. Immediately upon completion of the written test the applicant will receive his numerical score. Such numerical score shall remain valid for a period of two (2) years following the date of examination unless the source material upon which the test is based is changed by more than thirty percent (30%);
 - (f) The oral examination shall be conducted by interview boards designated by the commissioner consisting of the commissioner or his designated appointee not lower than rank of captain, an officer from another police agency of the rank equal to the position for which the applicant is competing, an instructor from an accredited law enforcement education program, a personnel director from private industry, and an officer from the Kentucky State Police of the rank equal to the position for which the applicant is competing;

- (a) The designated oral boards will perform all interviews under guidelines developed and approved by the commissioner; and
 - (h) Personnel evaluations shall be made by the appropriate supervisory personnel under procedures established and approved by the commissioner.
- (2) Promotions from sergeant to lieutenant within the department shall be on the same terms and conditions as promotions to sergeant. In addition, any applicant for lieutenant must have completed at least one (1) year of continuous service in grade as sergeant.
 - (3) Promotions from lieutenant to captain within the department shall be on the same terms and conditions as promotions to lieutenant. In addition, any applicant for captain must have completed at least one (1) year of continuous service in grade as lieutenant.
 - (4) The department will develop and administer only one (1) test for each of the above ranks. All eligible applicants will be permitted to participate in the promotional process to the next highest position of responsibility wherever a vacancy exists.
 - (5) The provisions of KRS 16.140 to the contrary notwithstanding, all ranks above the grade of captain are temporary and shall not be subject to the provisions for selection and promotion as required herein. All officers in such temporary positions shall serve at the pleasure of the commissioner and shall revert to their previous permanent rank upon the termination of their temporary appointment.
 - (6) The total number of supervisory officers of all classifications shall be limited to a ratio not to exceed one (1) supervisor for every five (5) nonsupervisory officers.
 - (7) No officer of the department, other than temporary positions above the rank of captain, shall be promoted to the next highest rank without compelling with other officers as prescribed by this promotional procedure.
 - (8) There shall be no discrimination based on race, sex, age, national origin, color, religion, creed, or political affiliation with respect to the department promotion system. All personnel actions are to be based solely on merit.

HISTORY: 1976 ex s. c 2, § 1, eff. 3-19-77
1976 c 39, § 1

16.060 Powers and duties of commissioner and officers

It shall be the duty of the commissioner and each officer of the department to detect and prevent crime, apprehend criminals, maintain law and order throughout the state, to collect, classify and maintain information useful for the detection of crime, the identification, apprehension and conviction of criminals and to enforce the criminal, as well as the motor vehicle and traffic laws of the Commonwealth. To this end the commissioner and each officer of the department is individually vested with the powers of a peace officer and shall have in all parts of the state the same powers with respect to criminal matters enforcement of the laws relating thereto as sheriffs, constables and police officers in their respective jurisdictions, and

Key State Police
Special Investigations / Special Operations - HOS.
Major Tom Rakestraw

Capt. James Pennington

Lt. Ken Hardin - Environmental / Hazardous Devices
Invest. Larry Henderson - Haz. Devices Field Supervisor

Post. I Commander Captain John Witt (11 Counties to inc
McCracken & Maury)

Legal - Capt. Larry Furtress (now Deputy State Atty. Gen)

1. late 1987 / early 1988 approved to place 2 explosive bunkers at KPS Pisto / shotgun / rifle range (state property) just west of main DOE plant in secluded area; formerly property held by I traveled to DOE Paducah to see if their activity could bring security risks or health risks to the bunkers or my Management personnel stated "no", they only did Uranium low enrichment, 7% or less.
2. summer 1988 placed bunkers on property = there 2 times weekly to do on bunkers & maintain grass (cut) & had been on range to qualify since 1978 at least 4-5 times yearly gas had all P-1 UREXs & other depts.
3. 1990/91 received info on possible violations at DoI facility & so advised Lt. Hardin by telephone. Expresses Concerns on my safety & those who also used the range on a regular basis. I borrowed a giger counter DES, Mayfield, Ky & got readings at the range - so advising Hardin, indicating I wanted to move the bunkers. Capt. Witt was also advised of my findings. I advised Hardin that there needs to be an investigation, & he advised me to reduce everything to a memo and send it to Capt. Pennington. To Hardin (I retired 2-1-99) I never received a response, other than a call from Henderson advising me never to send a Certified return receipt letter again, authority Capt. Pennington. There has never been inquiries as to my sources, or what evidence exists.
4. after my readings at the range, I negotiated Lt. Hardin send someone to the area to check the

ground. A female employee for the Ky Cabinet
of natural resources took us at the range with
2 DOE contractor employees from their lab
who she designated to take samples. It should
be noted, I checked her gage counter, & it had not
been calibrated in over one year, which she
admitted to.

5. In 1990-1991 I personally was engaged in
explosive recovery, nuclear safe procedures on
IED & Bombs, training, & doing haz mat,
night surveillance & aircraft surveillance,
along with attendance at haz mat trg. After
this, and another high profile invest began to
evolve, our unit was advised by Lt. Hards
that we would confine our activity
to haz. Devices invest, recovery, and
render safe only.

6. At some point in 1991 or 1992 as I recall,
KSP stopped using the range & I
eventually moved my bunkers to the new
P-1, Mayfield site of 19 Ac., with Capt.
Witts approval.

7. Sometime around 1993 Det. Sgt Steve
O'Daniel transferred out special ops &
became the Administrative Sgt. I asked
him about the DOE invest & any memo, he
could find nothing, nor knew nothing about it.
I also told him about the HUD invest.
he found the file, however all contents
had been removed.

HEADQUARTERS
(502) 895-8180



OFF
(606) 24

HAS
Retired
1990

DON SENF
HAZARDOUS DEVICES INVESTIGATOR
UNIT 1003
SPECIAL OPERATIONS
KENTUCKY STATE POLICE
3672 IRONWORKS PIKE