

3. I became more familiar with this particular site during 1988 while acting in the capacity of Director of the Division of Radiation Safety and Safeguards in the NRC Region I Office in King of Prussia, Pennsylvania. I have personally visited and participated in an inspection of this site during early July 1988.

4. The site is in a residential area along the Susquehanna River. There are several old buildings on the site. They appeared very poorly maintained over the years and some are rotting and falling down. The ones currently being used for offices and for production of luminous light sources are old, but apparently acceptable for their current use. During the walk-around tour and surveys on site, I learned that radioactive materials have been deposited in pits and underground caissons and are detectable in and around buildings as well as in lagoons formed when an old canal parallel to the river was filled. Several radionuclides are present in groundwater and soil on site. Tritium has been detected in an off-site well.

5. It is possible that other as yet undetected sources of contamination could be present and could be migrating through the groundwater. Moreover, strontium-90 contamination on the site exceeds the EPA standard for drinking water and could be migrating through groundwater. Should known or unknown contaminants migrate into local drinking water supplies, EPA drinking water standards may be exceeded, with attendant effects on public health and safety.

6. The USR brief in support of its motion for a stay references quotations from portions of a briefing I provided to the Commission on July 13, 1988, in my aforementioned capacity as a Region I Division Director. As background information, this briefing was part of a public meeting of the Commission and the overall purpose of the meeting was to allow the NRC staff to brief the Commission on the status of staff actions with regard to problem reactors and nuclear materials licensees warranting enhanced NRC attention to ensure NRC requirements are met. Prior to Commission meetings of this type, the NRC staff selects and identifies these problem licensees and discusses them during meetings of NRC senior managers, including the Executive Director for Operations and his Deputies, Office Directors, and Regional Administrators.
7. In this particular instance, the staff identified the licensee involved with the contaminated site in Bloopisburg as a problem licensee, because the site had been contaminated for a number of years. Further, although the licensee had been subject to a license condition since 1979, requiring decontamination of the site, little or no progress was being made, or apparently intended.
8. Furthermore, NRC staff had determined that the U. S. Radium Company had, subsequent to incorporation of this license condition into the license, gone through a series of reorganizations, stock transfers, and name changes, in an attempt to isolate the assets of U. S. Radium and its successors from the responsibility for the decontamination. Full information had not been provided to the NRC prior to these actions to enable the NRC to make the required finding that the transfer of the license was in the public interest.

9. In fact, the licensee provided only partial information and portrayed its action as a simple change of name. Because of this, the NRC staff became very concerned that the companies would not clean up the contamination at the site, including long-term monitoring and control as well as permanent remedial actions.
10. Therefore, in my briefing of the Commission, I intended to inform the Commission of the problems we believed we had with this licensee and our overall plan to develop and take actions to compel the licensee to begin the activities necessary to clean up the site at the licensee's expense.
11. The overall actions taken, and being taken, by the NRC staff in the subsequent enforcement conference and NRC Orders are entirely consistent with the general information provided to the Commission at the July 13, 1988, public meeting.
12. In my statement to the Commission, I provided information that would allow the Commission, and indeed the public, this being a public meeting, to put the radiological contamination at the Bloomsburg site into a proper and balanced perspective.
13. Therefore, while I intended to inform the Commission of the staff's basis for its intended actions to compel the licensees immediately to begin to take actions that would lead to site cleanup, I also did not want to alarm the Commission or members of the public present by implying

that members of the public were currently being harmed by the contamination present at the site. Based on the information available to me from review of data and from my personal observations at the site a few days prior to the Commission meeting, I believed that, so long as the site was properly controlled, no member of the public was being harmed by the contamination. It was in that sense that I stated there was not an immediate problem.

14. The Order dated August 21, 1989, requires the licensees immediately to begin putting funds into an account that would be used to begin the process of radiological decontamination of the site; this process can take one or more years, and it is important that it begin in a timely manner.

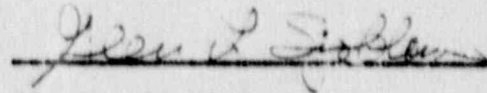
15. The first step in an overall process of decontamination involves characterization of the magnitude and location of the radioactivity, including measurements of all the various radionuclides that may be present. Characterization also includes development of technical information on the types of soil and strata present, groundwater content and location and rates of movement. This data, in conjunction with the radiological data, is required to understand where the radioactive contamination is, how much is there, and how fast it is moving. Such information is needed to make estimates of radiological doses and risk to the public through environmental transport pathways, both currently and in the future after the site is converted to other public uses. Because the radiological characterization of the site to date has been quite limited, it is possible that new information could indicate a need for some actions of a short-term remedial nature.

16. The second step in the process involves preparing a decontamination plan. A decontamination plan would be based on the results of the characterization studies and would describe how those results are used to identify and set priorities for, the areas that need to be decontaminated, and to select the engineering options that are available to achieve the necessary decontamination to meet decontamination criteria. The third step is the actual carrying out of the selected remedial actions. The overall process can take one or more years.

17. The radionuclides present at the contaminated Bloopisburg site all have relatively long half lives. Tritium has a half-life of about 12 years; strontium-90 has a half-life of about 30 years, and radium has a half-life of about 1600 years. Therefore, this problem is not going to go away through radioactive decay any time in the near future. Note that the overall cost to decontaminate the site may increase over time as the contamination spreads out over greater areas and more extensive efforts are required. Therefore, if the public is to be protected and if the cleanup is to be funded by the companies responsible for creating the problem in the first place, rather than by the public at large, these companies must be immediately compelled to initiate those actions necessary to effectuate cleanup.

18. Based on my current knowledge, I believe that members of the public are not in current danger from the site contamination, so long as the current controls remain in effect and barring information of the contrary developed during site characterization. However, based on that same knowledge, I believe that the public interest demands that effective actions begin immediately that will result in a timely characterization of the site and development and implementation of a decontamination plan in a timely manner. Failure to do so may cause future adverse impact on public health and safety.

I hereby certify that the information above is true and correct to the best of my knowledge and belief.



Glen L. Sjoblom

Subscribed and sworn to before me
this 16th day of November, 1989


Notary Public

My commission expires: 7/1/90

PROFESSIONAL QUALIFICATIONS

Name: Glen L. Sjoblom

EDUCATION, HONORS AND OTHER INVOLVEMENT

BS.: Chemical Engineering, University of Minnesota (1963), Honors
MS.: Chemical Engineering, University of California (1964), Honors

Certificate: Bettis Reactor Engineering School, 1966

Honorary Engineering Fraternity, TBP
Harvard Course for Senior Managers in Government, 1984
NRC Incident Investigation Team 1987

EXPERIENCE:

1987-Present Deputy Director, Division of Industrial and Medical Nuclear Safety, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission (NRC). Responsible for licensing and inspection, regulatory development, and incident response activities relative to the more than 8,000 commercial radioactive material uses and 12 nuclear fuel facilities in the United States (U.S.).

1986-1987 Chief, Safeguards and Materials Programs Branch, Office of Inspection and Enforcement, U.S. Nuclear Regulatory Commission. Responsible for directing the NRC inspection program development relative to inspection and enforcement at the more than 8,000 radioactive material users and 12 nuclear fuel facilities in the U.S. Following the accident at the nuclear fuel facility at Gore, Oklahoma in early 1986, responsible for directing a major change in the NRC approach toward emphasis on safety at these facilities.

1982-1986

Director, Office of Radiation Programs, U.S. Environmental Protection Agency (EPA). Responsible to the Assistant Administrator for Air and Radiation for directing the Agency programs involving radiation protection. These programs include setting radiation protection criteria, standards, and guidance for ionizing and nonionizing radiation for the Federal government, the States, and for industry.

In carrying out his responsibilities, Mr. Sjoblom worked effectively at all levels of management within the Environmental Protection Agency as well as with many other Federal agency senior managers, Congressional staffs, State representatives, environmental groups, industry representatives, foreign governments representatives, professional societies, and National and International organizations involved in radiation matters.

Was the principle spokesman for the EPA on radiation matters and has spoken and testified numerous times before representatives of the States, industry, Congressional committees, the public, and the news media.

1971-1982

Served as Assistant Director for Environmental Controls, Nuclear Technology Division, Naval Reactors Program Headquarters, Washington, D.C. Responsible for all aspects involving environmental controls of radioactivity from navy nuclear powered ships and supporting Navy and Department of Energy facilities. Several broad aspects involved radioactive waste management, decontamination, environmental monitoring, facility design, reactor shield design, and transportation of radioactive materials.

Position involved setting standards for these aspects, directing related research, as well as implementation through training and compliance monitoring. An important aspect involved directing the assembly of information materials to provide perspective on radiological matters to the public. Responsibilities also included nonradioactive air and water pollution control and solid waste disposal at the several Department of Energy facilities supporting the Naval Reactors Program. This position involved dealing with numerous senior personnel within the Navy, as well as Federal agencies, including the Department of Energy, Environmental Protection Agency, Nuclear Regulatory Commission, as well as State health and environmental agencies, government laboratories and private corporations, research institutions, and universities.

1968-1971

Served as Radiation Application Engineer, Speciality Chemical Division, Atlantic Richfield Corporation. Responsible for direction of efforts in evaluating effects of and engineering radiation usage in various industrial processes including irradiators, radiography, hot cell operations, polymerization and dosimetry. This involved company radiation safety efforts in these processes. Dealt with division management and management of several other companies and research organizations.

Glen L. Sjoblom

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1964-1968

While an Officer of the United States Navy, held positions within the Naval Reactors headquarters organization, Washington, D.C., including the Reactor Design Division and the Shielding Branch of the Nuclear Technology Division. Managed broad research and development programs of reactor design and radiation shielding.

ATTACHMENT 7

time, I have been involved in inspecting and licensing byproduct materials licensees and in the operation of the NRC's direct radiation monitoring program for nuclear reactors. I was certified by the American Board of Health Physics in 1977.

2. I was the principal inspector from 1980 through 1989 at the United States Radium (U.S. Radium) and Safety Light Corporation site in Bloomsburg, Pennsylvania. This affidavit represents my evaluation of the need for site characterization at the Bloomsburg site.

3. By way of background, it should be noted that, during the 1950's and 1960's, U.S. Radium Corporation operations at the Bloomsburg, Pennsylvania site used radium-226, strontium-90, cesium-137 and other isotopes for the production of luminous devices and foils in addition to other products. Monitoring by U.S. Radium, Safety Light and Oak Ridge Associated Universities has shown that these operations resulted in extensive radioactive contamination of soil, groundwater, and buildings on the site. The contaminated soil, groundwater, and buildings are located on portions of the site which are no longer used for licensed activities. In addition, the tritium processing at the site in the 1970's and 1980's has resulted in tritium contamination of groundwater both on and off the site.

4. U.S. Radium and Safety Light have monitored radioactive contaminants both on and off the Bloomsburg site, and Oak Ridge Associated Universities evaluated the site for the NRC in 1981. These monitoring efforts have identified the following radiological concerns:

- a. Concentrations of radioactive materials in groundwater on the site exceed NRC limits for unrestricted areas in several locations.

- b. Concentrations of radioactive materials in soil on the site exceed current NRC criteria for release for unrestricted use.
 - c. There is evidence that radioactive materials are migrating off the site through groundwater, although no radionuclides other than tritium have been measured in offsite groundwater.
However, if strontium-90, the concentration of which measured in groundwater onsite exceeds EPA drinking water standards, were to migrate off the site, it is very likely that the resultant concentration offsite would exceed EPA standards for drinking water.
 - d. The lack of a comprehensive sampling program, both on and off the site, has resulted in great uncertainty about the onsite sources of groundwater contamination and the subsurface migration of this contamination off of the site. There are too few monitoring locations to yield a complete characterization of the migration pathways through which contaminated groundwater might leave the site.
5. Decontamination cannot be accomplished without detailed information on the location and concentration of contaminants and on the movement of groundwater. Any delay in characterization, therefore, will delay decontamination. If decontamination is delayed, contaminants may spread through groundwater, making decontamination more difficult and more expensive.
6. The following is a brief chronology of the history of NRC License No. 37-00030-02, which was originally issued to U.S. Radium

Corporation. It includes facts prior to the issuance of the March 16, 1989 NRC Order.

- a. June 30, 1956 - License No. 37-00030-02 was issued and authorized the use of any byproduct material between Atomic Numbers 3 and 83 for research and development, processing, and redistribution.
- b. April 25, 1969 - U.S. Radium submits license renewal application which describes the purposes as being "decontamination and disposal of areas previously used for research, development, and processing under this license" and "distribution to authorized recipients of material of value that are not radioactive scrap."
- c. August 5, 1969 - Amendment No. 36 was issued which modifies the license to limit the authorization to the "decontamination, clean-up, and disposal of equipment and facilities previously used for research, development, and processing under this license."
- d. June 7, 1977 - U.S. Radium submits a license renewal application which describes the purpose as being "decontamination, cleanup and disposal of equipment and facilities previously used for research, development, and processing under this license."
- e. June 9, 1978 - NRC sends a letter to U.S. Radium which requests that the licensee "supplement your application with a detailed report concerning the status of your decontamination efforts. This report should identify those areas which are still contaminated and the types and quantities of contamination in those areas, provide a description of your current program for

surveying those areas and surrounding environs, and outline your plan for completing decontamination of this facility."

- f. October 23, 1978 - U.S. Radium submits a plan for completing certain site characterization and decontamination efforts.
- g. January 25, 1979 - Amendment No 40 issued which requires the licensee to perform the site characterization and decontamination efforts described in the licensee's October 23, 1978 application and to submit by July 1 a report of the status and schedule of work for the twelve month period commencing July 1.
- h. April 11, 1980 - NRC inspection determines that the report and schedule of decontamination operation had not been submitted on July 1, 1979 as required.
- i. August, 1980 - U.S. Radium restructured.
- j. January 21, 1981 - Safety Light Corporation sends letter to NRC which states that, effective November 24, 1980, U.S. Radium Corporation changed its name to Safety Light Corporation.
- k. May 24, 1982 - USR Industries sells Safety Light Corporation to a group of employees.
- l. January 20, 1983 - License Amendment No. 42 issued which, based on the January 21, 1981, letter, changed the name of the licensee from United States Radium Corporation to Safety Light Corporation. At the time Amendment No. 42 was issued, NRC was unaware of the May 24, 1982, sale of the company and unaware of August 1980 restructuring.

- m. March 8, 1983 - NRC inspection determined that there was a change in the ownership of the Safety Light Corporation.
- n. September 22, 1983 - NRC sends a letter to Safety Light Corporation which requests Safety Light Corporation to submit "the details of the recent change in the ownership of the Safety Light Corporation, including the date of the transaction, a discussion of the reorganization which occurred when the name of the licensee changed from U.S. Radium to Safety Light Corporation on November 24, 1980, a description of the current organization of the Safety Light Corporation and a description of who is financially responsible for the ultimate decontamination of the radioactive materials buried on your property. In your reply to this letter, please specifically confirm our understandings and provide a schedule for completing these actions. You are advised that you should also promptly submit a report of the status and schedule for decontamination activities for the 12-month period commencing on July 1, 1983, to the NRC's Materials Licensing Branch in Washington, D.C."
- o. November 11, 1983 - Safety Light Corporation submits a letter to NRC which states that "effective November 24, 1980, our Company name was changed from United States Radium Corporation to Safety Light Corporation. There were no organizational changes made due to the name changes". The letter further stated that USR industries sold Safety Light Corporation to a group of executive officers on May 24, 1982.

- p. June 19 - 20; November 12, 1986 - NRC inspection which concludes that licensee is in violation of 10 C.F.R. § 30.34(b) for transferring license without notifying NRC; and is in violation of its license for failing to decontaminate site as required and for failing to submit report of status and schedule for decontamination.
 - q. April 20, 1988 - NRC letter to Safety Light Corporation, with a copy to USR Industries, which enclosed a Notice of Violation for the violations identified in the 1986 inspection, and which required (1) answers to specific questions about the reorganization of U.S. Radium Corporation, (2) a decommissioning plan for the site, (3) an estimate of the cost of decommissioning and (4) the submission of a decommissioning funding plan.
7. In summary, the U.S. Radium Corporation told the AEC and its successor, the NRC, that it intended to decontaminate the Bloomsburg site in 1969 and 1978. The AEC and NRC informed U.S. Radium Corporation that decontamination was expected in 1969, 1977, 1979, 1980, 1983, 1986, and 1988, prior to the Order in March 1989. In 1980, having been cited for a violation for failure to comply with the requirement to submit a decontamination report and schedule, U.S. Radium Corporation separated the liability of its licensed operation from the assets of the rest of the corporation without notice to the NRC, changed its name in 1981, and, in 1982, transferred that licensed operation without notifying the NRC. As a result of the operation of U.S. Radium and Safety Light, the Bloomsburg site is

contaminated to an unknown degree. There are elevated levels of radioactive material in the drinking water of nearby residences; and the subsurface radioactivity may be spreading.

8. It is my conclusion that there is an immediate need for site radiological characterization because of the known contamination of groundwater on the site, the potential for migration to offsite potable water supplies, and the uncertainties which are caused by the limitation in the currently available monitoring data.

The foregoing and the attached statement of professional qualifications are true and correct to the best of my knowledge and belief.

Francis M. Costello

Subscribed and sworn to before
this ____ day of November, 1989

Notary Public
My Commission expires: _____

ATTACHMENT 8