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**APPENDIX M**

**MINI-VISITS  
TO SMALL DOE SITES**





## APPENDIX M

### MINI-VISITS TO SMALL DOE SITES

#### I. Introduction

The Chemical Safety Vulnerability Review was conducted in six phases as described in Appendix B. Nine of the 29 sites involved with the field self-evaluation effort were selected to host field verification visits. These nine sites represented a variety of geographic locations, missions, operating histories, program offices, and management and operating (M&O) contractors. The nine sites, however, were all considered "large sites." To supplement initial field verification efforts and to ensure that the sites and facilities visited adequately represented the entire Department of Energy (DOE) complex, modified field verification visits (mini-visits) were conducted at four "small sites" (i.e., sites with 1,000 or fewer DOE and contractor employees). Field verification activities to the nine large sites coupled with the mini-visits to four small sites served as a major source of information for determining the generic chemical safety vulnerabilities identified in this report.

#### II. Site Selection and Verification Approach

The four small sites selected—the Energy Technology Engineering Center, Naval Petroleum Reserve in California, Pittsburgh Energy Technology Center, and West Valley Demonstration Project—provide a diverse sample of smaller DOE sites. Field verification teams consisting of a DOE team leader, an industrial hygienist, and an environmental expert visited these sites. The duration of the mini-visits ranged from 1 to 2 days, and activities included participation in technical and management discussions, document reviews, and facility tours. Sections III–VI of this appendix summarize the teams' understanding of chemical safety issues for each of the four sites, based on the limited observations permitted in the designated timeframe.

#### III. Energy Technology Engineering Center

*Date: May 10, 1994*

*Site/Project Description:*

Until recently, the primary mission of the Energy Technology Engineering Center (ETEC) was to provide engineering development and testing for components related to liquid metal technology and to conduct applied engineering development of emerging energy technologies. The Office of Nuclear Energy is the responsible program office for ETEC, and the Oakland Operations Office provides local oversight. ETEC's current mission is to continue conducting limited applied engineering research. A number of ETEC facilities associated with sodium research are in the process of being transferred to the Office of Facility Transition (EM-60). Rocketdyne (a Division of Rockwell International) is the M&O contractor at ETEC. The site is located in Chatsworth, California, and is part of Rocketdyne's Santa Susana Field Laboratory campus.

*Facilities Visited:*

The field verification team visited the following facilities at ETEC: Kalina Demonstration Plant, Sodium Storage Building, Sodium Component Test Installation, Cleaning and Handling Facility, Hazardous Waste Treatment Facility, Chemistry Laboratory, and Sodium Pump Test Facility.

*Key Observations:*

ETEC shares significant environmental, safety, and health (ES&H) support with the larger Rocketdyne organization that operates the Santa Susana Field Laboratory. In general, ES&H support provided by Rocketdyne staff is useful and comprehensive. However, some cases of inadequate storage of incompatible laboratory chemicals and continued storage of excess and aging laboratory chemicals were observed. A review of hazards analyses associated with large storage tanks of ethyl alcohol and ammonia might be useful. ETEC personnel were knowledgeable about wastes and processes, and the training program was good.

**IV. Naval Petroleum Reserve in California**

*Date: May 11, 1994*

*Site/Project Description:*

The Naval Petroleum Reserves in California (NPRC) is made up of the Naval Petroleum Reserve Number 1 (NPR-1), referred to as the Elk Hills oil field, plus associated facilities and support activities. According to the provisions of a 1944 Unit Plan Contract, NPR-1 is operated as a unitized oil field, with the U.S. Government owning 78 percent of the field and Chevron USA, Inc., owning the rest. Bechtel Petroleum Operations, Inc., is the unit operator for Elk Hills and conducts its work under an M&O contract with DOE. The mission of NPR-1 is to produce oil and gas under the provisions of the Naval Reserves Production Act of 1976. The Office of Fossil Energy is the responsible program office, and the DOE Naval Petroleum Reserves in California (the DOE site office) provides local oversight.

*Facilities Visited:*

The field verification team visited the following facilities at the 35R Complex of NPRC: Loading Rack, Storage Area, 35R Laboratory, Laboratory Chemical Storage Building, Lean Oil Absorption Plant, Low Temperature Separation Unit No.1, 35R Hazardous Waste Temporary Storage Pad, and 35R Compressed Gas Storage Warehouse.

*Key Observations:*

There are inherent risks in the nature of the operations at the NPRC 35R Complex (natural gas processing, fractionation, and reinjection) because of the flammable and explosive nature of the products involved. These risks are well identified, and the physical and management response systems are mature and appropriate. The contractor has a dedicated staff (10 employees) for ES&H management. Existing programs for environmental protection, compliance, and risk management are generally in place with ongoing development and

improvement efforts exhibited. Observed shortcomings at NPRC included weaknesses in such areas as disposal of laboratory quantities of hazardous chemicals that were no longer being used and training and oversight of subcontractors assigned to handle compressed gas cylinders. NPRC has made good progress in instituting a conduct of operations program and has improved its training and qualification program.

## **V. Pittsburgh Energy Technology Center**

*Dates: May 17–18, 1994*

### *Site/Project Description:*

The Pittsburgh Energy Technology Center (PETC) is a research and development facility managed by the Office of the Fossil Energy. Research programs at PETC emphasize new technologies that hold promise for increasing the industrial use of clean coal over the long term. In addition to onsite research and development activities, research projects are conducted off site through contractual agreements with industry, research and development organizations, and academia. PETC is also involved in cooperative agreements with industry for developing of demonstration projects.

### *Facilities Visited:*

The field verification team visited the following facilities at PETC: Buildings 64 (Chemical Handling Facility), 65 (Gas Cylinder Storage), 74 (Wastewater Treatment Facility), 83 (Indirect & Direct Liquefaction Facility), 84 (Chemical Engineering Laboratory), 92 (Chemical Handling Facility), 93 (Combustion Test Facility), 94 (Analytical Chemistry Laboratory), 99 (Cylinder Gas Distribution System for Buildings 84 and 94), and 141 (Coal Preparation Facility).

### *Key Observations:*

PETC has prepared and implemented a comprehensive hazard identification program. However, consistent controls to enforce these requirements could not be verified. The team observed inappropriate storage of incompatible materials at the RCRA 90-day accumulation area and at the acid storage area.

## **VI. West Valley Demonstration Project**

*Date: May 25, 1994*

### *Site/Project Description:*

The West Valley Demonstration Project is used to process large quantities of radioactive waste. Activities include treating low-level radioactive liquids and vitrifying high-level liquid waste into stainless steel canisters for long-term storage.

### *Facilities Visited:*

The field verification team visited the following facilities at West Valley: Hazardous Waste Storage Area Locker, Analytical Environmental Laboratory, and Supemate Treatment System.

### *Key Observations:*

Funding for the ES&H program (including chemical safety) is provided through the overall line program. The site maintains a very high level of ES&H awareness. A tour of the hazardous waste storage area indicated that facilities are well maintained and operated (including use of specially designed storage lockers with built-in alarms and fire suppression systems), and a strong management program is in place for the storage and offsite disposal of hazardous waste.

The operating laboratories at the site were well maintained, and management controls have been developed, implemented, and followed. The environmental monitoring laboratory was in the process of being upgraded, and ES&H requirements have been developed and implemented for laboratory operations. Chemical holdings were kept to a minimum through use of a system that approaches "just-in-time" procurement. At one monitoring laboratory visited, reagents were excessed at the end of their expected shelf life. No large or out-of-date storage of chemicals was found at the site. The main process building was found to be well maintained, and documentation for operating systems was maintained current and incorporated ES&H requirements.

Overall, the site was observed to have a strong ES&H program, which in turn was an integral part of the demonstration project. No chemical safety vulnerabilities were identified at the three facilities visited, and based on interviews with key personnel at the site, these three facilities were typical of the high level of ES&H awareness demonstrated throughout the site.

## **VII. Conclusions**

Ten observations suggesting chemical safety weaknesses were noted at three of the sites visited. None of the weaknesses identified represents a condition or circumstance with the potential for severe near-term consequences. No chemical safety weaknesses were noted for the West Valley Demonstration Project. Each observation was reviewed to determine whether it supported a vulnerability identified at another site or whether it provided the basis for a new generic vulnerability. The observations generated during the mini-visits were also examined collectively to determine whether some vulnerabilities might be unique to smaller sites.

All individual observations generated during the mini-visits appeared to support some element (e.g., supporting observations, contributing cause, potential consequence) of vulnerabilities at one or more of the "large sites." At ETEC, for example, an observation related to lack of knowledge and understanding of health and safety requirements supports vulnerabilities identified at the larger sites (e.g., Vulnerabilities CSVR-SRS-0000-03 and -04, CSVR-OR-ORR-04, CSVR-RFP-000-01 and -02, CSVR-LANL-OMS-03, and CSVR-SNL/NM-MO-02).

None of the observations generated during the mini-visits could be combined to support identification of a new generic vulnerability. Examined collectively as a subset of existing generic vulnerabilities, these observations did not require that a new generic vulnerability be established or that existing vulnerabilities be recast for adequate consideration under the management response plan. The chemical safety vulnerabilities established from observations at large DOE sites appear to be generic to both large and small DOE sites.