United States
Environmental Protection
Agency

Office of Radiation Programs-
Las Vegas Facility
P.O. Box 98517
Las Vegas, NV 89193-8517

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EPA

Office of Radiation Programs

Las Vegas Facility

EPA's Office of Radiation Programs operates a laboratory facility in Las Vegas, Nevada. The Las Vegas Facility provides technical support for numerous radiation protection and control activities. Scientific personnel conduct site investigations, radon assessments and evaluations, health assessment modeling, and electromagnetic field studies. They maintain an emergency response capability for radiation accidents and provide technical assistance to other EPA offices, States, and the private sector.

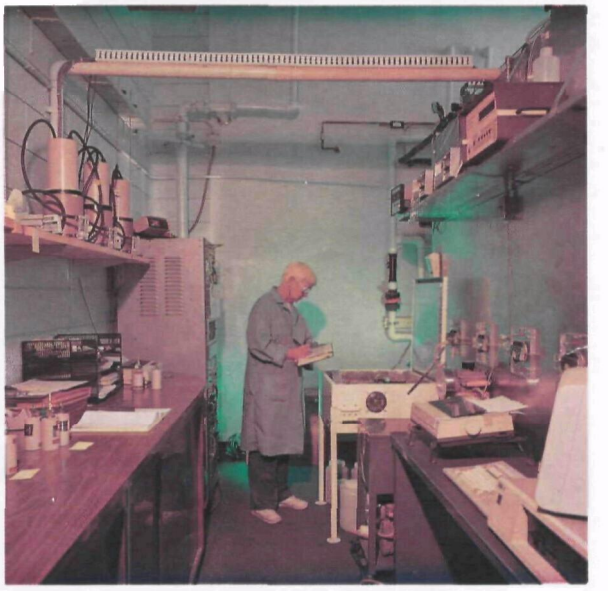
Above: The Mobile Environmental Response Laboratory (MERL) on location in Nevada.

RADON

Radon, a gaseous decay product of uranium and radium found in most soil, is a major source of radiation exposure to the general population. Numerous communities have elevated levels of this natural radioactive gas. EPA's Office of Radiation Programs (ORP) initiated its Radon Action Program to assess and mitigate exposure to radon.

The Las Vegas Facility (LVF) manages a radon program which includes an environmental radon chamber to assess radon measurement techniques and devices. LVF evaluates radon measurement devices for reliability and accuracy before they are accepted into EPA's national Radon Measurement Proficiency (RMP) program. This program evaluates the ability of companies that measure indoor radon and radon decay products.

The radon chamber is also used for other EPA radon projects, such as the National Ambient Radon study. This study measures radon at specified locations in each State to determine outdoor levels of radon. Additional projects include measurements in schools, Federal buildings, residences, as well as exposing detectors for quality assurance in these and other Regional radon programs.



Upper right:
Environmental radon chamber.

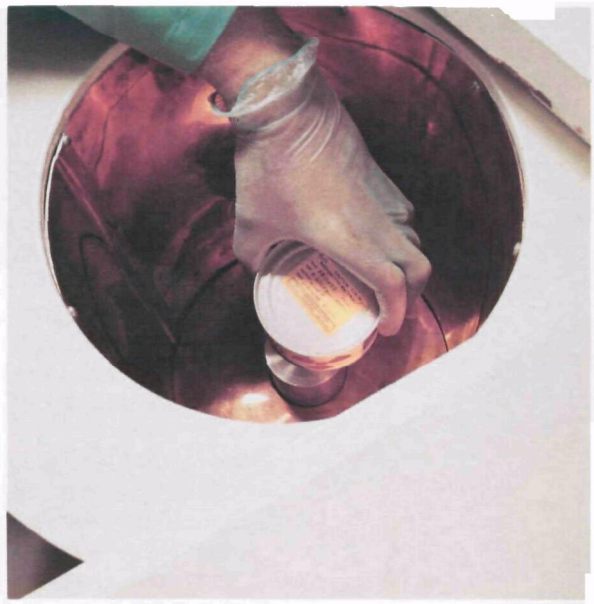
Right:
Radon chamber instrumentation.

RADIOLOGICAL ACCIDENT RESPONSE

The Las Vegas Facility is ready to respond to radiological accidents. The LVF's role in a typical response is to help States assess the environmental impact of an accident and ensure public health and safety. This response capability includes a Mobile Emergency Response Laboratory (MERL) equipped to do most types of analyses that might be needed in a radiological emergency: gamma spectroscopy, alpha/beta analyses, and liquid scintillation analyses. Communication equipment is also included in MERL's equipment inventory.

Right:
Gamma spectrometer in the MERL.

Team members are able to respond quickly with the mobile laboratory and scientific equipment. The MERL can be flown in military cargo planes for quick response, if necessary. Team members have assisted in the response to the Three Mile Island accident in 1979, and provided staff to assist in the U.S. response to the Chernobyl nuclear incident in the Soviet Union in 1986, as well as re-entry to three nuclear-powered Soviet satellites in 1978, 1983, and 1988.



Right:
Placing sample in gamma ray detector.

ENVIRONMENTAL INVESTIGATION

The LVF conducts field investigations in support of the development and implementation of EPA standards and participates in Superfund investigations in many States. Project officers work closely with Washington, D.C. and Regional office staff to plan and conduct the studies. The information is used to determine the need for cleanup, additional radionuclide standards, changes in implementation guidance, health impacts, etc. Radiological assessments and technical advice are provided to other EPA offices, such as the Office of Solid Waste and Emergency Response (OSWER), and the Regional Offices.

The LVF has an electromagnetics laboratory containing state-of-the-art equipment. Electromagnetic radiation studies, exposure assessment calculations, and advice on measurements are given to Federal and State agencies, and the general public.

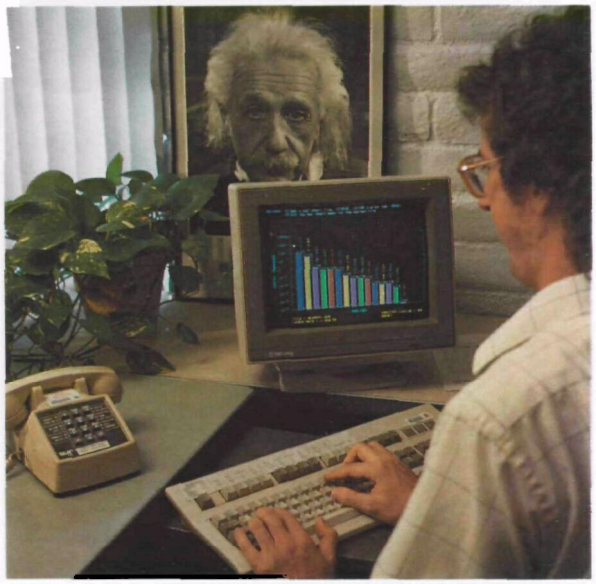
Middle right:
Mounting fiber-optic antenna for radiofrequency measurements.

Lower right:
Spectrum analyzer in the electromagnetics measurement vehicle.

DOSE AND RISK ASSESSMENT

Las Vegas Facility staff estimate dose and risk from radionuclide releases for both the Clean Air Act and High-Level Waste Programs. Assessments are made using EPA-developed computer models. The assessment work includes updating calculation methodologies, dose factors, and risk factors for state-of-the-art estimates, and making the assessment codes available on personal computers, as recommended by EPA's Science Advisory Board. AIRDOS-PC, a personal computer model developed to determine compliance with National Emission Standards for Hazardous Pollutants (NESHAPs) regulations, was developed at LVF.

Assessment results are stored in a database, which can be searched and sorted as required by EPA staff in Washington, D.C. to develop environmental laws and prepare briefing materials. Graphic presentations of assessment results are also provided by LVF staff.



Above: A typical use of AIRDOS-PC.

LVF's offices are located at 4220 South Maryland Parkway; the environmental radon chamber and analytical laboratory are located on the campus of the University of Nevada, Las Vegas (UNLV).

The LVF staff is comprised of health physicists, radiochemists, electrical engineers, data processing experts, and scientists in related fields.

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