EPA BULLETIN

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EPA TEAM CHECKS RADIATION LEVELS IN WEST

EPA is conducting a survey in 36 communities in nine western states to determine whether any of them, like Grand Junction, Colorado have people living in homes and other buildings where uranium tailings have been used as construction fill.

A team of three men is driving a truck called a mobile scanner down streets of these towns, looking for unusually high levels of radiation. When such levels are found, the location of the structure is recorded. Later on, surveillance personnel will examine the structures for tailings, which are sand-like granules that have been used for fill, or in some cases have been mixed with cement in the construction of the structures. These tailings emit potentially hazardous radon -222 gas and its decay products, and gamma rays.

The communities being surveyed, besides Grand Junction, are: Colorado — Uravan, Rifle, Canon City, Slick Rock, Durango, Maybell, Gunnison, Naturita, Craig, Dove Creek, Leadville, Salida, and Nucla; Utah — Moab, Green River, Salt Lake City, Mexican Hat, Monticello, Hite; New Mexico — Grants, Shiprock; Wyoming — Lander, Hudson, Jeffrey City, Shirley Basin, Riverton; Arizona — Tuba City, Monument Valley; Washington — Ford; South Dakota — Edgemont, Igloo, Hot Springs, Provo; Oregon — Lakeview; Texas — Falls City, Ray Point.

Radioactivity from uranium tailings in Grand Junction also was the subject of a recent hearing October 28 and 29 of a Joint Atomic Energy Subcommittee of Congress. EPA's involvement in the matter has been to help determine where the tailings are and to help assess health risks from the tailings.

Testimony at the hearing came from: David D. Dominick, EPA Assistant Administrator for Categorical Programs; Dr. Roy L. Cleere, Executive Director of the Colorado State Department of Health; Glen E. Keller, Jr., President of the Colorado State Board of Health; Robert D. Siek, Assistant Director of the Occupational and Radiological Health Division of the Colorado Department of Health; H. Peter Metzger, Chairman of the Task Force on Environment, Colorado State Health Planning Council; Dr. Alan A. Basinger, Chief, Department of Radiology, St. Mary's Hospital, Grand Junction, Colorado, and Theodore T. Puck, Director, Eleanor Roosevelt Institute for Cancer Research, University of Colorado Medical Center. Dr. Jesse Steinfeld, Surgeon General of the Public Health Service; and Clarence Larson, a commissioner of the Atomic Energy Commission.

The problem presently appears centered in Grand Junction, Colorado, where, as a result of location of uranium-processing mills on the city's riverbanks, tons of sand or "tailings" have been used for fill, or in a few cases mixed with cement in the construction of homes, schools, and public buildings. The tailings emit both radon -222 gas, a potential lung cancer hazard, and gamma rays, which can cause leukemia.

An estimated 300,000 tons of these tailings are thought to be used under and around various homes and other structures in the town--in basements, breezeways, fireplaces, porches and sidewalks. Specifically, 4,000 homes, and 1,000 commercial structures, schools, and churches are involved.

Estimates of how much it will cost to remove all of the tailings from homes and other buildings in Grand Junction are in the range of 14 million dollars.

The health effects of the tailings are not fully understood. Dr. C. Henry Kempe of the University of Colorado School of Medicine, Dr. Robert Ross, a pediatrician in Grand Junction, say that there was a significantly higher death rate due to major congenital anomalies in the Grand Junction area compared to Colorado as a whole in 1965-68. They do not know whether there is a causal relationship between these findings and the tailings. They were *not* witnesses at the hearing.

On the question of responsibility for removing the tailings, Dr. Roy Cleere of the Colorado Department of Health stated that the Federal government should grant financial relief.

See EPA Team page 5

EMERGENCY OPERATIONS CENTER

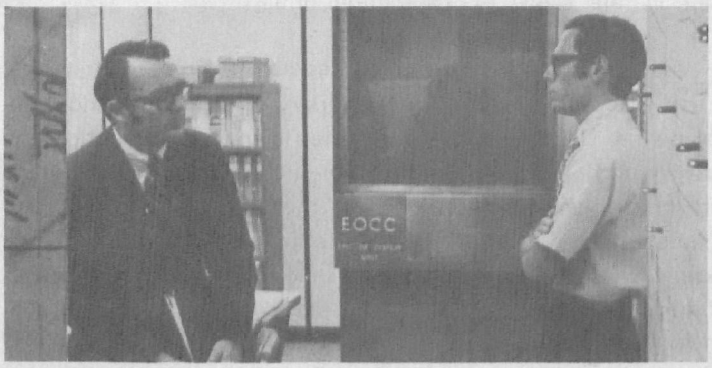
During periods of temperature inversion, or other meterological conditions which cause stagnation of the atmosphere, particulate and gaseous air pollutants cannot be readily dispersed. As their concentration increases an air pollution incident, or "episode", ensues.

The Clean Air Act, as amended, sets forth the authority of EPA to prevent and control such episodes. In the event that State and local authorities do not take steps necessary for abatement during air pollution episodes, the EPA Administrator may seek injunctive relief in the U.S. Courts. Action may be taken against any source whose emissions are presenting an imminent and substantial threat to public health, including area-wide or point sources, large or small polluters, and on an intra- or interstate basis.

However, air pollution episode-avoidance actions should be taken at the lowest level that is legally, technically, and politically competent to achieve results. Therefore, the principal aim of EPA lies in advising and assisting State and local agencies in developing and implementing their own episode-avoidance plans. Such plans are required as part of the Implementation Plan, prepared for each of the Air Quality Control Regions.

An Emergency Operations Control Center (EOCC) has been established under EPA's Office of Air Programs at Research Triangle Park, North Carolina. The Center gathers air quality data on a daily basis, by teletype and telephone, from 90 monitoring sites in 60 cities throughout the Nation. Seven of the monitoring stations in National air quality network are operated by EPA, with the remaining 83 by personnel from State and local air pollution agencies. When needed, the EOCC can dispatch emergency sampling teams to any area from which insufficient air quality and/or meterological data are available.

EPA has adopted four-state episode criteria to which air quality and meteorological data are compared for the purpose of determining the severity of an episode. The first state, *Forecast,* is based on an indication that adverse meteorological conditions conducive to the buildup of pollutants will exist. The second stage, *Alert,* and the third stage, *Warning,* are based on the actual measurement of pollutant concentrations and the prediction that the meteorological situation will be such that the continuation of elevated pollutant concentrations can be expected. At these levels, short-term health effects may be expected. At the fourth stage, *Emergency,* air quality is continuing to degrade to the point where a substantial danger to the health of the population will exist. The most stringent avoidance actions must then be taken.



Administrator William D. Ruckelshaus (left) is briefed by Daryl Tyler, Director of the Emergency Operations Control Center. Lights on the display map (far right) indicate meterological conditions in various parts of the country. The episode display unit (center) is used to depict mathematical models of air quality in any given area.

An air pollution episode in the vicinity of Birmingham, Alabama evoked the first action taken by EPA, in cooperation with State and local authorities, under emergency powers of the Clean Air Act. A restraining order was issued on November 18, 1971 against 23 industrial firms to force a shut-down of operations during the crisis period.

The emphasis of the criteria is on avoiding an emergency rather than reacting to an existing emergency situation. Each step beyond the Forecast stage calls for initiation of control actions designed to prevent the conditions described by criteria for the succeeding stage. Control actions may include such measures as elimination of open burning; requiring manufacturing industries to curtail or defer production; or cessation of municipal incineration.

Address all communications to:

Robert J. Griffin, Jr.
Editor, *EPA Bulletin*
Office of Public Affairs
U.S. Environmental Protection Agency
Washington, D.C. 20460

SPOTLIGHT ON RESEARCH: RAILWAY CAR DISMANTLING

Every year some 75,000 old freight cars are dismantled, an operation that brings important returns to the railroad and scrap metal industries, but one that can also pose serious problems in environmental pollution. The conventional method is to douse the cars with kerosene and set them afire in railroad yards to burn off the wood from the salvageable metal. This open burning emits noxious pollutants in heavy clouds of dense smoke. Since each discarded car contains from three to seven tons of wood each, air pollution resulting from open burning can be severe. Because of this, local air pollution control agencies are now prohibiting this method.

In an effort to develop some alternative means for stripping railway cars of unwanted wooden parts, the EPA and its predecessor agencies, have sponsored a study by Booz-Allen and Hamilton, Inc. to investigate and recommend alternative methods of boxcar dismantling that will eliminate air pollution or reduce to acceptable levels.

A preliminary survey suggested 40 new approaches to the problem. Closer analysis reduced the list to twelve possible solutions, of which two approaches proved most promising: 1) use of a water jet as a "wet laser" to strip wooden parts away from the metal; and, 2) a method for controlled incineration.

In the water jet technique, a thin stream of water with a nozzle pressure of more than 10,000 pounds per square inch is directed against the wood in a boxcar and proceeds to cut it in much the same manner as a saw — only much faster. The operator of a hose attached to the nozzle can cut through a six-inch piece of pine in three seconds. The jet stream is controlled with such precision that a circle can be cut in the wood, separating it from bolts and other metal fixtures, in ten seconds. The water drains from the car into a sump and is circulated back to the high-pressure pump for re-use.

The demonstration incinerator is a closed metal shed, half again as long as a boxcar, constructed over a track spur. Panels are left open along the bottom of the shed to create a strong draft for a fire and a large hood is placed at the top of the structure to collect smoke. The hood is connected by a duct to an air pollution device called a wet scrubber. After the steel-clad car is rolled into the shed, small holes are cut with a torch along the bottom of the car's sides, and one large hole is cut in the top directly under the hood.

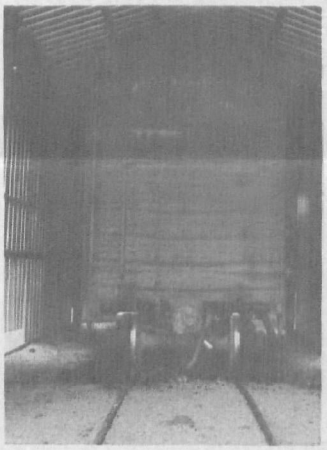
The car is moved into position, doused with 25 gallons of kerosene and ignited. An intake fan in the wet scrubber pulls the smoke into it against a film of water flowing down the walls. The solids and smoke produced by the combustion are extracted by this process to well within the limits prescribed by Federal and local ordinances before the hot air is released into the atmosphere outside the shed.

Although both of these methods appear practical for the specific purpose for which they were developed, *i.e.*, railway car dismantling, it is felt that they have application to other similar industrial salvage problems.

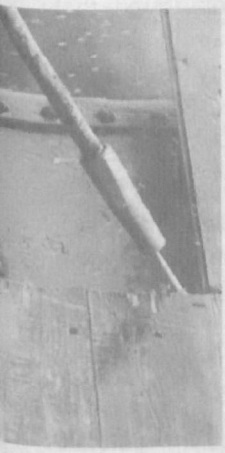
For additional information write:

Clyde Dial
Office of Solid Waste Management Programs
Environmental Protection Agency
5600 Fishers Lane
Rockville, Md. 20852

The semi-enclosed incinerator system is a technique for burning wood linings and floor from retired railroad boxcars. Boxcars are set on a track which runs through a prefabricated steel building, or hood. -- Holes are cut in the boxcar, and the interior is sprayed with fuel-oil to facilitate combustion. Sides of the steel building are removed or left in place in various combinations to aid in creating a draft for combustion. Gasses and particulates are prevented from entering the atmosphere by means of a wet scrubber, prior to exhaust through the scrubber stack.



The water-jet unit employed in this project is a standard commercial unit ordinarily used for cleaning ship hulls, oil refinery equipment, etc., and which has been adapted for wood cutting. -- Detailed view of water-jet cutting through interior wall of railway boxcar.



EQUAL OPPORTUNITY IN GRANT PROGRAM

This year the Environmental Protection Agency was appropriated $2 billion for its grants program on the construction of wastewater treatment plants and $100 million for its research, fellowship, planning, and training grants.

All grants which EPA makes for research, fellowships, manpower training, and wastewater treatment works must meet Title VI requirements of the Civil Rights Act of 1964. This law states that "no person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, or the benefits of, any program receiving Federal financial assistance."

This year the Office of Equal Opportunity within EPA is responsible for seeing that any grants assistance given by the Agency is made in compliance with Title VI. For example, if a sewage treatment grant has been made to a municipal government, the plant must be used to service an entire community not isolated neighborhoods.

EPA's Office of Equal Opportunity also apprises minority institutions of grant and fellowship programs available from EPA. For example, the Office recently held a meeting in Atlanta, Ga. with heads of 72 minority colleges and universities from 16 southeastern, middle Atlantic, and southwestern States to give them guidance and instruction on EPA grant programs. The meeting was in answer to the charge by several minority colleges that their institutions have been discriminated against by Federal agencies in the past when funding research proposals.

The Office of Equal Opportunity within EPA has recently appointed Richard E. Risk, Assistant Director, Title VI Division. Mr. Risk was formerly Executive Director of the Missouri Commission on Human Rights, the agency which administers Missouri's fair employment practices and public accommodation acts. Anyone wishing more information on Title VI aspects of the grant program can contact Mr. Risk at EPA headquarters: 4th and M Streets, S.W., Room 3220 G, Washington, D.C. 20460. His telephone number is: 202-254-7408

PATHOGENS SURVIVE INCINERATION

Recent studies by EPA researchers have indicated that incineration does not necessarily destroy pathogens in municipal solid waste; incinerator residues and quench waters—far from being sterile— should be regarded as a potential threat to public health. Accordingly, the same care should be taken to prevent ground and surface water contamination from incinerator residues, as from ordinary sanitary landfill leacheate.

Although the operating temperatures of most municipal incinerators (in the range of 1200-2000° F) should be sufficient to destroy most microorganisms, these temperatures are not always attained uniformally throughout the refuse mass. In many cases, large masses of organic matter, usually a poor heat conductor, are made wet by water formed during combustion; these masses may not even reach the pasteurization level in a 1000-2000°F incinerator. Thus, recorded temperatures provide no assurance of satisfactory operation of incinerators, from the standpoint of public health.

Mirdza L. Peterson and Albert J. Klee, both EPA staff members, have recently developed a method for detection of enteric pathogens, such as *Salmonellae,* in incinerator residue. From studies of four municipal incinerators, it was determined that these pathogens do, indeed, survive the incineration process.

An especially important feature of the study involved design and application of statistical methods to microbiological investigations.

For additional information write:

Solid Waste Research Division
National Environmental Research Center
U.S. Environmental Protection Agency
Cincinnati, Ohio 45268

EPA TEAM Con't.

In outlining EPA's concern in the matter, Mr. Dominick said: "Under Reorganization Plan No. 3, EPA was assigned many of the responsibilities and resources of The Bureau of Radiological Health, including its responsibility with respect to the indoor radon problem. Therefore, EPA's responsibility in this matter arises from its general responsibility with respect to environmental radiation protection. EPA does not have authority to set regulatory standards for radioactivity levels in structures nor does it have authority to take remedial action to reduce or eliminate these levels.

"EPA's role in this matter is to assist Colorado and the other States involved with this problem, and the citizens of those States by providing them with the best technical advice and resources available. In working with the States, we will continue to assist in evaluating the radiation levels and associated health risks where tailings have been used."

EPA is planning to meet with officials of the Colorado Department of Health in the near future to determine the nature of the assistance EPA will continue to provide the State.

COURT DEFINES COUNTY RESPONSIBILITY FOR WASTE DISPOSAL

A recent Georgia court decision may hold national implications in defining legal responsibilities of counties in the area of solid waste disposal. Circuit Judge James Barrow ruled in Walton County Superior Court on November 10, 1971, that the county is responsible, under the Georgia Constitution, for the health and well-being of all the people within its jurisdictional borders, including city residents.

The ruling resulted from a motion by counsel for the city of Social Circle that Walton County be made a co-defendant in a civil action brought by the Georgia Department of Public Health against the small municipality for operation of an illegal garbage dump. Judge Barrow's decision stated that "the court determines that Walton County and its Commission of Roads and Revenues is a party to this law suit."

The defendants were then found, by the court, to have been derelict in their responsibilities under the public health regulations and laws of the State of Georgia. They were each enjoined from continuing to violate these regulations and laws and ordered to develop a sanitary landfill within the city of Social Circle. The county was specifically charged with preparing the landfill, and the city with its day-to-day maintenance.

County Attorney George Hearn announced immediately that the ruling making the county party to the suit would be appealed to the State Supreme Court. Commenting on the ruling, attorneys in the office of Attorney General Arthur Bolton who represented the State Health Department in the suit, said that if the Supreme Court of Georgia upholds the lower court decision, "it would, unquestionably, compel close cooperation between city and county governments in meeting the public health needs and protecting the well-being of all people throughout the state, and greatly simplify enforcement of state rules and regulations enacted in the public interest."

Mr. Ralph J. Black, EPA's Acting Director of State and Local Affairs, Office of Solid Waste Management Programs, termed the case a landmark decision, and indicated that it may have real impact on other State solid waste agencies and programs.

RECENT PUBLICATIONS

Single copies of all EPA publications listed below are distributed without charge to representatives of State and local agencies. Address requests *in writing* to:

U.S. Environmental Protection Agency
Office of Public Affairs
Public Inquiries Branch
Washington, D.C. 20460

Requests for multiple copies will be considered on an individual basis. Prices are given for publications available from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402.

New Chemical Concepts for Utilization of Waste Plastics

Results of a project to investigate the use of waste plastic materials for the production of chemicals for commercial use. Major objectives include: identification of waste plastic/reaction products with potential commercial value; identification of waste plastic/air combustion products that are potential air pollutants; evaluation of the economics of chemical processes using waste plastics as raw materials; and identification of R&D programs with potential for commercial chemical processes. 129 p. $1.25.

Air Pollution Control Active Research Grants for Fiscal Year 1971

Lists Federally-funded projects to determine causes, effects, prevention and control of air pollution. Projects have been undertaken in eight major areas; human health effects; agricultural effects; socio-economic and political studies; physico-chemical investigations; development of analytical methods and equipment; meteorology; air pollution source control; and communications. Project title, grantee institution, project period and level of support for FY 1971 are indicated. 55 p.

Hydrogeology of Solid Waste Disposal Sites in Northwestern Illinois

Discusses one of the major problems inherent in disposing of refuse on land: the danger that wastes will pollute groundwater resources. Reports a detailed hydrogeologic and water quality investigation of four landfills, with initial results from study of a fifth landfill. Develops guidelines to evaluate the pollution potential of existing and proposed landfill sites. 154 p. $1.50.

NEW FILM AVAILABLE

"Air Pollution and Plant Life" — 20 minutes, 16 mm., sound, color, 1971.

A survey of air pollution injury to vegetation across the country caused by common atmospheric pollutants such as ozone, PAN, SO_2 and flourides. Especially useful in training agricultural groups to recognize the possible types of injury caused by various pollutants. Includes examples of injury to plant life in Alabama, California, Florida, Maryland, Tennessee, and West Virginia. Designed for use by governmental, industrial, and educational groups engaged in air pollution control or related activities.

This film is available for free loan or purchase from:

Sales
National Audiovisual Center
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To purchase send your remittance of $68.25 by check or money order made payable to General Services Administration (NAC).

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