

January 28, 1971

Richard M. Connell, Colonel
District Engineer
Army Corps of Engineers
Walla Walla, Washington

Dear Colonel:

It was quite a time ago that the hearing was held in Lewiston, Idaho on the plans for the main stem of the Clearwater river, for modifications and development as a result of power generation at Dworshak. I meant to write long ago and I am sorry that I have been so neglectful. I just happened upon a story in the January 25th issue of the Wall Street Journal that prompted me to get busy and write the letter.

Reading about the hearing in the press has been very disturbing. The outpouring of those against any development was a little surprising to me although I felt sure that they would be rather voiceiferous. I guess they really were. I also fear that the "other side" has been reluctant to express themselves. This I find as I talk to many people in this area. The voice of the untra preservationist is spread through the country in many ways and in many places and one wonders how many people sit down and really consider the future of our country seriously.

I wish to congratulate you for making a fine effort and I hope that you are not discouraged. I wish to encourage you and the Army Corps of Engineers to not be pessimistic about this first go around and when sound sense comes I think that we will find many friends for the project, many more than you today might expect. It is the same old story, the country is outspoken about the things they are lead to say and think but good things are rarely told. Why I do not know unless it is human nature to be a biter rather than a booster.

I think that this project must come and soon.

I am sending along a story published in the Wall Street Journal about Atom-Age Trash. The article brings out better than I can write some of the problems of the Atom much better than I could write. It is very simple and to the point: The wastes of radioactive material in the soil could be very dangerous. Of course there are other things that makes one wonder about the hope of the nuclear proponets and this all may be worked out in time. Regardless of all this no one can say that hydro is not the cleanest, safest and best power in the spectrum today.

John Carver, Commissioner of the Federal Power Commission recently made a very fine speech which I had the opportunity to hear. He gave me copies of his talk and I am enclosing two pages of his speech that hits the whole point that I bring up - the voice of the dissidents! John Carver is a very high caliber person and a great practical person. I have marked the part of his prepared talk that is pertinent to this situation.

The Robert R. Nathan Associates, Inc. of Washington, D.C. doing research for the Public Land Law Review Commission states in their official report "Electricity consumption is projected to increase from 1.2 billion kilowatt hours in 1965 to 2.8 billion in 1980, and to 6.1 billion in the year 2000. In addition to

S News

World-Wide

NIXON BEGAN SELLING his "revolution"; sharp opposition is anticipated.

Battles are expected over the President's proposals for welfare reform, the full-employment budget concept, the environment, health care, revenue sharing and telescoping seven Federal agencies into four. Over the weekend, Nixon conferred with Congressional leaders on the State of the Union proposals and with California's Gov. Reagan, who has opposed welfare reform. Agnew and his aides, meanwhile, called several other governors and White House assistants phoned business leaders.

The strongest opposition is expected over revenue sharing, which is opposed by powerful Congressmen, and over governmental reorganization, opposed by special interests such as Labor and farmers.

Nixon's health program will include more than long-expected health insurance plans to provide comprehensive coverage for needy families and limited "catastrophic" benefits for the more affluent. It also will provide substantial increases in funds for training doctors, nurses and health subprofessionals. An "intensive campaign to find a cure for cancer" is planned, Nixon said. And the development of the neighborhood health centers is winning support within the Administration.

A 300% spending increase on environmental matters is planned for the fiscal 1972 budget, a White House aide said. Certain to be included in the President's \$4 billion environment message, to be delivered next month, will be \$2 billion in Federal sewage-treatment aid to local communities, and recommendations to expand the amount of park and recreation land near urban centers. Other proposals expected in the message include restrictions on ocean dumping, a tax on sulphur in coal and oil burned as fuel, and a Federal-state land zoning program.

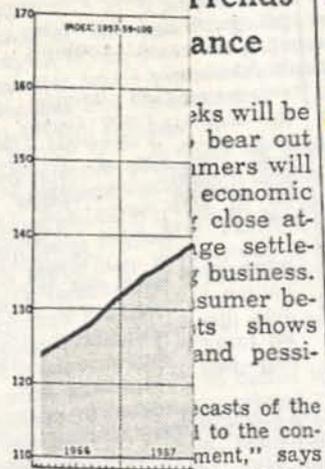
ENEMY FORCES MASSES on three sides of Phnom Penh, military sources said.

Officials placed the Cambodian capital on full alert after a bomb demolished an annex to the city's electric power offices in downtown Phnom Penh. It was the third terrorist bombing in the capital in as many days. North Vietnamese troops moving toward the capital were reported to have destroyed a bridge 12 miles away. Four U.S. cargo planes landed at Phnom Penh yesterday, bringing in arms and ammunition. Engineers and workmen, meanwhile, repaired runways and hangars damaged in Friday's attack.

Rumor circulated in the capital that a major enemy offensive was planned for Wednesday, the start of Tet, the lunar new year. Some sources, however, said an all-out assault isn't likely, termed the rumors part of a "war of nerves."

Ninety-two Guineans were condemned to death and 72 others, including a Roman Catholic archbishop and two West Germans, were sentenced to life imprisonment by a "people's court" in Guinea, the government radio station said. Those sentenced had been accused of leading an allegedly Portuguese-backed attempt to overthrow the Conakry government. Pope Paul condemned the trial, said the

Medicine Trends



MEDICAL CARE index rose to 168.7% of 1954 level in 1968, a 167.9% increase over the 1954 index.

2 Pence For And Twice Got That

Confusion Re Prepare & Pence

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Atom-Age Trash Finding Places to Put Nuclear Waste Proves A Frightful Problem

AEC, Prodded by Critics, Looks Harder at Safety Of Radioactive Dumpings Stirring Up a Deadly 'Soup'

By DENNIS FARNEY

Staff Reporter of THE WALL STREET JOURNAL LYONS, Kan.—The phrase "peaceful atom" conjures up images of cleanliness and light: Of white-gowned technicians and bright new reactors, of light and heat and power, seemingly without pollution.

The dark, dirty side of atomic energy is symbolized a half-mile east of this central Kansas town. It is an abandoned salt mine that may soon become this country's first atomic-age crypt.

There, in the perpetual darkness a thousand feet below the Kansas prairie, the Atomic Energy Commission plans to entomb all the "high level" (intensely radioactive) wastes generated by U.S. commercial atomic power plants for the rest of this century. So concentrated will be these wastes, that, were they somehow evenly distributed, they could contaminate much of the nation. So fantastically long-lived are they that they will have to remain sealed away for as long as 500,000 years.

The mine also symbolizes a growing, if belated, effort by the AEC to come to grips with potentially the most devilish pollution problem of all. This is the problem of isolating from the environment the growing volume of radioactive wastes—the result of weapons-making as well as commercial operations—for the centuries, even millennia, they require to decompose.

Expediency Is Charged

Finding solutions hasn't been the AEC's top priority. Democratic Sen. Frank Church of Idaho has calculated that over the last 25 years, while the agency spent billions to develop military and commercial applications of the atom, it spent only \$50 million on waste disposal research. Today the nuclear industry is growing rapidly. But one of the AEC's own scientific advisory committees has characterized some of the agency's waste disposal practices as "expedients designed to make the best use of poor locations."

For example: —In southeastern Idaho, one of the AEC's four major U.S. installations routinely stores a variety of radioactive wastes about 600 feet directly above the Snake Plain Aquifer, a huge underground river whose waters ultimately reach much of the Pacific Northwest. Sen. Church and Federal water quality officials are concerned that radioactivity might lead down into the aquifer.

—Near Richland, Wash., the AEC's Hanford installation stores millions of gallons of high-level liquid wastes in huge underground tanks. The tanks have a life expectancy of 20 or 30 years, though the wastes within them will remain deadly for about 600 years. At least 11

part 1

on back page

Atom-Age Trash: Finding a Place For Nuclear Waste Is Big Problem

Continued From First Page

fragments of split atoms. When this happens the fuel must be taken to a reprocessing plant. There, the fuel rods are dissolved in acid and the reusable uranium and plutonium are separated out.

What's left, in AEC jargon, is "the soup": A liquid laden with enough radioisotopes to make it one of the deadliest substances on earth.

Many of the radioisotopes decay to harmless levels in relatively short order. (An example is zirconium-95, with a half-life of 65 days; this means half of a given amount will decay in the first 65 days, half of the remaining half in the next 65, and so on.) At the other extreme is plutonium—some of which escapes reprocessing—with a half-life of 24,000 years.

Despite its extreme longevity, plutonium isn't considered the most dangerous component of the liquid waste. Its radiation is incapable of penetrating even a thin shield (a steel barrel, for example) and most plutonium compounds aren't readily soluble in water. Thus plutonium is considered highly dangerous only if actually ingested into the body, particularly if inhaled into the lungs.

The really troublesome radioisotopes are strontium-90 (half-life: 25 years) and cesium-137 (33 years). Unlike many radioisotopes, which are excreted by the body, strontium-90 concentrates in the bones. Cesium-137 emits gamma radiation, similar to X-rays, which can readily penetrate thick shields. In addition, both give off great amounts of heat as they decay, enough to make "the soup" boil furiously for years.

The waste liquid goes into enormous concrete-encased steel tanks, some more than a million gallons in capacity. Depending upon the tank design, the liquid is either cooled for years or simply allowed to boil (with its steam siphoned off to prevent tank rupture). Either way, the liquid loses much of its heat and radioactivity within a few years.

The problem is that the tanks wear out—to say nothing of their vulnerability to accidents—while some radioisotopes within them remain hazardous, in human terms, almost forever. (Strontium-90 and cesium-137 are considered hazardous for 600 years and plutonium for a half-million.) Already there have been 15 recorded cases of tank failure, the 11 at Hanford

and four at Savannah River. In one mishap at Savannah River, about 700 gallons of intensely radioactive waste overwhelmed safety devices and soaked into the ground.

Longer Than History

Clearly, the AEC and its critics agree, a more permanent solution is needed. "We really can't talk about this in terms of 'waste disposal,'" says Mr. Tamplin. "It's 'waste guardianship.' . . . Somebody is going to have to watch this stuff . . . for longer than the history of our country and, in the case of plutonium, longer than the recorded history of man."

The AEC has yet to decide upon a "final" solution to its weapons-related wastes. In the interim, it is solidifying much of them in the tanks they now occupy. But the agency does have a plan for the growing volume of commercial wastes: Solidification and shipment to the salt mine here at Lyons.

Many scientists, inside and outside the AEC, endorse this plan as the safest, surest available. Salt beds are dry and extremely stable geologic formations. Rock salt approximately equals concrete as a gamma ray shield and is so plastic under heat and stress that fissures are self-healing.

Beginning in 1975, if AEC plans hold, ordinary railroad cars would start hauling in barrels and containers of "low-level" wastes for burial here. At full-scale operation, 200 to 400 carloads might be coming here each year.

The "high-level" wastes would start arriving about 1976. Concentrated and solidified, they might take the form of a greenish-black glassy substance, a ceramic-like material or a granular powder. This would be packed inside steel cylinders, each containing wastes so enormously radioactive as to almost defy imagination.

The standard unit of measurement for radioactivity is the curie. One AEC official calculates it would take 10 billion gallons of water to dilute one curie of strontium-90, the deadliest of all the radioisotopes in high-level waste, to the level that current guidelines consider acceptable in drinking water. By comparison, the strontium-90 in high-level wastes may run at 50 to 100 curies per gallon. Solidification of high-level wastes before shipment here would con-

Together, including curies of other radioisotopes as well as strontium-90, each cylinder would be buried here would contain a million or more curies. By 1990, when the disposal operation would be in full swing, some 1,200 or more cylinders would be arriving here each year—shipped in enormous 50 or 100-ton lead "casks" to contain their gamma radiation.

Once here, the casks would be unloaded by remote control behind heavy shielding. The cylinders would then be lowered to the cavern below and transported by a remote-controlled vehicle to their burial tunnels, holes drilled into the tunnel floor. Eventually the entire tunnel would be filled with crushed salt.

Taking the Long View

The strontium and cesium within the cylinders would make them hot enough eventually to raise the temperature within the underground caverns to 200 degrees or more. This impresses laymen, but AEC engineers seem to take it in stride. Conducting a group of Lyons townfolk through the mine, an AEC official assured them that "the heat drops off very rapidly. It would be essentially done . . . in a couple of hundred years."

None of this seems to worry many people in this town of about 4,800, who see a potential boom in the disposal project. "This is great," says Jack McClain, a local electrician. "We just couldn't get a cleaner industry." Declares C. R. "Tiny" Moorman, resplendent in his red "Lyons ambassador" boosters club jacket: "It's about the grandest thing that could happen to any place."

But farther away from Lyons, concern is rising.

The Kansas affiliate of the Sierra Club is considering a court fight to block the project. Chairman Dale Saffels of the state corporate commission has expressed concern about disturbances when the big shipping casks start coming in. Gov. Robert Docking has said he wants more facts. But perhaps the most influential skeptic is William W. Hambleton, director of the state geological survey.

Mr. Hambleton was a member of an AEC advisory group that found salt mine disposal with qualifications, "the safest choice not available." Nevertheless, he's worried about number of questions and says he isn't "horribly impressed by the enthusiasm they (the AEC) show for checking out these things."

An Explosive Upheaval?

One of his worries is what's known as the "Wigner effect." The wastes will bombard the walls of rock salt with intense radiation, carrying energy to be stored in the salt. Under certain conditions this energy might be released as a sudden burst of heat, perhaps shooting temperatures in the underground caverns to 800 degrees centigrade. What would happen then?

"I don't know," he says. "One could speculate on all kinds of horrible things." An extreme possibility: An explosive upheaval which could release radioactivity to the world above.

And Mr. Hambleton has another worry. "As far as we can tell, the AEC has no contingency plans for retrieval of this stuff should something go wrong."

In reply, an AEC official cites special studies that "have virtually ruled out" the hazard. And the AEC emphasizes that nothing in the disposal plan will preclude retrieval—although an official concedes that the agency hasn't worked up detailed contingency plans for such an operation.

Questions about this project may seem mild, however, compared to the controversy likely to erupt if the AEC goes ahead with another proposal under evaluation. This is "Project Bedrock," the plan to pump millions of gallons of high-level liquid waste into a cavern below the Tuscaloosa Aquifer.

'Be My Guest': The Business Lunch Survives Recession Despite Critics

Continued From First Page

action has dismayed even fellow lunchers. One Pittsburgh public relations man recalls ruefully the "perfectly normal" business lunch that ended when the luncheon suggested a side-trip to a nearby leather goods store. There, he blithely asked the flack to buy him an attache case that caught his eye. "It was a \$15 lunch and a \$60 case," the man recalls. "He said, 'Send me a bill for \$100 so you can make something too.' I learned later that he got the briefcase for his boss."

Judd Shepherd, a Pittsburgh free-lance photographer, remembers the time "I invited two bankers to lunch at Staufer's and eight showed up." Mr. Shenherd, not being a banker, ran out

had spectacular rises. That always does the trick. He asked me to lunch."

Though a recession doesn't make a dent in the daily menu of a pro like Mr. Latcher, it can crimp the style of a lunch lover who has to turn his expense accounts in to a corporate bookkeeper. Baxter Laboratories Inc. of Chicago instructs its salesmen now to invite luncheon guests privately instead of in a crowd to prevent four or five hangers-on from tagging along. Like many a company, Baxter requires that salesmen list the names and companies of the people they feed, but it then goes one step further. "From time to time we make random checks with the guests" that a salesman names on his expense chit "to see if the lunch was

at of corporate development.

ancis Drops a Bundle

An executive of a large industrial concern in Los Angeles says no one is counting pennies; but his firm has "informally" asked its executives to take it easy at the groaning board. The temper of the times and the state of the money are inconsistent with a Roman feast," says Perino's, the posh Hollywood restaurateur, now offers "a special businessman's luncheon" priced at \$6 to attract economy-minded executives. (That deal apparently has yet to be Francis Esqro, president of the company it owns Perino's. He took three business associates there the other day and dropped \$120.) An executive of a broadcasting company on the West Coast says top management at his firm is cracking down on its free-spending executives. "We're asking them, 'What exactly is the result of those three lunches you bought for Joe Blow? Did we get the business?' It is something new for us."

At General Motors, similar strict accountability is required. Each GM employee charging to the company must submit a form listing not only the names of the guest and the restaurant, as well as the cost of the meal, but also a summation of the topics discussed.

In New York, Richard Ratazzi, owner of a restaurant named Ratazzi, says 95% of his lunch trade still comes from business lunchers. He says "people are having one drink less" than a year ago. "Six months ago, lots of people weren't asking for receipts. Now they're asking."

There are companies, of course, that say they haven't cracked down on expense accounts simply because their employees never used them in the first place. These companies are called naive. "The people eligible for (expense account lunches) are mature enough to know what they are doing," says an official of INA Corp. of Philadelphia. "We don't use any limits," he says, but he notes that the company's "procedural manual" stipulates business lunches must have business purposes. "The manual states there must be a 'business reason' and those two words are underlined," the official emphasizes. That comes as a surprise to another employee of the company, however. "You're lucky if business even comes up at two of three 'business lunches' we go to," he says. For all the supposed cutbacks, lavish free lunches are still being eaten every day by businessmen who know where to look. Few are more lavish than the feast Christian Brothers' Cafeteria, based in California's Napa Valley, has on once a year for the press and a few industry people. The firm hosts two "wine and food luncheons," one in San Francisco, one in New York. A spokesman says each "luncheon" at the Christian Brothers costs \$3,000.

Those invited to the Christian Brothers' gala New York's Le Pavillon restaurant a few months ago started out by nipping at the company's chablis and creme de cassis at a reception. After that came the "luncheon"—quenelle like served with Christian Brothers' Pineau de la Loire wine, followed by noisette of lamb with tarragon and "bouquet of garden vegetables" washed down with Christian Brothers' Pinot Noir wine. Dessert, round one, featured lemon sorbet with spun sugar along with Christian Brothers' Chateau La Salle wine.

For those who were still standing, the event concluded with demitasse, petits fours and Christian Brothers' brandy.

Christian Brothers' spokesman says the luncheons are a "pleasant and practical way of staying acquainted and staying acquainted." But some of the guests, it is said, were so acquainted they can't move.

Economy Gets Priority

The project here at Lyons is only for commercially related wastes; the AEC's enormous stores of high-level weapons-related wastes still remain. It seems generally agreed—even among AEC officials—that the safest answer to these wastes, too, is solidification and salt mine burial. Nevertheless, the AEC is seriously considering the bedrock plan, which another of its own scientific advisory committees not only described as "in its essence dangerous" but also predicted would be sure to "lead to public controversy."

Economy appears to be the foremost consideration. AEC officials say admittedly inexact estimates indicate it might cost 10 times as much to solidify the wastes and bury them in salt mines as to pump them into bedrock caverns. Another consideration: Project Bedrock would allow onsite disposal, eliminating potentially hazardous overland shipments. Finally, AEC officials argue, if Project Bedrock proves safe enough it's simply wasting money to buy an additional margin of safety.

The big questions, of course, are whether the wastes would seep upward through fissures in the bedrock into the aquifer itself—and, if so, how soon?

A majority of the AEC advisory committee—in a critical 1966 report that the AEC suppressed until 1970—concluded the risks of this happening were simply too great. In one of several projections, the committee theorized that wastes could possibly reach fresh water within 100 years; they will be hazardous for at least 600 years. A narrow committee majority recommended that the AEC abandon even attempts to study the project.

"You could never prove, even by all sorts of (exploratory) drilling, that bedrock storage would be as safe as solidification and storage in a salt mine," says Earl Cook, a Texas geographer who was executive director of the committee. "The only way you could be sure is to put this stuff down and wait and see. Unfortunately, that's the way we make too many decisions these days."

Project Bedrock has at least one Senator worried. Democratic Sen. Mike Gravel of Alaska has called on the President's Council on Environmental Quality to "immediately appoint a committee of independent and credible investigators" to look into it. Council member Gordon J. MacDonald says he's inclined to agree.

Nevertheless, the project is "still feasible; so far the feeling is that it looks quite good," says one AEC official close to the matter. The AEC feels confident at this stage of investigation that several barriers—including a layer of clay between the bedrock and the aquifer—would bottle up the wastes long enough to allow them to decay to harmless levels before reaching fresh water.

The agency says it plans to spend \$1.3 million for preliminary work and at least \$10 million to sink an exploratory shaft and tunnels. If tests prove favorable, routine pumping of the wastes into the cavern probably would start in the late 1970s. The agency might then go ahead with a similar project for the Hanford wastes. "We won't go ahead with (Project Bedrock) until we're sure it's absolutely safe," pledges Chairman Seaborg.

But, as AEC officials themselves testify, few problems in the arcane world of radioactive waste lend themselves to "absolute" answers.

"I'm often asked, 'Can you be absolutely sure this or that is safe,'" says John A. Erlewine, the AEC's assistant general manager for operations. "My invariable answer is, 'No, I'm not absolutely sure of anything on this earth.'"

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6A EDITORIAL PAGE

SATURDAY, NOVEMBER 7, 1970

U.S. Power Crisis: How Far Can We Go?

Which is more important — protecting the environment or producing enough electrical power to supply the nation's burgeoning needs?

That is the question that must be answered soon. As Dr. Lee A. duBridge, the President's science adviser, puts it, the nation faces "a crisis in the task of generating enough electricity to meet our rising every-day demands."

That crisis was first dramatized just five years ago Monday when an electrical relay the size of a shoebox failed in a Canadian sub-station.

The failure, coming at a heavy peak time for power plants all over the Northeast U.S. and eastern Canada, caused a series of electrical failures that plunged nine states and two Canadian provinces into darkness. It caused massive transportation tieups and economic losses before power was restored some 12 hours later.

The lessons of that blackout — the largest but by no means the only such failure — are still being assessed in terms of the nation's need for more and more power.

What are those needs? According to some scientists, the U.S. will need 543 trillion kilowatt hours of electricity in the year 2000, three times the amount used today. Power needs are expected to double by 1980 over that used in 1969.

Power authorities figure at least 340 new generating plants are needed by 1990 to meet the power demands. Just to supply land for new transmission lines by that date will require more than twice the area of Delaware.

But, say the environmentalists, generating and transmitting more and more power means more air and water pollution. And practically every type of generating plant has come under attack — fossil-fueled (coal and oil) plants because they pollute the atmosphere and cause thermal pollution (heating of water); nuclear plants because of thermal pollution and radiation hazards; and hydroelectric projects because they mar the landscape of otherwise scenic rivers.

Of 65 nuclear plants scheduled for completion by 1976, 23 are behind schedule. Of 125 conventional power plants, 23 are lagging behind. And in New England alone, 60 per cent of the new power plants and transmission lines are behind schedule.

Nor do the alternatives to conventional electrical plants offer much hope. Scientists, for instance, feel that some day fuel cells like those that power the Apollo space craft may be made economical enough for home and industrial use. A low-hazard atomic "fusion" generator is under construction. And researchers are seeking ways to squeeze non-polluting fuel out of low-grade coal.