ALASKA LEGISLATURE COMMITTEE FILES 1987-1988 8672 154
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2. A cask large enough for efficient, large-scale shipment of the Japanese plutonium has not been certified by the NRC. A prototype cask, weighing 5,000 pounds and designed to hold about 15 pounds of plutonium, failed a crash test last summer.

3. If the cask now being developed is eventually used, one Boeing-747 shipment of more than 500 pounds of plutonium would be required every two weeks---taking off from France or the United Kingdom, overflying Canada, landing for refueling in Alaska, and then taking off again and finally landing in Japan. These flights may prove to be of considerable local and national concern. Canada has had one experience with radioactive fuel falling from the sky, during the reentry of an orbiting Soviet satellite in January, 1978.

4. If the cask proves to be technically unfeasible---as some experts advise us will be the outcome---plutonium air transport (PAT) may have to be accomplished with existing, smaller PAT-1 casks, which were never intended for such large-scale transport.

5. The Japanese shipments may not be subject to licensing by the NRC because, although the Commission is responsible for licensing initial exports of uranium fuel, all subsequent arrangements involving spent fuel and the plutonium contained in it are approved by the Department of Energy. The safety of DOE-approved shipments of separated plutonium comes under the jurisdiction of the U.S. Department of Transportation when any such shipments are flown into U.S. airports and/or air space. According to a DoT official, the Transportation Department probably would consult with the NRC on approving a cask, but the DoT would make clear to the NRC that only the International Atomic Energy Agency (IAEA) standards for safe transport need be met.

The IAEA standards are far less demanding than those set by the NRC. For example, the IAEA impact test requires a velocity of only 44 ft./sec., while the NRC-mandated test requires a velocity of at least 422 ft./sec. . Further, the IAEA crash standards are no more stringent for plutonium casks than they are for casks used for less hazardous nuclear materials.

The Scheuer Amendment prescribes extra precautions for NRC-licensed plutonium transportation, owing to plutonium's extreme toxicity. The Administration, however, appears to be interpreting the Atomic Energy Act in a way that could permit foreign plutonium to be flown into an Anchorage airport in casks that need not meet the NRC's strict crash standards.

The Atomic Energy Act requires NRC licensing of domestic, commercial plutonium shipments, as well as imports of plutonium for commercial use in the United States. (There are presently no such shipments because of Congressional actions resulting in the shutdown of all elements of the U.S. commercial plutonium program---spent-fuel reprocessing, fresh-fuel fabrication and breeder-reactor development.) However, plutonium-bearing cargo planes landing for refueling in the United States, on their way from Europe to Japan, apparently are viewed by the Administration as neither domestic nor import shipments. This interpretation could create a loophole not intended by Congress:

flights of foreign plutonium stopping in the United States may be approved by the DoE on the basis of cask-safety criteria substantially inferior to those set by the NRC.

In the face of known dangers and high clean-up costs associated with environmental releases of plutonium, the United States---under the agreement negotiated by the Reagan Administration with Japan---would acquiesce in the development of a Japanese plutonium fuel economy that could result in a planeload of plutonium landing in Anchorage as often as every two weeks.

Crashes of two U.S. military aircraft carrying nuclear warheads, which resulted in the release of substantial amounts of plutonium, serve to illustrate the problem. One crash occurred at Palomares, Spain, in January, 1966 after a bomber and a tanker collided in a routine mid-air refueling operation. Clean-up of 1,400 tons of contaminated soil and vegetation at Palomares cost $500-million. The crash of a bomber carrying four nuclear weapons at Thule, Greenland, in January, 1968, required the removal of one and a half million gallons of contaminated snow, ice and water at a cost of $300-million. Both of these sites were unpopulated. Plutonium contamination of a more densely populated crash site would involve a public health risk, and evacuation and decontamination costs would be many times higher.

Under the present U.S.-Japan nuclear agreement, which expires in 2003, the Japanese must obtain U.S. approval of each of their reprocessing, plutonium-transfer and plutonium-use requests. Thus, the existing agreement permits the United States to withhold approval of air shipments of U.S.-controlled plutonium in the absence of a crash-proof cask that meets NRC's specifications. The new agreement would replace the existing case-by-case review process with a blanket U.S. approval of Japanese plutonium activities for the 30-year life of the agreement.

By the late 1990s, Japan will have 5,250 kg. [11,550 lbs.] of plutonium separated each year from spent fuel by reprocessors in the UK and France---the equivalent of 5,950 kg. [13,090 lbs.] of plutonium oxide---according to David Albright in "Civilian Inventories of Plutonium and Highly Enriched Uranium."[1] Out of a total of 48 metric tons of plutonium to be separated in Europe for Japan by the year 2000, 45 metric tons are from fuel irradiated in light water reactors (LWRs). According to Albright, a physicist with the Federation of American Scientists, at least 80 percent, if not virtually all, of this LWR-produced plutonium was separated from fuel supplied by the U.S. or used in U.S.-supplied reactors and, therefore, comes under U.S. control.

Air shipments of commercial plutonium of the magnitude to be authorized by the Japanese agreement have never occurred. Indeed, these shipments may exceed the amounts of plutonium now shipped by air for the U.S. nuclear weapons-program.

1/ This paper appears in Preventing Nuclear Terrorism: The Report and Papers of the International Task Force on Prevention of Nuclear Terrorism, A Nuclear Control Institute Book, Lexington Books, 1987, pp. 265-291.

The significance of the plans to ship plutonium by air is underscored by the on-going development of a communications system for the International Atomic Energy Agency to continuously monitor the integrity of casks during flight. The system, called Artemis, is being designed and set up by the U.S. Arms Control and Disarmament Agency. It will use the private Inmorsat satellite to monitor tamper-indicating seals in "real-time" and the U.S. Navstar Global Positioning System to accurately track the position of the aircraft.

II. Brief Historical Background

In January 1978, the NRC, pursuant to the Scheuer Amendment, published NUREG-0360, "Qualification Criteria to Certify a Package for Air Transport of Plutonium," which detailed: (1) a rigorous set of crash, burn and submersion simulations, to which any potential cask would have to be subjected before its certification; and (2) operational conditions for air transport of plutonium, which would have to be followed to ensure the integrity of the cask and its contents.

By June 1978, the safety analysis report on the first prototype cask, the PAT-1, was published, and by August 1978, the NRC officially certified the cask for use. The PAT-1 weighed approximately 500 lbs. and was cylindrically shaped, with a length of 42.5 inches and a diameter of 24.5 inches. It was authorized to hold up to 2 kg. [4.4 pounds] of plutonium oxide, uranium oxide, their daughter products, or any mixture thereof.

The only real need for air transport of plutonium at the time, however, was for quick, international delivery of IAEA plutonium samples---for analysis as part of their international safeguards procedure. The amounts with which the IAEA was dealing were very small, but were still large enough to require a cask under the law's provisions. The size of the PAT-1 was overkill for these small samples, and as a result, its use would have strained the budget of the IAEA.

The IAEA thus asked the U.S. government to help develop a Light Weight Air Transportable Accident Resistant Container (LATARC), later known as the PAT-2. By September 1981, the PAT-2 had been developed, tested and licensed for use by the NRC, weighing only 73 pounds but holding only 40 grams of plutonium oxide, which was satisfactory for the IAEA's needs, but clearly inadequate for large scale transport. Because the operating procedures specified by NUREG-0360 still made the casks' use prohibitively expensive, the NRC reviewed these operational guidelines and eventually relaxed the restrictions on slowing-down the casks and on what other types of hazardous cargo could be aboard flights containing the casks. The NRC concluded that the new, less stringent guidelines did not "significantly" affect the ability of the PAT-2 package to withstand the crash and explosion of a high flying aircraft.

Since then, the only major advance in the development of these casks was the development of a modified PAT-1, which could carry 3.15

kg. of plutonium metal, as opposed to the original 2 kg. of plutonium oxide. This modified PAT-1 was licensed for use by the Department of Energy, but was never submitted to the NRC, because there were no NRC-licensed transports of plutonium taking place at the time. There are no indications that the Japanese are considering shipping the plutonium in its highly flammable (pyrophoric) metallic form, which is also the preferred form for use in weapons.

III. The Present Situation

The PAT-1 and PAT-2 are thus the only two NRC-certified casks in existence for air transport of plutonium. A number of firms around the world, including PNC (Japan), COGEMA (France), and BNFL (UK), are working on developing a larger cask that would make commercial shipment of reprocessed plutonium economically viable.

The only acknowledged test of such a cask took place at Sandia National Laboratories in the summer of 1986. It was an impact test of a prototype PAT-3 cask developed jointly by PNC and Battelle-Columbus. The cask weighed about 5000 lbs. and was designed to hold 6-7 kg. [about 13-15 lbs.] of plutonium oxide. The cask was propelled into a hard target at more than 422 ft/sec. (250 knots---the maximum legal air speed below 10,000 ft. and the speed specified by NUREG-0360). The cask failed the test,and no new prototype has yet been tested or scheduled for testing at Sandia, according to knowledgable Sandia officials. One such official said Battelle has "gone back to the drawing board."

When we asked a leading expert on the engineering of casks to predict when a large, crash-proof cask with a capacity of 6-10 kg. of plutonium oxide would be developed, he replied: "Never." He explained that due to the rigor of the NUREG-required tests, there was a limit to the size of any cask, because past a certain size, the cask "committed suicide"---that is, it collapsed on itself. Thus, he felt that there was an absolute limit---barring an unforeseen developmental breakthrough---to the size of a crash-proof cask, and a corresponding limit to the amount of plutonium that it could hold.

The limitation on size results from a basic principle of engineering which states that as the size of a structure is increased, the weight of the structure grows much faster than the strength. Thus, as bigger casks are developed, the force of impact eventually overwhelms the strength of the package.

IV. Air Transportation Facts for Proposed New PAT-3

According to various informed sources, the PAT-3 cask, if successfully developed, would weigh 5,000 pounds, hold 6 to 7 kilograms of plutonium oxide, and be packed three casks at a time into shipping containers for transport in Boeing-747 cargo planes. The 747s have a maximum cargo load of 255,000 lbs. according to NUREG-0360.

Thus, we can calculate the maximum capacity of plutonium flights using the PAT-3 casks:

Each shipping container would hold 3 casks. A typical container would have a capacity of 12.5 short tons and itself weigh 2,600 lbs. The weight of a packed container would be at least 15,000 pounds for the casks [3 x 5,000 lbs.] plus 2,600 lbs. for the container, or a total of 17,600 pounds. With the addition of packing materials, the total weight of a filled container would likely be as large as 20,000 pounds, or 10 short tons.

Based on its total weight capacity, a 747 could carry some 12 or 13 containers, depending on the added packing materials. Given that each cask can hold 6-7 kg. of plutonium oxide, each container would hold 18-21 kg. [40-46 lbs.] of plutonium oxide, and there would be from 216 kg. to 273 kg. [475 to 600 lbs.] of plutonium oxide in a single 747. Thus, the likely load on each 747 shipment to Japan would be about 250 kg. [550 lbs.] of plutonium oxide. Because of the heavy load, a 747 would need to refuel in Alaska enroute from Europe to Japan.

Volume capacity would not be a problem. According to our calculations, a 747 cargo flight could hold 14 of the above-discussed containers plus additional containers of smaller size if weight were not a factor.

As discussed above, the Japanese will have 5,250 kg. of plutonium per year separated by reprocessors in Europe by the late 1990s, or the eqivalent of 5,950 kg. of plutonium oxide. At 250 kg. [550 lbs.] per 747 flight, that would mean at least 23 flights per year.

Thus, in order to move the estimated 45 metric tons of plutonium that European reprocessors will separate from LWR spent fuel for Japan by the year 2000, a 747 carrying over 500 pounds of plutonium would have to fly over Canada and land in Alaska every two weeks by the mid-to late 1990s.

It is by no means clear, however, that a PAT-3 crash-proof cask can be developed. Such flights may use a cask that does not meet the NRC's present strict requirements, if DoE and DoT choose not to require it. It also should be noted that the last time the NRC's operational requirements hindered use of a cask (the PAT-2), those safety restrictions were relaxed by the NRC itself.

V. Calculations for Air Transport Using PAT-1

If use of a PAT-3 cask eventually is barred because one cannot be developed to meet the NUREG 0360 crash standard, the only NRC-certified cask that exists for potential large-scale shipment of plutonium is the PAT-1.

We estimate that as many as 350 PAT-1 casks, each weighing 500 lbs., could be carried on one dedicated 747 flight. At 2 kg. of plutonium oxide per cask, this yields a capacity of 700 kg. [1540

lbs.] of plutonium oxide per flight. Thus, transporting 5,950 kg. [about 13,000 lbs.] of plutonium oxide per year could be done with as few as nine flights, each carrying about 1,500 pounds of plutonium oxide per 747.

There are serious obstacles, however, to the use of this cask for such commercial transport. According to an NRC official, substantial safety issues would have to be resolved in connection with shipments of such large quantities of plutonium. For example, a 747 fully loaded with PAT-1 casks would be more vulnerable to severe consequences from an engine-rotor accident or a mid-air collision (see next section).

An additional problem is that neither of the two versions of PAT-1 now in existence is capable of holding a COGEMA plutonium container, which is used to store Japanese plutonium in France. Nevertheless, according to an NRC official, there were indications in 1986 of possible Japanese interest in using the PAT-1 for large-scale plutonium transport. However, when COGEMA was asked to modify its plutonium container for use in the PAT-1, the French plutonium producer refused, according to a knowledgeable source. Further, this official said, the three firms actively working on casks---PNC (with Battelle-Columbus), BNFL, and COGEMA---all have resisted suggestions simply to modify the PAT-1 design in order to fit the COGEMA plutonium container, even though, according to him, that modification could be performed by the right engineer. The clear preference has been to develop a crash-proof PAT-3 cask.

VI. Other Cask Issues

1. If a PAT-3 cask is developed that survives the simulated crash test required by NUREG 0360, it would be desirable to further ascertain, and to demonstrate to the public, that a full complement of casks will survive an actual plane crash. This objective can be accomplished by crashing a 747 with a full load of casks containing non-radioactive material. As learned from a December 1984 FAA crash test of a Boeing-720, actual crashes can have very different consequences than simulated crashes in a laboratory. In a test that cost $11.8-million, flame-proof fuel that had been tested successfully in laboratory crash tests, burst into a fireball when the Boeing 720, using the fuel, was actually crashed.

According to knowledgeable officials, the NRC originally considered crashing the PAT-1 cask in a retired naval plane, which was set aside at Sandia specifically for such a test, but they decided not to because of the expense---less than $10-million---of monitoring equipment. An actual crash test of the PAT-3 casks and containers in a Boeing-747 may cost (including the price of an older 747) as much as $25-million---an expense that should be considered in relation to the enormous cost of cleaning up a plutonium spill, and in the context of increased assurance of the casks' integrity.

2. There is the possibility of a terrorist attack on a plane carrying these casks, especially during take-off and landing, during

refueling, and during loading and unloading of the cargo. When the cask specifications were developed, the terrorist contingency was not specifically considered, according to knowledgeable officials.

3. The NUREG-0360 cask specifications do not take into account the possible consequences of a mid-air collision in which a cask is directly hit. The regulation states (page 47) that "in the event of fuselage-to-fuselage collision,...if the package is in a position to be struck directly, the severity of the resulting impact is difficult to predict." Such a collision could occur near a busy airport or during mid-air refueling, as occurred at Palomares, Spain. At present, Japanese plans are to land for refueling in Alaska, not to refuel in mid-air.

4. At the time NUREG-0360 was written, there was concern that an engine-rotor accident could damage a cask. Since the NRC was considering the transport of no more than a few casks at a time, it required that the casks be placed in the aft-most section of the main deck in order to preclude placement near the engine rotors. A plane that is fully loaded with casks would, however, have casks near the engine rotors. According to an NRC official, a complete reevaluation would be required before a cask for use in a plane fully loaded with casks would be licensed, and the issue of an engine-rotor accident would have to be reconsidered.

5. Three firms are known to be working on PAT-3 casks: PNC (through Battelle-Columbus), BNFL, and COGEMA. At the PATRAM-86 (Packaging and Transportation of Radioactive Materials) conference in Davos, Switzerland, each gave presentations on the progress of their work and predicted success by the end of 1986. To date, there have been no reports of any tests in the technical journals. The PATRAM-86 proceedings are being published, but are not yet available. Attempts to acquire the individual presentations through the firms and their embassies, as well as any test results, have not yet proved successful. It is understood within the technical community, however, that the French tested their prototype PAT-3 about one year ago and that the test was a complete failure, resulting in a shattered cask.

6. The Japanese are developing their own plutonium air transport regulations, which are likely to be very similar to the NUREG specifications. It is not clear, however, what the final Japanese specifications will be in the event a crash-proof PAT-3 cannot be developed. It is expected that the Japanese will require at least two more years to develop their regulations and that the first air shipments of plutonium will begin after 1990.

IX. Conclusion

There are many technical issues to be resolved before it can be determined whether commercial air transport of plutonium, as envisioned in the upcoming U.S.-Japan nuclear agreement, can be achieved safely and securely. Considerable uncertainty still surrounds the development of a crash-proof cask suitable for use in large shipments of plutonium. Further, there are environmental and

security implications important to the United States in the establishment of a plutonium fuel economy in Japan. It is premature, therefore, for the Reagan Administration to negotiate away U.S. authority over how Japan makes use of plutonium contained in spent nuclear fuel originally supplied by the United States. The President should not submit the new U.S.-Japan agreement to Congress until all technical issues with regard to air transport of plutonium are resolved.

In addition to air-transport safety questions, there are questions concerning the vulnerability of commercial, weapon-usable plutonium to attacks or thefts by terrorists, as well as the eventual spread of this material to nations seeking the capability to build nuclear weapons. From both counter-terrorism and non-proliferation perspectives, the risks of commercial use of plutonium may outweigh any energy benefits of using this fuel. Further, use of plutonium fuel is no longer regarded as economical because of abundant, low-cost supplies of uranium now available on the world market. The uranium used to fuel nuclear power plants, in contrast to plutonium, is not suitable for use in nuclear weapons.

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Nuclear Proliferation: Studies and Strategies for Stopping the Spread of the Bomb

NUCLEAR CONTROL INSTITUTE
1000 Connecticut Avenue, N.W., Suite 406, Washington, D.C. 20036 (202) 822-8444

FOR IMMEDIATE RELEASE
Tuesday, March 3, 1987

BIWEEKLY FLIGHTS OF HUNDREDS OF POUNDS OF PLUTONIUM
TO BE AUTHORIZED UNDER U.S.-JAPAN NUCLEAR ACCORD

President Reagan is preparing to submit to Congress a new 30-year nuclear-cooperation agreement with Japan that would require biweekly flights of a cargo plane carrying about 500 pounds of plutonium from Europe to Japan. Because of the enormous weight of shipping casks to be used to transport the plutonium, the flights would cross Canada and land for refueling in Anchorage, Alaska, and then take off again for Japan.

A crash-proof cask being developed for these plutonium shipments failed to survive a high-velocity impact test at Sandia National Laboratories last summer. No new tests have been scheduled, and some experts close to the project believe that it will not be possible to build a large cask, for use in large-scale shipments of plutonium, that can survive a realistic crash test. The cask being developed weighs 5,000 pounds and holds about 15 pounds of plutonium. There would be as many as 40 of these casks on a single Boeing-747 cargo plane.

It is possible that the Reagan Administration will permit Japanese plutonium flights in and out of Anchorage utilizing casks that fail to meet strict safety criteria spelled out by the Nuclear Regulatory Commission after Congress mandated the development of crash-proof casks in a 1975 law.

Plutonium, a manmade element created as a waste byproduct of reactor operation, is highly toxic and can be used in nuclear weapons. The Japanese plan to separate plutonium from U.S.-controlled spent reactor fuel and use the plutonium as a fuel in their power reactors---an approach that has been rejected by Congress as too hazardous and costly for the United States domestic nuclear power program.

Details of the planned air shipments of plutonium are disclosed in a Special Report, "Air Transport of Plutonium Obtained by the Japanese from Nuclear Fuel Controlled by the United States," prepared by the Nuclear Control Institute and released today. The Institute is non-partisan and non-profit and conducts independent research on problems relevant to the spread of nuclear weapons.

- more -

The new nuclear agreement---negotiated by the Reagan Administration but still not submitted for Congressional approval---would give the Japanese a 30-year advance approval to recover and use plutonium produced in nuclear fuel originally supplied by the United States or used in U.S.-supplied power reactors. The new agreement would replace the present agreement, which does not expire until the year 2003. Under the existing agreement, the United States can withhold approval on a case-by-case basis of Japanese plutonium activities on safety or security grounds.

The U.S. government blocked for two years a large plutonium shipment by sea that originally was to proceed on its five-week journey from France to Japan without military escort or surveillance. The large risks and costs associated with this shipment, which finally involved the use of French and U.S. warships and satellites in 1984, led to plans to send future shipments by air. Under the new U.S.-Japan agreement, however, the United States would lose its veto power over safety and security arrangements for these shipments, as well as over use of the plutonium itself.

The United States presently exercises legal control over most of the 85 metric tons [187,000 pounds] of plutonium that the Japanese want to recover from their nuclear spent fuel by the year 2000. About half of the plutonium is contained in spent fuel that Japan has sent or has contracted to send, with U.S. consent, to France and the United Kingdom for reprocessing. U.S. controls now apply to at least 80 percent of the 45 metric tons [99,000 pounds] of plutonium to be separated in France and the U.K. from Japanese light-water reactor spent fuel, according to an analysis by David Albright, a physicist with the Federation of American Scientists.

Under the new agreement, the United States would provide one approval, in advance, for Japanese shipment and use of plutonium derived from U.S.-supplied nuclear fuel or fuel used in U.S.-supplied reactors, for the 30-year life of the agreement.

The Nuclear Control Institute report was co-authored by Paul Leventhal, the Institute's president, Milton Hoenig, the scientific director, and Alan Kuperman, a research associate.

The report concludes: "There are many technical issues to be resolved before it can be determined whether commercial air transport of plutonium, as envisioned in the upcoming U.S.-Japan nuclear agreement, can be achieved safely and securely . . . . It is premature, therefore, for the Reagan Administration to negotiate away U.S. authority over how Japan makes use of plutonium contained in spent nuclear fuel originally supplied by the United States or used in U.S.-supplied reactors. The President should not submit the new U.S.-Japan agreement to Congress until all technical issues with regard to air transport of plutonium are resolved."

In addition, the report concluded: ". . . there are also questions concerning the vulnerability of commercial, weapon-usable plutonium to attacks or thefts by terrorists, as well as the eventual spread of this material to nations seeking the capability to build nuclear weapons. From both counter-terrorism and non-proliferation perspectives, the risks of commercial use of plutonium may far outweigh any energy benefits of using this fuel."

STATE OF ALASKA 1987 LEGISLATIVE SESSION
FISCAL NOTE

Bill Version : HJR 35
Publish Date :

REQUEST:

Revision Date:
Title : "Relating to the use of state airports for plutonium shipments..."
Sponsor : Representative Ellis
Requestor : House HESS

Agency Affected : Department of Law
BRU : Legal Services
Components : Operations

EXPENDITURES/REVENUES: (Thousands of Dollars)

OPERATING	FY 87	FY 88	FY 89	FY 90	FY 91	FY 92
PERSONAL SERVICES						
TRAVEL						
CONTRACTUAL						
SUPPLIES						
EQUIPMENT						
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING		-0-	-0-	-0-	-0-	-0-
CAPITAL						
REVENUE						

FUNDING: (Thousands of Dollars)

GENERAL FUND		-0-	-0-	-0-	-0-	-0-
FEDERAL FUNDS						
OTHER						
TOTAL						

POSITIONS:

FULL-TIME		-0-	-0-	-0-	-0-	-0-
PART-TIME						
TEMPORARY						

ANALYSIS : (Attach a separate page if necessary)

Please see attached analysis.

Richard I. Pegues

Prepared by : Richard I. Pegues, Director
Phone : 465-3672
Division : Administrative Services
Date : May 12, 1987

Richard I. Pegues /FOR/

Approved by Commissioner : Grace Berg Schaible, Atty. Gen.
Date : May 12, 1987
Agency : Department of Law

Distribution (by preparer):
Legislative Finance
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Requestor
Office of Management and Budget
Impacted Agency(ies)
Senate Secretary

CONTINUATION of FISCAL NOTE ANALYSIS

For Bill/Resolution No. HJR 35

House Joint Resolution No. 35 expresses the Legislature's opposition to the proposed 30-year nuclear cooperation agreement between the United States and Japan that would allow shipment of plutonium by air between Europe and Japan via the polar route, resulting in refueling stopovers in Alaska by aircraft carrying plutonium shipments. Of particular concern, a loophole in the Atomic Energy Act may allow the cask standards of the Nuclear Regulatory Commission to be overlooked in favor of the standards of the International Atomic Energy Agency that require the plutonium shipping cask to meet only one-tenth of the impact velocity required by the Nuclear Regulatory Commission. A cask that met the standards of the International Atomic Energy Agency recently failed a test that simulated an airplane crash. Adoption of the lesser, international standards could be particularly hazardous because the shipped plutonium will be in the form of plutonium oxide powder, which is easily airborne, and minute quantities of which, if inhaled, can cause cancer. Of equal concern, a blanket 30-year approval, in lieu of the present case-by-case approval process, may effectively bar authorities from taking proper safety and security precautions due to the shortness, or lack of notice before a particular shipment takes place.

The resolution requests the Governor to prevent the use of state airports for shipments of plutonium under AS 18.45.027, which prohibits the transportation of nuclear waste material, except for disposal outside the state. At the request of Governor Cowper, the Department of Law recently began research of this issue to determine what legal remedies may be available to the state, to insure that the proposed treaty includes proper safeguards for the state's residents. The department is investigating various avenues available to the state, including possible litigation under AS 18.45.027, the National Environmental Protection Act, and the Atomic Energy Act. As this research began only a short time ago no firm conclusions have yet been drawn.

If the state determines that it should move actively to prevent plutonium shipments through state airports, action may be required on two or three separate fronts. Because the proposed agreement between the United States and Japan is subject to ratification by the U.S. Senate, it is important that the state signal its opposition to the current proposal in a manner that provokes the thoughtful attention and discussion of the Senate Foreign Relations Committee to the safety aspects of the treaty. Once ratified by the Senate, the treaty will preempt AS 18.45.027, insofar as shipments of nuclear materials under the treaty are concerned.

Litigation under state or federal law, prior to ratification, may provide this sort of signal. An attempt to prevent shipment under AS 18.45.027 would be handled by the department's existing staff and

CONTINUATION of FISCAL NOTE ANALYSIS

For Bill/Resolution No. HJR 35

would not require fiscal note costs. Alternatively, litigation under federal law would be primarily handled by inhouse staff, but some review by outside counsel would be recommended. The department's early research is recommended. The department's early research litigation may delay federal action in the short-term, but it may not be successful in preventing shipments in the long-term.

Due to the uncertainty of litigation, it may also be prudent for the state to employ counsel of sufficient prominence to affect policy Washington, D.C., at the highest levels of the federal government, to convey decisions at the state's safety concerns to the U.S. Department of State, the Nuclear Regulatory Commission, the White House, and the Congress. Because there has not been time to fully assess the measures that may be required to support the state's interest in this matter, the fiscal impact of state efforts beyond taking action under AS 18.45.027 has not been determined. The cost for outside counsel could be very expensive and cost between $20,000 to $30,000. review litigation to lobby for changes in the proposed international Outside counsel to lobby for changes in the proposed international treaty could be very expensive and cost between $250,000 and $500,000, or more. The department will continue its research and assessment in these areas and report its findings to the Legislature after it convenes next January. A supplemental appropriation to fund legal action, beyond those provided for in AS 18.45.027, may be required.

CORRECTION

THIS DOCUMENT
HAS BEEN REPHOTOGRAPHED
TO ASSURE LEGIBILITY

would not require fiscal note costs. Alternatively, litigation under federal law would be primarily handled by inhouse staff, but some review by outside counsel well experienced in litigation under the federal Acts is recommended. The department's early research indicates that litigation may delay federal action in the short-term, but it may not be successful in preventing shipments in the long-term.

Due to the uncertainty of litigation, it may also be prudent for the state to employ Washington, D.C., counsel of sufficient prominence to affect policy decisions at the highest levels of the federal government, to convey the state's safety concerns to the U.S. Department of State, the Nuclear Regulatory Commission, the White House, and the Congress. Because there has not been time to fully assess the measures that may be required to support the state interest in this matter, the fiscal impact of state efforts beyond taking action under AS 18.45.027 has not been determined. The cost for outside counsel to review litigation under federal law could cost $20,000 to $30,000. Outside counsel to lobby for changes in the proposed international treaty could be very expensive and cost between $250,000 and $500,000, or more. The department will continue its research and assessment in these areas and report its findings to the Legislature after it convenes next January. A supplemental appropriation to fund legal action, beyond those provided for in AS 18.45.027, may be required.

HOUSE COMMITTEE REPORT

(7)

Date referred: 5/6/87

FURTHER REFERRALS:

DATE: May 12, 1987

The Health, Education and Social Services Committee has considered HJR 35

Relating to the use of state airports for plutonium shipments under a proposed United States agreement with Japan.

RECOMMENDS:

[ ] replace with ______________ [ ] the same title [ ] a new title

[ ] attached amendment(s)

[✓] do pass

[ ] do not pass

[ ] no recommendation

[ ] individual recommendations

[ ] additional referral to the ______________ Committee

ADOPTS: [ ] __________ letter of intent

ATTACHES NEW FISCAL NOTE(s):

[ ] fiscal impact

[ ] zero fiscal note

[ ] zero with analysis

[ ] same as previous fiscal note published ______________

[ ] same as previous zero fiscal note published ______________

SIGNING DO PASS:

Rell E. Phillips

Joyce A. Hanley

Niilo Koponen

Bill Hudson

Dave Donley

SIGNING OTHER RECOMMENDATIONS:

Niilo Koponen

Co-Chairman's signature

THE SECRETARY OF STATE

WASHINGTON

5/1
SNT
JDN

cc:
NEI

April 30, 1987

Dear Governor Cowper:

Thank you for your letter of April 2 requesting the Departments of State and Energy to prepare an environmental impact statement for the proposed new U.S.-Japan agreement for peaceful nuclear cooperation before its submission to the President and the Congress. I fully share your concern for the health and safety of Alaskans and for Alaska's natural environment, and want to assure you that all appropriate steps will be taken to ensure that implementation of the new U.S.-Japan agreement will cause no injury to either one.

The new agreement will provide an overall framework for cooperation between the United States and Japan in the peaceful uses of nuclear energy. As one element, the U.S. will undertake to give its approval to the European Atomic Energy Community (EURATOM) for the return to Japan of Japanese plutonium recovered through reprocessing in France and the United Kingdom. This approval will be embodied in an associated subsequent arrangement concluded under the U.S. agreement for cooperation with EURATOM. It will be conditioned upon a number of requirements being met, including stringent physical security and safety requirements such as transfer exclusively by air (to minimize time spent in international transit), use of a cask certified to withstand a crash, armed guards, redundant communications and detailed contingency plans.

The agreement and the associated subsequent arrangement are currently undergoing rigorous interagency review pursuant to the Atomic Energy Act. One of the issues under consideration is when and in what form any additional environmental review should be concluded, either prior to entering into the agreement or before authorization is given for any air shipments of plutonium through U.S. transit points. In addition to this Department, your letter is being provided to the other agencies considering this issue, which include those with a statutory role under the Atomic Energy Act as well as those whose regulatory responsibilities may be relevant to implementation of the agreement.

The Honorable
Steve Cowper,

Although this review is still in process, I can at this time address several matters raised by your letter concerning the agreement itself. You inquired whether the agreement will constitute a decision to ship plutonium through an Alaskan airport. The agreement will not constitute such a decision. On the question of routing, it requires only that the aircraft returning plutonium from Europe to Japan must take a polar route or another route that avoids civil disorder and natural disasters. It is true, as reported, that Japan is considering a route that would include a refueling stop in Alaska. At present, however, no transportation plan has been prepared, and I have been informed that it could be some time before specific proposals are made since a transport cask is still under development and must pass a series of rigorous tests to gain approval.

You also expressed concern that air shipments of plutonium might take place under the agreement in casks that did not meet the Nuclear Regulatory Commission's stringent safety standards. Regardless of the route chosen, the agreement will require shipment casks to be designed and certified to maintain their integrity even if the aircraft crashes. Moreover, the agreement will not displace the laws and regulations of any nation governing shipment of nuclear materials. For the U.S., this means that the responsibilities of the Nuclear Regulatory Commission and the Department of Transportation to certify the safety of casks in accordance with U.S. standards will not be affected by the agreement.

Finally, your letter raised the question of what would happen if it proves impossible to develop a safe cask for air transport of plutonium. In that event, the U.S. approval to EURATOM pursuant to the agreement will not apply. Any decision to permit transfer of the plutonium from EURATOM to Japan will then be made on a case-by-case basis, as it is today.

Let me emphasize in closing our commitment to ensuring that the agreement poses no hazards to the health, safety or environment of Alaskans or others residing in the United States. We will keep your office fully informed as we review these issues.

Sincerely yours,

George P. Shultz

George P. Shultz

Nuclear Proliferation: Studies and Strategies for Stopping the Spread of the Bomb

P. 2 of 6

NUCLEAR CONTROL INSTITUTE
1000 Connecticut Avenue, N.W., Suite 704, Washington, D.C. 20036 (202) 822-8444

Testimony by Paul Leventhal
President, Nuclear Control Institute
On House Joint Resolution No. 35
Presented to the Alaska House of Representatives
Committee on Health, Education and Social Services
May 12, 1987

Mr. Chairman and members of the Committee: I appreciate your invitation to testify on House Joint Resolution No. 35 relating to the use of state airports for plutonium shipments under a proposed United States agreement with Japan. As an organization concerned with the safety and weapons-proliferation risks in the planned commercial use of plutonium as reactor fuel, we support the expression of opposition to the U.S.-Japan nuclear agreement as contained in the pending House Joint Resolution.

Details of planned air shipments of plutonium from Europe to Japan via Alaska are disclosed in a Special Report, "Air Transport of Plutonium Obtained by the Japanese from Nuclear Fuel Controlled by the United States," prepared by the Nuclear Control Institute and released March 3, 1987. I co-authored the report with Milton Hoenig, the Institute's scientific director, and Alan Kuperman, a research associate. The Institute is non-partisan and non-profit and conducts independent research on problems relevant to the spread of nuclear weapons.

As is noted in our report, President Reagan is preparing to submit to Congress a new 30-year nuclear-cooperation agreement with Japan that would require biweekly flights of a cargo plane carrying about 500 pounds of plutonium from Europe to Japan. Because of the enormous weight of shipping casks to be used to transport the plutonium, the flights would cross Canada and land for refueling in Anchorage, Alaska, and then take off again for Japan. Regular, commercial air shipment of such quantities of plutonium is unprecedented.

A crash-proof cask being developed for these plutonium shipments failed to survive a high-velocity impact test at Sandia National Laboratories last summer. No new tests have been scheduled, and some experts close to the project believe that it will not be possible to build a large cask, for use in large-scale shipments of plutonium, that can survive a realistic crash test. The cask being developed weighs 5,000 pounds and holds about 15 pounds of plutonium. There would be as many as 40 of these casks on a single Boeing-747 cargo plane. British and French firms have

also failed thus far in their efforts to develop a crash-proof cask. An official from Cogema Inc. recently confirmed that a crash test of the French firm's prototype cask resulted in a "shattered" cask.

It is possible that the Reagan Administration will permit Japanese plutonium flights in and out of Anchorage utilizing casks that fail to meet strict safety criteria spelled out by the Nuclear Regulatory Commission (NRC) after Congress mandated the development of crash-proof casks in a 1975 law. Transshipments of plutonium, using U.S. territory for refueling, may not fall under the constraints of the 1975 law, commonly known as the Scheuer amendment, which banned domestic air transport of plutonium until the development of crash-proof casks. If the transshipments were not required to satisfy the Scheuer amendment, the casks might be required only to meet the inadequate standards set by the International Atomic Energy Agency. The cask standards set by the IAEA are the same for transport by trucks as they are for transport by air, and the impact test uses a velocity of only 30 MPH as opposed to 288 MPH in the NRC test.

If a new cask is developed that survives the simulated crash tests required by the NRC, it would be desirable to ascertain, and to demonstrate to the public, that a full complement of casks will survive an actual plane crash. This objective can be accomplished by crashing a 747 with a full load of casks containing non-radioactive, test material. As learned from a December 1984 FAA crash test of a Boeing-720, actual crashes can have very different consequences than simulated crashes in a laboratory. In that test---which cost $11.8 million---flame-proof fuel that had been tested successfully in laboratory crash tests, burst into a fireball when the Boeing 720, using the fuel, was actually crashed.

Plutonium, a manmade element created as a waste byproduct of reactor operation, is highly toxic and can be used in nuclear weapons. Thirteen to eighteen pounds of separated, reactor-grade plutonium is sufficient for use in a crude, nuclear weapon of the type that destroyed Nagasaki. The Japanese plan to separate plutonium from U.S.-controlled spent reactor fuel and use the plutonium as a fuel in their power reactors---an approach that has been rejected by Congress as too hazardous and costly for the United States' domestic nuclear power program.

According to our report, crashes of two U.S. military aircraft carrying nuclear warheads, which resulted in the release of substantial amounts of plutonium (tens of pounds) serve to illustrate the problem. One crash occurred at Palomares Spain, in January, 1966 after a bomber and a tanker collided in a routine mid-air refueling operation. Clean-up of 1,400 tons of contaminated soil and vegetation at Palomares cost $500-million. The crash of a bomber carrying four nuclear weapons at Thule, Greenland, in January, 1968, required the removal of one and a half million gallons of contaminated snow, ice and water at a cost of $300-million. Both of these sites were unpopulated. Plutonium

contaimination of a more densely populated crash site would involve a public health risk, and evacuation and decontamination costs would be many times higher.

The new nuclear agreement---negotiated by the Reagan Administration but still not submitted for Congressional approval---would give the Japanese a 30-year advance approval to recover and use plutonium produced in nuclear fuel originally supplied by the United States or used in U.S.-supplied power reactors. The new agreement would replace the present agreement, which does not expire until the year 2003. Under the existing agreement, the United States can withhold approval on a case-by-case basis of Japanese plutonium activities on safety or security grounds.

Pursuant to Section 102(2)(C) of the National Environmental Policy Act (NEPA) of 1969 and the implementing regulations of the Council on Environmental Quality (CEQ), 40 C.R.R. Part 1500 (1986), the Department of State, 22 C.F.R. Part 161 (1986), and the Department of Energy (DoE), 10 C.F.R. Part 1021 (1986), a full environmental statement is required to analyze the severe environmental risks posed by contemplated air shipment through Alaska of large amounts of separated plutonium during the term of the proposed Nuclear Cooperation Agreement. This section of NEPA requires a detailed statement on "every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment..." As is made clear in section 1508.17 of the CEQ regulations, international agreements fall within the category of "proposals or legislation" specified in the law. The DoE's NEPA regulations adopt the CEQ regulations in full, 10 C.F.R. 1021.2, while the Department of State's regulations generally contemplated the application of NEPA to international agreements and specifically contemplated that where there are significant impacts in the United States, an environmental impact statement must accompany the submission of the agreement to the Congress. 22 C.F.R. 161.5(d).

It is our view, therefore, that the Executive Branch must prepare and consider an environmental impact statement before the President can approve and submit to Congress the new nuclear-cooperation agreement with Japan. We support, therefore, Governor Cooper's request that an EIS be prepreared before the proposed agreement proceed any further.

The U.S. government blocked for two years a large plutonium shipment by sea that originally was to proceed on its five-week journey from France to Japan without military escort or surveillance. The large risks and costs associated with this shipment, which originally involved the use of French and U.S. warships and satellites in 1984, led to plans to send future shipments by air. Under the new U.S.-Japan agreement, however, the United States would lose its veto power over safety and security arrangements for these shipments, as well as over use of the plutonium itself.

The United States presently exercises legal control over most of the 85 metric tons [187,000 pounds] of plutonium that the Japanese want to recover from their nuclear spent fuel by the year 2000. About half of the plutonium is contained in spent fuel that Japan has sent or has contracted to send, with U.S. consent, to France and the United Kingdom for reprocessing. U.S. controls now apply to at least 80 percent of the 45 metric tons [99,000 pounds] of plutonium to be separated in France and the U.K. from Japanese light-water reactor spent fuel, according to an analysis by David Albright, a physicist with the Federation of American Scientists.

Under the new agreement, the United States would provide one approval, in advance, for Japanese shipment and use of plutonium derived from U.S.-supplied nuclear fuel or fuel used in U.S.-supplied reactors, for the 30-year life of the agreement.

The prospect of growing stocks of plutonium, widely available and widely used in the commercial nuclear fuel cycle in Europe and Japan, also conveys a picture with important implications for the interests of U.S. national security. There is heightened concern that plutonium at any number of places in the fuel cycle---in fuel reprocessing plants and fabrication plants or in transit on land, on the high seas, or during stops at airports---will be a potential target for diversion or seizure by terrorists intent on building a crude nuclear bomb, or for diversion by states with similar interests.

Although nuclear terrorism in any form still has a low probability of occurring, there are indications that the probability is increasing, according to a report issued in 1986 by the International Task Force on Prevention of Nuclear Terrorism. The Task Force is a project of the Nuclear Control Institute. According to the Task Force report, one factor is the increasing number of shipments and facilities involving the presence of weapon-usable forms of plutonium and uranium. Another is the growing sophistication of terrorist groups and the level of technical know-how now available in the public domain, the Task Force reported.

According to an article published May 4 in Nuclear Fuel, a respected nuclear trade journal, the Department of Defense (DoD)---in a classified letter signed by Secretary of Defense Caspar Weinberger and sent to the NRC and to relevant executive agencies---opposes the U.S.-Japan nuclear cooperation agreement on the grounds that the thirty-year, advance, programmatic approval of commerce in massive amounts of plutonium engenders grave security risks.

A new U.S. law, the Defense Authorization of 1986, gives DoD an enhanced nonproliferation role in interagency decision-making with full access to classified information available to the State and Energy departments. The Defense Department's growing interest in plutonium trade and other proliferation matters is based not only on a generalized national-security interest, but on concerns that stolen plutonium in terrorists' hands could pose a direct

threat to U.S. military forces, especially in Europe. Richard Perle, then Assistant Secretary of Defense, told a European arms control conference last year that "there is no place for the spread of plutonium around the world in any sensible policy aimed at restricting the proliferation of nuclear weapons, and I think that traffic in plutonium ought to be halted and halted absolutely."

Japan does not require the plutonium that they would acquire under the proposed agreement to keep their power reactors running. These reactors currently use, as fuel, non-nuclear-weapon-usable, low-enriched uranium. This fuel is cheaper than the proposed mixed, uranium-plutonium fuel that Japan is contemplating using. In addition, there is a glut of uranium and uranium-enrichment services on the market, so that Japan could guarantee its energy future safely and securely simply by stockpiling low-enriched, uranium fuel. As nuclear experts Bertram Wolfe and Burton F. Judson of General Electric stated in a Paper prepared for our Task Force, "Nations with advanced nuclear energy programs that are planning reprocessing over the near term raise issues of international plutonium trade and concomitant non-proliferation risks unjustified by economic benefits."

I will close by noting, as we did in our report on air shipment of plutonium, that there are many technical issues to be resolved before it can be determined whether commercial air transport of plutonium, as envisioned in the upcoming U.S.-Japan nuclear agreement, can be achieved safely and securely . It is premature, therefore, for the Reagan Administration to negotiate away U.S. authority over how Japan makes use of plutonium contained in spent nuclear fuel originally supplied by the United States or used in U.S.-supplied reactors. The President should not submit the new U.S.-Japan agreement to Congress until all technical issues with regard to air transport of plutonium are resolved.

In addition, there are also questions concerning the vulnerability of commercial, weapon-usable pluconium to attacks or thefts by terrorists, as well as the eventual spread of this material to nations seeking the capability to build nuclear weapons. From both counter-terrorism and non-proliferation perspectives, the risks of commercial use of plutonium may far outweigh any energy benefits of using this fuel.

We believe the concerns of the State of Alaska, as expressed in this resolution and in the Governor's letter, are well-founded and should be actively pursued to ensure that air shipments of plutonium, if they proceed at all, do so only under foolproof safety and security precautions. The best precaution would be to avoid shipment and use of plutonium altogether.

#

An Eskimo dog team stands near the site of B-52 crash. The buildings housed recovery teams; string of lights marks the crash site.

UPI Bettmann News Photos

Fallout from the radioactive crash of '68

DENMARK

By Robin Epstein

IN 1987, AS IN 1968, EVENTS IN DENMARK MAY ONCE again prod the nuclear conscience of the U.S. Then, an American B-52 armed with four thermonuclear weapons crashed in Danish Greenland, provoking then-Secretary of Defense Robert McNamara to cancel the airborne alert program that had maintained nuclear armed bombers permanently in the air since 1961. Now, 19 years later, Danish Prime Minister Poul Schlueter must deal with the fallout from the crash. Under pressure, he has promised that the 1,000-some Danes who were at the crash site will be examined for radiation poisoning. It remains to be seen if the U.S. will follow suit and investigate the thousands of Americans involved in the crash cleanup for plutonium-related illnesses.

On Jan. 21, 1968, a B-52 carrying four 1.1 megaton hydrogen bombs took off from Plattsburgh, N.Y., to fly the "Chrome Dome," a 24-hour Arctic Circle airborne alert route. Near the U.S. Air Base in Thule, Greenland, the cockpit of the plane filled with smoke. After failing to make an emergency landing, the seven-member crew ejected at 8,000 feet. Six of them survived.

The B-52 crashed onto the ice of North Star Bay seven miles southwest of Thule. The conventional explosive detonators in the outer covering of the hydrogen bombs blew up, spewing radioactive plutonium across the ice.

Late last year Prime Minister Schleuter ordered that the Danes who were at Thule be systematically identified and medically examined. Six of the 130 who participated directly in the cleanup are dead. "But all the people on the base were in contact with poisonous radioactive materials," says Lars Melgaard of OOA, a Danish nuclear information group. Everyone ignored signs prohibiting entry to dangerous areas, participants told Melgaard.

This February the Danish minister for internal affairs asked U.S. authorities which radioactive substances were used in the bombs aboard the crashed B-52. But Danish environmentalists harbor little hope that the U.S. will release this classified military information until 1989, when the bombs, which were B-28s, will no longer be in use.

Of particular interest to the Danes is whether the bombs contained beryllium. A highly toxic substance that causes acute and chronic illnesses of the lungs and skin, weight loss and exhaustion, beryllium lessens the amount of plutonium necessary for a nuclear explosion. With beryllium present, four rather than 12.5 kilos of plutonium would have sufficed per bomb. In 1968 a kilo of plutonium ran around $300,000; a kilo of beryllium $150.

More than 700 American soldiers were stationed at Thule when the plane went down. About 1,400 were flown in—some of them on their way home from Vietnam—to help mop up. But so far there are no U.S. plans to find out if they also are suffering due to radiation exposure.

The Broken Arrow Control Group mobilized immediately, sending Richard Hunziker, an Air Force major-general of inspection and safety, to Greenland to oversee the operation. Broken Arrow is a Pentagon euphemism for nuclear-weapons-related accidents, of which Thule was the 30th.

Hunziker was joined by U.S. Navy investigators who in 1966 had cleaned up a similar B-52 crash in Palomares, Spain, as well as the Air Force units flown to Greenland to share the grunt work with Danish civilians.

Missing–11 kilos: More than 2,000 Americans—90 percent of whom were military personnel—and hundreds of Danes spent four winter months of 1968 on dogsleds in the arctic darkness retrieving cigarette-pack-sized pieces of radioactive bomber debris along with 237,000 cubic feet of contaminated ice. It took 10 days to locate the scattered bomb shards, which were sent back to where they came from—the AEC's Pantex plant in Amarillo, Texas. The search for the rest of the wreckage and radioactive material continued through March 15. According to OOA and Greenpeace Denmark, each bomb contained four kilos of plutonium. Only five kilos, rather than the full 16, were recovered.

In September 1968 a combination of ice and tundra was flown to the Savannah River plant in Aiken, S.C. The dirt was buried in a low-level waste disposal trench. The water underwent an ion exchange process and then joined other liquid waste for eventual release to the environment.

Bombers grounded: The Danish left was infuriated by the crash. One hundred and fifty NATO protesters gathered in Copenhagen to accuse the U.S. of violating the 1949 agreement that granted it air base rights at Thule on the condition that no nuclear bombs be flown over Danish territory.

Within a day of the crash, then-Defense Secretary McNamara removed nuclear weapons from the bombers. Outcry from Danish officialdom shielded him from appearing to acquiesce to Soviet condemnation when he cancelled airborne alert altogether in February.

Untrustworthy urinalysis: In 1968 the Wright-Patterson Air Force radiological laboratory in Dayton, Ohio, analyzed for plutonium more than 20,000 urine specimens of the Americans who had been in Thule. Those test results influenced the 1970 joint U.S.-Danish report that called the cleanup "a classic example of international cooperation" in which no health dangers had been posed from the radioactivity.

Dr. Elliot Abbey of the Veterans Administration Hospital in St. Louis, Mo., told *In These Times* that the urine tests may not have conclusively proved that the men were not exposed to significant amounts of plutonium. It is possible that as the flaming plane skidded across the ice, the plutonium was high-fired rather than air-oxidized. And if the plutonium dioxide particles were in a high-fired state after the crash—and were therefore less soluble—they may have remained in the lungs. Consequently, excretion of radioactivity from the workers' bodies would have been delayed and urinalysis would not have indicated exposure.

Abbey first became interested in the Thule crash six years ago when he diagnosed a patient who had participated in the cleanup with a rare blood cancer called hairy cell leukemia. "If there's a single other person with this type of leukemia that was at Thule, then the chances are extraordinarily high that it had to do with that exposure," Abbey said. He tried to locate other Americans involved, but with no success. And at that time he found the Danish ministry of health unresponsive to his suggestion that they conduct a study.

More recently, a Danish woman named Sally Markussen has had better luck. Her efforts, along with those of Danish environmental lobbyists and the subsequent press attention, forced the Danish government to act. Markussen's 49-year-old husband Ole, who was personnel manager at the Thule base in 1968, has trouble breathing. He vomits frequently, excretes blood and has lost 66 pounds. *The Guardian* of London reported that Markussen informally canvassed 800 Danish Thule workers. She found 500 share symptoms such as weight loss, exhaustion, loss of concentration and coordination, breathing problems and wounds on their limbs that won't heal. More than 90 of them have cancer.

But across the Atlantic sits the Pentagon, and it does not like to admit mistakes. Obtaining medical attention for the Americans who were at Thule might require a class-action suit similar to those filed by Vietnam veterans exposed to Agent Orange.

A Freedom of Information Act request may be the only way to find them. The Air Force's world-wide locator will forward letters to retired servicemen, but the Pentagon is not about to volunteer the names of the clean-up participants, let alone their whereabouts. □

Thule alumni with any kind of blood disease contact Dr. Elliot Abbey at the St. Louis VA Medical Center, 111-JC, St. Louis, MO 63125, or call (314) 652-4100. Those with knowledge of the crash and clean-up are requested to write Robin Epstein, c/o In These Times, *or call (718) 857-2950.*

Robin Epstein is an editorial assistant at *The Nation* in New York City.

Flirting with disaster

Denmark's current health crisis and the history behind it should be a warning signal to Congress, which is scheduled to vote soon on President Reagan's proposed legislation sanctioning bi-weekly commercial flights of 500 pounds of plutonium between Europe and Japan. The administration officials who drafted the proposed 30-year agreement hope to render Japan independent from foreign oil, but at what expense? If passed, the nuclear accord will cede the U.S. right—which does not expire until the year 2003—to veto Japanese plutonium transactions on a case-by-case basis for safety or security reasons.

"The agreement in its present form is ill-conceived, lacks foresight and is actually reckless," says Alan Kuperman of the Washington, D.C.-based Nuclear Control Institute, a non-partisan group that has issued a special report on Japan's planned air shipments of U.S.-supplied spent nuclear fuel to Europe for reprocessing. None of the large casks needed to transport such quantities of plutonium have survived crash tests. France and England would reprocess 85 tons of plutonium—an amount equal to that of the U.S. nuclear arsenal—for use in Japanese reactors by the year 2000. It only takes 15 pounds for a terrorist to make a crude nuclear weapon.

HJR

38

STATE OF ALASKA
THE LEGISLATURE

POUCH Y - STATE CAPITOL
JUNEAU, ALASKA 99811
907-465-3800

LEGISLATIVE AFFAIRS AGENCY

LEGISLATIVE REFERENCE LIBRARY

May, 1988

Copies of minutes listed below were originally included in this file. The minutes are available on the STAIRS database CMPR. In order to save space copies of minutes have not been left in the files.

Mary Van Nimwegen

H HESS 1-20-88 8:30 a.m.

Original sponsors: Koponen, Davis and Donley

IN THE HOUSE

BY THE HEALTH, EDUCATION AND SOCIAL SERVICES COMMITTEE

CS FOR HOUSE JOINT RESOLUTION NO. 38 (HESS)

IN THE LEGISLATURE OF THE STATE OF ALASKA

FIFTEENTH LEGISLATURE - SECOND SESSION

Relating to radon.

BE IT RESOLVED BY THE LEGISLATURE OF THE STATE OF ALASKA:

WHEREAS high concentrations of radon, a naturally occurring radioactive gas, have been found in homes around the state; and

WHEREAS radon is found in soils, rocks, and groundwater supplies, and can enter a house through various routes; and

WHEREAS a preliminary survey conducted by the Environmental Protection Agency indicated that as many as 8,000,000 or 12 percent of homes nationwide could contain dangerous levels of this cancer-causing gas, and that between 5,000 and 20,000 people each year die from lung cancer believed to be related to radon exposure; and

WHEREAS in Alaska, preliminary studies have identified high concentrations of radon in the areas adjacent to Fairbanks, Denali, and Healy; and

WHEREAS, unless regional surveys are conducted, one cannot reliably predict where high levels of indoor radon will be found because radon levels may be affected by the uranium content of nearby rock and soil, soil permeability, house construction, and other factors; and

WHEREAS the only way to determine whether a house contains a high level of radon is to test it with special equipment, because radon cannot be seen or smelled;

BE IT RESOLVED by the Alaska State Legislature that the United States and the State of Alaska should make a coordinated, joint effort to investigate and alleviate the indoor radon gas problem in Alaska; and be it

FURTHER RESOLVED that a radon information program designed to meet the

Alaska State Legislature

Representative Niilo Koponen

Pouch V
Juneau, Alaska 99811
(907) 465-4992

542 4th Avenue, Suite C
Fairbanks, Alaska 99701
(907) 456-8161

MEMORANDUM

TO: HOUSE HESS COMMITTEE MEMBERS

FROM: REPRESENTATIVE NIILO KOPONEN

RE: MINOR CHANGES IN HJR 38

DATE: JANUARY 20, 1988

The following changes that I am proposing in this new CS are simple clarifications to make this Resolution read more clarely:

LINE 14 added the word believed after lung cancer

LINE 16 clarified the sentence to read 'preliminary studies have identified high concentrations of radon in the areas adjacent to Fairbanks, Denali and Healy'. Instead of 'in Alaska, high concentrations of radon have been found in the areas surrounding Fairbanks, McKinley and Healy.'

LINE 18 is clarified to read 'there is no completely reliable method for predicting' instead of unless regional surveys are conducted, one cannot reliably predict.

LINE 26 deleted the word investigate so it just states alleviate.

Under COPIES I added Myra Munson, Commissioner of Health and Social Services and Judith M. Brady, Commissioner of Natural Resources.

POSITION PAPER/Department of Health & Social Services

Position Paper

HJR 38

"Relating to radon"

This resolution outlines problems associated with exposure to radon in homes and makes reference to the fact that high concentrations of radon gas have been found in areas surrounding Fairbanks and Healy. The resolution calls for a joint effort on the part of the U.S. government and the State of Alaska to alleviate the indoor radon gas problem in Alaska and also calls for a radon information program designed to meet the needs of the citizens of Alaska.

HJR 38 is fully in agreement with and is supportive of efforts presently being carried out by the Department of Health and Social Services in its monitoring of radon gas in Alaska homes.

The Department of Health and Social Services supports this resolution.

Recommended by: Elizabeth Ward

Elizabeth Ward, M.N.
Director
Division of Public Health

Date: January 19, 1988

Approved by: Myra M. Munson

Myra M. Munson
Commissioner
Department of Health and Social Services

Date: Jan 19, 1988

5-1448B

Original sponsors: Koponen, Davis and Donley

IN THE HOUSE

BY THE HEALTH, EDUCATION AND SOCIAL SERVICES COMMITTEE

CS FOR HOUSE JOINT RESOLUTION NO. 38 (HESS)

IN THE LEGISLATURE OF THE STATE OF ALASKA

FIFTEENTH LEGISLATURE - SECOND SESSION

Relating to radon.

BE IT RESOLVED BY THE LEGISLATURE OF THE STATE OF ALASKA:

WHEREAS high concentrations of radon, a naturally occurring radioactive gas, have been found in homes around the state; and

WHEREAS radon is found in soils, rocks, and groundwater supplies, and can enter a house through various routes; and

WHEREAS a preliminary survey conducted by the Environmental Protection Agency indicated that as many as 8,000,000 or 12 percent of homes nationwide could contain dangerous levels of this cancer-causing gas, and that between 5,000 and 20,000 people each year die from lung cancer believed to be related to radon exposure; and

WHEREAS in Alaska, preliminary studies have identified high concentrations of radon in the areas adjacent to Fairbanks, Denali, and Healy; and

WHEREAS, unless regional surveys are conducted, one cannot reliably predict where high levels of indoor radon will be found because radon levels may be affected by the uranium content of nearby rock and soil, soil permeability, house construction, and other factors; and

WHEREAS the only way to determine whether a house contains a high level of radon is to test it with special equipment, because radon cannot be seen or smelled;

BE IT RESOLVED by the Alaska State Legislature that the United States and the State of Alaska should make a coordinated, joint effort to investigate and alleviate the indoor radon gas problem in Alaska; and be it

FURTHER RESOLVED that a radon information program designed to meet the

needs of the citizens of our state should be developed and implemented.

COPIES of this resolution shall be sent to Lee M. Thomas, administrator of the Environmental Protection Agency; to the Honorable Ted Stevens and the Honorable Frank Murkowski, U.S. Senators, and the Honorable Don Young, U.S. Representative, members of the Alaska delegation in Congress; to Governor Steve Cowper; to Dennis Kelso, Commissioner of Environmental Conservation; to Myra Munson, Commissioner of Health and Social Services; and to Judith M. Brady, Commissioner of Natural Resources.

needs of the citizens of our state should be developed and implemented.

COPIES of this resolution shall be sent to the Honorable John S. Herrington, Secretary of Energy; to the Honorable Otis R. Bowen, Secretary of Health and Human Services; to Lee M. Thomas, administrator of the Environmental Protection Agency; to the Honorable Ted Stevens and the Honorable Frank Murkowski, U.S. Senators, and the Honorable Don Young, U.S. Representative, members of the Alaska delegation in Congress; to Governor Steve Cowper; to Dennis Kelso, Commissioner of Environmental Conservation; to Myra Munson, Commissioner of Health and Social Services; and to Judith M. Brady, Commissioner of Natural Resources.

HOUSE COMMITTEE REPORT

(7)

Date referred: 1/11/88 FURTHER REFERRALS:

DATE: 1-20-88

The Health, Education and Social Services Committee has considered HJR 38

Relating to Radon.

RECOMMENDS:

[✓] replace with CS HJR 38 (HESS) [✓] the same title
[ ] attached amendment(s) [ ] a new title

[✓] do pass
[ ] do not pass
[ ] no recommendation
[ ] individual recommendations
[ ] additional referral to the ____________ Committee

ADOPTS: [ ] ________ letter of intent

ATTACHES NEW FISCAL NOTE(s):

[ ] fiscal impact
[✓] zero fiscal note
[ ] zero with analysis
[ ] same as previous fiscal note published ________
[ ] same as previous zero fiscal note published ________

SIGNING DO PASS:

SIGNING OTHER RECOMMENDATIONS:

Co-Chairman's signature

Alaska State Legislature

Representative Niilo Koponen

Pouch V
Juneau, Alaska 99811
(907) 465-4992

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POSITION PAPER
HJR 38 RELATING TO RADON
JANUARY 12, 1988

Radon is a colorless, odorless gas resulting from the decay of naturally occurring radioactive elements in the earth. Rising from subsurface sources, radon enters homes where it can become a health hazard.

The U.S. Environmental Protection Agency states that nothing causes more environmental risk to the general population than radon, including toxic waste sites, gasoline combustion and industrial emissions. It is thought to be the second leading cause of lung cancer in this country, cigarette smoking being the first.

The intent of the resolution is to encourage the state and federal government to work cooperatively on Alaska's radon problem. Ten states are currently involved in a program with the EPA in conducting surveys to identify potentially high radon risk areas while 14 other states have recently requested EPA's assistance. Three other states are performing their own surveys.

The radon problem can be solved, but first we need to know where to look. The State Department of Natural Resources, Division of Geologic and Geophysical Survey, and the United States Environmental Protection Agency should participate in a study to locate the areas around the state of highest risk so that efforts to control indoor radon can be directed effectively.

A radon information program designed to meet the needs of the citizens of our state should also be developed and implemented.

Preliminary sampling in several areas of Alaska, including Fairbanks and Denali Park and Healy, have indicated levels high enough to merit concern.

The state has the responsibility to warn citizens about radon and to help people alleviate this problem, and it is essential that the legislature express its support for the necessary measures

THE ALASKA RADON PROBLEM

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Background

Radon (Rn^{222}) gas accumulation has long been known to be a serious health hazard in the uranium and phosphate mining industries, resulting in significantly elevated incidence of lung cancer in miners, but only since 1984 has it emerged as a potentially serious health problem in residences and public buildings throughout the United States.

Radon is a colorless, odorless, tasteless, and exceedingly heavy (eight times as heavy as ambient air) radioactive gas with a half-life of 3.8 days[1], which is produced by the natural decay of uranium. It occurs, at least in very small quantities, nearly everywhere at the earth's surface, and at higher concentrations where geologic conditions favor its formation, concentration, and migration in soil and water.

The recent intense interest in residential radon contamination was sparked in 1984 when a nuclear power plant worker in Pennsylvania set off radiation alarms as he entered the plant. His contamination was subsequently traced to an extremely high level of naturally occurring radon which was entering his home through the foundation, and which was emanating from the soil and backfill of the surrounding area. Further checking in the area identified several other residences which had potentially dangerous levels of radon and its radioactive daughter products in the ambient air. This area, known as the Reading Prong, has since been the focus of research to determine the geologic conditions and construction practices which contribute to the accumulation of radon in dwellings, and to develop economically feasible counter measures.

Since that time, numerous areas have been identified throughout the United States where serious levels of radon occur in dwellings. EPA and public health officials postulate that radon exposure may be the leading source of human exposure to naturally occurring background radiation, and the leading cause of non-smoking related lung cancer which may account for from 5,000 to 20,000 cancer-related deaths per year in the United States.

More than 30 states throughout the U.S. have initiated programs to identify areas with high radon hazard potential, and to develop measures to deal with the complex health and legal aspects of the problem. Representatives from

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[1] Half life refers to the length of time in which half of a given number of atoms of a radio isotope undergoes spontaneous radioactive decay to form its daughter element.

most of these states were present at a radon geology workshop held at the U.S. Geological Survey national center in Reston, Virginia, last month.

Geologic Controls

The geology and geochemistry of radon is complex, and recognition of these factors is one of the most important keys in identifying areas which may have a high radon risk potential. One of the first considerations in radon screening surveys is the recognition of the geologic favorability or potential for radon production and release. A variety of geologic conditions may encourage the production and accumulation of radon. These conditions may act singly or in concert to favor the emanation and migration of the gas to the surface and into dwellings. Some of these factors include:

1. Bedrock type (all of the rock types below are common sources of uranium and its daughter products):

   a. black shales and slates
   b. phosphatic carbonate rocks
   c. hydrothermally mineralized metamorphic rocks
   d. feldspathic igneous rocks

2. Bedrock structure:

   Faults and shear zones which provide avenues or conduits for the migration of radium salts and radon bearing fluids.

3. Surficial geology:

   a. Highly permeable and well drained soils such as coarse alluvium, glacial outwash, dune sand, loess, and loamy saprolites allow easy migration of soil gas by diffusion along favorable pressure gradients.
   b. The presence or absence of permafrost may control radon migration

4. Groundwater geochemistry and hydrology:

   eH and pH conditions which may favor the mobilization or concentration or uranium and radium compounds.

State and National Radon Programs

At this time, more than 30 states throughout the U.S. have initiated programs to identify areas with high radon hazard potential and to deal with the complex health and legal aspects of the problem.

DOE and EPA have established offices for the coordination of state assistance programs.

Radon in Alaska

Local areas of high radon emission have been known in the state since the mid 1970s. The first radon anomalies were noted by government and industry

geologists during the course of geologic investigations, including uranium/thorium surveys and exploration programs in Interior Alaska. The most notable of these anomalies was associated with uraniferous granitic rocks in the vicinity of Mt. Prindle and Central, Alaska, located in the Yukon-Tanana Upland northeast of Fairbanks.

Experimental work on the use of radon flux variations to predict earthquakes was conducted by Robert Forbes and Daniel Hawkins several years ago, which yielded some very interesting data on relatively high bedrock and soil radon gas emanation rates at some localities in the Fairbanks District.

High radiation levels which could have resulted from radon daughter isotope decay were noted in the vicinity of Circle Hot Springs during that same time period by exploration geologists in buildings which had been closed for an extended time prior to the field season. In 1980, DGGS commented on the radon problem potential in a proposed State land disposal area in the Central area, but no follow-up seemed to be merited at the time.

Until recently, very few radon measurements had been taken on air within dwellings in the state of Alaska. In 1985, spurred by growing public awareness of the potential hazards of radon in private residences, the Arctic Environmental Information and Data Center (in cooperation with Battelle Northwest Laboratories) conducted a small radon screening study in which nine homes and one office were tested. Elevated radon levels were found in 40% of the structures tested. One of the structures had between five and ten times normal background. The study represented a 'first cut' survey and was designed to simply determine whether or not significant radon concentrations were present at all, and whether or not additional studies were warranted (CONRIM Newsletter, Summer Edition, 1986).

Another small radon survey in the Chena Hot Springs area was initiated by Milton Wiltse of the Alaska Division of Geological and Geophysical Surveys at the request of the Division of Land and Water Management. Nine dwellings were monitored during the spring and summer months of 1986 and from February 12 to May 22, 1987. While the spring and summer radon levels were well below the 4 pCi/l EPA guidelines, winter levels exceeded the guideline in four of the nine buildings in crawl space areas and two of the nine in living space areas (M.W. Wiltse, written communication, July 1987).

In early January 1986, routine water sampling of the Haines public water supply by EPA revealed elevated radon levels. Subsequent resampling of the water by Robert Forbes confirmed that the alpha emitter in the water was dissolved radon. While the levels were not high enough to cause an imminent health danger, they are suggestive that more closely spaced sampling intervals may be warranted for the area than the routine two-year interval of EPA, as radon concentrations are known to vary widely with time. The story was reported January 16, 1986, in the Juneau Empire, and on APRN news broadcasts.

More recently, a screening survey performed by Lee Leonard of DOTPF research indicated that in a sampling of selected public buildings throughout the state, four had three-month average air radon concentration levels which slightly exceeded the 4 pCi/l EPA guideline. These buildings were located in Anchorage, Homer, Seward, and Tok. Radon surveys of public facilities to date is far from complete.

Within the last few weeks, results obtained by Shelby Leonard, Dan Hawkins, and Richard Seifert of the University of Alaska, Fairbanks, from track etch detectors selectively placed in a limited number of homes around Fairbanks showed alarmingly high ambient radon levels, with the highest being 380 pCi/l as an average value for a three month exposure period. The location of this and other monitored dwellings with significantly elevated radon levels suggests that there may be a potential correlation between upland or hillside home sites, and higher radon levels (Lee Leonard, oral communication, July 8, 1987).

A follow-up study of the Ester Dome area carried out in the past two weeks, July 6 through 17, 1987, using activated charcoal detectors, revealed additional high radon values in homes on Ester Dome, with the highest being 989 pCi/l (nearly 15 times the exposure level allowed in underground uranium mines in the U.S. and Canada). We are currently running real-time air monitoring studies at this location with a scintillation counter and lucas cell apparatus, to verify the charcoal detector values. A series of real-time measurements taken at one of the high level homes showed significantly elevated levels (in the range of 195 to 271 pCi/l). These concentrations were less than those determined from 48 hour charcoal accumulators made in previous weeks; however, the weather conditions and the duration of the real-time sampling series could easily account for major fluctuations in the apparent radon values. Such fluctuations are well documented in other studies conducted throughout the U.S.

It is the actual long-term dose rate which must be considered in health risk estimates. In order to assess the annual dose rate, it is necessary to conduct a series of integrated measurements over intervals of three months, four times a year. This kind of long-range integrated counting program should be considered in homes where short duration measurements have produced high radon values.

Another statewide screening survey is currently being conducted by Sid Heidersdorf, radiologist with the Department of Health and Social Services. To date, he has accumulated data points from nearly 200 localities, including some values which exceed 4 pCi/l.

The geologic controls which govern radon emissions from soil and rock are not fully understood, nor is the scope of the problem in the Fairbanks District or Alaska. It is clear that interior Alaska has many, if not most, of the geologic and other environmental characteristics of radon problem areas elsewhere in the U.S. In addition, other factors unique to the arctic and sub-arctic environment such as permafrost and extreme temperature inversions with very long periods of calm, stable air, may tend to obscure some of the geologic correlations used in other parts of the country, and require more extensive research into mechanisms of radon emanation and migration under arctic conditions common to Alaska. No data pertaining to the behavior of radon in permafrost terranes conditions were available at the recently attended Radon Workshop in Reston.

Strategies for Alaska

Radon is an environmental hazard which can be effectively dealt with once its presence is recognized. It can be most easily mitigated during new house

construction when relatively inexpensive engineering and design modifications can essentially render a house 'radon proof.' Existing homes can generally be retrofitted with modified heating and ventilation systems and foundation sealants which usually reduce radon concentrations to acceptable levels.

These techniques have been successfully employed in areas of the eastern seaboard of the U.S. as well as Scandinavia.

The primary problem at present in Alaska and many other states is to determine the magnitude of the problem by performing careful and systematic orientation and screening surveys and correlating their results to geologic parameters. The goal of the latter is to develop a set of geologic criteria incorporating aspects of local surficial and bedrock geology by which predictions of radon potential can be made. By developing geologic models for prediction, workers in other states have been able to identify areas where the need for high density household monitoring is greatest, thereby making the most efficient use of limited funding.

The next step is to educate the public about radon, its long-term health risk, and options for mitigation.

Finally, and perhaps most difficult, is to get a handle on the etiology of long-term low-level radon exposure. It is known from studies of uranium miners that a very significantly increased risk of lung cancer exists after 5,500 hours of exposure to air containing an average radon content of 200 pCi/l. Swedish researchers conclude that a significant health risk is faced after long-term exposure to 100 pCi/l.

Unfortunately, long-range health data at low levels of exposure (the range of 4-50 pCi/l) to radon don't exist. This is primarily because low levels have not been widely monitored prior to the last few years. Most death rate figures quoted by EPA for low-level exposure (i.e. the commonly quoted 5,000-20,000 per year) are based on the extrapolation of data from high-level studies and what is currently known about household radon levels across the country. It is imperative that a better data base be generated on all fronts in order to properly address this problem.

Currently, Alaska is one of the few states for which EPA has little or no information pertaining to radon potential or actual data from radon surveys of homes or public buildings. Limited amounts of such data have been or are currently being gathered on a small scale in local orientation surveys in selected areas of the state. As yet, we do not have a handle on the statewide potential for radon hazards. Based upon presentations and discussions at the workshop, of geologic conditions which favor radon emanation in other regions of the country, and comparing those conditions to what we know about Alaskan geology, it is clear that it would be prudent to develop a multidisciplinary screening program to determine radon hazard potential in regions of this state.

Preliminary Recommendations

1. Initiate a cooperative statewide residential radon reconnaissance program as soon as possible in an attempt to locate potential radon hot spots (other than Fairbanks).

2. Seek and hopefully acquire emergency state and federal funding to meet DGGS obligations to the radon problem until requested funds can be obtained through formal budget channels.

3. Organize and host a conference involving participating state and federal agencies, to establish an ad hoc task force which would design and implement an accelerated statewide radon investigation program.

4. Continue constrained radon investigations on re-directed funds until supplementary financing is obtained.

5. Work with State Radiologist, EPA, and DEC to establish household radon alert network in Alaska.

6. Design short- and mid-range radon investigation program to determine inter-relationship between local and regional geologic factors and radon anomalies.

7. Initiate screening survey of radon in drinking water in cooperation with EPA, State Radiologist, and DEC.

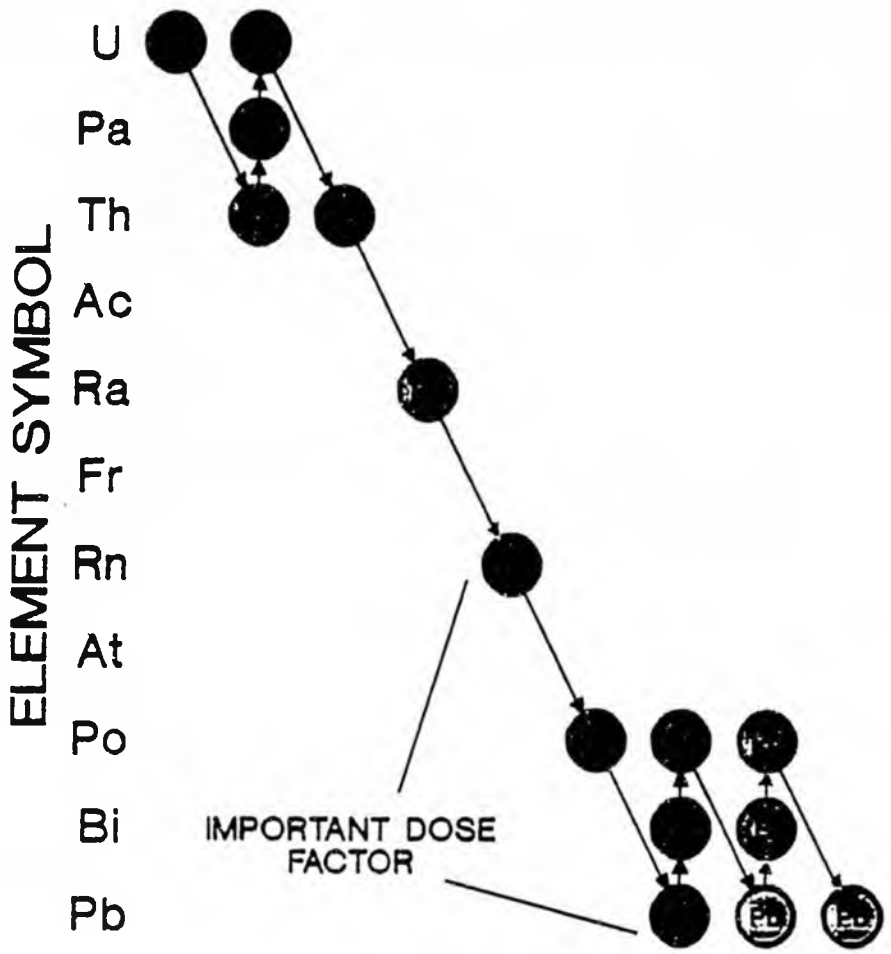
CHARCOAL DETECTOR RADON ANALYSES
FROM RESIDENCES IN THE FAIRBANKS AREA

Code #	Name	pCi/l	Comments
194602		0.3	
194604		10.7	Follow up
194605		5.7	
194606		0.7	
194608		1.0	
194609		1.7	
194610		27.4	Follow up
194611		47.1	Soil tube
194612		3.0	
194614		0.2	
194615		4.6	Follow up
194616		0.0	
194617		112.0	Remedial action
194618		13.0	Follow up
194619		0.6	
194620		1.9	
194621		66.2	Remedial action, follow up
194622		3.9	
194623		8.9	Follow up
194624		989.0	Definite remedial action
194625		0.5	
194626		3.8	
194628		2.8	
194629		1.7	
194630		0.2	
194631		13.2	Follow up
194633		3.1	
194634		6.4	Follow up
194635		4.8	
194637		17.1	Follow up
194638		4.9	Follow up
194639		15.2	Follow up
194640		0.3	
194642		?	

RADON CONCENTRATIONS
Determined by Jeff Kline

Reference #	Date	Name	Pylon Scintillation Count in pCi/l	Area
1	7/21/87		271.0	Ester Dome
2	7/22/87		8.79	Chena Ridge
3	7/22/87		113.7	
4	7/23/87		4.13	Goldstream above Okta
5	7/23/87		16.4	Hillside above Fox tailings
6	7/24/87	Gilmore Creek Tracking Station	4.1	Utilidors under main control room
7	7/25/87	Soil gas, Fox tailings	185.7	Near pipeline crossing on Goldstream Road
8	7/26/87	Soil gas, Chena Terrace	75.9	Pit near DGGS warehouse
9	7/26/87	DGGS warehouse	8.4	Bundtzen/Kline bin
10	8/11/87	(residence)	14.73*	Ester Dome
	7/25/87	Soil gas on Jones Road (organic silt)	5.2	Thawed organic silt near corner of Jones Road and Weldheim Drive
	7/25/87	Soil gas, Jones Road school bus turnaround	27.3	Pit run alluvial gravel

* Gene Wescott had a three-month track etch dosimeter reading of 380 pCi/l for three months late last winter.



Uranium (^{238}U) Decay Series

alpha decay ↘ beta decay ↑

STATE OF ALASKA RADON SURVEY PROPOSAL

ALASKA DIVISION OF GEOLOGICAL AND GEOPHYSICAL SURVEYS

STATE OF ALASKA

DEPARTMENT OF NATURAL RESOURCES

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ALASKA DIVISION OF GEOLOGICAL AND GEOPHYSICAL SURVEYS (DGGS) ALASKA RADON SURVEY PROPOSAL

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ALASKA DIVISION OF GEOLOGICAL AND GEOPHYSICAL SURVEYS (DGGS) ALASKA RADON SURVEY PROPOSAL

SUMMARY

This is a funding-request from the State of Alaska, Division of Geological and Geophysical Surveys (DGGS), to the U.S. Environmental Protection Agency (EPA), Office of Radiation Programs, State Radon Survey Program. The DGGS proposes a detailed, statistically valid, statewide indoor radon concentration-level survey, to be conducted during 1988 and 1989.

The DGGS funding-request to the EPA is for $100,000; the DGGS is simultaneously proposing a funding-request to the Alaska Legislature for "matching funds" ($100,000) which would be contingent on EPA-funding approval.

Objectives of the DGGS radon survey include: 1) Determination of the frequency distribution of radon levels in residential structures. 2) The definition of potentially high indoor radon concentrations in populated areas in Alaska. 3) Definition of the geologic parameters in Alaska that contribute to radon availability, and develop predictive geologic models. 4) Comparison of radon levels within the state, and comparison of Alaska radon concentrations to nationwide radon concentrations.

Elevated indoor radon concentrations have been recognized as a significant public health problem by the EPA and numerous scientific study groups worldwide. The DGGS statewide radon study will significantly contribute to understanding and dealing with the problem in Alaska. Also, as part of the EPA State Radon Survey Program, the Alaska data can be used in the nationwide radon database.

DGGS products of this study will include a map compilation of all radon-level results at 1:1,000,000 and other scales, and map-plots of radon soil-gas concentrations. Alaska will be subdivided into seven geographic regions and an appropriate number of geologic "strata". Preliminary and final reports and seminars will address radon availability parameters, statistical analysis of the radon database, definition of "hot spots", radon predictive models, mitigation suggestions, radon-proofing construction suggestions, and references for radon-related assistance programs.

The statewide radon survey will preferentially sample the larger population centers and selected outlying villages. Measurement methods will be predominantly the standard charcoal detectors (several thousand) and the track-etch devices. These home-detectors will comprise approximately 85 percent of the radon concentration data to be collected and represent the main aspect of this study. In addition, "real-time" radon gas sampling of selected houses, building and soil gas will be included. Gamma-ray spectrometry, and geochemistry of rock and soil samples will also be employed. The main focus of these associated radon sampling techniques will be to supplement the main survey and to define high radon-producing zones. These techniques will concentrate on the several larger Alaska population centers (for example: Anchorage, Fairbanks, Juneau, "MatSu" Valley and the Kenai Peninsula), and along the main Alaska highways.

Random sampling design will be EPA's "probability-based sample home" type. Data collection methods will be by the telephone and mail survey combination. As mentioned above, the home-deployed detector in the probability-based sample home will account for approximately 85 percent of financial resources of the radon survey. Some probability-based sample homes that are inexpensively accessible by Alaska highways will be studied by additional radon-survey methods. Outlying sample homes will receive this detailed, "in-person" survey work as funds permit.

Data collected by the DGGS radon survey will be continuously updated and stored in a comprehensive computer database on a DGGS computer. The database will include fields for all radon program-critical data. During the data analyses phase of the project statistical evaluation of all data fields is possible. Consequently, analysis of variance, multivariate methods and a variety of correlations are possible.

Two of the co-principal investigators of this proposal have been studying and sampling radon-producing geology in Alaska during 1987. These DGGS-geologists have a firm background in radon sampling and are continuing their assessment of geologic influences that affect elevated radon concentrations in homes.

1) OBJECTIVES

Objectives of the DGGS radon survey include:
1) Determination of the frequency distribution of radon levels in residential structures.
2) The definition of geographic areas in Alaska with the potential for high indoor radon concentrations.
3) Definition of the geologic parameters that contribute to radon availability, and develop predictive geologic models.
4) Comparison of radon levels within the state, and comparison of Alaska radon concentrations to nationwide radon concentrations.

In addition, multivariate statistics will test various hypotheses testing the possible correlation of a variety of radon-survey data. Correlation-testing will include the relationship of radon concentrations with: specific bedrock types, soil types, gamma ray spectrometry, north-facing slopes, south-facing slopes, building construction, uranium rock geochemistry, and radon soil-gas concentrations.

To achieve these objectives the survey plan calls for some measurements to be made in all geographic regions of Alaska. These seven geographic regions are commonly used for a variety of data portrayal and are the: 1) northern, 2) westcentral, 3) eastcentral, 4) southcentral, 5) southwestern, 6) southeastern, and 7) Alaska Peninsula and Kodiak regions (figure 1). Radon survey products (outlined below) will refer to the seven regions to aid report users. The number of samples in each region will be a function of that regions population and the total number of radon detectors to be used for the entire state survey. The deployment of these detectors will be via the telephone-and-mail survey method, discussed in the Random Sampling Design section. All survey activities will use the Fairbanks DGGS office as their headquarters. Alaska will be also subdivided into geologic terranes or geologic sample "strata" (EPA State Radon Survey Program terminology). The geologic strata will be defined by regional lithologic similarities.

2) PRODUCTS

DGGS reports will include a map-compilation of all radon-level results at 1:1,000,000 and at the U.S. Geological Survey 1:250,000-quadrangle scale where data are abundant enough. Map-plots of radon soil-gas concentrations will be produced at a scale based on extent and sample density of each survey. The final report will be of the standard DGGS-publication quality. This report will thoroughly address all aspects of the survey methods, data retrieval, data reduction, statistical treatment, and conclusions and recommendations. All raw-data will be included. Other topics to be covered are: radon availability parameters, statistical analysis of most of the radon database fields, definition of "hot spots", possible radon predictive models, mitigation suggestions, radon-proofing construction suggestions, and references for radon-related assistance programs.

A radon bibliography of statewide and possibly nationwide literature will be produced and published by the DGGS.

Radon-level contour maps, in picocuries per liter, are possible in selected special areas of high density data. These contour plots may be important in both soil-gas surveys and for indoor radon concentration surveys. Contour values will be based on statistical results.

Preliminary results could be released through the DGGS Public Data File system and seminars. (Confidentiality of names and addresses is critical, and these data cannot be released; see section 6 "Confidentiality of Measurement Results".)

3) RADON SURVEY DATA MEASUREMENT METHODS

3.A) Charcoal detectors and Track etch devices

Charcoal detectors and Track etch devices will be the most numerous and important types of radon concentration detection devices deployed in the Alaskan DGGS radon survey. The exact number of charcoal (and, or track etch) devices to be deployed is not established, but should be in the several-thousand range. Currently, the cost to the DGGS for these detection units is also unknown. From the EPA radon survey guidelines it is unclear whether the devices will be EPA-supplied. In any case, 80 percent of the detection devices will be deployed in the main phase of the survey, 10 percent reserved for follow-up work (see Section 10), 5 percent as duplicates, and 5 percent as blanks (radon-detection material not exposed). Radon detection devices will be deployed in "probability-based sample homes" in the lowest livable area of the home (preferably in the winter season). Supplementary radon-survey work will employ the methods listed below. These supplementary methods will be used only in selected survey-project homes or as part of special treatment of a selected area.

3.B) Real-time radon gas sampling

Real-time radon gas sampling will be using a Pylon model AB-5 unit (Pylon Electronic Development Company, Ottawa, Ontario, Canada). The DGGS currently owns one of these instruments with eight type 300 Lucus Cells. This radon and thoron gas measuring system is a portable microprocessor-based data acquisition instrument. It can operate in continuous, quasi-continuous, grab-sample or ratemeter modes. Our experience shows highly reproducible results. This unit is useful for home testing and in conjunction with the USGS-designed soil probe.

3.C) Gamma-ray spectrometry

Gamma-ray spectrometry surveys will be employed in conjunction with real-time home radon testing, soil sampling and as part of an Alaska highway system carborne survey. The DGGS currently uses a Scintrex "GAD-6" stabilized, four channel spectrometer which has a large (360 cubic centimeters), external, thallium-enriched sodium iodide crystal. The spectrometer will be used to determine the potassium (K), uranium (U), thorium (Th), and total count (TC) values for bedrock, and delineation of high uranium source areas. Due to the high sensitivity of this spectrometer, laboratory analyses for uranium of small rock, silt or soil samples is possible down to a few parts per million.

3.D) Geochemical Analyses

Geochemical analyses on rock samples and soil samples from selected radon survey sites will yield information on the elemental abundance on a variety of radon source material. Some samples will include major oxide analysis, and elemental analysis will be by XRF and INAA methods. Statistical correlations between elemental uranium and thorium abundance, measured-radon, and gamma-ray spectrometry can be performed. Statistical correlations between elemental uranium with selected other elements, for example rubidium and strontium will be performed. The potential correlations are important because, locally, such rock geochemistry is already available. These existing data allow for radon-concentration inferences based on geochemistry data alone.

4) RANDOM SAMPLING DESIGN: SELECTION OF HOMES

4.A Sampling subdivision: Region and Strata

The Alaska radon-survey plan calls for the 1,524,671 square kilometer-area of the state to be subdivided into seven geographic regions (listed above). These regions are commonly used for a variety of data portrayal, and radon-survey products will refer to the regions to aid the report user. Home-deployed radon detectors are to be used in all regions of the state. The radon survey will preferentially concentrate on population centers within each region, and the number of detectors within a region is a function of the total detectors available for the state survey.

U.S. Geological Survey 1:250,000-scale quadrangles will also be used for location information (figure 2). The quadrangles are well established and useful for organization of large datasets. All sample stations will be appropriately coded with the unique two letter quadrangle code (for example, Fairbanks Quadrangle = FB).

Alaska will be also subdivided into geologic sampling "strata" (EPA State Radon Survey Program terminology). Geologic strata subdivisions will undoubtedly crosscut the geographic regions but this should not present a major problem in data gathering or portrayal. The geologic strata will be defined by regional lithologic similarities and the characteristics expected to yield elevated indoor radon levels.

4.B "Probability-based sample home"

The "probability-based sample home" is one which has a known and non-zero probability of being selected. Houses for this survey will be selected on the basis of representative sampling, population centers and probable radon-producing geology. Radon survey data that has been completed to date by the DGGS will not be included in the survey dataset, but may be useful in determination of local, anomalously high zones. The "random sample" integrity of the proposed survey data is critical to the quality and applicability of the survey results.

4.C Random sample: EPA-provided phone list

To provide a "probability-based sample home" for the radon survey a phone list for sample home selection will be provided by the EPA. This method of obtaining sample sites yields an unbiased sample base, and allows for radon concentration data from Alaska to be useful in Nationwide comparisons. The EPA will secure the phonelist from local utilities for use in the geographic regions listed above.

4.D Geologic regions of high radon potential

Geologic regions of high radon potential will receive a larger proportion of detectors than other regions. These high radon-potential regions will be targeted after a thorough review of the probability of radon-producing geologic characteristics by project geologists. The DGGS radon-concentration data available to date will also be considered in defining these geologic regions. Areas that may be considered for such treatment are the Fairbanks-area hillside "uplands" and dredge tailing areas, as these areas have already yielded high concentrations.

To more accurately gage potentially high radon areas a highway traverse of the main Alaska highways (Parks, Glenn, (Dalton?) and Richardson) would generate a large amount of data cheaply. These traverses would be an appropriate preliminary part of the state survey. An additional useful dataset to consider in defining high radon area is the Alaska NURE (National Uranium Resource Evaluation) data. The compilation, assessment and interpretation, as related to radon production would be highly valuable for outlining potentially high radon areas.

Geologic factors to be considered for definition geologic areas with potential for elevated indoor radon levels are: lithology, uranium and radium content of bedrock, grain size, porosity and permeability of surficial deposits, moisture content of soils, and fracturing, shearing, and faulting in bedrock. These data will not be available as part of the standard EPA-type, phone and mail survey, but only as part of the more detailed DGGS survey methods applied to selected probability-based-sample-homes. It should be noted that many phone-and-mail-surveyed villages and small towns in the Alaska survey will not be visited "in person" due to various logistical constraints.

5) DATA COLLECTION METHODS

5.A Telephone and mail survey combination

The telephone and mail survey combination-type survey, as outlined by the EPA State Radon Survey Information publication is the most appropriate for Alaska. Because of the great distances between population centers and the high cost of deploying survey personnel the bulk of the home detectors would be handled by telephone and mail. As noted above, many phone-and-mail-surveyed villages and small towns in the Alaska survey will not be visited "in person" due to various logistical constraints.

The EPA-provided phonelist for each of the regions listed above would be used as the random sample-generating mechanism. Using these lists the survey methodology would be: 1) An initial telephone contact would establish eligibility, and obtain housing and occupant information. 2) Eligible occupants would receive a "radon survey participant information package", consisting of a detector, placement and deployment information, and a postage-paid return envelope. 3) If necessary, a follow-up phonecall prompting the participant to return the detector would conclude the radon survey data-collection procedure. Upon DGGS-receipt of the analytical results the participant would be notified of the results.

6) CONFIDENTIALITY OF MEASUREMENT RESULTS

6.A Alaska State Radiologist's Office data: non-public information

DGGS home radon concentration data becomes the property of the Alaska State Radiologist's Office and therefore non-public information. The Alaska State Radiologist, Dr. Sidney D. Heidersdorf, is currently working with the DGGS on the limited radon survey data that we have collected. Dr. Heidersdorf, a radiological physicist, has a continuing interest in Alaska radon work and has agreed to assist us where possible. To circumvent possible problems associated with the home radon concentration values being inappropriately used, the data will become the property of the Radiologist's Office; the names and addresses of participants, in accordance with Alaska Statute, can not be released to the public.

7) RADON SURVEY PACKET INFORMATION

7.A Endorsement letters, question and answers, and EPA brochure

To introduce the Alaska radon survey to selected home-survey participants a "radon survey participant information packet" will be developed and mailed to that household. This information packet will include: 1) A letter from the survey director or the Alaska State Geologist outlining the radon survey. 2) A letter of endorsement from the Governor of Alaska. 3) A list of general questions and answers about the radon survey. 4) An EPA-provided information brochure addressing the nationwide, and statewide radon survey programs.

8) DATA MANAGEMENT

8.A DGGS computer database program

All Alaska Radon Survey data will become part of the DGGS computer database. As outlined above, only data from the EPA-funded radon survey is to be included in this database to ensure that the entire dataset is based on statistically-valid, random sampling. The DGGS Alaska radon dataset will then be consistent with EPA guidelines. The dataset will be entered into a "dbase" program. The dbase program is extremely versatile, adaptable, and well-tested, and data entered into the program can be retrieved in ASCII-string format. Access to all datafields is possible for statistical analysis. Station locations will be entered with latitude and longitude for later computer-plotting by quadrangle and geographic region (listed above). Each radon-survey station entered into the database will include the following fields:

1) Detector-specific identification code (includes geographic region and geologic strata ?), quadrangle, and house identifier,

2) pCi/L level(s), with detector type,

3) Location: geographic region, quadrangle, geologic strata, street address, and latitude and longitude,

4) Status of detector: active, received, and analyzed,

5) Date of deployment,

6) Date and time detector was capped,

7) Zip code (?),

8) Geographic region of state (northern, westcentral, east-central, southcentral, southwestern, southeastern panhandle, Alaska Peninsula and Kodiak),

9) Deployment location: living room, bedroom, den, basement,

10) Frequency of use of room,

11) House construction characteristics,

12) Bedrock type, and data on fracturing, shearing, and faulting; proximity of bedrock to building structure,

13) Bedrock cover type (loess, gravel, soil, fill, other),

14) Soil gas data: pCi/L; comments,

15) Gamma-ray spectrometry: counts per second (Total count, U, Th, K),

16) Porosity, permeability, and moisture content (estimates on 1-to-10 scale; 10 = most), and grain size of surficial deposits, and,

17) Geochemical data,

9) DATA ANALYSIS

9.A Statistics: Variance, Multivariate and Correlation analyses

Data analyses will begin after the radon detectors, soil-gas surveys, real-time radon gas surveys and related surveys are complete. However, a strict time cutoff will be established, at which time all outstanding detectors must be ignored so that the dataset can be firmly established and analyses started. Statistical analyses of radon survey data will include:

1) Inter- and intra-geographic region analysis,
2) Entire database: analysis of variance between several database subsets (database fields listed above, section 8),
3) Entire database: multivariate methods (database fields listed above),
4) Correlation of pCi/L values with: surficial cover type, porosity, permeability and moisture parameters,
5) Correlation of pCi/L values with: geologic strata, lithology, gamma-ray spectrometry, geochemistry, and house construction type, and,
6) Variance within replicate samples (5 percent of total number of detection devices).

The data analyses procedures and results will be outlined and included in the reports and conclusions of the radon study. Also, the "raw" data of the radon survey, without the names and addresses of the radon survey participants, will be listed. Detector units used as "blanks" (5 percent) will be analyzed and recorded (and treated in the statistical analyses as appropriate).

10) USE OF RESERVED DETECTORS (ten percent of total detectors)

10.A Delineation of hot spot boundaries

After analytical results from the radon survey have been returned and entered into the DGGS database, "hot spots" will be defined. Hot spot zones are to be based on the values in the highest several percent of homes sampled. To define the boundaries of the hot spots, sample homes adjacent to high-level homes of the initial survey will be selected. Deployment of detectors for these homes will probably be by the same "telephone and mail survey" combination because of the limitations due to distance, cost and time. It should be noted that hot spot sampling is not part of the initial survey and data from the two survey[illegible]n not be combined.

10.B Target specific geologic areas

Geologic areas that indicate a strong potential for elevated indoor radon levels will be more closely sampled with the reserved radon detectors. These data will help assess the correlation between a particular geologic environment and high radon concentrations. For this reason, geologic environments that are potentially influential must be part of the initial database program. The geologic parameters collected and entered in the database during the radon survey are absolutely critical if geologic controls on Alaska radon concentration are to be defined. Therefore, an exhaustive review of geologic influences on radon production is mandatory before the Alaska radon survey data collection starts.

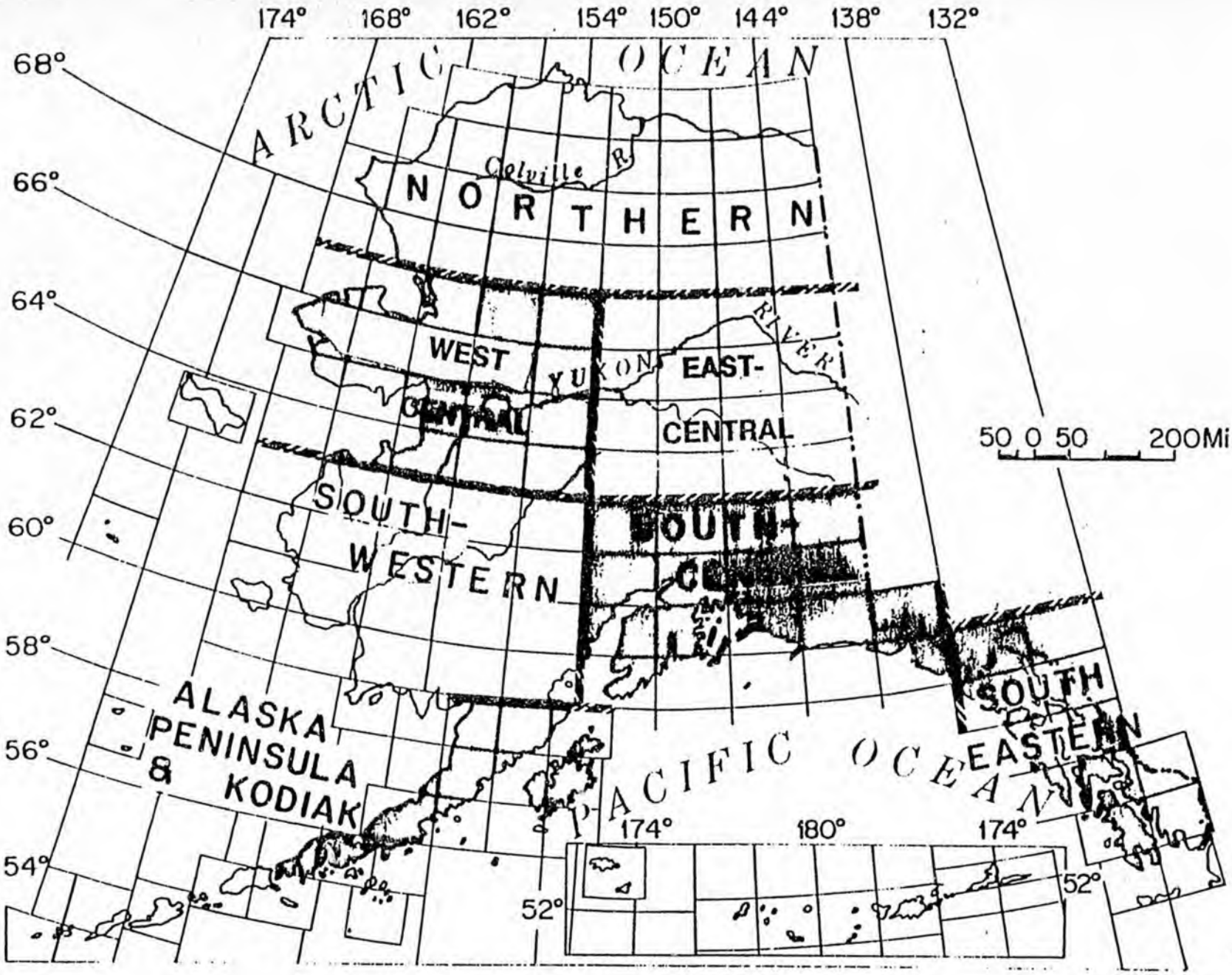


Figure 1. State of Alaska subdivided into seven geographic regions: northern, west-central, east-central, southwestern, southcentral, southeastern, and Alaska Peninsula and Kodiak.

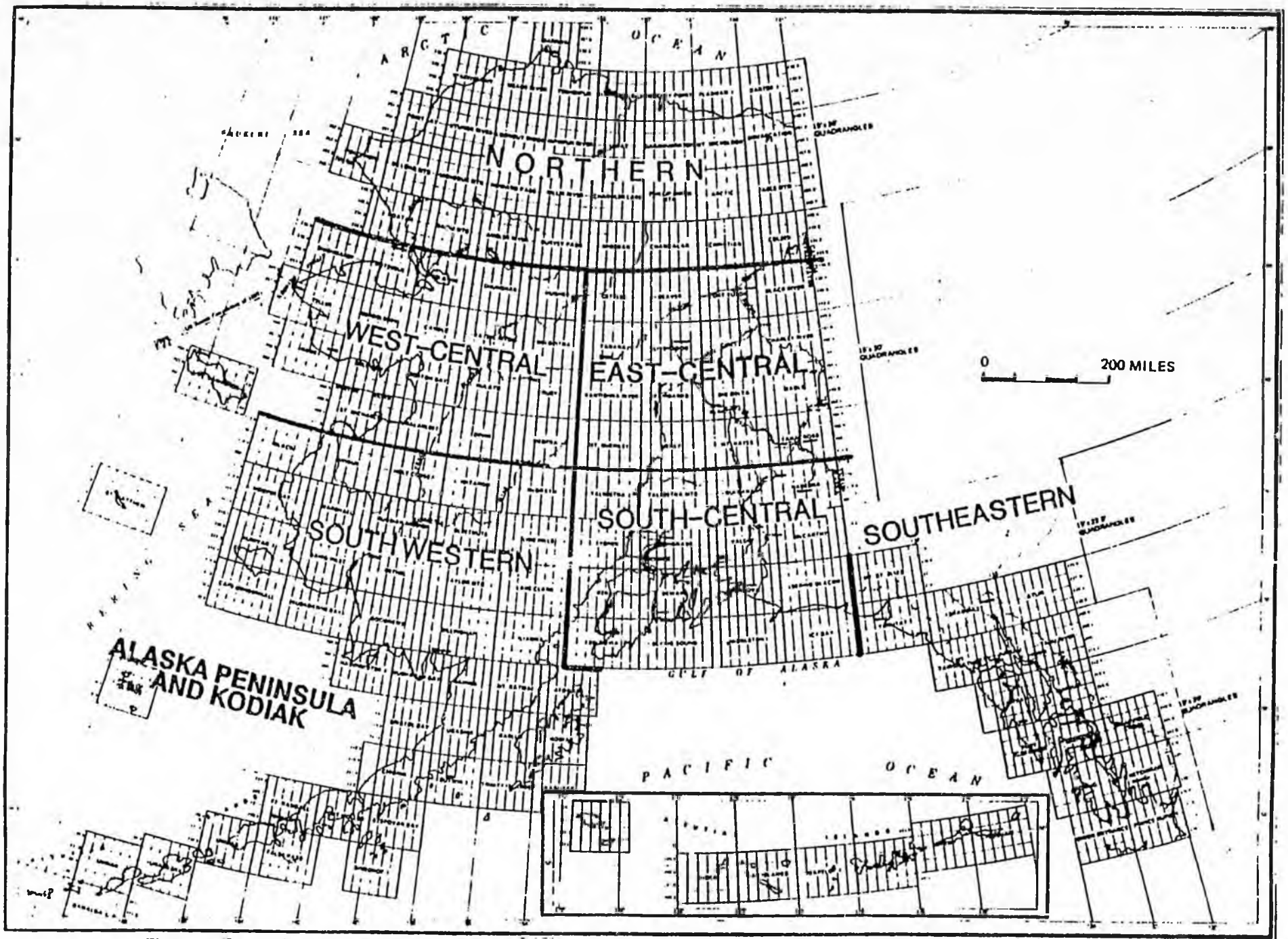


Figure 2. State of Alaska with U.S. Geological Survey 1:250,000 scale quadrangles and the seven geographic subdivisions used for the Alaska radon survey.

An Invisible Threat

Radon, a natural, odorless gas that can seep into homes and cause cancer, has emerged as the newest national health threat. But whose problem is it? Some officials believe the states are best suited to find a solution.

By Paul Doyle

On a cold day in December of 1984, Stanley Watras went in to work at the Limerick Nuclear Generating Station in Pottstown, Pa. and set off the alarms. The first assessment was that the radioactivity was from his work at the plant, but the culprit was radon, a relatively unknown substance. And it was from his home. The exposure of Watras and his wife and two children to the radioactive gas had been equivalent to smoking 140 cigarettes per day.

Until this incident, many citizens would not have believed that an odorless, colorless natural gas that seeps out of the ground and into basements and living rooms would be a major threat to public health. But according to health officials, that is exactly what causes 5,000 to 20,000 lung cancer deaths per year.

Based on the number of potential cancer deaths per year, indoor radon is the greatest environmental problem the Environmental Protection Agency (EPA) is working on—ahead of better known and much more feared dangers such as hazardous waste, toxic chemicals and dangers from air pollution.

Radon is an invisible gas produced by the natural decay of uranium in the earth's crust. It can be found in soils and rocks containing uranium such as granite, shale and phosphate. It makes its way into homes through cracks and holes in foundations, water supplies, and spaces between the soil and the house. The gas decays into radioactive particles that attach to dust and, when inhaled, lodge in the lungs.

The EPA recommends remedial action when four picocuries per liter of radon is found in the home. A picocurie is a standard measurement of radiation. Exposure to this level of radon is equivalent to smoking eight cigarettes per day or having 200 chest X-rays per year.

Richard Guimond, division director of the Office of Radiation Protection at EPA, is certain of the high risks related to radon exposure. "Often you deal with environmental pollutants and people have a tendency to sometimes disregard a lot of the information because it is based on some mice or rat test or they are at levels that are much higher than one will ever observe in the environment," he says. "The reason the radon evidence is so strong is that in addition to animal evidence, you also have human evidence from the health problems uranium miners have contracted from their exposure to radon."

Uranium miners are not allowed to be exposed to more than 20 picocuries per liter. "It is very common to find levels in homes over 20 picocuries, some have exceeded 4,000. This is why we are taking this problem very seriously," says Guimond.

According to EPA, between 4 million and 8 million homes nationally have higher than the recommended four picocuries per liter of radon. Although areas with higher levels of uranium are more likely to have a radon problem, no state is immune. According to Guimond, "Every state has some radon in it; if I were to develop a map where radon is a problem, the map would cover the entire United States."

Guimond's conclusions are supported by a recent 10-state survey conducted by EPA. The 10 states volunteered to have a random sampling of homes tested for radon. Although the study showed that radon levels vary from state to state, high levels were found in every state. For example, Alabama had the lowest number of homes with more than four picocuries per liter of radon (6 percent) but the highest single reading was 180. Colorado (39 percent), Wisconsin (27 percent) and Wyoming (26 percent) were the states with the highest number of homes over the recommended EPA levels.

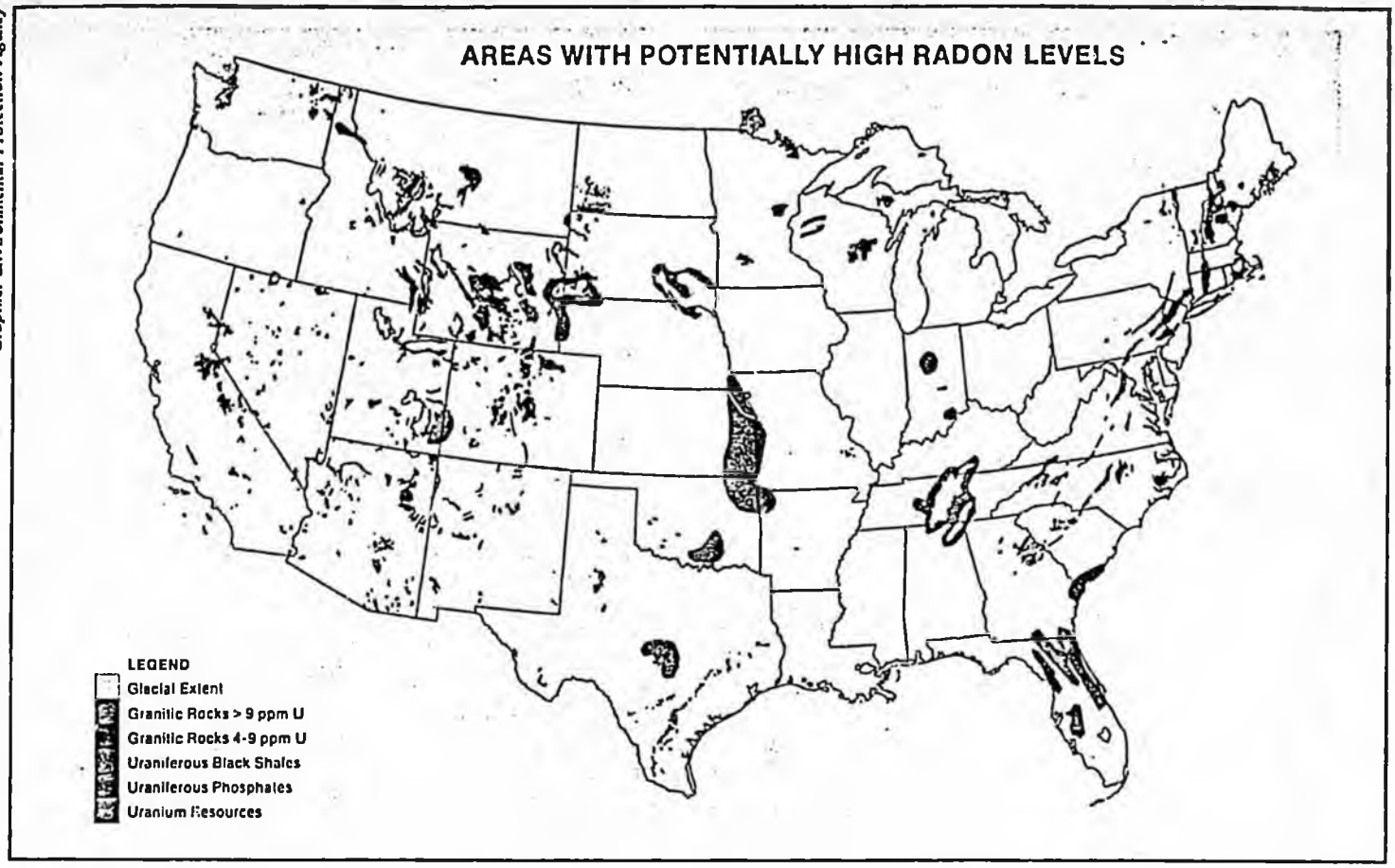
Testing for radon usually is done by placing a small canister containing charcoal in the house for approximately a week. The charcoal absorbs the radon and when analyzed, provides a reading for how much radon there is in a home.

Despite the fact that the gas is invisible, Guimond points out that "homes can be fixed." Even homes discovered to have as much as 3,000 to 4,000 picocuries per liter in parts of Pennsylvania and New Jersey have been sealed and patched so they now test under the EPA minimum standard, he says.

Once radon is found, the most common mitigation techniques include the sealing of openings and cracks to prevent any of the gas from entering the house. The average cost for such remedies is less than $400.

However, unless tested, the radon levels in a particular house cannot be easily detected. Says Pennsylvania state Senator Michael O'Pake, who represents Reading, one of the highest radon areas in the country, "Unfortunately, you can't just look at a house and tell if it has high levels of radon, you do have to measure to be sure. Of two houses sitting side by side, one house may have 1,000 percent higher

Paul Doyle is a principal research analyst in the NCSL Energy, Science and Natural Resources program.



Graphic: Environmental Protection Agency

levels of radon than the one next to it because the house may be sitting on some crack or fault."

Because of this vast difference in the millions of homes affected by radon, Guimond believes the radon crisis is a state and local problem. He thinks the federal government alone cannot effectively deal with radon. "State and local agencies are better able to understand the significance of their local situation and get information and help to the local citizens," he says.

This is a feeling echoed by Donald Deieso, assistant commissioner for New Jersey's Environmental Management and Control. "Radon is the most severe health risk we are facing and we quickly realized in New Jersey that the states are going to have the prime responsibility for its regulation; no one is going to do the job for us," he says.

In most cases, legislation requiring statewide surveys is the first step in a program. Colorado, Florida, Illinois, Indiana, Ohio and Virginia are all currently conducting these diagnostic studies, which pinpoint high radon areas in a state. Many others are expected over the next year.

A few states have gone a step further, by adopting multi-million dollar comprehensive initiatives. In 1986, the New Jersey Legislature appropriated $4.2 million for a radon project. It currently ranks with Pennsylvania and New York as the most expensive in the country. All three efforts have a wide range of radon initiatives. The New Jersey legislation, which is similar to Pennsylvania's, calls for a state radon survey and an epidemiological study to determine if radon causes cancer. New Jersey state officials will be testing the homes of 1,200 lung cancer patients for radon.

Pennsylvania and New Jersey are also providing low interest loans to homeowners to assist in radon-reducing home improvements. Pennsylvania offers loans of up to $7,000 to the victims of radon at a graduated interest rate between 2 percent and 8 percent, depending on income.

States are also pursuing measures to encourage homeowners to test for radon. New York is selling and distributing radon detectors to its citizens. Pennsylvania provides home testing free of charge.

Deieso, however, warns of the dangers of a predominantly state-operated radon program. In New Jersey, "For the state alone to provide what was needed, we were looking at spending $200 million on testing and another $1 billion to $1.5 billion for mitigation measures," he says. "A radon program is not a one- or two-year mass study. Radon, like termites, is going to live forever more."

One of the key elements of a state effort, according to Deieso, is to encourage the private sector to become involved in the radon business. "The private sector is better suited for radon testing and remediation of individual homes than state operated programs, due to its ability to respond quickly and fill the demand in the market place."

With that encouragement the number of private firms offering radon testing in New Jersey has jumped from three in 1985 to 120 in 1987. In 1985 the state had no companies that would take care of a home exposed to radon; today there are 22. With this market-oriented approach, Deieso says that a home radon test can be done in three days and the mitigation work completed within two weeks. "And that is a better performance than any state agency, no matter how well funded."

But in order for such an approach to be effective, the state must oversee and regulate radon testing firms, he says. To maintain quality control over

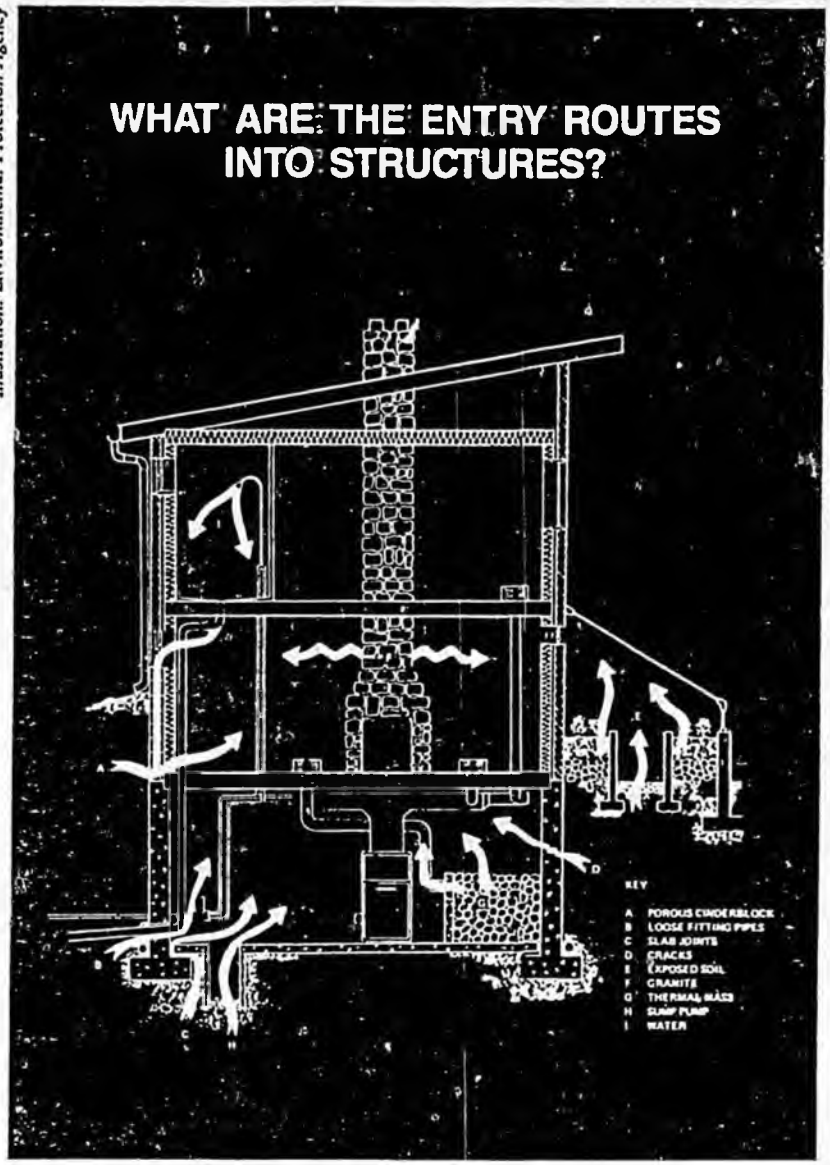


Illustration: Environmental Protection Agency

the radon testing market, New Jersey enforces strict licensing and certification standards. Since the program's inception, more than half the applicants for certification have been rejected. And to keep firms from overcharging for radon-related services, the state provides homeowners with second opinions free of charge.

States are also beefing up their efforts to inform the public of the dangers of radon. New Jersey and Pennsylvania have set up toll-free hot lines staffed by scientists to answer questions about radon. Both states have also published and distributed pamphlets and brochures to the public. New Jersey is sponsoring periodic public opinion surveys to determine the effectiveness of its program.

Despite state efforts, homeowners, for a number of reasons, don't always welcome radon information devices. In Pennsylvania, when the state went door to door offering free testing in the Reading Prong region, one of the highest radon areas in the country, only 30 percent of the homeowners agreed to test. In New Jersey, only eight people have taken advantage of the low-interest loans offered to mitigate the effects of radon.

According to Rich Guimond, part of this phenomenon boils down to perceived risks. "It's easy for someone to see a hazardous waste site down the street and be very fearful, but you don't expect a radiation problem in your 'home sweet home' and, because you can't see it, smell it or feel it, it's easy to say it's not there."

But Senator O'Pake points out that public skepticism and economic uncertainty is also a big factor in explaining people's leeriness about radon. "The public is just not sure that radon can be fixed safely and inexpensively."

Indeed, a recent survey conducted by The Eagleton Institute of Politics at Rutgers University showed that of those polled, 75 percent said that if their homes were found to have radon the real estate values would drop by more than 7[illegible] percent; and 25 percent said that even if the radon were removed from their homes the real estate values would still drop, with 50 percent saying the values would stay the same.

This attitude is reflected in parts of New Jersey where real estate transactions have dropped as much as 50 percent. "Real estate, not public health, has become the dominant feature for the radon program," Deieso says. In response, the state is implementing modifications to building codes to include radon mitigation features and incorporating a requirement for radon testing in home sale contracts.

In this age of tight budgets, states are hard pressed to find the money to explore the radon issue. Pending federal legislation is aimed at relieving this pressure. "Many states recognize that they have a radon problem but they lack the resources to investigate and develop needed new programs," says U.S. Senator George Mitchell of Maine, one of the bill's chief sponsors. The legislation directs the EPA to make available to the states $10 million for each of the next three years. In order to be eligible for the money, the states will have to provide 25 percent matching funds for the first year, 40 percent in the second and 50 percent in the third.

Whatever the outcome of the federal legislation, the states will have the primary responsibility for warning their citizens about radon and developing programs to alleviate its potential dangers. Says Deieso, "States will soon learn that radon is not a two-year short-term environmental problem. Like the other environmental threats we face, it is here to stay."

monitoring human
vever, remain skep-
New York-based
Watch reports that
released 64 dissi-
psychiatric units
-up from 19 in
that 95 remain in
We'll be watching
ther the average
be able to use the
says the group's
Catherine Fitzpatrick.

In Moscow's dissident cir-
cles, pessimism persists. "We have always had legal protection on paper, but it hasn't done any good," complains a painter who has served long stretches in asylums. "The official attitude still boils down to this: If you're different or disagree with things here, there must be something wrong with you."

up nonconformists for extended terms in squalid psychiatric asylums. Are such practices now to cease? That's the question being asked after the Kremlin announcement last week of a new code of legal rights for mental patients.

Advocates of human rights have protested for decades their being railroaded into Soviet asylums, where they have been forced to take powerful drugs and live for years in antiquated conditions. At an early-19th-century structure still in use near Moscow, more than a dozen people have been crammed into wards built for fewer than half that number; patients must use 70-year-old plumbing.

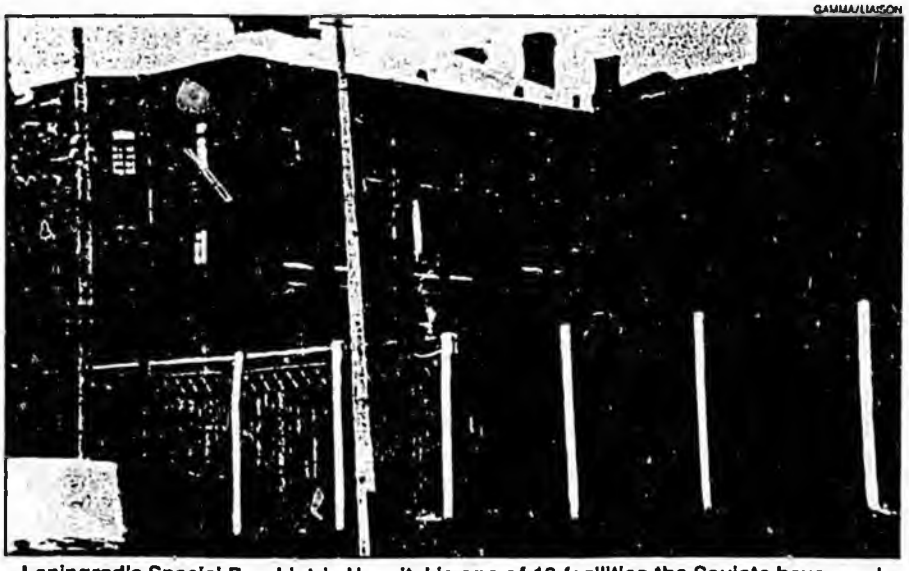
After years of criticism from international psychiatric groups, Mikhail Gorbachev's administration recently signaled change of some sort when the Soviet press began to complain about abuses. One article described the commitment of a 20-year-old Leningrad factory employe who had been branded a schizophrenic after criticizing her boss and her working conditions. Under the new policies, patients and their relatives are entitled to contest commitments in court. The Russian Republic, largest of the 15 Soviet republics, went so far as to make it a crime to force a healthy person into an asylum.

HUMAN RIGHTS (CONT'D)

Gorby's curtain

As new psychiatric reforms showcase Mikhail Gorbachev's image-polishing skills, the Kremlin leader is simultaneously pursuing an emigration policy that shows his teeth of steel. After a brief period of presummit leniency, the Soviets last week began enforcing harsh 1987 laws that require a would-be émigré to be invited by a sibling, spouse, parent or child abroad. That disqualifies 90 percent of the 400,000 Jews who want out, according to the Union of Councils for Soviet Jews. Emigration peaked in 1979 at 51,000, then dropped to fewer than 1,000 yearly when détente dissolved over Afghanistan. In 1987, 200 were let go weekly, but last week the number was down again—to 79.

GAMMA/LIAISON



Leningrad's Special Psychiatric Hospital is one of 16 facilities the Soviets have used to house—and often abuse—dissidents. A new code may curb the practice

HEALTH

Lung cancer's gassy ally

Radon gas seeps into 4 to 8 million homes across the U.S., rising through the foundations from underlying soil and rock and mixing with inside air. The radioactive gas is odorless, colorless—and a cause of lung cancer. But how big a cause? Last week, a National Academy of Sciences report made possible the most authoritative answer yet.

The study's chief, Dr. Jacob Fabrikant of the University of California at Berkeley, calculated how exposure to levels of radon considered worrisome by the Environmental Protection Agency affects the odds of contracting lung cancer. His basic finding: Spending 12 hours a day in a house with excess radon boosts a person's cancer risk by about 50 percent.

Of 1,000 male nonsmokers exposed to excess radon, 16 will die of lung cancer, he estimates. That's 5 more than in a nonexposed group. Among 1,000 female nonsmokers, radon exposure ups lung-cancer deaths from 6 to 9. The statistics are much grimmer for smokers: Some 172 out of 1,000 male smokers exposed to excess radon will die of lung cancer—49 more than among nonexposed male smokers. For women smokers, radon pushes the toll from 60 to about 85.

Why radon and smoking are more lethal to men than to women is unknown. Why is radon more lethal to smokers? That, too, is not known. Some experts think smoke-damaged lungs trap the radioactive radon particles.

Homes with serious radon problems can be fixed by sealing cracks to prevent seepage and by improving ventilation. The EPA's Office of Public Affairs offers information booklets and a list of radon-detection companies. Now awaiting action in the House is a bill passed unanimously by the Senate last year that would provide $33 million to the states for radon education and pilot programs.

STATE OF ALASKA
1988 LEGISLATIVE SESSION

BILL VERSION: HJR 38
PUBLISH DATE: _____

FISCAL NOTE

REQUEST: _____

Revision Date: _____
Title: Relating to Radon

Agency Affected: Health & Social Services
BRU: State Health Services

Sponsor: Koponen, Davis
Requestor: _____

Components: Laboratory Services

EXPENDITURES/REVENUES: (Thousands of Dollars)

OPERATING	FY 88	FY 89	FY 90	FY 91	FY 92	FY 93
PERSONAL SERVICES						
TRAVEL						
CONTRACTUAL						
SUPPLIES						
EQUIPMENT						
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING	-0-	-0-	-0-	-0-	-0-	-0-
CAPITAL						
REVENUE						

FUNDING: (Thousands of Dollars)

GENERAL FUND						
FEDERAL FUNDS						
OTHER						
TOTAL						

POSITIONS:

FULL-TIME						
PART-TIME						
TEMPORARY						

ANALYSIS: (Attach a separate page if necessary)

This fiscal analysis is based upon the proposed information program. Should this program be implemented differently than currently proposed, the Department of Health and Social Services could be fiscally impacted.

Prepared by: Elizabeth Ward, Director Phone: 465-3090
Division: Public Health Date: 1/20/88

Approved by Commissioner: _____ Date: Jan 20 1988
Agency: Department of Health and Social Services

Distribution (by preparer):
- Legislative Finance
- Legislative Sponsor
- Requestor
- Office of Management and Budget
- Impacted Agency(ies)

HJR

54

STATE OF ALASKA
1988 LEGISLATIVE SESSION

BILL VERSION: HJR 54
PUBLISH DATE: 2/10/88

FISCAL NOTE

REQUEST:

Revision Date: 2/16/88
Title: Constitutional amendment relating to permanent fund/educational fund.
Sponsor: ULMER
Requestor: House Health, Education & Social Services

Agency Affected: Office of the Governor
BRU: Division of Elections

Components: II - Primary & General Elections

EXPENDITURES/REVENUES: (Thousands of Dollars)

OPERATING	FY 88	FY 89	FY 90	FY 91	FY 92	FY 93
PERSONAL SERVICES						
TRAVEL						
CONTRACTUAL	0	2.2*	0	0	0	0
SUPPLIES						
EQUIPMENT						
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING	0	2.2*	0	0	0	0
CAPITAL						
REVENUE						

FUNDING: (Thousands of Dollars)

GENERAL FUND	0	2.2*	0	0	0	0
FEDERAL FUNDS						
OTHER						
TOTAL						

POSITIONS:

FULL-TIME						
PART-TIME						
TEMPORARY						

ANALYSIS: (Attach a separate page if necessary)

* Costs included cover 2 to 3 additional pages in each Official Election Pamphlet, for printing and typesetting, and costs estimated to cover computer programming requirements for vote

(cont.)

Prepared by: Linda Edgeworth
Phone: 465-4611
Division: Elections
Date: 2/16/88

Approved by Commissioner:
Date: 2-22-88
Agency: Office of the Governor, Division of Elections

Distribution (by preparer): 2/23/88
Legislative Finance
Legislative Sponsor
Requestor
Office of Management and Budget
Impacted Agency(ies)

counting purposes. However, these costs are based on the assumption that all candidates and issues will fit on three ballot cards, which is the norm. It should be noted, however that should the inclusion of this issue require a 4th ballot to be printed, the cost increase would have to be calculated at 16 cents per ballot x approximately 320,000 voters. The total cost of printing the additional ballot card would be $51.2.

Under these circumstances the fiscal note would be:

53.4

HJR

65

STATE OF ALASKA
THE LEGISLATURE

POUCH Y - STATE CAPITOL
JUNEAU, ALASKA 99811
907-465-3800

LEGISLATIVE AFFAIRS AGENCY

LEGISLATIVE REFERENCE LIBRARY

May, 1988

Copies of minutes listed below were originally included in this file. The minutes are available on the STAIRS database CMPR. In order to save space copies of minutes have not been left in the files.

Mary Van Nimwegen

HHESS 2-26-88 8:30 a.m.

(7)

HOUSE COMMITTEE REPORT

Date referred: 2/15/88 FURTHER REFERRALS:

DATE: 2-26-88

The Health, Education and Social Services Committee has considered HJR 65

Relating to runaway, homeless, and missing youth.

RECOMMENDS:

[ ] replace with _____ [ ] the same title
[ ] attached amendment(s) [ ] a new title

[X] do pass
[ ] do not pass
[ ] no recommendation
[ ] individual recommendations
[ ] additional referral to the _____ Committee

ADOPTS: [ ] _____ letter of intent

ATTACHES NEW FISCAL NOTE(s):

[ ] fiscal impact
[X] zero fiscal note
[ ] zero with analysis
[ ] same as previous fiscal note published _____
[ ] same as previous zero fiscal note published _____

SIGNING DO PASS:

Mike Kadas
Bill Strizek
Joyce Hanley
Rose Ellis

SIGNING OTHER RECOMMENDATIONS:

Mike Kadas
Chairman's signature

POSITION PAPER/Department of Health & Social Services

POSITION PAPER

House Joint Resolution No. 65

For an Act entitled: "Relating to runaway, homeless, and missing youth."

The Runaway and Homeless Youth Act has been a helpful mechanism in funding development of model programs nationally and has provided funding for implementation of such programs in Alaska. As an important source of funding for development of runaway service components within private organizations in the state, the Act has been instrumental in addressing the needs of these youth. It has also served as a mechanism for focusing community and statewide attention on the problems and needs of these youth, by funding authoritative research on runaway and homeless youth in Anchorage.

Continued federal support of such efforts will be a critical adjunct to increase the success of state and local efforts in addressing the needs of runaway and homeless youth and their families

Department Position

The Department supports passage of HJR 65.

RECOMMENDED: Yvonne M. Chase
Yvonne M. Chase, Director
Division of Family
and Youth Services

DATE: 2-25-88

APPROVED: Myra M. Munson
Myra M. Munson, Commissioner
Department of Health
and Social Services

DATE: 2-25-88

STATE OF ALASKA
1988 LEGISLATIVE SESSION

BILL VERSION: HJR 65
PUBLISH DATE: _____

FISCAL NOTE

REQUEST:

Revision Date: _____
Title: An Act relating to runaway, homeless and missing youth.
Sponsor: Representative Ellis, et. al.
Requestor: _____

Agency Affected: Health and Social Services
BRU: Social Services
Components: _____

EXPENDITURES/REVENUES: (Thousands of Dollars)

OPERATING	FY 88	FY 89	FY 90	FY 91	FY 92	FY 93
PERSONAL SERVICES						
TRAVEL						
CONTRACTUAL						
SUPPLIES						
EQUIPMENT						
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING	-0-	-0-	-0-	-0-	-0-	-0-
CAPITAL	-0-	-0-	-0-	-0-	-0-	-0-
REVENUE	-0-	-0-	-0-	-0-	-0-	-0-

FUNDING: (Thousands of Dollars)

GENERAL FUND						
FEDERAL FUNDS						
OTHER						
TOTAL	-0-	-0-	-0-	-0-	-0-	-0-

POSITIONS:

FULL-TIME						
PART-TIME						
TEMPORARY						

ANALYSIS: (Attach a separate page if necessary)

This resolution has no fiscal impact on the Department.

AMC

Prepared by: Yvonne M. Chase, Director
Division: Division of Family and Youth Services
Phone: 465-3170
Date: 02-25-88

Myra M. Munson

Approved by Commissioner: Myra M. Munson, Commissioner
Agency: Department of Health and Social Services
Date: 2-25-88

Distribution (by preparer):
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Requestor
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Impacted Agency(ies)

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tive provisions of sections
3, 3784, 3785, 3786, 3787
789c(a), 3789d(c), 3789f(a)
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I, § 262, Sept. 7, 1974, 88
15, § 6(c), Oct. 3, 1977, 91
509, § 16, Dec. 8, 1980, 94

ECT IN TEXT

o in subsec. (d), was in the
ing Pub. L. 93-415, Sept. 7,
nended, which enacted this
3774 and 3821 of this title,
and 5038 to 5042 of Title 18,
ocedure, amended sections
1 to 3814, 3882, and 3883 to
3108 of Title 5, Government
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1977 AMENDMENT

-115 effective Oct. 1, 1977,
93-415, as added by sec
5, set out as a note under

SUBCHAPTER III—RUNAWAY AND HOMELESS YOUTH

§ 5701. Congressional statement of findings

The Congress hereby finds that—

(1) the number of juveniles who leave and remain away from home without parental permission has increased to alarming proportions, creating a substantial law enforcement problem for the communities inundated, and significantly endangering the young people who are without resources and live on the street;

(2) the exact nature of the problem is not well defined because national statistics on the size and profile of the runaway youth population are not tabulated;

(3) many such young people, because of their age and situation, are urgently in need of temporary shelter and counseling services;

(4) the problem of locating, detaining, and returning runaway children should not be the responsibility of already overburdened police departments and juvenile justice authorities; and

(5) in view of the interstate nature of the problem, it is the responsibility of the Federal Government to develop accurate reporting of the problem nationally and to develop an effective system of temporary care outside the law enforcement structure.

(Pub. L. 93-415, title III, § 302, Sept. 7, 1974, 88 Stat. 1129.)

SHORT TITLE

For short title of title III of Pub. L. 93-415, which enacted this subchapter, as the "Runaway and Homeless Youth Act", see section 301 of Pub. L. 93-415, as amended, set out as a note under section 5601 of this title.

§ 5702. Promulgation of rules

The Secretary of Health and Human Services (hereinafter referred to as the "Secretary") may prescribe such rules as he considers necessary or appropriate to carry out the purposes of this subchapter.

(Pub. L. 93-415, title III, § 303, Sept. 7, 1974, 88 Stat. 1130; Pub. L. 96-88, title V, § 509(b), Oct. 17, 1979, 93 Stat 695.)

CHANGE OF NAME

"Secretary of Health and Human Services" was substituted for "Secretary of Health, Education, and Welfare" in text, pursuant to section 509(b) of Pub. L. 96-88, which is classified to section 3508(b) of Title 20, Education.

PART A—GRANTS PROGRAM

PART REFERRED TO IN OTHER SECTIONS

This part is referred to in section 5751 of this title.

§ 5711. Grants and technical assistance

(a) Authorization; purposes; amount; priority

The Secretary is authorized to make grants and to provide technical assistance and short-term training to States, localities and nonprofit private agencies and coordinated networks of such agencies in accordance with the provisions of this part. Grants under this part shall be made equitably among the States based upon their respective populations of youth under 18 years of age for the purpose of developing local facilities to deal primarily with the immediate needs of runaway youth or otherwise homeless youth, and their families, in a manner which is outside the law enforcement structure and juvenile justice system. The size of such grant shall be determined by the number of such youth in the community and the existing availability of services. Grants also may be made for the provision of a national communications system for the purpose of assisting runaway and homeless youth in communicating with their families and with service providers. Among applicants priority shall be given to private organizations or institutions which have had past experience in dealing with such youth.

(b) Supplemental grants to runaway centers developing model programs

The Secretary is authorized to provide supplemental grants to runaway centers which are developing, in cooperation with local juvenile court and social service agency personnel, model programs designed to provide assistance to juveniles who have repeatedly left and remained away from their homes or from any facilities in which they have been placed as the result of an adjudication.

(c) On-the-job training to local runaway and homeless youth center personnel

The Secretary is authorized to provide on-the-job training to local runaway and homeless youth center personnel and coordinated networks of local law enforcement, social service, and welfare personnel to assist such personnel in recognizing and providing for learning disabled and other handicapped juveniles.

(Pub. L. 93-415, title III, § 311, Sept. 7, 1974, 88 Stat. 1130; Pub. L. 95-115, § 7(a)(1), Oct. 3, 1977, 91 Stat. 1058; Pub. L. 96-509, § 18(c), Dec. 8, 1980, 94 Stat. 2762.)

AMENDMENTS

1980—Subsec. (a), Pub. L. 96-509, § 18(c)(1)-(4), designated existing provision as subsec. (a), and in subsec. (a) as so designated, inserted "equitably among the States based upon their respective populations of youth under 18 years of age" following "shall be made", ", and their families," after "homeless youth", and provision that grants also be made for the provision of a national communications system to assist runaway and homeless youth in communicating with their families and with service providers.

Subsecs. (b), (c), Pub. L. 96-509, § 18(c)(5), added subsecs. (b) and (c).

1977—Pub. L. 95-115 substituted "technical assistance and short-term training to States, localities and nonprofit private agencies and coordinated networks of such agencies in" for "technical assistance to localities and nonprofit private agencies in", "needs of runaway youth or otherwise homeless youth in" for "needs of runaway youth in", and "such youth" for "runaway youth" in two places.

EFFECTIVE DATE OF 1977 AMENDMENT

Amendment by Pub. L. 95-115 effective Oct. 1, 1977, see section 263(c) of Pub. L. 93-415, as added by Pub. L. 95-115, set out as a note under section 5601 of this title.

§ 5712. Eligibility; plan requirements

(a) To be eligible for assistance under this part, an applicant shall propose to establish, strengthen, or fund an existing or proposed runaway center, a locally controlled facility providing temporary shelter, and counseling services to juveniles who have left home without permission of their parents or guardians or to other homeless juveniles.

(b) In order to qualify for assistance under this part, an applicant shall submit a plan to the Secretary meeting the following requirements and including the following information. Each center—

(1) shall be located in an area which is demonstrably frequented by or easily reachable by runaway youth;

(2) shall have a maximum capacity of no more than twenty children, with a ratio of staff to children of sufficient portion to assure adequate supervision and treatment;

(3) shall develop adequate plans for contacting the child's parents or relatives (if such action is required by State law) and assuring the safe return of the child according to the best interests of the child, for contacting local government officials pursuant to informal arrangements established with such officials by the runaway center and for providing for other appropriate alternative living arrangements;

(4) shall develop an adequate plan for assuring proper relations with law enforcement personnel, social service personnel, and welfare personnel, and the return of runaway youths from correctional institutions;

(5) shall develop an adequate plan for aftercare counseling involving runaway youth and their parents within the State in which the runaway center is located and for assuring, as possible, that aftercare services will be provided to those children who are returned beyond the State in which the runaway center is located;

(6) shall keep adequate statistical records profiling the children and parents which it serves, except that records maintained on individual runaway youths shall not be disclosed without the consent of the individual youth and parent or legal guardian to anyone other than another agency compiling statistical records or a government agency involved in the disposition of criminal charges against an individual runaway youth, and reports or other documents based on such statistical records shall not disclose the identity of individual runaway youths;

(7) shall submit annual reports to the Secretary detailing how the center has been able to meet the goals of its plans and reporting the statistical summaries required by paragraph (6);

(8) shall demonstrate its ability to operate under accounting procedures and fiscal control devices as required by the Secretary;

(9) shall submit a budget estimate with respect to the plan submitted by such center under this subsection; and

(10) shall supply such other information as the Secretary reasonably deems necessary.

(Pub. L. 93-415, title III, § 312, Sept. 7, 1974, 88 Stat. 1130; Pub. L. 95-115, § 7(a)(2), (3), Oct. 3, 1977, 91 Stat. 1058; Pub. L. 96-509, § 18(d), Dec. 8, 1980, 94 Stat. 2762.)

AMENDMENTS

1980—Subsec. (a). Pub. L. 96-509, § 18(d)(1), substituted "center" for "house" and inserted "or to other homeless juveniles" following "parents or guardians".

Subsec. (b). Pub. L. 96-509, § 18(d)(2), substituted "center" for "house" wherever appearing and in par. (4) inserted reference to social service personnel and welfare personnel.

1977—Subsec. (b)(5), (6). Pub. L. 95-115 in par. (5) substituted "aftercare services" for "aftercase services", and in par. (6) substituted "the consent of the individual youth and parent or legal guardian" for "parental consent".

EFFECTIVE DATE OF 1977 AMENDMENT

Amendment by Pub. L. 95-115 effective Oct. 1, 1977, see section 263(c) of Pub. L. 93-415, as added by Pub. L. 95-115, set out as a note under section 5601 of this title.

SECTION REFERRED TO IN OTHER SECTIONS

This section is referred to in section 5713 of this title.

§ 5713. Approval of application by Secretary; priority

An application by a State, locality, or nonprofit private agency for a grant under this part may be approved by the Secretary only if it is consistent with the applicable provisions of this part and meets the requirements set forth in section 5712 of this title. Priority shall be given to grants smaller than $150,000. In considering grant applications under this part, priority shall be given to organizations which have a demonstrated experience in the provision of service to runaway and homeless youth and their families.

(Pub. L. 93-415, title III, § 313, Sept. 7, 1974, 88 Stat. 1131; Pub. L. 95-115, § 7(a)(4), Oct. 3, 1977, 91 Stat. 1058; Pub. L. 96-509, § 18(e), Dec. 8, 1980, 94 Stat. 2762.)

AMENDMENTS

1980—Pub. L. 96-509 substituted "$150,000" for "$100,000" and "organizations which have a demonstrated experience in the provision of service to runaway and homeless youth and their families" for "any applicant whose program budget is smaller than $150,000".

1977—Pub. L. 95-115 substituted "$100,000" and "$150,000" for "$75,000" and "$100,000", respectively.

EFFECTIVE DATE OF 1977 AMENDMENT

Amendment by Pub. L. 95-115 effective Oct. 1, 1977, see section 263(c) of Pub. L. 93-415, as added by Pub. L. 95-115, set out as a note under section 5601 of this title.

§ 5714. Grants to nonprofit private agencies; control over staff and personnel

Nothing in this part shall be construed to deny grants to nonprofit private agencies which are fully controlled by private boards or persons but which in other respects meet the requirements of this part and agree to be legally responsible for the operation of the runaway house. Nothing in this part shall give the Fed-

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(Pub. L. 93-415, title
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§ 5715. Annual report to

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§ 5716. Federal and n
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§ 5731. Restrictions o

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(Pub. L. 93-415, tit
Stat. 1132; Pub. L.
91 Stat. 1059.

REF

This chapter refer
original "Runa Act"
1974, 88 Stat. 1109
chapter sections 377
and sections 4251 to
Crimes and Crimin
2701, 2703, 3723, 378

eral Government control over the staffing and personnel decisions of facilities receiving Federal funds.

(Pub. L. 93-415, title III, § 314, Sept. 7, 1974, 88 Stat. 1131.)

§ 5715. Annual report to Congress

The Secretary shall annually report to the Congress on the status and accomplishments of the runaway centers which are funded under this part, with particular attention to—

(1) their effectiveness in alleviating the problems of runaway youth;

(2) their ability to reunite children with their families and to encourage the resolution of intrafamily problems through counseling and other services;

(3) their effectiveness in strengthening family relationships and encouraging stable living conditions for children; and

(4) their effectiveness in helping youth decide upon a future course of action.

(Pub. L. 93-415, title III, § 315, Sept. 7, 1974, 88 Stat. 1131; Pub. L. 96-509, § 18(f), Dec. 8, 1980, 94 Stat. 2762.)

AMENDMENTS

1980—Pub. L. 96-509 substituted "centers" for "houses".

§ 5716. Federal and non-Federal share; methods of payment

(a) The Federal share for the acquisition and renovation of existing structures, the provision of counseling services, staff training, and the general costs of operations of such facility's budget for any fiscal year shall be 90 per centum. The non-Federal share may be in cash or in kind, fairly evaluated by the Secretary, including plant, equipment, or services.

(b) Payments under this section may be made in installments, in advance, or by way of reimbursement, with necessary adjustments on account of overpayments or underpayments.

(Pub. L. 93-415, title III, § 316, Sept. 7, 1974, 88 Stat. 1132.)

PART B—RECORDS

PART REFERRED TO IN OTHER SECTIONS

This part is referred to in section 5751 of this title.

§ 5731. Restrictions on disclosure and transfer

Records containing the identity of individual youths pursuant to this chapter may under no circumstances be disclosed or transferred to any individual or to any public or private agency.

(Pub. L. 93-415, title III, § 321, Sept. 7, 1974, 88 Stat. 1132; Pub. L. 95-115, § 7(b), Oct. 3, 1977, 91 Stat. 1058.)

REFERENCES IN TEXT

This chapter, referred to in subsec. (d), was in the original "this Act", meaning Pub. L. 93-415, Sept. 7, 1974, 88 Stat. 1109, as amended, which enacted this chapter, sections 3772 to 3774 and 3821 of this title, and sections 4351 to 4353 and 5038 to 5042 of Title 18, Crimes and Criminal Procedure, amended sections 3001, 3723, 3733, 3768, 3811 to 3814, 3882, and 3883 to 3888 of this title, section 5108 of Title 5, Government Organization and Employees, and sections 5031 to 5037 of Title 18, and repealed section 3809 of this title. For complete classification of this Act to the Code, see Short Title note set out under section 5601 of this title and Tables.

AMENDMENTS

1977—Pub. L. 95-115 substituted provisions relating to restrictions on disclosure and transfer of records, for provisions relating to scope, etc., of statistical report to Congress.

EFFECTIVE DATE OF 1977 AMENDMENT

Amendment by Pub. L. 95-115 effective Oct. 1, 1977, see section 263(c) of Pub. L. 93-415, as added by Pub. L. 95-115, set out as a note under section 5601 of this title.

SECTION REFERRED TO IN OTHER SECTIONS

This section is referred to in section 5732 of this title.

§ 5732. Repealed. Pub. L. 95-115, § 7(b), Oct. 3, 1977, 91 Stat. 1058

Section, Pub. L. 93-415, title III, § 322, Sept. 7, 1974, 88 Stat. 1132, set forth restrictions on disclosure and transfer of records. See section 5731 of this title.

EFFECTIVE DATE OF REPEAL

Repeal effective Oct. 1, 1977, see section 263(c) of Pub. L. 93-415, as added by Pub. L. 95-115, set out as an Effective Date of 1977 Amendment note under section 5601 of this title.

PART C—REORGANIZATION

§ 5741. Reorganization plan; submittal to Congress; required contents

(a) After April 30, 1978, the President may submit to the Congress a reorganization plan which, subject to the provisions of subsection (b) of this section, shall take effect, if such reorganization plan is not disapproved by a resolution of either House of the Congress, in accordance with the provisions of, and the procedures established by chapter 9 of title 5, except to the extent provided in this part.

(b) A reorganization plan submitted in accordance with the provisions of subsection (a) of this section shall provide—

(1) for the establishment of an Office of Youth Assistance which shall be the principal agency for purposes of carrying out this subchapter and which shall be established—

(A) within the Office of Juvenile Justice and Delinquency Prevention in the Department of Justice; or

(B) within the ACTION Agency;

(2) that the transfer authorized by paragraph (1) shall be effective 30 days after the last date on which such transfer could be disapproved under chapter 9 of title 5;

(3) that property, records, and unexpended balances of appropriations, allocations, and other funds employed, used, held, available, or to be made available in connection with the functions of the Office of Youth Development within the Department of Health and Human Services in the operation of functions pursuant to this subchapter, shall be transferred to the Office of Youth Assistance

within the Office of Juvenile Justice and Delinquency Prevention or within the ACTION Agency, as the case may be, and that all grants, applications for grants, contracts, and other agreements awarded or entered into by the Office of Youth Development shall continue in effect until modified, superseded, or revoked;

(4) that all official actions taken by the Secretary of Health and Human Services, his designee, or any other person under the authority of this subchapter which are in force on the effective date of such plan, and for which there is continuing authority under the provisions of this subchapter, shall continue in full force and effect until modified, susperseded,[1] or revoked by the Associate Administrator for the office [2] of Juvenile Justice and Delinquency Prevention or by the Director of the ACTION Agency, as the case may be, as appropriate; and

(5) that references to the Office of Youth Development within the Department of Health and Human Services in any statue,[3] reorganization plan, Executive order, regulation, or other official document or proceeding shall, on and after such date, be deemed to refer to the Office of Youth Assistance within the Office of Juvenile Justice and Delinquency Prevention or within the ACTION Agency, as the case may be, as appropriate.

(Pub. L. 93-415, title III, § 331, as added Pub. L. 95-115, § 7(c), Oct. 3, 1977, 91 Stat. 1059, and amended Pub. L. 96-88, title V, § 509(b), Oct. 17, 1979, 93 Stat. 695.)

Change of Name

"Department of Health and Human Services" was substituted for "Department of Health, Education, and Welfare" in subsec. (b)(3) and (5), and "Secretary of Health and Human Services" was substituted for "Secretary of Health, Education, and Welfare" in subsec. (b)(4), pursuant to section 509(b) of Pub. L. 96-88, which is classified to section 3508(b) of Title 20, Education.

Effective Date

Section effective Oct. 1, 1977, see section 263(c) of Pub. L. 93-415, as added by Pub. L. 95-115, set out as an Effective Date of 1977 Amendment note under section 5601 of this title.

Part D—Authorization of Appropriations

Amendments

1977—Pub. L. 95-115, § 7(c), Oct. 3, 1977, 91 Stat. 1059, designated former part C of this subchapter as part D.

§ 5751. Amounts authorized for programs and activities; consultative and coordinating requirements

(a) To carry out the purposes of part A of this subchapter there is authorized to be appropriated for each of the fiscal years ending September 30, 1981, September 30, 1982, September 30, 1983, and September 30, 1984, the sum of $25,000,000.

(b) The Secretary (through the Office of Youth Development which shall administer this subchapter) shall consult with the Attorney General (through the Associate Administrator of the Office of Juvenile Justice and Delinquency Prevention) for the purpose of coordinating the development and implementation of programs and activities funded under this subchapter with those related programs and activities funded under subchapter II of this chapter and under the Omnibus Crime Control and Safe Streets Act of 1968, as amended [42 U.S.C. 3701 et seq.].

(Pub. L. 93-415, title III, § 341, formerly § 331, Sept. 7, 1974, 88 Stat. 1132, Pub. L. 94-273, § 32(c), Apr. 21, 1976, 90 Stat. 380, renumbered and amended Pub. L. 95-115, § 7(c), (d), Oct. 3, 1977, 91 Stat. 1059, 1060; Pub. L. 96-509, § 2(b), Dec. 8, 1980, 94 Stat. 2750.)

References in Text

The Omnibus Crime Control and Safe Streets Act of 1968, referred to in subsec. (b), is Pub. L. 90-351, June 19, 1968, 82 Stat. 197, as amended, title I of which is classified principally to chapter 46 (§ 3701 et seq.) of this title. For complete classification of this Act to the Code, see Short Title note set out under section 3701 of this title and Tables.

Amendments

1980—Subsec. (a). Pub. L. 96-509 substituted provisions authorizing appropriations of $25,000,000 for each of the fiscal years ending Sept. 30, 1981, 1982, 1983, and 1984, for provisions that had authorized appropriations of $10,000,000 for each of the fiscal years ending Sept. 30, 1975, 1976, and 1977, and $25,000,000 for each of the fiscal years ending Sept. 30, 1978, 1979, and 1980.

1977—Subsec. (a). Pub. L. 95-115, § 7(d)(1), added provisions authorizing appropriations for the fiscal years ending Sept. 30, 1978, 1979, and 1980.

Subsec. (b). Pub. L. 95-115, § 7(d)(2), substituted provisions relating to consultative and coordinating requirements for funded programs and activities, for provisions relating to authorization for funding surveys under part B of this subchapter.

Effective Date of 1977 Amendment

Amendment by Pub. L. 95-115 effective Oct. 1, 1977, see section 263(c) of Pub. L. 93-415, as added by Pub. L. 95-115, set out as a note under section 5601 of this title.

CHAPTER 73—DEVELOPMENT OF ENERGY SOURCES

SUBCHAPTER I—ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION

[1] So in original. Probably should be "superseded."

[2] So in original. Probably should be "Office".

[3] So in original. Probably should be "statute".