ANBEX New Jersey Office: 113 Morris Ave., Denville, NJ, 07834 (201) 586-9282

July 1, 1991

Mr. Ivan Selin
Chairman
United States Nuclear Regulatory Commission
Washington, DC 20555

Dear Mr. Selin:

While I realize your agenda is probably quite full at this time, I hope you will be able to give some early attention to the matter of potassium iodide (KI) and the question of thyroid blocking.

As I am sure you know, until recently the NRC has refused to consider any proposals for stockpiling or predistribution of KI despite overwhelming support by virtually all experts in the field for a Federal program to assure its availability in case of an emergency. "The staff has concluded that there are no new reasons to reconsider the agency's position," states Victor Stello in the attached letter to Senator Bill Bradley. Yet at the time Mr. Stello wrote this letter, there were new reasons, including clear evidence that KI had been of significant public value at Chernobyl, and that the mathematical basis of the argument against it was in error.

These items were noted in a letter to the NRC of November 13, 1991 regarding current policy that treats KI as a "local" issue, and which puts the responsibility for its procurement on State and county governments. As a result of this policy, only two states have acted, since most local authorities have limited knowledge about KI and are unaware of most of the evidence supporting its use. The Massachusetts State Committee on Health Care, for example, refused to respond to an appeal for acquisition of KI, based on testimony that was incorrect in virtually every detail (see attached).

Current KI policy (as expressed in NUREG/CR-1433) rests on the assumption that the probability of a major iodine releasing accident is so remote that there is no need to take this simple precaution. According to this view, even the modest cost for this highly effective agent is unnecessary. But this stance is inconsistent with the agency's actual position and the impact of KI at Chernobyl. Accordingly, by failing to assure availability of the product in an emergency, the NRC is opening itself to severe criticism (or worse) should its use and rapid distribution ever be required.

Mr. Ivan Selin
July 1, 1991

Of course, I am encouraged by the announcement of The American Thyroid Association supporting stockpiling of KI, and the decision by the NRC to re-examine this issue. And while I recognize that there are logistical issues concerned with KI stockpiling or predistribution, a number of strategies have been proposed that appear to offer a high chance of success. It is my hope, Mr. Selin, that in your new position you will strongly endorse the concept of wide availability of this valuable agent, and that your office will encourage serious discussion of this topic.

A sample of the product produced by my company and some relevant other materials are enclosed. Of course, if you have any questions about the cost, shelf-life, or guarantees which my company is prepared to make, I hope you will not hesitate to contact me.

Sincerely,

Alan Morris
President
Anbex, Inc.

ANBEX
BOX 861 COOPER STATION N.Y. N.Y. 10276
(212) 505-6212

November 13, 1987

Division of Rules and Records
U.S. Nuclear Regulatory Commission
Washington, DC 20555

As per the notice in the Federal Register, this is to present my comments on the draft document issued by your Agency entitled "Implications of the Accident at Chernobyl for Safety Regulation of Commercial Nuclear Power Plants in the United States", NUREG-1251, published August 1987.

My interest in this document comes from the fact that my company, ANBEX, is one of the two US pharmaceutical firms approved by the FDA to produce potassium iodide (KI) tablets for use in a radiation emergency. Accordingly, I closely followed the use of KI at Chernobyl, and read with interest your document: "Report on the Accident at the Chernobyl Nuclear Power Station" NUREG-1250.

To summarize my comments, I wish to express my objections to your conclusions reached in NUREG-1251 concerning KI. In light of Chernobyl, the policy you advocate is insensitive to the needs of Americans, and incompatible with the events that occurred there.

Specifically, you report in NUREG-1250 that:

> The Russians were apparently well prepared for large-scale distribution of KI tablets to the general public....Thousands of measurements of I-131 (radioiodine) activity in the thyroids of the exposed population suggest that the observed levels were lower than those that would have been expected had this prophylactic measure not been taken. The use of KI by the Pripyat population in particular was credited with permissible iodine content (less than 30 rad) found in 97% of the 206 evacuees tested at one relocation center. It is also important to note that no serious side effects of KI use have been reported.

But in spite of this acknowledgement of the value of the Russian stockpiles, and the known lack of any similar substantive stockpiles in the Unites States, you conclude in NUREG-1251 that:

52FR30-53 (4 pgs)
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> The apparently successful use of KI by the Soviets does not alter the validity of U.S. Government policy that predistributing or stockpiling KI for use by the general public should not be required. Rather, this decision should be made by individual States and by local authorities.

This policy is inconsistent with your responsibilities and is clearly not in the best interests of citizens of the United States. It guarantees that KI will not be available if it is needed, and consequently one of the most effective public health measures taken by the Soviets will be denied to Americans.

It is my contention, in fact, that the the events at Chernobyl, once again, clearly demonstrate the need to stockpile KI, and the necessity for responsible health officials to insure that sufficient supplies are available in the event of a similar accident here. Not to do so is to introduce a significant risk of preventable injuries with no corresponding benefit.

It is insufficient and an abdication of your responsibility to put the burden of securing KI supplies on State and local governments. Stated simply, unless Washington acts, smaller governments won't, since most lack an understanding of the benefits of KI, and, quite appropriately, look to Federal agencies for guidance on nuclear policy issues. Thus, your failure to require predistribution or stockpiling assures that the benefits of the agent that is credited with protecting hundreds of thousands of Russian citizens will be lost to Americans. Assuming you accept the credible possibility of an accident, one has to wonder why you appear not see the potential danger of this policy.

The willingness to reject KI in spite of the safety benefits it offers can not be explained by what took place at Chernobyl. Instead, it can only be understood by realizing that the conclusions in NUREG-1251 come from <u>ignoring</u> what happened there.

NUREG-1251, itself, essentially says this. It notes:

> While valid arguments may be made for the use of KI, the preponderance of information indicates that a nationwide requirement for the predistribution or stockpiling for use by the general public would not be worthwhile. This is based on the ability to evacuate the general population and the cost effectiveness of a nationwide program which has been analyzed by the NRC and DOE National Laboratories (NUREG/CR-1433).

But NUREG/CR-1433 was written 6 years prior to Chernobyl, and is seriously flawed. The basis for its cost effectiveness argument is the unrealistic assessment that reactor accidents that release significant quantities of radioiodine into the atmosphere would not be expected to happen more than about once in a thousand years. And under this infrequent occurrence, so the argument goes, there is no need for KI.

But the "millennium" estimate was generated before the accidents at Chernobyl, Three Mile Island, and a host of other near misses. Consequently, no one, including the NRC, accepts this probabilistic estimate today, and more recent figures based on more years of actual operating experience suggest that serious core-melt accidents are likely to occur far more frequently. In fact, I am advised that a serious core-melt accident about every 20 years would not be improbable.

Obviously, as others have pointed out, under this expected frequency, the "cost-effectiveness" argument presented in NUREG/CR-1433 is invalid. Yet for the NRC to quote it in NUREG-1251, in spite of your official rejection of the probabilities it is based on, reflects poorly on the conclusions you draw.

In addition, your conclusion not to predistribute or stockpile KI also rests on a presumed "ability to evacuate the general population" in case of an accident. I suspect, though, that few independent experts would agree that this could easily be done. As you know, an area of 1000 square miles could be endangered in a major iodine release, and this could require the evacuation of millions of people. To presume the ability to do this, and, consequently, not to acquire KI as a result, strikes me as dangerous policy. Further, as your document points out, although the Soviets were able to move hundreds of thousands of people in a relatively short time, there are significant differences between their society and ours. And in any event, those being evacuated would be far safer if they also took KI.

Finally, I must take exception to your statement that "the preponderance of information indicates that a nationwide requirement for the predistribution or stockpiling for use by the general public would not be worthwhile." This is simply incorrect. There is no "preponderance" of information against stockpiling or predistributing KI. In fact, the opposite is true. For example, the National Council on Radiation Protection has strongly endorsed KI, and noted, "every available appropriate outlet should be considered as a stockpiling and distribution point". And the Presidential Commission that investigated Three Mile Island (the Kemeny Commission) made the recommendation that: "An adequate supply of the radiation protective (thyroid blocking) agent, potassium iodide for human use, should be available regionally for distribution to the general population...affected by a radiological emergency."

Further, the FDA's highly supportive position regarding KI is well known, the American Thyroid Association has concluded that "Potassium iodide in an appropriate dosage form (130 mg scored KI tablet) be manufactured in sufficient quantities should its usage be required", and acceptance of stockpiling is an acknowledged fact in numerous European countries (which is why it was available at the time of Chernobyl). Also, the testimony by recognized experts before the House Committee on Interior and Insular

Affairs, and most of the published literature on this question is overwhelmingly in favor of the use, and/or predistribution, and/or stockpiling of the drug.

In fact, with the exception of the commercial nuclear power industry and a small group who support Dr. Rosalyn Yalow, it is difficult to find anyone who (or anything written that) is "against" potassium iodide.

Finally, one should not ignore the fact that early KI distribution has already been requested. As we know, at Three Mile Island it was called for immediately (although it was not available for nearly 6 days, a delay which planners were criticized for), and at Chernobyl it was distributed from stockpiles within hours of the accident. Surely, one must expect that if another accident occurs, the people charged with the responsibility of dealing with medical issues will also demand early supplies.

But where these supplies are to come from has apparently never been explored or considered. I can assure you that neither my company or the only other supplier keep substantial quantities in inventory, and it seems almost certain that if it is ever required, then once again there will be a frantic search for the drug, followed by the hurried preparation of inadequate supplies of an inferior substitute, and no delivery until it is too late.

Stated simply, unless one starts with the assumption that core-melt accidents are impossible (in which case there should be no need for any emergency preparedness), it is difficult to make a coherent argument against keeping KI on hand. In addition, because the product is inexpensive, easy to store, and comes (in the case of KI sold by ANBEX) with a guaranteed shelf life, there are no serious logistical obstacles to stockpiling.

Although the question can never be fully answered, one has to wonder what the impact of Chernobyl would have been on the health of affected populations if the Soviets had not had KI in stockpile. Certainly, this document makes it plain that matters would have been much worse. For FEMA and the NRC not to act in recognition of this is a poor, and extremely dangerous, oversight.

Sincerely,

Alan Morris
President
ANBEX, Inc.

If you wish clarification of any of my comments, I can be reached at (201) 586-9282

ANBEX

New Jersey Office: 113 Morris Ave., Denville, NJ. 07834 (201) 586-9282

March 11, 1989

The Honorable Edward L. Burke
The Honorable John C. McNeil
Co-chairmen, Joint Committee on Health Care
State House, Room 437
Boston, MA 02133

Dear Sirs:

This letter is to respond to the testimony by Dr. Edward W. Webster on March 1, 1989 regarding House Bill No. 2337, an act to require the distribution of thyroid blocking agents in the event of a radiological emergency. As President of one of the two FDA approved suppliers of potassium iodide (KI) for radiation protection, I hope I can add some clarification to this issue.

I. First, the assertion by Dr. Webster that proposals of this nature have not been recommended by either the Nuclear Regulatory Commission (NRC) or the Federal Emergency Management Agency (FEMA) requires some comment. These agencies, like Dr. Webster, do not dispute the effectiveness of KI in a radiation emergency. Indeed, the NRC staff requires KI at nuclear plants, and has "recommended that the Commission adopt an interim policy encouraging the stockpiling of KI" ① for those (plant workers and presumably others) who could be affected. Similarly, FEMA's plans for a radiological emergency (NUREG-0654) include "Provisions for the use of radioprotective drugs...including quantities, storage, and means of distribution" and notes that such plans "should include the method by which decisions by the State Health Department for administering radioprotective drugs to the general population can be made during an emergency." ②

The actual position of FEMA and the NRC on the use of KI is that "the decision to use KI...should be made by the States and, if appropriate, local authorities..." ③ These agencies are not opposed to KI or its use. Rather, they have decided that the responsibility to assure its supply should be left to local, not federal, officials. This is precisely the purpose of House Bill 2337. It is to insure that in the event of an emergency, what happened at Three Mile Island (TMI) will not occur again: a frantic search for the drug, followed by the hurried preparation of inadequate supplies of an inferior substitute, and no delivery until it is too late. ④

II. On the health consequences of a nuclear accident, Dr. Webster testified that a "relatively large release" of radiation could result in a 350 rem dose at half a mile, and a 7 rem dose at 10 miles, leading to 20 cases of malignant and benign thyroid nodules.

I am uncertain what Dr. Webster's "relatively large release" is relative to, but it is certainly not even remotely close to what experts claim a true "large" accident would release. NRC numbers on this point are clear. For example, information in NUREG/CR-1433 and WASH-1400 allow calculations of the effects of a "Core-Melt Atmospheric" accident (the type that almost happened at TMI and DID occur at Chernobyl), demonstrating the delivery of a much larger radiation dose, and thousands of times the number of casualties as Dr. Webster's estimate:

EFFECTS OF CORE-MELT ATMOSPHERIC ACCIDENTS BY DISTANCE [5]

Distance in miles	Mean Thyroid Dose (REM) for Exposed Adult Outdoors	Probability of Thyroid Damage to Exposed Adult Located Outdoors
1	13,000	60%
5	5,800	70%
10	3,200	70%
25	1,100	40%
50	380	13%
100	100	3%
150	36	1%
200	16	0.5%

In other words, rather than the 20 or so injuries as predicted by Dr. Webster, the real impact could be thyroid damage among 40 to 70% of all adults within 25 miles of a reactor. Worse, casualty rates would double for children.

Translating these estimates into the actual number of people who might be affected by a major accident is demonstrated by calculations made after TMI. As shown below, had the worst happened, and depending on the wind direction, hundreds of thousands of casualties could have occurred from that accident.

POSSIBLE NUMBER OF DELAYED THYROID NODULES BY DISTANCE [6]
(Typical Meteorological Condition)

Distance in Miles	Wind Toward Maryland	Wind Toward NY/Boston	% of Pop. Devel. Thyroid Nodules
0-50	21,000-48,000	13,000-95,000	10-100
50-100	2,300-18,000	10,000-74,000	3-30
100-150	1,000-7,400	25,000-190,000	1-10
150-200	170-1,300	19,000-140,000	.7-5
200-250	(OCEAN)	3,800-21,000	.5-3
250-300	(OCEAN)	1,800-14,000	.3-2
300-400	(OCEAN)	760-5,700	.06-.4
TOTAL	24,000-75,000	73,000-540,000	

These estimates indicate that thousands of iodine related injuries should have occurred at Chernobyl, yet this was not the case. The NRC has attributed this major reduction in casualties to the prompt distribution of massive quantities of stockpiled KI which protected hundreds of thousands of Russian citizens. As was testified earlier, the NRC has reported unequivocally that:

> "Thousands of measurements of I-131 (radioiodine) activity in the thyroids of the exposed population suggest that the observed levels were lower than those that would have been expected had this prophylactic measure not been taken. The use of KI...in particular was credited with permissible iodine content (less than 30 rad) found in 97% of the 206 evacuees tested at one relocation center." ⑦

It is clear that if this accident had occurred in the US instead of in the Soviet Union, the medical impact would have been much worse. While Dr. Webster is entitled to his opinion, this huge reduction in nuclear accident consequences provided by potassium iodide simply can not be ignored. Indeed, as others have pointed out, one has to wonder what the fate of hundreds of thousands of Russian and Europeans would have been had this medicine not been available.

III. On the question of side effects of KI, Dr. Webster states his belief that the benefits of KI in an emergency could be exceeded by thyroid problems induced by the drug. This surprising statement can not be supported by evidence.

Potassium iodide is not a new drug. It has been used for over 100 years in other therapies, in daily doses often as high as 10 times the amount needed for radiation protection. Its potential for side effects is so well known that the American Thyroid Association felt confident reporting that "obvious iodide reactions are quite rare in the United States...where the population ingests more than 100 million KI tablets annually..." ⑧ The FDA agrees. Noting the large body of information based on use, plus "information on possible side effects of the drug in the published literature dating back to the late 1800's, and its own Voluntary Reporting System on drug reactions...[the FDA concluded] that the incidence of significant adverse reactions from short-term administration of potassium iodide to humans in the doses recommended for thyroid-blocking in a radiation emergency is expected to be low...." ⑨

How low? This is difficult to say, but the National Council on Radiation Protection estimated that the expected incidence of reactions to a 300 mg dose of KI (more than twice the radio-protective dose) was no more than one in one million to one in ten million, and they concluded that its use "even to large segments of the relatively healthy U.S. population, will not result in significant immediate toxicity or chronic iodism." ⑩

The safety of short-term use of potassium iodide in low doses is an established fact. That's why the FDA strongly supports its use if needed, and why the American Thyroid Association, after a review of the side effects issue, concluded that "potassium iodide in an appropriate dosage form (130 mg scored KI tablets) be manufactured in sufficient quantities should its usage be required." (11)

Of course, no drug is ever considered to be entirely free of possible side effects, and thus critics are technically correct in pointing out that a very small group of elderly patients taking much larger doses for long periods of time, may exhibit increased sensitivity to KI.

But this risk must be kept in perspective. Should the need for KI arise, it would be because a major radiological health crises caused my a nuclear emergency existed, and the impact of that health crisis would be vastly greater than the risks presented by KI. It was this fact that led the FDA to state definitively that:

> The known potential for potassium iodide to cause serious side effects in a small sensitive population is not sufficient grounds from which to conclude, or even to suggest, a significant and quantifiable proportion of serious reactions or deaths in patient populations which would be exposed to much smaller doses of the drug over a limited time and which would not be expected to include patients of this category. (12)

Obviously, at some point the choice between various risks must be made by the individual. However, in an emergency, I suspect most people would rather take the risk with KI than face radiation without it. In fact, I suspect even Dr. Webster would choose KI.

IV. Dr. Webster's testimony also notes problems with distribution, communication, false alarms, and the need to take KI quickly in an emergency for it to be effective. These are all real issues that merely point out that there is no perfect solution to a nuclear accident. But the purpose of this bill is to promote steps to help meet the public's health and safety needs in an accident, and the first need is to have the product available.

As for distribution and the need to take KI quickly, these problems can only be mitigated by having the product available before an accident, either in stockpiles or pre-distributed to those living very close to nuclear plants. Indeed, some combination of these two strategies would appear to offer the best solution.

As for communication and false alarms, it should be remembered that most accident scenarios assume a meltdown would take at least 6 to 12 hours (if not a matter of days) to occur, and this would provide ample time for most people to respond appropriately. Further, the responsibility to control communications and prevent false alarms more properly rests with the utility. To use these issues as a reason to avoid obtaining KI is a case of misplaced blame.

Finally, Dr. Webster is simply incorrect regarding the shelf life of KI. Because it is an inherently stable product, any KI sold by my company will be guaranteed for at least 7 years, and can be expected to last considerably longer as long as it is stored in a dry environment at room temperature. Although I can not speak for others who manufacture KI, I suspect they would have as little problem as I would in submitting a proposal to the State with a guarantee to meet FDA specifications for at least 7 years.

V. Lastly, there is one additional topic that I feel the Committee should consider. Although emergency planning for reactor accidents is usually limited to a 10 mile (or less) Emergency Planning Zone (EPZ), radiation does not conveniently respect this boundary. In fact, it is widely recognized that most thyroid damage in a nuclear accident could occur outside of the EPZ, with the need for blocking possibly as far downwind as 200 miles. The NRC is explicit on this point. As their Policy Issue on this question states: "Thyroid damage is likely to affect more individuals than any other accident induced health effect...thyroid doses could exceed plume pathway PAGs [Protective Action Guides] at distances of hundreds of miles...most of the thyroid nodules are calculated to occur beyond 10 miles from the reactor...the majority of the thyroid nodules occur beyond fifty miles from the reactor." (13)

These facts strongly suggest that obtaining only enough KI to protect individuals within the 10 mile EPZ could be insufficient. A major accident in Western Massachusetts, for example, could require the use of KI in Boston. And accidents occurring in Vermont, New Hampshire, Connecticut, New York, or Canada could also jeopardize citizens of Massachusetts. Should this occur, public health officials would be forced to decide who should get the KI, and who shouldn't -- a form of nuclear triage.

Because KI is inexpensive (costing only about 10 to 15 cents per person per year), it is difficult to justify the purchase of a smaller than necessary supply. Further, because KI has already been needed in one accident, requested in another, and would surely be one of the first things planners would need in a Massachusetts emergency, an insufficient supply would be a severe problem.

The NRC and FEMA dismiss this problem by noting (NUREG-1251) that: "the international offers of medical support to the Soviet Union following the Chernobyl accident demonstrate that the U.S. regional and national medical response can be augmented, if necessary, by a response from the international medical community." (14) In other words, we should depend on someone else, (the Russians, perhaps) to give us theirs.

I suspect that most thoughtful health and safety officials, as well as most American citizens, would find this situation unacceptable. Unfortunately, though, unless responsible officials act, it may take nothing less than a serious accident to change the current policy on the stockpiling or distribution of this needed product.

I have attached a copy of a proposal on Federal stockpiling of KI which provides additional background information on this question.

Sincerely,

Alan Morris
President
Anbex, Inc.

Attachments

cc: Dr. Van Dunn
Deputy Commissioner
Department of Public Health
150 Tremont Street, 10th Floor
Boston, MA 02111

Representative Lawrence R. Alexander
Chairman
Committee on Energy
Room 540, State House
Boston, MA 02133

REFERENCES

1. Nuclear Regulatory Commission. 1980 Annual Report.

2. Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants. NUREG-0654, FEMA-REP-1. Rev.1 Supp. 1 U.S. Nuclear Regulatory Commission, Federal Emergency Management Agency, November, 1987

3. Federal Register. Vol. 50, No. 142. July 24, 1985. Federal Policy on Distribution of Potassium Iodide Around Nuclear Power Sites for Use as a Thyroidal Blocking Agent.

4. For information see, Report of the President's Commission on The Accident at Three Mile Island. (Kemeny Commission Report)

5. Information taken from Examination of the Use of Potassium Iodide (KI) as an Emergency Protective Measure for Nuclear Reactor Accidents. NUREG/CR-1433. U.S. Nuclear Regulatory Commission. Sandia National Labs. Albuquerque, New Mexico. Tables 3/4.

6. Report to the President's Council on Environmental Quality. Some Long Term Consequences of Hypothetical Major Releases of Radioactivity to the Atmosphere from Three Mile Island. Princeton University. September 7, 1979.

7. Report on the Accident at the Chernobyl Nuclear Power Station. U.S. Nuclear Regulatory Commission. NUREG-1250.

8. Report of the Environmental Hazards Committee of the American Thyroid Association. The Use of Iodine as a Thyroidal Blocking Agent in the Event of a Reactor Accident. Revised Report. December, 1982.

9. Final Recommendations. Potassium Iodide as a Thyroidal Blocking Agent in a Radiation Emergency: Recommendations on Use. April, 1982. Bureau of Radiological Health. Food and Drug Administration.

10. Protection of the Thyroid Gland in the Event of Releases of Radioiodine. National Council on Radiation Protection and Measurements. NCRP Report No. 55. June, 1977.

11. American Thyroid Association. Ibid.

12. Recommendations on the Use of Potassium Iodide as a Thyroidal Blocking Agent in Radiation Accidents: An FDA Update. Symposium on the Health Aspects of Nuclear Power Plant Incidents-1983. Subcommittee on Environmental Health. Committee on Public Health. New York Academy of Medicine and New York State Department of Health. April, 1983.

13. Perspective on Potassium Iodide (KI) as a Preplanned Protective Measure. Policy Issue. SECY-83-362. U.S. Nuclear Regulatory Commission. August 30, 1983.

14. Implications of the Accident at Chernobyl for Safety Regulation of Commercial Nuclear Power Plants in the United States. U.S. Nuclear Regulatory Commission. NUREG-1251

Potassium Iodide

AGENCY: Nuclear Regulatory Commission.

SUMMARY: The purpose of this notice is to inform the public that, because of new information, the analysis supporting the current federal policy regarding the distribution and use of Potassium Iodide (KI) as a thyroidal blocking agent during accidents at nuclear power plants in being revised. Preliminary analysis of this new information indicates that the cost-benefit ratio associated with stockpiling KI may have narrowed. As a result of this new information and a request by the American Thyroid Association to establish a national stockpile of KI, the current federal policy regarding the stockpiling and use of KI is undergoing a reexamination.

FOR FURTHER INFORMATION CONTACT: Leonard Soffer, Severe Accident Issues Branch, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555 (301-492-3916).

BACKGROUND: On July 24, 1985 the present federal policy (50 FR 30258) on distribution of Potassium Iodide (KI) around nuclear power sites for use as a thyroidal blocking agent was issued. In summary, the federal policy recommends the stockpiling of KI and its distribution for emergency workers and institutionalized persons, but does not recommend requiring predistribution or stockpiling for the general public. The basis for this policy is that, in the event of an accident, protective actions are planned and would be taken for the general public that are capable of reducing doses to all body organs, and not merely the thyroid gland. This policy is advisory for state and local governments which can, within the limits of their authority, take measures beyond those recommended or required nationally. In this regard, two states (Alabama and Tennessee) have decided to stockpile or predistribute KI tablets for use by the public in the event of a serious reactor accident.

Since issuance of this policy, new information regarding KI has become available. Information is now becoming available on the experience during the Chernobyl accident in the Soviet Union in April 1986 where significant quantities of KI were administered by Polish and Soviet authorities. Additionally, since completion of the original analysis in 1980 supporting the federal policy (NUREG/CR-1433), information has become available indicating a reduction in iodine releases associated with a severe reactor accident and a reduced cost and increased shelf-life of KI. Preliminary analysis of this information indicates that the cost-benefit ratio which supports the current federal policy may have narrowed from the 1980 analysis. Further, in September 1989, representatives of the American Thyroid Association (ATA) requested that a national stockpile of KI be established. In view of this request and the availability of new information which affects the underlying analysis, an effort to reexamine the federal policy on KI has been undertaken.

ACTIVITIES UNDERWAY: The Nuclear Regulatory Commission (NRC) is presently preparing an update of the original 1980 analysis (NUREG/CR-1433). The updated report will consider the latest available research on estimated iodine releases from severe reactor accidents, will incorporate the most recent estimates on risk to the thyroid from internal radioiodine exposure, and will factor in revised values for cost and shelf-life of KI. This report is expected to be issued by July 1991 to state and local authorities and to the public.

In parallel, as a result of the request by the ATA to establish a national stockpile of KI, the Federal Radiological Preparedness Coordinating Committee (FRPCC) has requested that the Department of Health and Human Services, through the Centers for Disease Control (CDC), convene an *ad hoc* meeting of experts in this field to solicit and review relevant scientific information on this issue, and to provide its recommendations to the FRPCC. Accordingly, a workshop on the scientific and medical aspects of KI was held in Atlanta on July 24, 1990. The review by CDC will consider the available new information noted above. The CDC is expected to provide its recommendations to the FRPCC on whether the current federal policy should be reassessed by November 1990. Should the FRPCC determine that the federal policy warrants reassessment by all involved federal agencies, an associated schedule for accomplishing this would be established.

Dated at Rockville, Maryland, this 21st day of October 1990.

Eric S. Beckjord,

Director, Office of Nuclear Regulatory Research.

[FR Doc. 90-22974 Filed 9-27-90; 8:45 am]

BILLING CODE 7590-01-M

DEPARTMENT OF TRANSPORTATION

Aviation Proceedings; Agreements filed during the Week Ended September 21, 1990

The following Agreements were filed with the Department of Transportation under the provisions of 49 U.S.C. 412 and 414. Answers may be filed within days of date of filing.

Docket Number: 47183.
Date filed: September 20, 1990.
Parties: Members of the Internation Air Transport Association.
Subject: Composite Resolutions R-1 R-21.
Proposed Effective Date: April 1, 19
Docket Number: 47184.
Date filed: September 20, 1990.
Parties: Members of the Internatio Air Transport Association.
Subject: Mail Vote 428—Fares from Ecuador to Central America.
Proposed Effective Date: October 1 1990.
Docket Number: 47185.
Date filed: September 20, 1990.
Parties: Members of the Internatio Air Transport Association.
Subject: Mail Vote 429—PEX fares from Japan to Southeast Asia.
Proposed Effective Date: October 1990.

Phyllis T. Kaylor,

Chief, Documentary Services Division.

[FR Doc. 90-22919 Filed 9-27-90; 8:45 am]

BILLING CODE 4910-62-M

Notice of Applications for Certific of Public Convenience and Neece and Foreign Air Carrier Permits Fi Under Subpart Q During the Week Ended September 21, 1990

The following applications for certificates of public convenience necessity and foreign air carrier pe were filed under subpart Q of the Department of Transportation's Procedural Regulations (See 14 CF 302.1701 *et. seq.*). The due date for answers, conforming application, motion to modify scope are set for below for each application. Follow the answer period DOT may proc application by expedited procedu Such procedures may consist of t adoption of a show-cause order, tentative order, or in approrpiate final order without further proce

Docket Number: 47176.
Date filed: September 17, 1990.
Due Date for Answers, Confon Applications, or Motion to Modif Scope: October 5, 1990.
Description: Application of Ro Aereo, C. Por A., pursuant to sec

Chernobyl Makes Ukraine Want Independence

To the Editor:

Imagine having your government exhort your participation, and that of your children, in the annual parade down [illegible] Street while, entirely unknown to you, a highly radioactive plume hung over your city, and unseen radioactive dust and ash had spread over that city's streets and sidewalks. Imagine further these same government officials, again unknown to you, having earlier evacuated columns of their own children to distant safety in secretly commandeered planes and trains.

A scene, perhaps, from a science fiction movie? To the contrary, in 1986 in my hometown, Kiev in the Ukraine, these events took place. Five days before the annual May Day parade and celebration, the Chernobyl nuclear reactor exploded some 60 miles north of Kiev. Party officials began secret evacuations of their children almost immediately, but in public statements denied that anything unusual had happened — the May Day parade had to go on as planned. And so on May 1, 1986, tens of thousands of children marched unwarned and unprotected through an environment saturated with radioactive poisons to celebrate the glories of the Communist reign.

Some of our children who marched on that fateful day or who on the days preceding it or the two weeks succeeding it played outside in our schoolyards and playgrounds are quietly dying of leukemia.

Potassium iodide prevents the absorption of radioactive iodine by the thyroid gland. It was widely available in the Soviet Union in 1986. It could have made a big difference. Protective clothing could have made a difference. Even staying inside could have made a difference. So repeatedly muses the half-mad Ukrainian mother who alternates between helpless tears and frightful rage.

The democratic forces of the Ukraine ranging from Green World to Rukh seek independence and full-fledged democratization for the simple reason that neither is possible without the other.

The Ukraine seeks democratization and independence for the same reasons Americans and countless others have sought them for centuries: to establish a system of political accountability, which, had it been in place in 1986, would not have allowed some children to ride trains to the Crimea while others participated in a march of death down Khreshchatyk, the central boulevard of Kiev.

Some in the United States seem to think the push for sovereignty in the Soviet republics such as the Ukraine a kind of nuisance, an untimely challenge to a Nobel Peace Prize winner who wishes to keep the fraying empire intact. I would invite those Americans to come to the Ukraine. Let them visit the mothers of the children of Chernobyl and explain why the man who in 1986 was at the helm of the Government that played with their children's lives with lies deserves continued support.

And let them explain to the mothers why their children had to march while those of the party were evacuated.

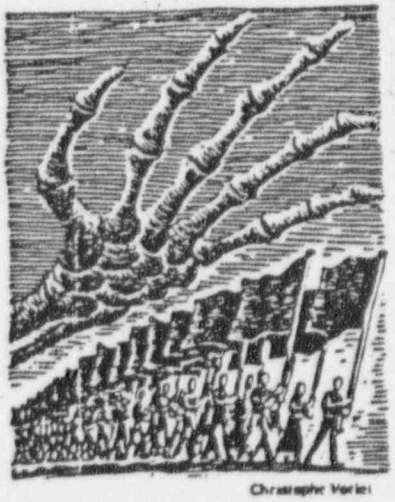
YURIY MISHCHENKO
ANATOLY PANOV
Kiev, U.S.S.R., April 26, 1991

The writers are, respectively, executive secretary and vice president of Green World (Zeleny Svit), Ukrainian Environmental Association.

In U.S., No Stockpiles

To the Editor:

The fifth anniversary of the Chernobyl nuclear accident emphasizes once again that the United States Government has failed to make provision for a stockpile of potassium iodide to protect the civilian



Christophe Vorlet

population from the possibility of thyroid radiation in the event of a serious nuclear reactor core meltdown and breach of containment. The likelihood of an environmental release of radioiodines of sufficient magnitude to warrant distribution of potassium iodide as a public health measure is extremely low in the United States. Nevertheless, prudence dictates that this agent should be available to public health authorities if needed.

Although potassium iodide is not an antidote to radiation effects or entirely risk-free, it can significantly reduce the radiation exposure to the thyroid gland from fallout by blocking radioiodine accumulation in the thyroid. However, potassium iodide must be given to exposed populations immediately before or within hours of exposure to fallout. This means appropriate amounts must be prepared and stockpiled conveniently.

The effectiveness and practicality of potassium iodide for this purpose is established. Shortly after the Chernobyl accident, it was given to 135,000 people in the nearby town of Pripyat. In Poland, approximately 10 million doses of potassium iodide were given to the exposed population in a massive prophylactic response to fallout from Chernobyl. It was considered for use at Three Mile Island, but was unnecessary because radioiodine release was so small. However, sufficient quantities of potassium iodide for public distribution were not on hand had its use been advisable.

The American Thyroid Association, in a letter to the Federal Emergency Management Agency in September 1989, urged the immediate establishment of regional stockpiles of potassium iodide, although general distribution was not recommended, largely because of logistical difficulties. Last July, the Centers for Disease Control convened a meeting of experts to review Nuclear Regulatory Commission recommendations against stockpiling potassium iodide for the public. There was strong, though not unanimous, sentiment for stockpiling as simple, inexpensive and prudent.

There seems little point to reviewing once again the well-established basis for the use of potassium iodide. What is urgently needed is an immediate decision to stockpile it and then an organized effort to design practical mechanisms for rapid distribution if and when needed. Its cost is trivial, especially against the cost of the potential damage to those exposed to fallout in the event of an accident.

DAVID V. BECKER, M.D.
LESTER VAN MIDDLESWORTH, M.D.
New York, April 25, 1991

The writers are, respectively, professor of radiology and medicine, New York Hospital-Cornell Medical Center, and professor emeritus of physiology and medicine, University of Tennessee at Memphis.

Letters

Dig Deeper for Solutions to Nuclear Mismanagement

To the Editor:

Though a longtime critic of the Government's nuclear weapons program, I have found myself boggled by the recent revelations of serious accidents, environmental contamination, extensive plant decay and mismanagement in the facilities that produce the special nuclear materials used in making nuclear warheads.

Not surprisingly, the response from Government officials responsible for this botched enterprise has been: Give us lots of money right away so we can repair and replace these plants.

I want to note two old ideas that may now be ripe for harvesting: one is international, concerning the nuclear arms race; the other is domestic, concerning the management of the weapons complex.

Several years ago there was a proposal for a bilateral cutoff on the production of special nuclear materials. This was one important element of a long-range plan to reduce the dangers of both vertical proliferation (the United States-Soviet arms race) and horizontal proliferation (more countries acquiring nuclear arms).

The details of this plan, developed by experts outside the Government, showed that many of the concerns over inspection and verification of such a ban could be reasonably well monitored by then-available means. The recent breakthroughs in Soviet attitudes toward intrusive inspection, as exemplified in the I.N.F. treaty, offer the expectation that such a proposal would have an even higher chance of being successful today.

On the domestic scene there is the old question of why the nuclear weapons complex should be run by the Department of Energy and not by the Department of Defense. The usual reasons are based more on history and hot air than on objective analysis. The present crisis — whose cost of repair will be in the hundreds of billions of dollars — necessitates a thoughtful review of this structure on the grounds of prudent fiscal management.

In the past, the dual arrangement has encouraged both Energy and the Pentagon to inflate certain portions of their nuclear weapons budget and to neglect other portions. Clear responsibility and accountability seems to have been lost. In addition, freeing the Energy Department of its military role will allow it to concentrate more effectively on its other missions: the development of new energy technologies and basic scientific research.

Certainly the many "experts" entrenched throughout the present nuclear weapons complex will try to hurry us away from any such deeper questioning. It is up to the Congress and the next President to find the courage and time to look into these questions.

CHARLES SCHWARTZ

Berkeley, Calif., Nov. 2, 1988

The writer is professor of physics at the University of California.

For a Clear KI Policy

To the Editor:

Curiously absent from the public debate concerning the safety of nuclear reactors is any consideration of an easy and inexpensive step that could dramatically reduce the health consequences of a major accident. This step, the stockpiling or predistribution of the radiation blocking agent potassium iodide (KI), has long been debated by experts in the field but is virtually unknown to the general public.

The value of KI in a reactor accident has already been proved beyond any doubt. At Chernobyl, where millions of Russians were exposed to high levels of released radiation (primarily radioactive iodine), the prompt use of the drug by Soviet authorities had a profound impact on health and undoubtedly saved hundreds of thousands of citizens from

Steve Salerno

consequent thyroid and other damage. This was reported by no less an authority than the United States Nuclear Regulatory Commission in its document "Report on the Accident at the Chernobyl Nuclear Power Station" (NUREG-1250):

"The Russians were apparently well prepared for large-scale distribution of KI tablets to the general public. ... Thousands of measurements of I-131 (radioiodine) activity in the thyroids of the exposed population suggest that the observed levels were lower than those that would have been expected had this prophylactic measure not been taken. The use of KI by the Pripyat population in particular was credited with permissible iodine content (less than 30 rad) found in 97 percent of the 206 evacuees tested at one relocation center. It is also important to note that no serious side effects of KI use have been reported."

But Chernobyl was not even the first time health officials have turned to KI. As reported in The Times, the Food and Drug Administration hurriedly had some hundreds of thousands of bottles of KI liquid made at the time of the Three Mile Island accident for distribution, if necessary, to the public. But unlike the Russians, who began its distribution within six hours of the Chernobyl accident, the United States Government took six days to get supplies to the reactor site. Thus, the Three Mile Island accident was over by the time the KI arrived, but fortunately its use was never needed.

Official policy on KI is confused and chaotic. Although Federal officials do not dispute the value of the drug, both the Federal Emergency Management Agency and the Nuclear Regulatory Commission have essentially abdicated their responsibility for this aspect of nuclear safety by calling KI a local issue, and by turning over responsibility for procurement, stockpiling and distribution to state authorities. But state authorities, who have always looked to Washington for guidance on nuclear matters, have for the most part taken the Federal inaction as a model for their own behavior, and as a result have done almost nothing.

In New York, for example, the state policy is to distribute KI tablets only to senior authorities, emergency workers (police and fire, for example) and to a small number of people who would presumably be unable to evacuate in an emergency (prisoners, etc.). Some tablets have also been allocated for bus drivers, whose role in an accident would be to pick up people in endangered areas for transport to relocation centers.

But amazingly, there are none available for the passengers on the buses, or for the millions of people who would evacuate on their own.

Current policies on KI represent a serious lack of judgment. Of course, one hopes that the soothing assurances by the nuclear industry and the N.R.C. that accidents will never happen and that KI will never be needed are correct.

ALAN MORRIS

Denville, N.J., Nov. 8, 1988

The writer heads a company that distributes KI tablets.