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WITHDRAWAL SHEET

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DOCUMENT NO. & TYPE	SUBJECT/TITLE	DATE	RESTRICTION
1. memo	John D. Negroponte to Mr. Wallis, re Circular 175, 7p R 1/10/03 F00-013 # 117	11/28/86	P1/E1

RESTRICTIONS

P-1 National security classified information [(a)(1) of the PRA].
P-2 Relating to appointment to Federal office [(a)(2) of the PRA].

P-3 Release would violate a Federal statute [(a)(3) of the PRA].
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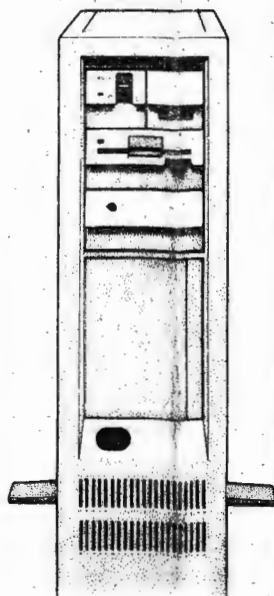
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Treaty On Ozone Is Backed

Senate votes
unanimously to cut
back use of
fluorocarbons.

By PHILIP SHABECOFF

WASHINGTON, March 14 — The Senate voted unanimously today to approve ratification of a historic international agreement to limit global use of chemicals that are believed to be destroying the earth's ozone shield.

The vote was 83 to 0.

With today's vote, which had been expected, the United States became the first major user and producer of chlorofluorocarbons to approve an international agreement that would first freeze and then roll back their consumption and production.

Chlorofluorocarbons and certain other industrial chemicals are believed to destroy ozone in the upper atmosphere, which protects life on earth from damaging ultraviolet radiation from the sun.

While praising today's action, environmentalists and some members of Congress said new information about the accelerating decline in atmospheric ozone means even stronger steps must be taken to counter the threat to health and the environment.

Agreement on the protocol to limit use of chlorofluorocarbons, or CFC's, and other chemicals was reached in Montreal last September and signed by 31 nations. Until today, only Mexico had ratified the treaty, although many more countries are expected to. The agreement would take effect after it is ratified by at least 11 countries that together account for at least two-thirds of global consumption and production.

Lee M. Thomas, administrator of the Environmental Protection Agency, the chief United States negotiator for the Montreal protocol, said today:

Montreal agreement includes halons, also believed to damage the ozone layer.

"This treaty is an unprecedented

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"This treaty is an unprecedented demonstration of international cooperation and commitment to act responsibly to protect our common environment. The protocol provides the basic framework for ensuring the integrity of the earth's ozone layer. It offers the needed impetus for industry both here and abroad to move forward in their development of environmentally safe alternatives."

CFC's are widely used for refrigeration, in foam insulation, as industrial solvents and, outside the United States and several other countries where such use has been banned, as aerosol propellants. These chemicals enter the atmosphere, where they remain for many decades, combining with and destroying ozone molecules.

Halons, chemicals used in fire extinguishing foam, are also believed to cause ozone depletion and are also covered by the Montreal protocol.

Cancer Increase Predicted

Scientific studies have predicted that as the ozone shield thins and more ultraviolet radiation reaches the earth, there will be a major increase in skin cancers and eye disease among humans and that marine life, crops and forests will suffer.

Senator John H. Chafee, Republican of Rhode Island, had been planning to introduce a resolution to accompany today's ratification vote that would require, he said, that "we move farther and faster on this." His resolution would have enabled the United States to hasten the reduction of CFC use unilaterally, a move opposed by several senators as harmful to trade.

He did not bring his resolution to the floor today because, he said, "we did not have enough people lined up." But he said he planned to offer his resolution soon because scientific data show increasingly that the loss of ozone "has the potential of being a global disaster." He said that a report due tomorrow from the National Aeronautics and Space Administration is expected to show increasing global ozone losses, including losses over the Arctic.

The protocol calls for the freeze on use of CFC's at 1986 levels to go into effect in 1989. It also calls for their use and production to be cut back by 50 percent by 1999 in a two-step plan.

David D. Doniger, a lawyer and air pollution expert for the Natural Resources Defense Counsel, a national environmental group, said that CFC's should be phased out completely.

Rafe Pomerance, a senior associate of the World Resources Institute, a private research and policy group based in Washington, said, "The Montreal ozone protocol is a critical step in the effort to protect the earth's ozone layer, but not the last."

He said that evidence that has accumulated since the protocol was signed last fall, particularly evidence about a drastic loss of ozone over Antarctica, "demonstrates that ozone depletion is far more rapid and widespread than previously anticipated."

But Kevin Fay, executive director of the Alliance for Responsible CFC Policy, an industry organization, said that Senator Chafee's resolution, by proposing possible unilateral action by the United States, would detract from the international effort to control CFC's.

**UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460**

May 27, 1987

TO BOB SWEET

FROM: Eileen Claussen

SUBJECT: EPA Comments on the
Summary of Negotiation
Issues

Attached are EPA's specific comments
on your Summary of Negotiation
Issues.

SUMMARY OF NEGOTIATION ISSUES

SUBJECT: Stratospheric Ozone Protocol Negotiations

The U.S. negotiating team is seeking DPC guidance on the following issues:

Chemical Coverage

- o Should the team press for a freeze with the broadest attainable chemical coverage?

Yes _____ No _____

- o Given their defense uses, should Halon chemicals be excluded from reduction targets?

Yes _____ No _____

Stringency and Timing

- o Should the freeze at 1986 levels proposed in the "Chairman's text" be accepted?

Yes _____ No _____

- o Should the freeze take effect two years after entry into force (EIF) of the protocol or earlier?

After Two Years _____ Earlier _____

- o Should an automatic 20% reduction take place four years after EIF or should a positive vote be required after science, technology, environmental, and economic (STEE) elements are reviewed?

Automatic Reduction _____ Require Positive Vote _____

- o Should an additional 30% reduction be scheduled?

Yes _____ No _____

- o Should reductions beyond 20% be subject to positive confirmation following STEE reassessment, or should additional reductions automatically take effect unless reversed?

Positive Confirmation _____ Automatic Unless Reversed _____

- o Should confirmation/reversal of additional reductions be based on a majority or a two-thirds vote?

Confirmation: Majority_____ Two-thirds_____

Reversal: Majority_____ Two-thirds_____

- o Should the team press for further scheduled reductions beyond 50%?

Yes_____ No_____

Control Formula and Trade Provisions

- o Should the team pursue a formula regulating trade among parties based on the following objectives: effective control of emissions with accountability; fewest restrictions on the flow of trade and capital among parties; and most favorable treatment for U.S. industry?

Yes_____ No_____

- o Should the team pursue regulation of trade with non-parties consistent with GATT to encourage adherence to the protocol and to avoid benefits to non-parties at the expense of parties?

Yes_____ No_____

Participation

- o Should concessions being considered in the "Chairman's text" for less developed countries (LDCs) be accepted, or should LDCs be exempted from controls only for a limited period followed by adherence to the protocol?

Accept Concessions_____ Limited Exemption Only_____

- o Should participating parties have an equal vote or should the U.S. team press for weighted voting based on historic use and production levels?

Equal Vote_____ Weighted Vote_____

what is timetable for this process?

when would DPC meet?

THE WHITE HOUSE

WASHINGTON

April 7, 1986

NOTE FOR OZONE SUBGROUP MEMBERS

FROM: VICKI MASTERMAN *VM*

SUBJECT: Draft Ozone Paper

Attached is a partial draft of an ozone issue paper. The options portion is only in summary form as a few of you are providing information to delineate the specific elements of each option and to quantify the pro's and con's of the various options.

We hope this draft will encourage you to provide written or oral comments very quickly. Our plan is to develop a draft that this subgroup will bring to the working group next week. Please call if you have any questions, 456-2749 or 456-6640.

Bob -

*Here is Vicki's draft of
the background.*

Steve DeCanio

*FTB
320-5785*

45

Draft Ozone Paper

ISSUE

What should the Administration's position be regarding the April United Nations negotiations toward an international protocol for control of ozone depleting chemicals?

BACKGROUND

Strong international and domestic concern exists over ozone depletion caused by emissions of chlorofluorocarbons (CFCs) reacting in the upper atmosphere (stratosphere). Ozone is an essential buffer of ultraviolet light; significant depletion could cause skin cancer, suppress the human immune system, retard crop production and damage aquatic and terrestrial ecosystems.

Although stratospheric ozone concentrations have decreased over the past seven years, it is unclear whether any significant change in natural ozone levels has occurred. The only area where scientists have observed significant depletion is Antarctica. There, ozone depletion of approximately 50 percent has been found every spring since 1985. Scientists are not sure of the cause of the Antarctic depletion. Potential causes include chemical emissions, the solar cycle and climate change. Global depletion is expected to occur absent global reduction efforts.

Scientists are unable to predict when depletion will occur or what levels of chemical emissions will trigger significant depletion. Yet the sudden unexplained appearance of the Antarctic ozone hole suggests large global changes could occur before scientists observe them. Further complicating the problem is the fact that substantial CFC emissions will continue for years after a decision to curb emissions. This is because the industrial transition to CFC substitutes and emissions controls will take time, and products containing CFCs (e.g. refrigerators and air conditioners) may continue to emit the ozone depleting gases for years during use. There is also a question as to how soon ozone would recover after significant depletion; CFCs have an atmospheric lifetime of 75 to 100 years.

The Vienna Convention for the Protection of the Ozone Layer, ratified by the Senate in July 1986, established an international framework for scientific cooperation and initiated negotiations toward a protocol for controls on ozone depleting chemicals. The United States has had a leading role in the negotiations toward a control protocol. The next negotiating session is scheduled for April 27-30, 1987. The last negotiating session is tentatively scheduled for July 1987, with the diplomatic signing ceremony tentatively scheduled for September in Canada.

There is domestic as well as international movement toward controls on ozone depleting chemicals. Several Senators have proposed a complete phase-out of ozone depleting agents. And in response to a judicial consent decree, EPA must either propose controls or present the basis for taking no action by May 1987.

Industry recognizes the need for some form of control on ozone depleting agents. The industrial Alliance for Responsible CFC Policy favors reducing the growth of CFC production rather than reducing emissions and strongly disfavors unilateral domestic controls that would disadvantage U.S. competitiveness.

DISCUSSION

Causes of Depletion

Emissions of man-made chemicals are changing the chemical composition of the atmosphere. In particular, atmospheric concentrations of chemicals known to deplete ozone are increasing. These chemicals are: chlorofluorocarbons (CFCs) 11, 12, and 113; halons 1211 and 1301; methyl chloroform; and carbon tetrachloride. Global atmospheric concentrations of CFCs 11 and 12 have been growing in recent years at a rate of five percent per year. Concentrations of CFC 113 have been increasing at a rate of 10 percent per year. Concentrations of halon 1211 have been increasing by 23 percent a year. No trend estimates have been published for halon 1301. Concentrations of methyl chloroform have been increasing by 7 percent a year, and of carbon tetrachloride by 1 percent a year.

Measurements also show atmospheric increases in ozone enhancing agents. These chemicals are carbon dioxide and methane. Concentrations of nitrogen oxides are also increasing; these chemicals deplete ozone in the upper atmosphere (stratosphere) and enhance ozone in the lower atmosphere (troposphere). Even though emissions of ozone enhancing agents offset total atmospheric depletion, the offset is not sufficient to prevent ozone depletion at current emission rates. Moreover, the ozone enhancing chemicals increase ozone concentrations in the lower atmosphere while depletion occurs in the upper atmosphere, altering the vertical distribution of ozone. Ozone in the lower atmosphere can be dangerous as it is a toxic gas and it contributes to global warming.

At current use volumes, CFCs 11 and 12 have the most ozone depleting potential, followed by CFC 113. Industrialized countries have relied heavily on CFCs 11 and 12 for use as aerosol propellants, refrigeration, foam-blowing, and solvents. The following is a proportional breakdown of uses:

CFC 11

CFC 11

<u>Use</u>	<u>World</u>	<u>United States</u>
Rigid Foam	39%	51%
Aerosol	31%	5%
Flexible Slabstock	15%	15%
Flexible Molded	4%	5%
Chillers	3%	6%
Unallocated	8%	18%

CFC 12

<u>Use</u>	<u>World</u>	<u>United States</u>
Aerosol	32%	4%
Mobile Air Conditioning	20%	37%
Rigid Foam	12%	11%
Refrigerators	6%	6%
Chillers	1%	1%
Miscellaneous	7%	10%
Unallocated	22%	31%

While use of CFC 113 has not been as great as use of the other CFCs, 113 is increasingly used in solvents for cleaning electronic equipment.

CFC emissions occur in production of the chemicals, in use of the chemicals (operating losses and leakage) and in destruction of products containing CFCs (e.g. foam crushing). Once emitted into the atmosphere, CFCs have unusually long atmospheric lifetimes of 75 to 100 years. Their chemical stability and unusual persistence enables them to reach the stratosphere where they react with ultraviolet radiation to release ozone-depleting chlorine.

Halons 1211 and 1301 are used in fire extinguishers. Current production of these chemicals is relatively low. However, halons contain bromine which has much greater ozone depleting potential than the chlorine in CFCs.

Scientists are not sure of the cause of the Antarctic ozone hole. Potential causes include man-made ozone depleting chemicals, the solar cycle, and climate change.

Depletion Projections

Various scientific models have predicted the future ozone depletion expected to result from varying rates of CFC growth. Projections of future depletion are also dependent upon the relative growth rates of the other ozone depleting and ozone-enhancing chemicals.

EPA has estimated global ozone depletion in 2075 for six alternative CFC global use scenarios (assuming constant rates for other ozone altering chemicals). For reference in assessing these EPA projections, it may be useful to note that studies of future CFC demand estimate the median annual growth rate for CFCs 11 and 12 as 2.5 percent. The United Nations Environment Program suggested scenario testers use a range of 0% to 5% annual growth for CFCs 11 and 12 for the 1986-2100 period.

<u>World</u>	<u>CFC Use</u>	<u>Projected Ozone 2075</u>
	Decrease 80% by 2010	3% Increase
	Constant (1985-2100)	.3% Increase
	1.2% Increase 1985-2050 and no growth 2050-2100	4.5% Depletion
	2.5% Increase 1985-2050 and no growth 2050-2100	25% Depletion
	3.8% Increase 1985-2050 and no growth 2050-2100	>50% Depletion
	5% Increase 1985-2050 and no growth 2050-2100	>50% Depletion

Questions exist regarding the accuracy of the models. Generally, observational data support model predictions of the atmospheric concentrations of chemicals. Yet there is a 20-50 percent discrepancy between observed and predicted ozone in the upper stratosphere even though the accuracy of ozone predicting models is increasing with time. The models also failed to predict the 50 percent seasonal ozone depletion in Antarctic ozone that scientists confirmed in 1985.

Effects of Depletion

Depletion of the total amount of atmospheric ozone would increase the amount of harmful ultraviolet radiation reaching the earth. Although many uncertainties exist as to the precise impacts of the increase in ultraviolet radiation, scientific data and/or case studies indicate it would increase nonmelanoma skin tumors, increase cutaneous malignant melanoma, suppress the human immune system, increase cataracts, reduce crop yield, harm aquatic life, accelerate the degradation of polymers, and contribute to global warming and the attendant sea level rise threatening coastal populations.

Of all of the potential adverse effects of ozone depletion, the best scientific data exists for the likely increases in skin cancer. Several studies suggest that the ultraviolet radiation

naturally absorbed by ozone is the most important solar radiation component in the incidence of common skin cancer (nonmelanoma tumors). The mortality rate from nonmelanoma skin cancer is two percent. Health projections indicate there will be 500,000 new cases of nonmelanoma skin cancer in 1987 with an expected mortality of 10,000. Studies show that a one percent increase in the ultraviolet radiation absorbed by ozone results in a 1.8 - 2.5 percent increase in the incidence of nonmelanoma skin tumors. (A one percent depletion in ozone increases the weighted ultraviolet radiation by about two percent.)

Although there is uncertainty about the relationship between solar radiation and the more serious form of skin cancer, cutaneous malignant melanoma, much evidence supports the link between solar radiation and this disease. Health projections indicate there will be 25,000 new cases of cutaneous malignant melanoma in 1987; the mortality rate from this disease is 30 percent.

Numerous variables affect the incidence of either form of skin cancer including duration of exposure, latitudinal location at time of exposure, time of day, time of year, behavior (clothes and sunscreens) and pigmentation of the skin. White people, whose skin contains less protective melanin, have higher incidence of skin cancer than people with more melanin. The higher incidence of skin cancer among white people than among non-white populations suggests the increase in skin cancer incidence from ozone depletion may not be as important globally as in the United States and western Europe.

Unfortunately, very little scientific data exists to assess the likely adverse effects of ozone depletion with the greatest potential global impact -- suppression of the immune system and disruption of aquatic and terrestrial ecosystems. These data are not likely to be available for a long time at current research funding levels. Even if the necessary research were undertaken immediately, meaningful results would not be available for years. Case studies suggest the potential effects of immune system suppression and ecosystem disruption would be disastrous and irreversible. In the studies conducted on plants and animals, ultraviolet radiation weakens the immunological system and reduces the ability to resist disease. Several studies also indicate that the immune response of humans is depressed by ultraviolet radiation. There is, however, no evidence as to the magnitude of the risk. Likewise, limited studies of the effect of ultraviolet radiation on crops and aquatics generally show adverse impacts, but are not sufficient to quantify the overall risk.

Status of International and Domestic Actions

(Status of Int'l & Domestic Actions)

International -- The United States, through the State Department and EPA, has played a leading role in the negotiations toward a Protocol to the Vienna Convention on the Control of Chlorofluorocarbons. The State Department received authority to negotiate a protocol pursuant to inter-agency approval of the November 28, 1986 Circular 175 requesting such authority. The Circular 175 authorized the delegation to negotiate a protocol providing for:

I. A near-term freeze on the combined emissions of the most ozone depleting substances;

II. A long-term scheduled reduction of emissions of these chemicals down to the point of eliminating emissions from all but limited uses for which no substitutes are commercially available (such reduction could be as much as 95%), subject to III; and

III. Periodic review of the protocol provisions based upon regular assessment of the science. The review could remove or add chemicals, or change the schedule or the emission reduction target.

The next negotiation toward a protocol is scheduled for April 27-30, 1987. As the Circular 175 authorized, the United States has pressed for a near-term freeze on emissions of CFCs and halons and for long-term emissions reductions of up to 95 percent subject to periodic scientific assessment. A proposed reduction of 95 percent has not been well-received in the negotiations. Short of the 95 percent proposal, countries have various preferences. A significant issue is how to deal with developing countries that have not reaped the economic benefits of CFC use and thus have not caused the ozone depletion problem, yet also threaten to contribute to depletion as they industrialize and use CFCs for aerosols, refrigeration, solvents and foam-blowing.

Domestic -- The United States has substantially reduced CFC use in aerosols and is now considering further controls on ozone depleting chemicals. In 1978, the United States unilaterally reduced CFC use as an aerosol propellant pursuant to an EPA ban of CFC use in nonessential aerosol spray cans. Prior to 1978, CFC use in aerosols was 56 percent of United States CFC use and 25 percent of world use. Aerosols now represent less than five percent of United States use of CFCs 11 and 12, yet remain the largest single use of CFCs outside of the United States (31 percent).

As a result of a lawsuit by an environmental group against EPA, the agency plans to issue a notice summarizing its findings regarding an ozone protection program by May 1987. The notice will either propose further regulation of ozone depleting chemicals or present the basis for a proposed decision to take no

further action at this time.

Proposals for domestic ozone protection programs are largely dependent upon the outcome of the international negotiations toward a protocol on the control of ozone depleting chemicals. EPA's public announcement of its intent to announce its ozone protection plan findings by May 1987 placed considerable emphasis on United States participation in the international discussions. Indeed, the legislative parties drafting ozone protection bills and the environmental parties threatening continued litigation have been attending the international negotiations toward a protocol and have been basing their domestic actions on the progress of international negotiations. In 1980, representatives of U.S. industry formed the Alliance for Responsible CFC Policy. The Alliance has emphasized that any control action must be global in scope to protect the ozone layer and to prevent disadvantaging U.S. industrial competitiveness.

Two important scientific studies should be completed this calendar year. First, a team of scientists from NASA, NOAA, industry and universities is evaluating the existing data on the amount of the decline in total atmospheric ozone concentrations over the past several years. The team is reanalyzing the data with a view toward addressing the inconsistencies and the uncertainties. The team's findings will be ready in late 1987. Second, a team of scientists from government laboratories and universities is analyzing the results of the 1986 National Ozone Expedition in the Antarctic. This team is assessing the most recent measurements of the Antarctic ozone hole and is analyzing the potential causes.

Additional scientific studies are continuing. For example, NASA, NOAA and the Chemical Manufacturers Association are sponsoring the 1987 Airborne Ozone-Hole Campaign to study Antarctic ozone loss in July through September 1987.

OPTIONS

1. Continue Circular 175 Process

The Administration could let the State Department and EPA continue to negotiate toward a protocol on ozone depleting chemicals pursuant to the Circular 175 process. Under this process, the delegation would coordinate the inter-agency review of the U.S. negotiating positions as the international discussions progress.

(Delineation of elements of options and pro's and con's .. still to come.)

2. Advise the U.S. Delegation of Desired Positions

The Administration could select a negotiating position for the delegation to take to the next round of talks. This position would be selected from among a range of negotiating options including:

- a. Freeze plus 95% reduction in 10-14 years.
- b. Freeze plus 40-70% reduction in 6-10 years.
- c. Freeze plus 20-40% reduction in 6-10 years.
- d. Freeze only

Within each alternative negotiating position, sub-options exist for the chemicals to be covered by the agreement, for the processes to be covered by the agreement (production, consumption, adjusted production), and for the countries to be covered by the agreement (i.e. equity issues for developing countries, trade issues with non-parties).

Each potential negotiating position would be subject to future scientific assessment.

3. Impose Domestic Controls Unilaterally

EPA could impose controls on U.S. ozone depleting chemicals while the delegation continues to participate in international discussions.

4. Await Scientific Results for International or Domestic Action

The Administration could delay international agreement or domestic action until there is more scientific certainty about the likely levels of ozone depletion and the causes of depletion.

ADDENDUMSTRATOSPHERIC OZONE LEGISLATIVE PROPOSALS

I. Senate Bills

A. S. 570, "The Stratosphere Protection Act of 1987" (Baucus for himself, Chafee, Mitchell, Stafford, Durenberger, Gore, Wirth and Reid). This bill imposes regulatory requirements on EPA to list and regulate substances which are known, or reasonably expected, to cause or contribute to atmospheric or climatic modifications. CFC -11, -12, -114 and halons -1211 and -301 shall be included. As of January 1, 1988, the bill makes unlawful the production of substances which would result in a potential 5% increase in 1986 levels (reduction based on ozone-depleting potential) and subsequently, regulations must be issued to reduce at least by an additional 25% (of 1986 levels) by January 1, 1989; 50% by 1991 and 90% by 1995. The bill also provides that producers must report their production levels; an exemption for medical uses (10 years) and national security use of halon -1211 and -1301; trade restrictions on countries which do not have parallel schemes; and civil and criminal enforcement and citizens' suits.

B. S. 571, "The Stratospheric Ozone and Climate Protection Act of 1987" (Chafee, for himself, Baucus, Stafford, Mitchell, Durenberger, Gore, Wirth and Reid). This bill is very similar to Baucus' bill, but requires a phase-out of the initial priority list substances (using the same schedule as in S. 570, but achieving 90% reduction in 1993 instead of 1995) as well as for substances based on their ozone-depleting potential (using the same schedule as in S. 570).

II. House Bills

A. H. Con. Res. 47: Urging the President to take immediate action to reduce the depletion of the ozone layer attributable to worldwide emissions of chlorofluorocarbons (Richardson, for himself, Bates, Rinaldo, Edwards (CA), Waxman, Rodino, Scheuer, Martinez, Hamilton, Mrazek, Sikorski and Berman). H. Con Res. 47 acknowledges that there is a growing scientific consensus that certain chemicals can deplete the ozone layer and cause harm to human health and environment and that international cooperation is needed. The Resolution encourages the President to "negotiate an immediate reduction in the use of chlorofluorocarbons in the European Community and in other Nations . . . and to negotiate a worldwide program as expeditiously as practicable for the elimination of" other substances that may deplete the ozone layer.

B. H. Con. Res. 50: Concerning the encouragement and support for international negotiations, pursuant to section 156 of the Clean Air Act, by the President to develop a protocol to the Vienna Convention for the Protection of the Ozone Layer setting forth standards and regulations to protect the strato-

sphere from the adverse effects of chlorofluorocarbons (Dingell, for himself and Lent). H. Con. Res. 50 acknowledges that the ozone layer is being and will continue to be adversely affected or depleted by long-lived chlorine molecules from world-wide use of CFCs and that any international agreement must accomplish the goals of protection of human health and environment and protection of American jobs. The Resolution encourages and supports the President in his attempt to forge an international agreement.

C. H.R. 2036, "The Stratospheric Ozone Protection Act of 1987" (Bates, for himself, Sheuer, Waxman, Edwards (CA), Leland, Sikorski and Eckart). H.R. 2036 would amend the Clean Air Act to include the following emission reduction schedule for all fully halogenated alkanes: freeze at 1986 levels within one year of enactment; additional 20% reduction three years after enactment; additional 50% reduction five years after enactment; and 90% reduction seven years after enactment. In addition, the bill would impose trade restrictions as follows: one year after enactment there will be a ban on importation of bulk fully halogenated alkanes and prohibition on the export of technologies used to produce them; and three years after enactment, a ban on importation of all products containing fully halogenated alkanes or products made with same. The bill also provides for administrative orders (presumably enforceable under Section 113 of the Clean Air Act) and citizen enforcement.

D. H.R. 5737, "The Stratospheric Ozone and Climate Protection Act of 1986" (Richardson, for himself and Edwards (CA)). This bill would also amend the Clean Air Act. Like S. 570 and 571, this bill requires the Administrator to list substances, including CFC -11, -12, -22, -113, -114, and other enumerated substances with annual additions, which shall be prohibited from manufacture, introduction into commerce, import or use after five years on the list. Listed substances shall reduce by 20% in the first year. The bill also would require: certification of equivalent programs (without such programs, imports are banned one year after listing); labelling; reporting on production levels; and civil and criminal enforcement.

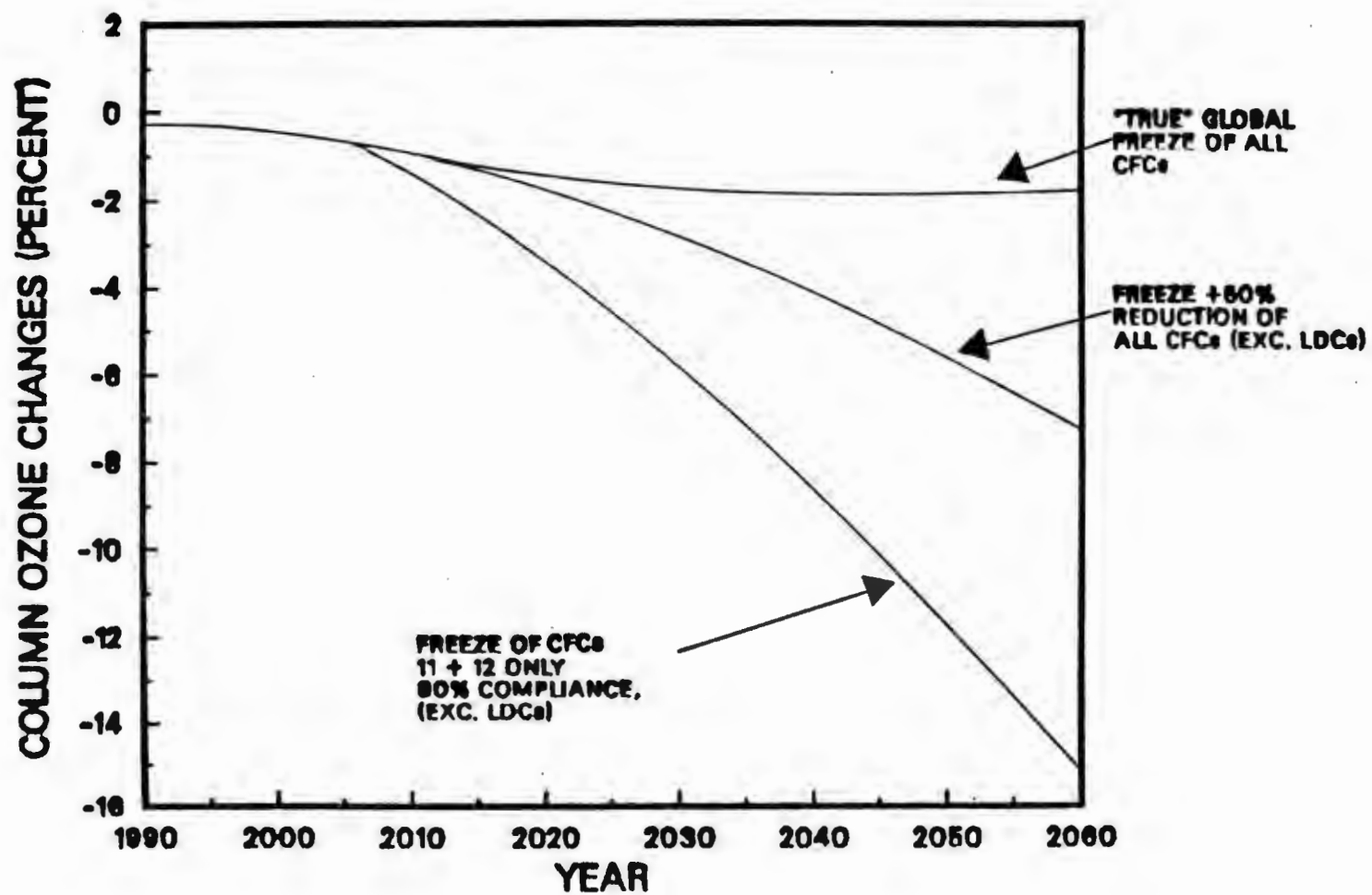
Bob

OZONE - CHLOROFLUOROCARBONS (CFCs)

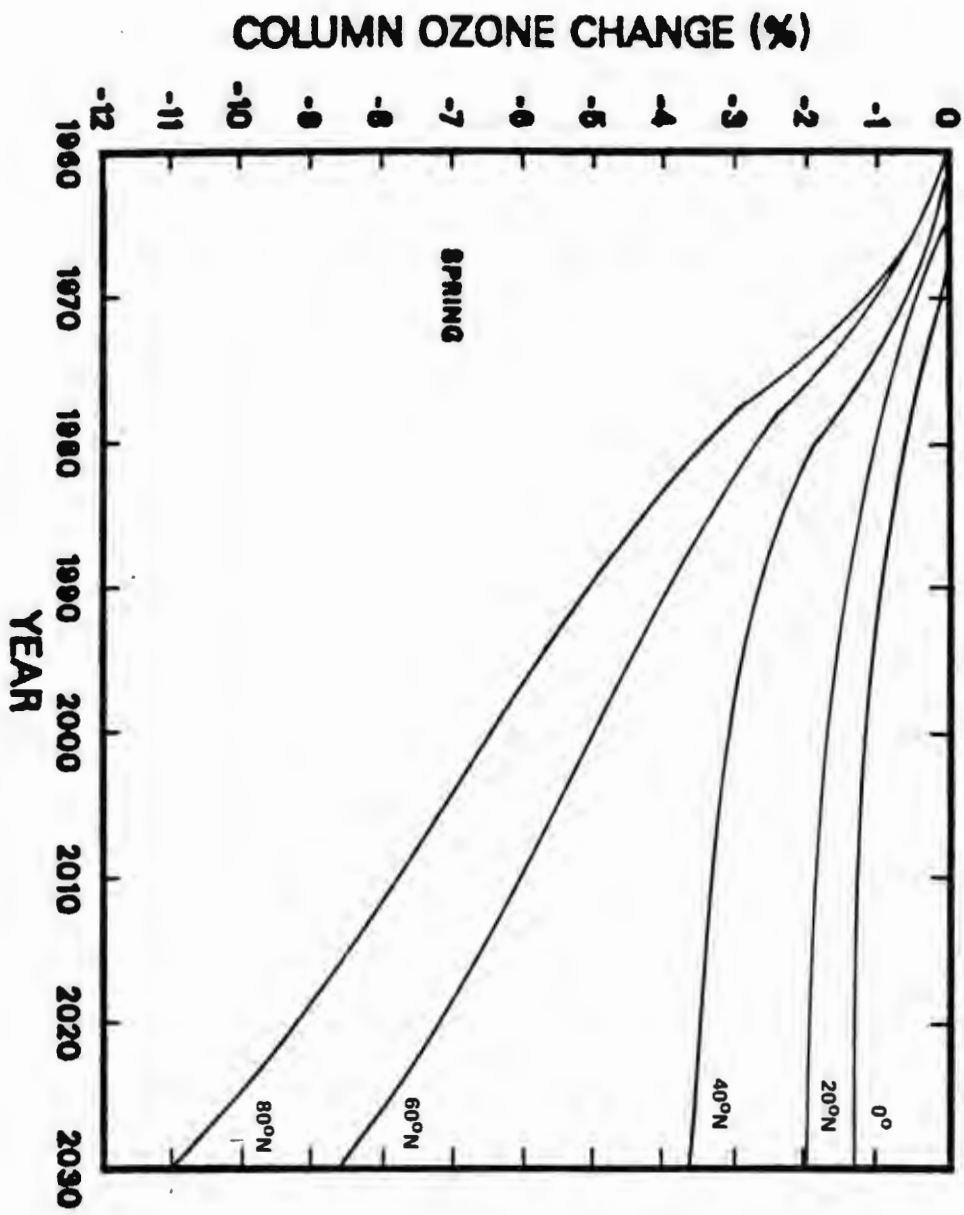
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AQUATIC AND TERRESTRIAL
ECOSYSTEMS**
- **VERTICAL DISTRIBUTION OF OZONE:** **TEMPERATURE
CIRCULATION
CLIMATE**
- **OZONE RESPONDS TO THE TOTAL ATMOSPHERIC BURDEN OF CHLORINE AND BROMINE**
- **FULLY HALOGENATED CHEMICALS OF CONCERN:** **CFC-11, CFC-12, CFC-113, CFC-114,
CFC-115, H-1301, H-1211**

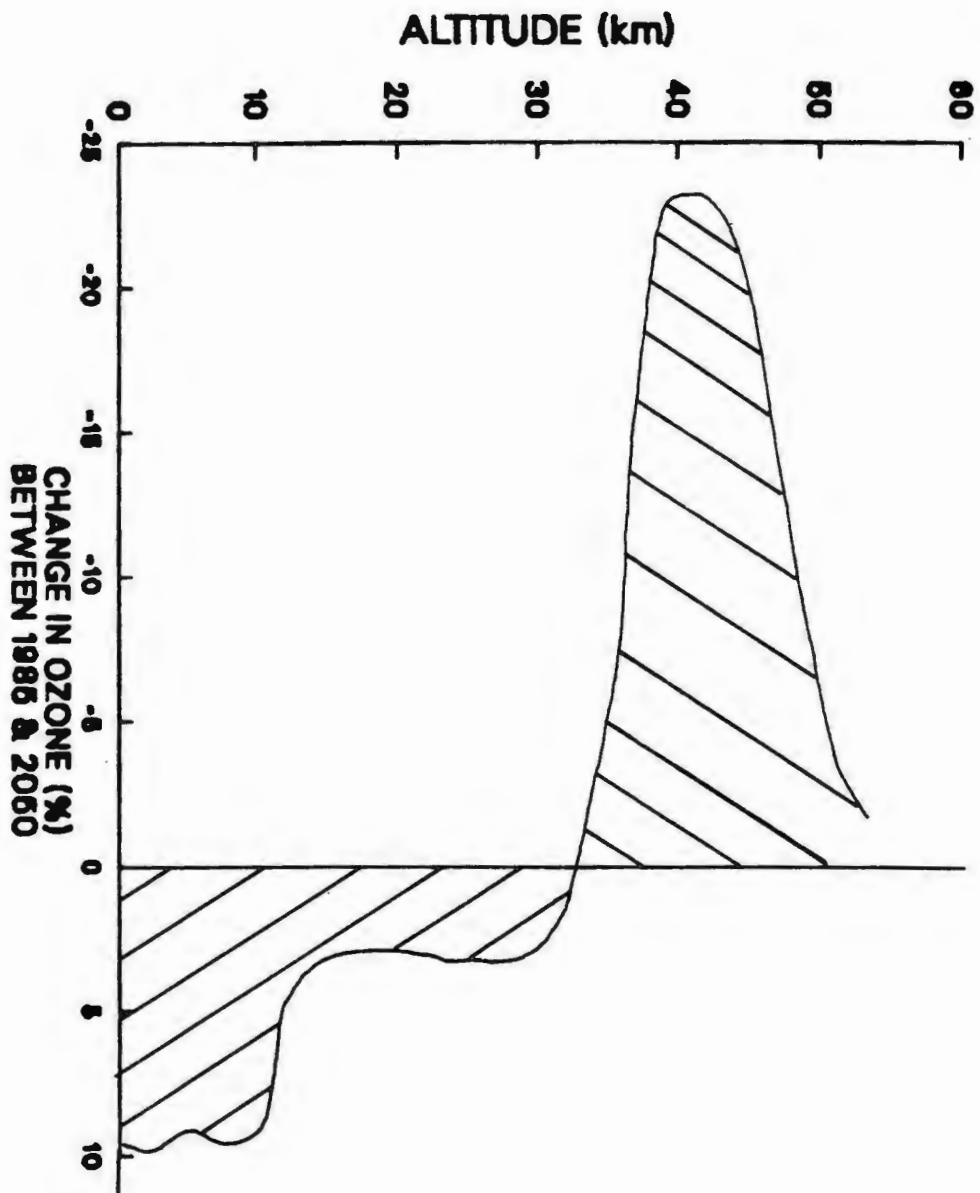
PREDICTED OZONE DEPLETION



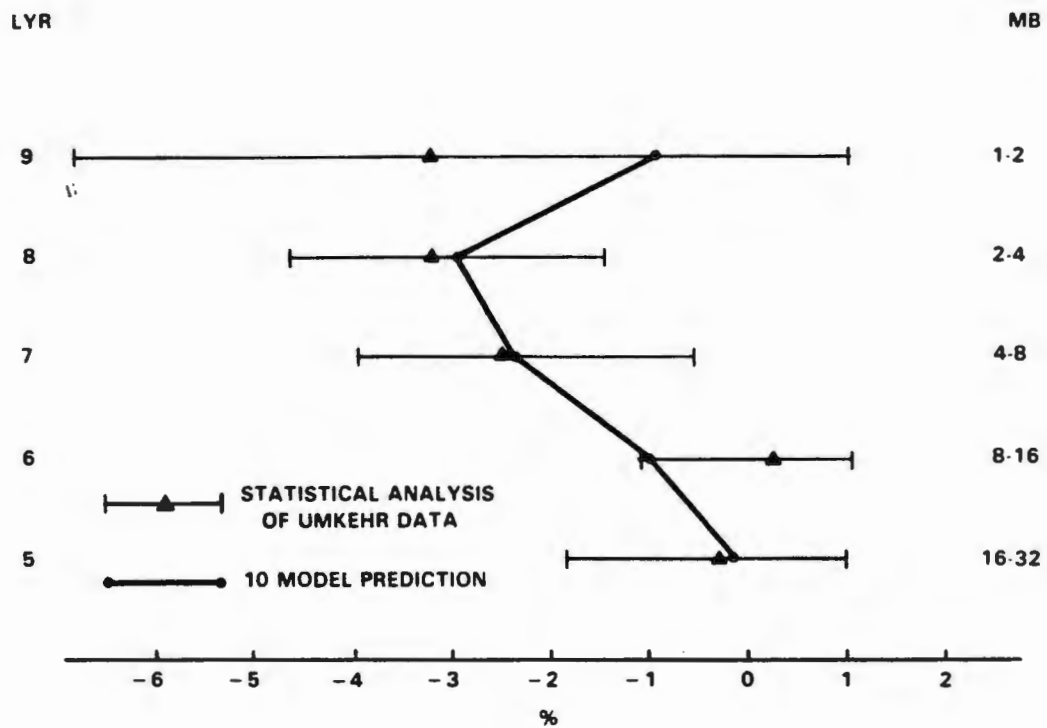
CHANGES IN COLUMN OZONE AT DIFFERENT LATITUDES FOR A TRUE GLOBAL FREEZE



**CHANGES IN OZONE DISTRIBUTION
FOR A TRUE GLOBAL FREEZE OF ALL CFCs**



UMKEHR DECADAL TREND 1970-1980



Umkehr decadal trend 1970-1980. Units: percent per decade.

OZONE - CHLOROFLUOROCARBONS (CFCs)

- **ATMOSPHERIC LIFETIMES**

FULLY HALOGENATED	100 YEARS
PARTIALLY	<20 YEARS
- **ENVIRONMENTAL RECOVERY WILL TAKE DECADES TO CENTURIES**
- **PARTIALLY HALOGENATED CFCs (CFC-22) ARE 20 TIMES LESS EFFICIENT THAN FULLY HALOGENATED CFCs AT DESTROYING OZONE**

CONCLUSIONS

- **SCOPE :** ALL FULLY HALOGENATED CHLORINE AND BROMINE CHEMICALS
- **COMPLIANCE:** INTERNATIONAL AGREEMENT ESSENTIAL WITH MAXIMUM PARTICIPATION OF ALL NATIONS. GROWTH IN DEVELOPING COUNTRIES MUST BE CONSIDERED



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OES
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United States Department of State

Washington, D. C. 20520

'86 NOV 28 P9:03

November 28, 1986

'86 NOV 28 P1:21

ACTION MEMORANDUM

S'SA 11/28

rig to FAIM
ist To:

TO: E - Mr. Wallis
FROM: OES - John D. Negro Monte
SUBJECT: Circular 175: Request for Authority to Negotiate
a Protocol to the Convention for the Protection
of the Ozone Layer

/S
/S-S
MA
MB
MC
B
O

/COMP
/MO
ES
F/pb

ISSUE FOR DECISION:

Whether to authorize negotiation of a protocol to the Vienna Convention for the Protection of the Ozone Layer which would control emissions of ozone-depleting substances.

ESSENTIAL FACTORS:

The Problem

There is general scientific agreement that human activities are substantially altering the chemistry of the atmosphere in ways which threaten both the quantity and the vertical distribution of ozone. Certain chlorine and bromine substances, when emitted into the atmosphere, act as catalysts in a series of chemical reactions resulting in a depletion of ozone. Ozone depletion, by permitting greater quantities of harmful ultra-violet radiation to reach the earth's surface, will pose significant, even if currently difficult to quantify, risks for health and ecosystems. Given the complex chemistry and dynamics of the atmosphere, scientific uncertainties currently prevent a conclusive determination of safe levels of emissions. Because of the long atmospheric lifetime of these molecules, emissions affect the ozone layer for decades. The nature of the ozone layer requires international action if protective measures are to be effective.

The chemicals at issue for this protocol -- chlorofluorocarbons ("CFCs") and some bromine compounds -- have substantial economic and social value, being widely used in refrigeration, foam-blowing, fire-extinguishers, as solvents, and in most countries as aerosols. (Their use in non-essential aerosols was banned in the United States in 1978.) The U.S., Japan and EC countries currently account for about 90% of world production and consumption.

DECLASSIFIED / RELEASED

NLS F00-013 #117

BY and NARA DATE 11/1/88

The International Process

The Vienna Convention for the Protection of the Ozone Layer, adopted under auspices of the U.N. Environment Program (UNEP) on March 22, 1985 and ratified by the United States on August 14, 1986, provides for cooperation in research, monitoring and information exchange. The Convention obliges the Parties to cooperate in taking measures to protect human health and the environment against adverse effects resulting or likely to result from human activities which modify or are likely to modify the ozone layer. The Diplomatic Conference which adopted the Convention did not reach agreement, however, on a protocol to control emissions of ozone-depleting substances. The final act of the Diplomatic Conference called for a series of scientific and economic workshops on the atmospheric science, effects of ozone depletion, and alternative control measures, followed by resumption of negotiations, looking toward adoption of a control protocol in 1987 if possible. Negotiations are to resume December 1, 1986, with a diplomatic conference to conclude the protocol tentatively scheduled for April 1987.

The Domestic Setting

The Environmental Protection Agency, under terms of a court order approving a settlement reached in a lawsuit against the EPA Administrator by the Natural Resources Defense Council, must publish in the Federal Register by May 1, 1987 a proposed decision on the need for further domestic regulation of CFCs under Sec. 157 of the Clean Air Act. Compared to other environmental laws, the Act sets a low threshold for required action by EPA: "the Administrator shall propose regulations for the control of any substance, practice, process, or activity...which in his judgment may reasonably be anticipated to affect the stratosphere, especially ozone in the stratosphere, if such effect in the stratosphere may reasonably be anticipated to endanger public health or welfare." In this connection, EPA is going through an extensive risk assessment process. A final EPA decision is required by the court order by November 1, 1987.

An important goal in seeking an early and effective international agreement (in addition to the goal of more effectively protecting the ozone layer) is to avoid disadvantage to U.S. industry as a result of unilateral U.S. regulatory action required by the Clean Air Act. Unilateral U.S. action in advance of international agreement could undercut the global control effort.

The principal producer- and user-industry group, the "Alliance for Responsible CFC Policy," has reversed its previous total opposition to controls, issuing a statement September 16, 1986 that "responsible policy dictates, given the scientific uncertainties, that the U.S. government work in cooperation with the world community...to consider establishing a reasonable global limit on the future rate of growth of fully halogenated CFC production capacity."

Proposed Position

Our approach in the international negotiations is intended to influence those negotiations to achieve the most effective international agreement possible. It does not prejudge the EPA Administrator's decision on domestic regulation.

Although considerable evidence exists linking certain chlorine and bromine substances to depletion of ozone, remaining scientific uncertainties prevent any conclusive statement concerning safe levels of emissions. As a result, the Administrator of EPA recommends an international risk management strategy which would give a strong incentive for rapid development and employment of emission controls, recycling practices and safer substitute chemicals. We should therefore seek a protocol that explicitly or in effect provides for:

I. A near-term freeze on the combined emissions of the most ozone-depleting substances;

II. A long-term scheduled reduction of emissions of these chemicals down to the point of eliminating emissions from all but limited uses for which no substitutes are commercially available (such reduction could be as much as 95%), subject to III; and

III. Periodic review of the protocol provisions based upon regular assessment of the science. The review could remove or add chemicals, or change the schedule or the emission reduction target.

These elements would provide a desirable margin of safety against harm to the ozone layer while scientific research continues. At the same time, this approach would provide as

much certainty as possible for industrial planning in order to minimize the costs of reducing reliance on these chemicals, while allowing adequate time for adjustment.

The timing, stringency and scope of the phased reductions will have to be negotiated. We would promote a scheme which allows flexibility for each nation to determine how it will implement domestically its international obligation. In response to UNEP's invitation, we have prepared for discussion purposes the attached draft text for the operative paragraphs of a protocol.

We would favor setting national limits at or near current levels, in order to avoid increases in emissions from any Party. Elimination of most emissions would obviate the difficult question of equity -- the view that developing countries have a right to a fair share of world markets if a global limit on emissions is set: developing countries will have less reason to seek to expand use of products which will be obsolete in the foreseeable future and they will benefit from the development of substitutes and of recycling and containment techniques.

We will seek to include in the protocol measures to regulate relevant trade between parties and non-parties in order to create incentives for nations to adhere to the protocol's emissions limits. These measures will have an ancillary effect of protecting U.S. industry from unfair competition. We will assure that any trade provisions included in the protocol are consistent with the General Agreement on Tariffs and Trade (GATT) and other aspects of U.S. trade policy.

We have undertaken extensive consultations with industry and environmental groups and will continue to do so as the negotiations progress.

Legal Authority and Funding

We expect that no additional legislation will be required to implement the provisions of a protocol specifying the regulation of ozone-depleting substances. As discussed in the attached legal memorandum, EPA has authority under the Clean Air Act to regulate ozone-depleting substances which may reasonably be expected to endanger public health or welfare and is currently conducting the risk assessment required to determine the need for additional regulation.

It has not yet been determined whether this protocol would be concluded as an executive agreement or as a treaty subject to the advice and consent of the Senate. This will depend, in part, on the content of the protocol and nature of the undertakings therein. The requirements of the National Environmental Policy Act (NEPA) and E.O. 12114 on Environmental Effects Abroad of Major Federal Actions are currently being considered.

Costs related to implementation of a protocol will depend on the requirements of the protocol. As a party to the Vienna Convention for the Protection of the Ozone Layer, we are already committed to the establishment of a Secretariat (in an existing international organization such as UNEP or WMO) and Conference of the Parties when that agreement enters into force. Any additional costs to administer the protocol will be incremental. We will seek to minimize the services required of the Secretariat and any requirement for funding to support such services, and we will make every effort to ensure that necessary support staff are provided within existing levels. EPA will be responsible for reports to the Secretariat, participation in technical reviews, and other commitments of a technical nature assumed under the protocol.

Financial support for a cooperative science program to form the basis for periodic review of the protocol provisions will need to be considered. EPA, NASA, NOAA and other technical agencies would participate in any cooperative science program resulting from the protocol with their own funds. The U.S. already has a dynamic and extensive program on both the atmospheric science and effects science, and as such is already by far the largest contributor to international scientific cooperation in these areas. The protocol may be a means to draw additional commitments from other nations to contribute to scientific efforts. It will be possible to assess the need for any additional U.S. support in this area only as the negotiations progress. We will consult with and obtain the approval of OMB regarding any commitment that could not be satisfied out of currently appropriated funds.

RECOMMENDATION:

That you authorize negotiation of a protocol to the Vienna Convention for the Protection of the Ozone Layer which would control emissions of those substances which are the most

significant contributors to ozone depletion in accordance with the principles outlined above. Subsequent authority will be sought to conclude any international agreement resulting from these negotiations.

Approve W Disapprove _____

Attachments:

11/28/84

- A. Legal Memorandum
- B. Draft protocol text

Circular 175: Protocol for Protection of Ozone Layer

Drafter: OES/ENH:SButcher
11/16/86 647-9312 0936T
Revised 11/26/86 16:00

Clearance: OES:REBenedick
OES/ENH:JRouse
L:EVERville(Substance)
L/OES:DColson
L/OES:DKennedy
L/T:HCollums
L/EBC:Grosen
E:MBailey
EB:ASundquist
IO:LGalini
M/MO:ALaPorta
M/COMP:CCasper
EPA:BLLong
NASA:JFletcher
NOAA:JFletcher
Commerce:MTKelly
USTR:APorges/RReinstein
DPC:THarris
CEQ:CNee
DOE:EWilliams
OMB:JIrwin/DGibbons





United States Department of State

Washington, D.C. 20520

MEMORANDUM OF LAW

SUBJECT: Authority to Negotiate a Protocol to the Convention for the Protection of the Ozone Layer to Control Emissions of Ozone-depleting Substances

The accompanying action memorandum from OES requests authorization to negotiate a protocol to the Vienna Convention for the Protection of the Ozone Layer which would control emissions of substances, such as certain chlorine and bromine substances, that deplete stratospheric ozone. As indicated in the action memorandum, the United States is supportive of a protocol that would impose a freeze on emissions of most ozone-depleting substances, followed by a long-term scheduled reduction of emissions of these substances to a point of eliminating all but limited uses for which there are no commercially available substitutes -- subject to periodic review of the protocol, and if scientifically warranted, modification of its provisions.

Legal authority to negotiate such a protocol derives from the constitutional authority of the President to conduct foreign relations and the statutory authority of the Secretary of State, 22 U.S.C. §2656, to manage the foreign affairs of the United States on a day-to-day basis. There is also ample statutory authority for the negotiation of international environmental agreements specifically.

For example, section 102(F) of the National Environmental Policy Act of 1969 directs all agencies of the federal government to "recognize the worldwide and long-range character of environmental problems and, where consistent with the foreign policy of the United States, lend appropriate support to initiatives, resolutions, and programs designed to maximize international cooperation in anticipating and preventing a decline in the quality of mankind's world environment." 42 U.S.C. §4332(F). Likewise, section 2 of the United Nations Environment Program Participation Act of 1973 provides that "[i]t is the policy of the United States to participate in coordinated international efforts to solve environmental problems of global and international concern." 22 U.S.C. §287 note. The participation of the United States in the negotiation of the proposed protocol would be consistent with that policy.

With respect to the development of international agreements for the protection of the stratosphere, section 156 of the Clean Air Act grants the President the authority "to enter into international agreements to foster cooperative research ... and to develop standards and regulations which protect the stratosphere consistent with regulations applicable within the United States." 42 U.S.C. §7456. This section further authorizes the President, through the Secretary of State and the Assistant Secretary for Oceans and International Environmental and Scientific Affairs, to "negotiate multilateral treaties, conventions, resolutions, or other agreements, and formulate, present, or support proposals at the United Nations and other appropriate international forums." Id.

The key aspect of the protocol will be the parties' commitment to control their emissions of certain ozone-depleting substances. Under section 157 of the Clean Air Act, 42 U.S.C. §7457, EPA currently has the statutory authority to regulate such substances where they may reasonably be expected to endanger public health or welfare. Thus, it is anticipated that this obligation would be within the purview of existing U.S. legislation, although it may be necessary for EPA to promulgate additional regulations to implement specific control measures. Other statutory authorities under which regulations related to the protection of stratospheric ozone have been issued--e.g., the Federal Food, Drug, and Cosmetic Act, 21 U.S.C. §301 et seq.; the Consumer Product Safety Act, 15 U.S.C. §2051 et seq.; and the Toxic Substances Control Act, 15 U.S.C. §2601 et seq.--also may provide, if necessary, a supplemental basis for meeting U.S. obligations under the protocol.

Final determination of whether the protocol should be concluded as a treaty or an executive agreement and whether it is consistent with existing U.S. laws obviously is dependent upon a final text. In the event the final text of the protocol imposes obligations on the United States that exceed existing laws, the protocol most likely will need to be concluded as a treaty, subject to the advice and consent of the Senate to ratification. It may also be necessary to seek new legislation permitting the implementation of the protocol before its entry into force.

While the provisions to be included in the protocol are still in an evolutionary stage, the action memorandum and attached drafted protocol text indicates that the U.S. delegation will propose for incorporation in the protocol measures regulating the trade of ozone-depleting chemicals and technologies for producing those chemicals between parties to

the protocol and non-parties. (There is currently no definitive U.S. position with respect to additional trade controls.) Under section 157 of the Clean Air Act, the Administrator of the Environmental Protection Agency has authority to promulgate regulations for the control of any substance, practice, process or activity (or any combination thereof) which in his judgment may reasonably be anticipated to affect the stratosphere, especially ozone in the stratosphere, if such effect may reasonably be anticipated to endanger public health or welfare. 42 U.S.C. §7457. The language of section 157 appears to be broad enough to permit the issuance of regulations by EPA to implement a protocol provision requiring trade restrictions to protect against ozone depletion and its attendant deleterious effects.

However, if the authority granted pursuant to section 157 is insufficient for this purpose, section 6 of the Toxic Substances Control Act ("TSCA"), 15 U.S.C. §2605, generally authorizes the EPA Administrator to prohibit or limit by rule the manufacture (defined to include importation) and distribution in commerce of a chemical substance or mixture presenting an unreasonable risk of injury to health or the environment, such as the ozone-depleting substances at issue here.^{1/} Correlatively, section 13 of TSCA requires the Secretary of Treasury to refuse entry into the Customs territory of the United States any chemical substance or mixture, or article containing a chemical substance or mixture, offered for entry in violation of a rule issued under section 6 of TSCA. See 15 U.S.C. §2612.

EPA's authority to regulate the export of such substances, mixtures, or articles under TSCA is somewhat circumscribed. With the exception of certain labelling, notification, reporting and information-retention requirements, TSCA is inapplicable to a chemical substance or mixture, or article containing a chemical substance or mixture, that is manufactured, processed, or distributed in commerce solely for export from the United States unless the Administrator finds that it presents an unreasonable risk of injury to health within the United States or to the environment of the United States. TSCA section 12, 15 U.S.C. §2611. In this case, because the environmental problem is global in nature and consequently requires corrective measures universally, it is likely that such a finding could be made--i.e., that such

^{1/} EPA may exercise its regulatory authority under TSCA if the Administrator finds that a risk of injury to health or the environment could not be effectively eliminated under another statute administered by EPA or by another federal agency. TSCA sections 6(c) and 9(a), 15 U.S.C. §§2605(c) and 2609(a).

exports in the long-run will have adverse health or environmental effects within the United States. Indeed, EPA made such a finding in 1978 when it prohibited (subject to an exception for certain essential uses and uses in articles exempted under section 3 of TSCA, 15 U.S.C. §2602) the processing of chlorofluorocarbons (CFCs) into aerosol propellant articles intended for export.^{2/} 43 Fed. Reg. at 11,319 and 11,321 (1978).^{3/}

The validity of a restriction on relevant trade with non-parties in relation to the obligations of the United States under the General Agreement on Tariffs and Trade (GATT) has also been examined. The GATT normally bans quantitative restrictions on imports or exports and prohibits import charges in excess of tariff concessions. However, in consultation with the United States Trade Representative, we have concluded that a trade restriction could be drafted appropriately to fall within the general exception to the GATT contained in Article XX(b) which permits the adoption or enforcement of measures by contracting parties necessary to protect human, animal or plant life or health. Article XX(g) of the GATT also contains a general exception for the adoption or enforcement of measures "relating to the conservation of exhaustible natural resources if such resources are made effective in conjunction with restrictions on domestic production or consumption which could also be applicable." Ozone-related trade measures could be justified under Article XX(g) as relating to the conservation of the ozone layer, an exhaustible natural resource, since the parties to the agreement would presumably be applying restrictions on domestic production or consumption. It should be noted, however, that these exceptions to the GATT are

^{2/} EPA's 1978 ban prohibited all non-essential aerosol propellant uses of CFCs--a suspected ozone-depleting chemical. EPA's action was proposed and initiated under TSCA before the addition of section 157 (the stratospheric ozone protection provisions) to the Clean Air Act. In the Federal Register notice of its action, EPA observed that "[b]ecause chlorofluorocarbon emissions anywhere in the world deplete the ozone layer and adversely affect health and the environment of the United States, the Administrator finds that chlorofluorocarbon discharges from aerosol propellant articles made in the United States and shipped abroad also cause an unreasonable risk of injury." 43 Fed. Reg. 11,319 (1978).

^{3/} The Export Administration Act, 50 U.S.C. App. 2401 et. seq., could also provide a vehicle for regulating the export of protocol-covered chemicals and technologies related to their production.

subject to the requirement that measures not be applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail or a disguised restriction on international trade. GATT, Article XX.

In light of the above, there is no legal objection to the negotiation of a protocol to the Vienna Convention for the Protection of the Ozone Layer as outlined in the accompanying action memorandum, subject to the concurrence of L and other interested bureaus in the final text of the protocol and provided additional Circular 175 authority is obtained for conclusion of the protocol.

A handwritten signature in dark ink, appearing to read "David A. Colson", is written over a horizontal line.

David A. Colson
Assistant Legal Adviser for
Oceans, International
Environmental and Scientific Affairs

Drafted: L/OES:DKennedy ^{DK}
11/20/86 x71370

Clearance: L/T:HCollums
L/EBC:Grosen (draft)
EPA/OGC:NKetcham-Colwill
USTR/OGC:APorges } DK

#16960

United States Proposed Protocol Text

UNEP Negotiations on an Ozone Layer Protocol

December 1-5, 1986
Geneva, Switzerland

The United States believes that the potential risks to the stratospheric ozone layer from certain man-made chemicals require early and concerted action by the international community. Since the adoption in Vienna in March 1985 of the Ozone Layer Convention, an intensive scientific research and technical analysis effort has been carried out and is continuing, as reflected in the recent series of UNEP-Sponsored workshops. The results continue to indicate the emergence of a serious environmental problem of global proportions.

The United States further believes that governments should pursue three broad objectives during the course of the negotiations, to be embodied and elaborated in the final protocol. These are:

- A. Agreement on a meaningful near-term first step to reduce significantly the risk of stratospheric ozone depletion and associated environmental and human health impacts.
- B. Agreement on a long-term strategy and goals for coping with the problem successfully.
- C. Agreement on a carefully-scheduled plan for achieving the long-term goals, including periodic reassessment and appropriate modification of the strategy and goals in response to new scientific and economic information.

In response to UNEP's invitation, the U.S. has prepared for discussion purposes a draft text based on the U.S. views statement which we recently circulated. This text is for the operative articles only, and is designed for incorporation into the protocol text developed during the previous round of negotiations (i.e., it would replace Articles II through V of the fourth revised draft text).

The United States believes that what is required is a straightforward, cost-effective approach that will provide technology incentives and clear targets to governments and industry for developing and introducing new technologies for chemical conservation, recycling and substitution. The U.S. believes that its proposed text provides such an approach.

U.S. DRAFT PROTOCOL TEXT: OPERATIVE ARTICLES

Article II: Control Measures

1. Within [] year after entry into force of this Protocol, each Party shall ensure that its aggregate annual emissions of fully-halogenated alkanes does not exceed its 1986 level.
2. Within [] years after entry into force of this Protocol, each Party shall ensure that its aggregate annual emissions of fully-halogenated alkanes is reduced by [20] percent from its 1986 level.
3. Within [] years after entry into force of this Protocol, each Party shall ensure that its aggregate annual emissions of fully-halogenated alkanes is reduced by [50] percent from its 1986 level.
4. Within [] years after entry into force of this Protocol, each Party shall ensure that its aggregate annual emissions of fully-halogenated alkanes is reduced by [95] percent from its 1986 level.
5. The right of any Party to adopt control measures more stringent than contained herein is not restricted by this Article.

Article III: Calculation of Aggregate Annual Emissions

1. For the purposes of Article II, each Party shall calculate its aggregate annual emissions by taking its:
 - a. aggregate annual production;
 - [b. plus aggregate annual bulk imports;]
 - [c. minus aggregate annual bulk exports to other Parties;]
 - [d. minus aggregate annual amount of fully-halogenated alkanes which have been destroyed or permanently encapsulated.]
2. To calculate the aggregate amounts specified in the subparagraphs of paragraph 1, each Party shall multiply the amount of each fully-halogenated alkane by its ozone depletion weight, as specified in Annex A, and then add the products.

Article IV: Assessment and Adjustment
of Control Measures

1. The Parties shall cooperate in establishing an international monitoring network for detecting, or aiding in the prediction of, modification of the ozone layer.
2. At least one year before implementing the reductions specified in paragraphs 2, 3, and 4, respectively, of Article II, the Parties shall convene an ad hoc panel of scientific experts, with composition and terms of reference determined by the Parties, to review advances in scientific understanding of modification of the ozone layer and the potential health, environmental, and climatic effects of such modification.
3. In light of such scientific review, the Parties shall jointly assess and may adjust the stringency, timing, and scope of the control measures in Article II and the ozone depletion weights in Annex A.
4. Any such adjustment shall be made by amending Article II and/or Annex A as provided in Article 9 of the Convention, except that such amendment would not be subject to the six month advance notice requirement of paragraph 2 of that Article.

Article V: Control of Trade

1. Within [] years after entry into force of this Protocol, each Party shall ban the import of fully-halogenated alkanes in bulk from any state not party to this Protocol [, unless such state is in full compliance with Article II and this Article and has submitted information to that effect as specified in paragraph 1 of Article VI].
2. Within [] years after entry into force of this Protocol, each Party shall ban:
 - a. the export of technologies to the territory of non-parties
 - [b. direct investment in facilities in the territory of non-parties]for producing fully-halogenated alkanes [, unless such state is in full compliance with Article II and this Article and has submitted information to that effect as specified in paragraph 1 of Article VI].
3. The Parties shall jointly study the feasibility of restricting imports of products containing or produced with fully-halogenated alkanes from any state not party to this Protocol.

Article VI: Reporting of Information

1. Each Party shall submit annually to the Secretariat data showing its calculation of aggregate annual emissions of fully-halogenated alkanes, as specified in Article III, using the format developed by the Secretariat pursuant to paragraph 3a.
2. Each Party shall submit to the Secretariat appropriate information to indicate its compliance with Article V.
3. The Secretariat shall:
 - a. develop and distribute to all Parties a standard format for reporting such data as indicated by paragraph 1;
 - b. take appropriate measures to ensure the confidentiality of all data submitted to it pursuant to paragraph 1, except for the aggregate annual emissions figures;
 - c. compile and distribute annually to all Parties a report of the aggregate annual emissions figures and other information submitted to it pursuant to paragraph 2.

Ad Hoc Working Group of Legal and Technical
Experts for the Preparation of a
Protocol on Chlorofluorocarbons to
the Vienna Convention for the
Protection of the Ozone Layer (Vienna Group)

Third Session
Geneva, 27-30 April 1987

TEXT PREPARED BY A SMALL SUB-WORKING GROUP OF
HEAD OF DELEGATIONS

ARTICLE II: CONTROL MEASURES

1. Each party, under the jurisdiction of which CFC 11, CFC 12, CFC 113, (CFC 114, CFC 115) are produced shall ensure that within (2) years after the entry into force of this Protocol the (combined annual production and imports) (combined adjusted annual production) of these substances do not exceed their 1986 level.
2. Each party, under the jurisdiction of which substances referred to in paragraph 1 are not produced at the time of the entry into force of this Protocol, shall ensure that within (2) years from the entry into force of this Protocol (its combined annual production and imports) (its combined adjusted annual production) do not exceed the levels of imports in 1986.
3. Each party shall ensure, that within (4) years after the entry into force of this Protocol levels of substances referred to in paragraph 1 attained in accordance with paragraphs 1 and 2 will be reduced by 20 per cent.
4. Each party shall ensure that within (6) (a), (8) (b) years after the entry into force of this Protocol, the 1986 levels of substances referred to in paragraphs 1 and 2 will be further reduced (by 30 per cent), (a) (if the majority of the parties decide, (b) (unless parties by a two-third majority otherwise decide), in the light of assessments referred to in Article III, such decision should be taken not later than (2) (4) years after entry into force.

5. Parties shall decide by (two-third majority) (a majority vote)
- whether substances should be added to or removed from the reduction schedule
 - whether further reductions of 1986 levels should be undertaken (with the objective of eventual elimination of these substances).

These decisions shall be based on the assessments referred to in Article III.

Note: A second paragraph reading as follows has to be added to Article III. Beginning 1990, every four years thereafter the parties shall review the control measures provided for in Article II. At least one year before each of these reviews, the parties shall convene a panel of scientific experts, with composition and terms of reference determined by the parties, to review advances in scientific understanding of modification of the ozone layer, and the potential health, environmental and climatic effects of such modification.

NOAA Position

I. Controls

Voluntary freeze at 1986 levels and voluntary ban on (non-essential) aerosols within 1 year after signing protocol.

A. First Step

1. Freeze "emissions" at 1986 levels.
 - o include CFC 11, 12, 113, 114, 115 and Halons 1211, 1301.
 - o scheduled 0-2 years after entry into force
2. 20% Reduction
 - o include CFC 11, 12, 113
 - o scheduled 2-4 years after entry into force
 - o subject to amendment by contracting parties on consideration of the scientific, technical and economic assessments*

B. Second Step

- o 20-50% reduction
- o include CFC 11, 12, 113
- o within 8-10 years after entry into force
- o subject to confirmation by contracting parties on consideration of the scientific, technical and economic assessments*

C. Third Step

- o 20-95% reduction
- o include CFC 11, 12, 113
- o within 14-16 years after entry into force
- o subject to confirmation of contracting parties on consideration of the scientific, technical and economic assessments*

II. Scientific Assessment

- o Next major review in 1990, then at least every 4 years thereafter; minor reviews at least every 2 years; technical and economic assessments to be conducted in parallel with scientific assessments.

* Process for consideration by contracting parties to be determined.

Proposed Control Protocol

- o Freeze at 1986 levels
CFC 11, 12, 113, 114, 115
Halons 1211, 1301
[2] years
- o 20% Reduction
CFC 11, 12, [113]
[4]years
unless parties decide based on science
- o [50%] Reduction
CFC 11, 12, [113]
[10] years
if parties decide based on science
- o [95%] Reduction
CFC 11, 12, [113]
[16] years
if parties decide based on science
- o Science/Policy Reviews
Begin 1990
and every 4 years

Proposed Timetable

0	1988	Entry into force
2	1990	Freeze Science/Policy Review Decide [A] Reduction for year [10]
4	1992	20% Reduction CFC 11, 12, 113
6	1994	Science/Policy Review Decide [B] Reduction for year [16] Review [A] Reduction
8	1996	
10	1998	[A] Reduction Science/Policy Review Review [B] Reduction
12	2000	
14	2002	Science/Policy Review Review [B] Reduction
16	2004	[B] Reduction
16	2006	
18	2008	Science/Policy Review

ATMOSPHERIC OZONE RESPONSES TO CHLORINE/BROMINE EMISSIONS
IMPLICATIONS OF CFC/HALON POLICIES

A Summary of the Current Scientific Understanding

I. THEORY

- ← • Ozone responses to continued chlorine/bromine emissions at or greater than current rates

	<u>predicted ozone response</u>	<u>environmental issue</u>
A.	reduction in global-average column ozone	higher surface UV
B.	change in the vertical distribution of ozone	atmospheric circulation change and greenhouse warming
c.	latitudinal dependence of column ozone change	increased surface UV at higher latitudes

- ← • What would a true global freeze achieve?

Current Science:

- Continued growth of CFC/Halon emissions are predicted to cause substantial loss (several percent) of global average column ozone eventually (within 75 years).
- A zero-growth rate i.e, a "true global freeze" of CFC/Halon emissions is predicted to yield global-average column ozone changes less than about 2% over 75 years, assuming continued CO₂ and methane growth.
- The lifetimes of the fully halogenated CFC/Halons are many decades; those of the partially halogenated compounds are shorter.

IMPLICATION

- A freeze, starting sooner rather than much later, of the fully halogenated CFC/Halons is consistent with limiting predicted perturbations in the global-average column ozone. (Response A)
- Response (B) and (C) remain
- What would a "protocol freeze" plus 20% reduction achieve?

Practical Considerations: A "protocol freeze" will not yield a zero growth of the chlorine/bromine emissions into the atmosphere because:

- not all countries will sign the protocol,
- not all signers will comply 100%, and
- not all chlorinated/brominated compounds will be included in the protocol.

Hence, a "protocol freeze", followed shortly by an automatic 20% reduction would come closer to achieving an actual zero-growth release rate into the atmosphere.

- What would a substantial reduction beyond a true global freeze achieve?

Current Science:

- o Interplay of atmospheric circulation and ozone chemistry predict that losses in column ozone will be larger at higher latitudes than at the equator.
- o Even at zero-growth CFC/Halon emissions, substantial local ozone losses are predicted in the upper stratosphere and ozone increases are predicted in the lower atmosphere.
- o The upper-stratospheric losses will cool that region, hence may change circulation patterns and climate, and the lower-atmospheric increases will add to a greenhouse warming.

Implication: A substantial reduction in the fully halogenated CFC/Halon emissions beyond a true global freeze is consistent with limiting predicted perturbations in column ozone at high latitudes and local ozone at high altitudes. (Response B and C).

- What is the confidence in this theory?

- Man-made chlorine is known to be in the stratosphere, about a factor of four greater than natural chlorine.
- A chlorine atmosphere in the stratosphere will destroy ozone molecules.
- For the past 12 years, 75-year predictions of all global-average column ozone changes

due to chlorine have been depletions of (11±7%).

- Except for a 30-50% underprediction of ozone abundance in the upper stratosphere, the current global models correctly predict the abundances of several ozone chlorine-related species typically over 2 orders of magnitude.
- The recognized undercertainties in the theoretical models is estimated to produce a factor of two uncertainty in the prediction of long-term global-average column ozone depletion.

II. OBSERVATIONS

● Global ozone variation:

- Global-average column ozone has been observed to increase from 1960 through the mid-1970's and to decrease thereafter.
- The scientific community is currently divided as to whether the downward trend of recent years is natural variations alone or has a chlorine-induced component.

● Antarctic ozone decrease

- It is real.
- The cause (natural or man-made) is unknown.
- The global consequences are unknown.

Implication: The current observations of ozone changes (global or Antarctica) neither prove nor disprove the ozone/chlorine theory.

III. EFFECT OF NEW SCIENTIFIC INPUT

- Short-term (1-2): The known potential new sources of information:
 - understanding of the downward trend in global ozone,
 - identification of the cause of Antarctic ozone loss, and
 - global implications of Antarctic ozone loss, are unlikely to weaken the theoretical conclusions of Part I. They primarily only have the potential to strengthen the implications.
- Longer-term (2-4 years): The circulation/climate implications of redistribution of vertical ozone and the latitude effect is likely to be significantly better understood. Hence, the implications of a reduction would be better grasped.
- Much-longer term (1-2 decades): The CO₂ and CH₄ trends and sources/sinks will be much better understood. Since both are "greenhouse" gases, it seems unlikely that public policy would allow significantly higher growth rates would strengthen the above theoretical implications.

Skin Cancer Rate Rises to 'Near Epidemic'

*Scientists Urge U.S. Action
To Halt Ozone Destruction*

By Cass Peterson
Washington Post Staff Writer

Skin cancer is increasing in the United States at "a near epidemic rate," outstripping predictions made as recently as five years ago, a research physician testified yesterday before a House panel examining threats to the Earth's protective ozone layer.

About one in seven Americans will develop skin cancer in his or her lifetime, Dr. Darrel Rigel of the New York University Medical Center told the Energy and Commerce subcommittee on health and environment.

Malignant melanoma, the deadliest form of skin cancer, "has increased 83 percent in the last seven years alone," he said. "Melanoma is increasing faster than any other cancer except lung cancer in women."

Five years ago, researchers estimated that the risk of developing malignant melanoma was about one in 250, and that the risk would reach one in 150 by the turn of the century. According to Rigel, the risk has already exceeded that level and is now expected to be one in 90 by the year 2000.

"To our chagrin, we found our estimates were too conservative," Rigel said. "Five years ago, it was unusual to see people under 40 with skin cancer. Now we often find it in people in their 20s."

Rigel joined other scientists in urging action to halt destruction of the stratospheric ozone layer, which screens out more than 90 percent of the harmful ultraviolet rays believed to cause most skin cancers.



BY JAMES K.W. ATHERTON—THE WASHINGTON POST

Richard E. Benedick, left, and Environmental Protection Agency head Lee M. Thomas testify before panel.

Such calls have become increasingly urgent in light of the recent discovery of a huge "hole" that appears for several months each year in the ozone layer over Antarctica. The finding alarmed scientists and public policymakers, who had predicted a much more gradual loss of ozone.

Susan Solomon, leader of a scientific team that measured ozone losses in Antarctica last autumn, said researchers have not pinpointed the cause, but "the best evidence" points to a class of industrial chemicals known as chlorofluorocarbons (CFCs).

"I think we will eventually see large-scale depletion of the ozone layer at other latitudes," she said. "It's a question of when and how much."

Physicians have attributed the rising incidence of skin cancer to overexposure to the sun, partly because of the increased popularity of outdoor exercise in a society that equates tanned skin with health and vigor.

But Rigel warned that sharp increases in ultraviolet radiation could eventually make it im-

possible to avoid skin cancer by wearing protective sun-screen lotions and staying in the shade.

"One could envision a future situation where despite maximal sun avoidance and screening, people in their everyday activities alone might receive enough radiation to develop skin cancer," he said.

Rising concern over the health effects of ozone depletion has added urgency to international negotiations aimed at fashioning a global agreement on CFC controls. The United States is seeking an eventual 95 percent reduction in CFC use, State Department official Richard E. Benedick told the panel.

Benedick said he is "optimistic" that negotiators will make progress in the next round of talks in April.

But Rep. John D. Dingell (D-Mich.) said he is "deeply concerned" about the negotiations, warning that the U.S. proposal could cost American jobs and force trade sanctions against nations that do not reduce CFC use.

Do agencies think **Benedict** should

Tomorrow

- Report
- ① Science - EPA / NASA / NOAA / OSTP (Callio)
 - ② Effects - EPA / OSTP / HHS (Neumann)
 - ③ Habons - EPA / Defense (Thomas)
 - ④ Assess. Alt. - EPA / State / CEA / Int. (Steve Cannon) (Chair)
 - ⑤ Unilateral Action - EPA / Justice / W.H. Logiol. (Habicht)
 - ⑥ Protocol - Benedict
- (OMB)

— Use the minutes as the guidance —

N.I.C.R. Joe Scott 496-9722

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Walmart Ave.
Rm 3 V04

U.V. & Skin Cancer incidence.

10 locations around U.S. ~ NOAA - meter -

Dermatologist

non -

Maximum Amt of U.V.

10%, 15%, 20% increase in U.V.

Cases + Control

1% decrease in ozone

1-2% in U.V.

DPC on May 27th

Subject - Review OMB FACT Sheet + strengthen.

Sub-group - ① Gibbons (tomorrow)
② Graham
③ Callio
④ Campbell
⑤ Watson (BY phone)

W.E. mtg - Friday -
Answer Questions -

Jonathan Thompson - OSTP

AG - Available next week - ^{Fri}

DPC mtg.

AG. - Pres on 28th - AIDS -

- DPC mtg Monday -

Pres. on ~~28th~~

150 Scientists for 3 yrs -

① Two parts ■

A) Scientific Data - Fletcher/Graham/Callio Thomas/HHS (incl)

B) Effects Data - EPA - Report on Friday

■

② Halouz / EPA / Defense

(9.) ③ Cost benefit of other alternatives - [Aresch ^{*} (Hadel) _{Question}]
(Other nations -)

④ Court order / Legislation - Unilateral action / Spinke EPA / Justice

⑤ Clean Air Act (EPA)

Report.

Ozone mtg - W.G. - Friday

1. Science - what is the best information available on ozone depletion today?

- A) Scientific Data -
- EPA - Thomas 382-4332
 - NASA - Fletcher 453-1001
 - ✓ NOAA - Callio (377-2977) - chair
 - OSTP - Graham 395-7116

Elk 382-7407
Chairman
long

- B) EFFECTS - Health | 1-1 Relationship - cancer to ozone depletion -
- ✓ EPA - Thomas 382-4332
 - OSTP - Graham 395-7116
 - (WCB) CDC/NIAH
Simon
Wilmington
Bill Rouse
HHS - Newman [245-7431] - chair
 - INT -

2. Halons - Should they be included in the negotiations?

- ✓ EPA - Thomas - [chair]
- Defense - TAFT - 645-6352

3. Cost Benefits - other alternatives such as Aerosol bans by other nations.

- OMB -
- EPA - 382-4332
- STATE - Rouse
- CEA - ~~McCam~~ - DeCanio - 6982
- ✓ Int. - 442-7224 - Dunlop 343-4863
- OPD - IAN MARRS

abstract rpe
Canal
June 29th
session
Neg on hold

Model
Proposition?

4. Legislative action on OZONE

- ✓ EPA - 382-4332
- Short term/long
- Justice - Chair - Holbicht
- W.H.L.A. - Holbicht 456-2230 633-2701

5. Protocol - Questions for DPC guidance -

- ✓ State - Benedict (647-1554) (Negroponte's office)
- EPA - Q