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rest
 contribu-
 and food assist-
 lateral aid went to
 now two-thirds goes
 e than 40 percent of all
 Egypt.
 designated for only two coun-
 the overall aid program is being cut

as one security pot? If aid
 gency, funds can be taken from the
 ment. This would require major structural
 in thinking and budgeting. But that's just what
 be called for from Congress.

In the meantime, the smaller foreign aid pie
 must be shared more equitably. There are good rea-
 sons to give billions in aid to Israel and Egypt. None
 of them are good enough to justify eviscerating so
 many other programs.

Ozone Subversion

A few man-made chemicals are gnawing at
 the ozone layer, the invisible shield in the strato-
 sphere that protects life from ultraviolet rays.
 The State Department hopes Europe and Japan
 will phase down production of the ozone-destroy-
 ing chemicals, starting with a 50 percent cut. But
 just as negotiations are to resume, the department's posi-
 tion is being undermined by the Office of Management
 and Budget.

Budget and other officials want State to demand only
 token reductions. They pooh-pooh the scientific warnings
 and contend the economic costs of phasing out the chemi-
 cals would be too high. But the Environmental Protection
 Agency has determined the hazard is real and cumula-
 tive; the destructive chemicals last for decades. The
 O.M.B. position would compel a humiliating American
 withdrawal from a position of leadership on a vital issue.

The threat to the ozone layer is hard to quantify but a
 substantial increase in ultraviolet radiation would pro-
 voke more skin cancer and eye damage and immeasura-
 ble disruption to other animal life. The State Department
 deserves support, not subversion, from the White House.

Disaster in Phoenix

Perhaps the worst thing about the Phoenix Suns'
 drug scandal, involving at least half a dozen present and
 former pro basketball players, is that it comes as no sur-
 prise. If drug availability is a river in the rest of society,
 it's an ocean in professional sports. After two members of
 the Houston Rockets were expelled from the league for co-
 caine abuse, their teammates described relentless pres-
 sure from dealers and the fortitude required to resist.

The threat of losing a huge salary for performing
 work that's really play ought to inspire fortitude enough.
 Let the Mets' Dwight Gooden explain why it doesn't. Or
 Micheal Ray Richardson, the onetime New Jersey Net. Or
 Steve Howe, the former Los Angeles Dodger. Then con-

Topics of The Times

sider two who died: Len Bias, almost a Boston
 Celtic, and Don Rogers, a Cleveland Brown.

If sports stars can succumb to drugs one at a
 time, why not several at once? That, say prosecu-
 tors, is what happened in Phoenix, where three
 current and two former players were indicted last
 week on cocaine-related charges. In addition, the
 team's star, Walter Davis, checked into a rehabili-
 tation clinic for the second time.

Several years ago, after two college football teams
 were wiped out in plane crashes, the professional leagues
 made contingency plans for replacing teams in the event
 of disaster. As the drug disaster claims casualties, those
 plans may have to be used.

Spring Cleaning in the Bronx

In his five years as a Bronx City Councilman, Fer-
 nando Ferrer was known for competence as a legislator
 and loyalty to the borough's powerful Democratic ma-
 chine. Now, in only a few days as Bronx Borough Presi-
 dent, he has shown commendable independence.

The Bronx City Council delegation last week elected
 Mr. Ferrer to replace Stanley Simon, who was indicted in
 the Wedtech scandal. The new Borough President
 promptly resigned as a Democratic district leader, a
 move designed to show that the political machine would
 no longer run the government. He then upset party stal-
 warts by urging Bronx lawmakers not to oppose Governor
 Cuomo's veto of the Legislature's flabby ethics bill.

Now Mr. Ferrer has initiated an overdue Borough
 Hall housecleaning by inviting the City Comptroller to
 conduct an audit of purchasing, hiring practices, staff de-
 ployment and other key activities. Mr. Ferrer also invited
 the Comptroller to scrutinize the operations of the Bronx
 Overall Development Corporation, long a vehicle for influ-
 ence-peddling by Stanley Friedman, the former Bronx
 boss recently convicted of racketeering.

Mr. Ferrer's fresh start gives borough residents, and
 all New Yorkers, reason for cheer.

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Sierra Club Show... in its True Colors

By P.J. WINGATE

Interior Secretary Donald Hodel may go down in history as the only Machiavelli in Ronald Reagan's court.

A few months ago Mr. Hodel suggested that the wearing of wide-brim hats, neckerchiefs and other devices for protection against strong sunlight would greatly reduce the millions of deaths due to skin cancer that had been forecast to result from destruction of the ozone layer above Earth by chlorofluorocarbons.

It was a sound suggestion and one that Mexican peasants, Arab sheiks, Wyoming cowboys, Argentine gauchos, Australian sheepherders, Chesapeake Bay crabbers, and farmers all over the world have been following for a long time. If Mr. Reagan had protected his nose with a sunscreen lotion during his days as a lifeguard, he might not be having problems with skin cancer of the nose today.

Nevertheless, Mr. Hodel was hooted at so vigorously by Sierra Club members and other "sophisticated" environmentalists who long to save the world from itself by sweeping measures that do not depend on common sense that he was forced to retreat.

(The catcalls were almost as loud as those that greeted President Reagan's truthful claim in 1980 that trees and other forms of vegetation release billions of tons of organic pollutants into the air each year. The jeering then was so intimidating that the president never brought the subject up again despite the fact that the autumnal haze in the Poconos, the yearlong blue smog in the Great Smoky Mountains, the overwhelming odor of orange blossoms in Florida each spring and thousands of other natural phenomena have kept proving him right, year after year.)

But Mr. Hodel is a bold fellow. He now has come up with a proposal that has thrown his foes into a state of confusion

and may teach the nation some things about the Sierra Club that the club would like to keep secret.

Mr. Hodel has proposed to tear down the 300-foot-high dam across the valley of the Tuolumne River in California, drain the lake behind it and convert what was the bed of the lake into an addition to Yosemite National Park. Since the Sierra Club has long been opposed to dams as a matter of principle and in favor of adding to national parks, it might be assumed that its members are cheering, but this is not the case.

It does make a difference whose ox gets gored. The dam across the Tuolumne forms the Hetch Hetchy reservoir, which produces a good portion of the water and electricity required by San Francisco and its environs, where many Sierra Club members live. Mayor Dianne Feinstein and many other Democrats are denouncing Mr. Hodel for going too far in his efforts to restore the nation to its pristine purity of bygone years.

Mr. Hodel almost certainly will not succeed in this proposal, but he has succeeded in bringing confusion to his foes. While a mind as fertile as his hardly needs advice about how to keep the opposition confused, let me make a few suggestions anyway.

For example, he might return to the matter of skin cancer caused by depletion of the ozone layer by chlorofluorocarbons and propose that all automobile air conditioners be removed and the refrigerant in them recovered and burned to less stable compounds in a high-temperature incinerator. All car air conditioners use chlorofluorocarbons as the refrigerant, and they all leak because of the vibrations in the automobiles as they move along the highway. Removing air conditioners would help protect the ozone layer, even though it might create some resentment in Los Angeles, Phoenix, Dallas, Miami and just about all other points south of Maine. However, as

the Sierra Club is fond of telling us, people should be willing to put up with small inconveniences designed to promote the common good.

If the above proposal is not sufficiently controversial to suit Mr. Hodel's Machiavellian schemes, he could propose that the federal government buy up all of Kansas, Nebraska and Iowa and convert the whole territory into one vast public park where the buffalo and the prairie dog could roam as freely as they did in bygone days. After all, when the framers of the Constitution were doing their job, the nation got along without a single bushel of corn, wheat or soybeans from these three states. At least a few members of the Sierra Club should applaud this proposal even though wide-hatted farmers out there might object and lose patience with the club.

Finally, there is the matter of electromagnetic waves from power lines doing harm to people who live near such modern devices. There is speculation that these waves may cause cancer, and it might be argued that the way to avoid such hazards is to keep people a safe distance away from power lines. But who can say what is a safe distance? Such energy is detectable at the distance of a mile or more. So Mr. Hodel might propose to protect the public by ordering the immediate removal of all power lines throughout the nation. After all, our founding fathers and the fathers of some members of the Sierra Club got along without power lines.

Even if Mr. Hodel does not resort to any of these extended strategies, he already has created enough confusion among the ranks of his detractors to guarantee him a more respectful audience the next time he comes up with something as sound as his suggestion that people try to avoid prolonged exposure to strong sunlight.

Mr. Wingate wears a hat in the sun.

OZONE NOTES ①

- we know CFC's deplete ozone layer, but
 - Uncertainty exists as to #'s of depletion + results of abatement
 - now have ↓ use of CFC's in U.S. & ↑ in dev'g countries.
 - EPA's '84 stratospheric protec plan "committed EPA to partic'g in int'l negot's rel'd to global actions to limit CFC's."
 - ① auth of EPA to partic in such int'l negot's?
 - ② what coord w/ state, USTR, Commerce, Defense, DOJ, Treas & b-4 thg positions in such negot's?
 - EPA did risk assessmt. "An Assessment of the Risks from Gases that Modify the Stratosphere"
 - NRDC lawsuit settlement req's EPA to use CAA §157(b) to control CFC's.
 - ↳ SA directs EPA to decide by May whether reg'g CFC's is nec.
 - EPA testif'd that we shld pursue int'l agreemt on freeze on produc of ozone produc'g chemicals -- followed by phase out of 96% of produc
 - ↳ Benedick → can do by Spt.?
- EPA intends to take whatever actions are nec to realize negot'd agreemt by Spt.

WHAT??

-- EPA is agency w/ CAA auth for domestic reg of ozone-depleting chems.

↳ EPA has no auth to enter int'l negot's or take positions re int'l positions.

↳ EPA shld ~~pro~~ assist those ele's of US govt w/ such auth. & shld implement domestic regs as are ① unan'd indep'ly or ② agreed to int'lly.

↳ OK if EPA wks int'lly "to increase understg" so long as wst they are settg

★ EPA's testimony shld reflect this posture.

US pol indep'ly or at all.

→ Seems that a freeze & 95% ↓ has been put fwd as U.S. posit w/o full Cabinet venting mee for exec pol or legis. nec for cong'l pol.

↳ What econ impacts of such a pol? cf. acid rain? > or <?

↳ What int'l aspects?

↳ any nat'l sec?

→ On what auth did U.S. partic in Vienna Convention for the Protec of the Ozone Layer?

Alliance Briefing

4/2

4 Briefings

- ① Alliance (DuPont, Dow, American Standard) - cost of fix 20 vs. 95
- ② science
- ③ emissions modelling
- ④ economics

How shld cost of controls be calc'd & what are estimates of various control strategies.

substitutes - when & for what?

actions of alliance to date

alliance action twd & to produce scistichy CFC 11, 12, 113, 114, 115 (fully halogenated substances)

- not address halons.

- ② volun consow prog of emissions
- ③ devmt substit's

Science of Depletion Theory

based on science, POL. → there is rm for lim'd contin'd growth in substances, yet recog most of int'l negot's phes talk of freeze.

2. →

No official position by alliance

what does production capacity

Worldwide we're 70+ % of produc capae (U.S. is higher)

→ 11 & 12 use = ↓.

113 has ↑'d.

→ 11 + 12 + 113 = at '74 produc levels.

Coverage → alliance favors broader than just 11 + 12.

Ozone measurements (gd based monitor'g in partic locations ↓ heavy No. hemisphere, mid lat. tide)

Gd Based = Show No statistically signif trend.

some interp. "goes well into positive" → So, Concl Nothing.

Satellite Monitoring (> global measures than ground based data)

(probs w/ old satellite -- not sure how accurate to get residual)
* Residual Trend =

- shows variations w/ latitude -- higher at poles than equator
- Watson studying sign of data & potential causes.

[But to say there is depletion now is going farther than science warrants except for Antarctica, (84-86 declines yet 86 decline less than 84 & 85)
 ↳ lots theories but nothing firm re the 86 Antarctica measure
 ↳ some indic's of ↑ active chlorines in Antarctica (chlorine data not measured by satellite)

Sign of "Hole" = it's a big chg we can't explain.

- raises → ? = how good are models?
 ↳ ? = why the chg so quickly?
 ↳ ? = what's causing it -- is chlorine causing it?
 [are CFC's responsible?]
 ↳ ? = if so, what's role to rest of world.

Uncertainty about Antarctica

The hole is not the reason for Chg in alliance's position, Rather →

Pol Basis }

* Reason = if growth in CFC's contin's, will see sign depletion of ozone.

Variations in data]

Daily variations 10-20% Over a yr. - factor of 2] OSTR = 10% variation over yr. - Volcanic effects.

volcanic activity? | Strong correlation in amt aerosols + ozone + volcanic relation cld be explained w/ this anal.

Watson's Rept.

NASA's study due by end of yr. -- will be rept to Cong. + will be vol 3 of NASA-WMO series.

NAS - 3 vol's last 3 yrs - ea vol is ↓'g in estim's (of depletion ??)

POL RAT'L -- (orig'l posit. = no need to do any more while study.)

① All Models say same thing → that ↑ will deplete in harmful way.
↳ at current produc levels, get ozone ↑'s + ∴ some growth is justified.

② emissions + produc. held constant by ↓'s in aerosol worldwide, + this ↓ will go away -- then all other mkt uses are ↑'g -refrig.
-foam
-solvents

This mkt. analysis + total growth of 11 + 12

Then can't just keep doing science.

Diff's w/ others

- ① Implic's of science. → what to do in the face of Uncert's
- ② timing -- few yrs may ~ make diff.

→ enviro's say stop b/c uncert.
→ indus say that's not warranted

at level 40 k -- consensus that ozone affected by chlorine; chgs over 10-14 yrs.
↳ statistically signif. chg.

Dave } Since no depletion now, how do we know that there will be depletion at current emission rate increases?

Alliance: confident that chlorine will deplete if we put enough in atmos.

Yet not sure what level is harmful depletion

* Can't say what is safe level of emissions at present time

Is there Depletion now? = Not clear answer in sci. commun.

* Diff opin w/ sci. community -- as to whether there has or has not been depletion

What Confidence in Model Results? -- not clear.

10-30 yrs away from real world data base in which to have confidence.

Model incorps assumpt's about interac w/ other agents in atmos & projected amts in atmos.

Natural Sources (volcanoes, hurricanes) → backgd constant; ^{above} good correlation w/ chlorine in atmos
↳ not a ~~major~~ major source; not part of natural cycle.

* Diff in EPA Models: - for same inputs, will get same outputs

* Differ in Conclusions draw from models - differ on assumpt's in what will be in future.
- Models not diff from EPA.

→ We will have to revisit reg. level in future when get firmer data.

Antarctic holes shld. not be basis of control now; models can't explain.
↓
suggests that something is wrong with models.

No Data Base to Test Models

- altitude
- transport
- diffusive component

Health Effects

SCENARIOS

in the Risk Assessment summary

EPA's scenarios range from a ↓ in skin cancers w/ 4 1/2 mil decrease
2 1/2% CFC growth/yr. = 40,000 skin cancers.
↑ 1/2 cases expected

2 1/2% growth scenario is 9X's current produce
+ ?X's current growth equnc.
↳ India is out negot'g for cap on world produce.

Position of Indus. --

- not support 95%
- not know how much Indus can do ST to curtail emissions.
↳ asked Indus gp's to come back w/ this in June.

- not want unilat. b/c aerosols. is
1/3 of world's 11 & 12 use
is in aerosols.

- do something that addresses the WC scenario.
- not an imminent health hazard.
- there has not been depletion
- Need Global agreement:

① sci coop

② not sensibly on US indus

WANT INT'L AGREEMENT BUT --

→ Not agree to automatic reductions.

Substit's

↳ 12 = No acceptable substitute
↳ insulating foams = no substit.

Dave = How else will substit be dev'd besides controls } → Customers will drive

alliance = ① stunts growth in world mkt in other econ areas w/ no gain in substit devmt.

? → [limit to growth gives same incentive to develop substit's as cap or reduction.]

(The chemical varies as %age of price of good.
↳ refug ~ much; foam = a lot)

Substitutes -- not have had toxic testing & others -- minimum 3 yrs. + dev = 5 yrs
a/c -- 11 yrs.

[next step is big \$.]

aerosols have done damage b/c can't get back

② → - Reduc. hurts U.S. more than world
↳ "20-30% of capacity" ∴ they can
achieve w/o the cost of that
will be borne by U.S.

↓
[me: we've also rep'd econ ~~agreement~~ here's of this
produce too.]

EPA = Per Capita use of aerosols in U.S. is slightly
higher than worldwide.

Nonpties &
LDC's:

- ① lry producers shld be incl'd & shld direct the level of control.
- ② shld put disincentives to staying outside of agreements.

[Must Control
Trade in the bulk chemicals among
non-signatories]

? Jan [Current Trade Draft =
made w/ = studied
containing = controlled] } This is not manageable
[SIC Code?]

→ Int'l agreement must incl all --
Concerned about Korea & Taiwan

Cost of Substit's 4-10x's } incl'g all ele's of
costs.

Cost in U.S. of cap in produc. = 4 yrs of produce
curtailed by cap.
500 m - 1 billion = cost of
15 yrs. cap.

→ Premature retirement of capital } shld we
acct for this in the reg?
↳ what is life?

[75% of the 12 used in this country
replig ^{goes in} the after mkt.

Time frames wld be accel'd dramatically:

Reduce of 95% over 8 yrs } Real world would
i.e. foam shut plants & leave
Du Pont w/o raw materials
long b-4 the deadline
for reduce attainment -

[Pervasive Use in Society.] -

Costs to user (i.e. wld need to buy new
refridgerators)

[1980 auto indus mobil a/c redesign = > \$1 bill]

[Gov't role in dev'g substit's.] →

↳ tox testing

↳ approval assurances of substit's.

Need Int'l rather than domestic

- ① > equity
- ② pressure in Europe to ban aerosols anyway
- ③ cost less int'lly in world mkt
↳ serious econ prob.
- ④ even aft dev substit's, ~ ineen to use
int'lly.

We can get Int'l Agreement

- cap produce 11 + 12
- 113 → not add capacity

Incremental Costs -- they can't produce these numbers.

good question → ↳ Why wasn't this question asked b-4 the negotiations?

[The cancer data
CFC Alliance comments on Peak
Assessment]

SUBSTANCES

What req

- all agree CFC 11 & 12

- complete list w/ % of contrib to ozone deplet:

CFC 12	33.6%
CFC 11	31.6%
CFC 113	10.1%
Halon 1211	8.4%
Halon 1301	8.4%
methylchloroform	6.7%
carbon tetrachl.	> 2%

- those for which substances^{tutes} are going to be available

APPLICATION of PROTOCOL WORLDWIDE

Who Reg

- adv to global agreement
 - ↳ econ + trade adv's
 - ↳ success in stopping ozone deplet.
- interconnec domestic + int'l reg
 - ↳ T'g domestic pressures for unilat action if not get int'l agreement
 - ↳ NROC litig w/ EPA
 - ↳ Cong'l action
- Developing Countries
 - ↳ much less contrib to ozone deplet.
 - ↳ not want to disadv growth
 - ↳ yet if ~ in protocol, then produc facil's will move there + they will contrib.
 - ↳ + if ~ in protocol, +^f protocol incl's trade restric from countries ~ in protocol, mlts for dev'g countries goods will be cut off.
 - ↳ other hand, if incl in protocol, will be w/ special waiver clause (cd take various forms in ST + LT)
 - ↳ produce or use?

(Irving)

① Total Column Measurements of Ozone
Measurements } (not distribution)
→ ground }
ozone

② CFC's & Other Agents
- concentration measurements in the troposphere
- grab sampling & gas phased chromatography & spectroscopy.
→ proportion of gases & concen in a sample.

③ Reduction of "total combined-emissions"
- will not be done directly b/c they are not pt-source -- would require millions of measuring instruments.

2 proposals to measure source of emissions

European ① production of CFC's & imports of CFC's
measure this b/c all that are produced will ult'ly get into atmos.

↳ ignores already embodied CFCs that will be emitted

↳ ignores those that will be completely recycled.

Also, anyone who is a net importer agrees to freeze so importers must always buy them b/c can't offset w/ internal

US ② Nat'l Consumption
- theory: that which is consumed domestically will be emitted domestically

Adjusted Production \equiv domestic production + imports (bulk & in products) - exports to parties

This is, in effect, is committed to consumption in this country & will be emitted here.

Flaw: it is to \downarrow ozone depletion, Adj'd produce not do it b/c @ countries do \uparrow produce & export it to parties & not \downarrow

- Threats
- ① to cheat & sales to nonparties.
 - ② other countries to invade the export mkt.

EC is only serious exporter (30% exports)

US is slight net importer

\downarrow

[US net export $>$ to the current European exporters.]

Irving's idea

Central Mkt -- commodities exchg.

Briefing
Science

-1-
Watson 4/3

- chemistry
- dynamics
- radiation

[ozone is only slight absorber of near UV
(^{"biologically active"}) sunlight, (absorbed by DNA
in cells)

$$\downarrow \text{ozone} = \uparrow \text{UV}$$

total column of ozone controls

mesos
strato
tropos

→ not want ozone low, it causes global warming like CO₂ + it is toxic gas

so if ↓ in stratos + ↑ in tropos, will keep total column of ozone the same, but probs on earth w/ adverse effects of ozone.

Nature

Continually produce ozone w/
interac sun w/ molecular oxygen = ozone
+ +
Continual reduce of ozone

- chlorine
 - hydrogen oxide
 - NO_x
 - oxygen
- } This is the problem.

Today's atmos = NO_x is most inpt. Our fear is that we'll move from nature's NO_x controlled atmos to unnat'l Chlorine controlled atmos

(No nat'l source of CFC's, only man-made.)

→ for every molecule of chlorine, destroy 10,000 molecules of ozone.
∴ *we can't compete w/ chlorine by T's amt ozone.

Chlorine in atmos has 2 forms

- ① active &
- ② reservoir - the reservoir form is the deproton b/c it holds it

Control on Ozone Naturally:

at various levels =

	at 30k	90% NO _x
	40k	Hydrogen dominate
* - chlorine is dominant here already =	40-50k	H, N, & O equal & Chlorine 33%

Ozone will go down = no permutations allow for ↑.

At today's growth rates, CFC's will alter the chlorine & NO_x controls in atmos.

3ppb → to have increase to > 8 1/2 ppb

FACT F's = we are chg'g the global atmosphere rapidly ^{chemistry}

- ↑ 5% / yr - 11 CFC
- ↑ " " - 12 CFC
- ↑ 7% / yr - methyl chlorine
- ↑ 1% / yr - carbon tetrachloride
- ↑ 20% / yr - halons

AMT CHLORINE IN ATMOS | .8 ppb of chlorine in atmos = Nature's contrib
2.5 ppb there now (man put ≤ 2 ppb)

[?] = Is the chg signf tho?

[until few yrs ago, thought response was linear non-]

[have found some linearity, but mostly models are showing linearity in LT.]

★ [System wld remain linear even if went to twice the amt (or 3x's) of current chlorine. (on top of bchgd)]

We know how fast nature makes ozone.

↑ ozone at troposphere level wld have adverse effects
↳ ecosys.
b/c ozone is a toxic gas & greenhouse effect

★ CO₂ is going up in earth's atmos.

FACTS

Atmos
15
chg/g

↳ compelling record
CO₂ = ↑ .5 %/yr.

b/c fossil fuels (US has 5% wrld pop & ~~responsible~~ responsible for 28% fossil fuel contrib)

CH₄ → ↑ 1-2 %/yr. (methane from anaerobic enviro)

methane's ^{natural reabs} loss is due to OH - hydroxyl radical (cattle's farts!, rice paddies, tundra, swamps, termites)

↳ possible that if this went down it's a ↓'g ^{methane} ~~contribution~~ but this not chr.

CO₂ = ↑ 1-2% (combustion, cars)

N₂O = ↑ 0.2% (fertilizers) (combustion)

↳ * very imp # in global warming & ozone control.

CFC 11 = ↑ 5-7%
+ 12

CH₂Cl₂ = ↑ 6% solvent

CFC 113 = ↑ 15% solvent

} Lifetime in atmos =
75-100 yrs.
% if we have
to ↓, we
have to

OZONE Predictors:

① if mly chg chlorine in atmos (at current rates
will
↓
↓ - 6% ozone ↓ (move to 8 ppb by volume)

② N₂O = ↓ ozone 1.7%

[* Need model to acct for all chg's at the same time.]

Questions involved =

① how much released

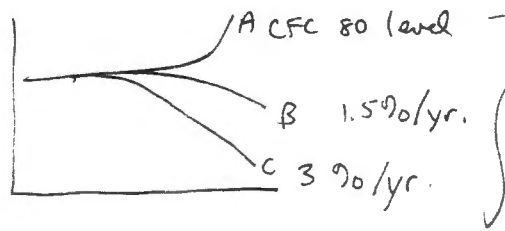
② how much get to stratos

③ what is ozone depleting pot'l (see graph - bar chart on ozone depleting pot'l)

←
substit. CFC = 10-15 yrs lifetime
22 & small amt gets into atmos.

assuming constant rates of CH_4 (methane) & N_2O & CO_2

find
in
WRI

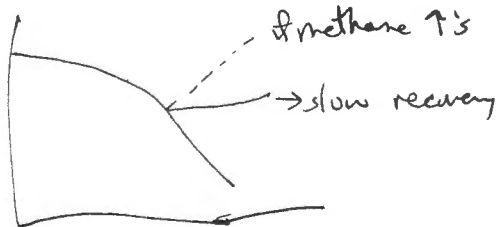


ozone depletion w/
growth of 11 & 12 (only)
at various rates.

2-D Models = (w/ contin'd compounded \uparrow in methane)
 constant CFC ¹⁹⁸⁰ emissions result in
 ① slightly higher global avg
 ② but lrg variance by latitude w/
 > at equator, but
 continued depletion at poles.
 * 1980 emissions wld mean
 a 15-20% cut from now not acct'g
 for the bromines.

(*) * -- Predicting depletion even at 1980 emission rates. \rightarrow So, do we want to gamble that model
 [depletion at one part of atmos affects whole atmos.] are wrong?

WAIT } Graph showing complete 100% emission reduction
 & SEE } at yr. 2000 shows slow recovery
 APPROACH



[?] = How good are the models? { gen'lly data follow predic for - what chem's shld be in atm by models & what is

Ozone We have found:

20-50% discrep btw/ predicted & observed ozone at 40-50 k.

↳ this is troubling b/c it shld be complete chemistry.



Things going on not understd., yet not enuff to diminish confidence completely in models.

Model predic's re CLO = consis w/ data.

- model figures {
- total - amt chlorine
 - rate of photodissoc.
 - nitrogen & hydrogen chem
 - radiation

Models predicting ozone depletion:

predic's have chg'd w/ time.	}	- '78	7% deplet.	yet w/ time have fixed chemistry macc's & models are predicting better than the one predicting 18% deplet.
		- then	18%	
		- now	89% deplet.	
			3% "	
		5% "		

Yet, there is a HO₂ model which does not accord w/ data.

Hoffman slide EPA -

Depletion Trend:

True 1986 freeze

→ global 100% compliance

w/ other chem's

} get produce of ozone

but - as take out compounds & take out LDC's get

by

chart, We ~~may~~ wld not see chg's for better or worse by 2000

depletion w/ freeze. & in any event

[yet if we wait until 2000 for reg's, wld need severe cuts.]

-- cut to handout --

1978-86 - GD-based data & satellite data may be > consis than some sci's wld suggest.

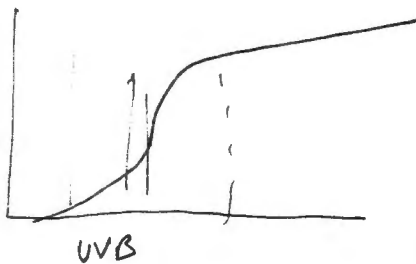
★ Will have idea at end

Watson

- ① Freeze at '86 level makes sense
- ② will have > data in time for implemen of LT reduc's.

Health Effects

* ozone stops the harmful wave lengths -- UVB radiation



} types of radiation

EPA + Sci Commun Agree these are effects of ↑'g UVB Radiation:

- Skin Cancer
- cataracts
- immune system
- plants
- aquatic systems
- climate
- tropospheric ozone
- ~~the~~ polymers

→ yet sci commun n agree w/ EPA's descrip of importance of effects.
 o Sci listed Pot'l Global Impacts + knowledge

	PGI	knowledge (how much we know about cancer)
Skin Cancer	* moderate (↑oz, ↑in skin cancer)	mod - high
cataracts	low	moderate
immune sys.	high	low
plants	high	low } * we really need info about these three
aquatic sys.	high	low
climate	moderate (stratosph. impact is as much as 2.5 se)	moderate
tropospheric ozone	low	moderate
polymers (weathering) of	low	moderate

* - moderate b/c it is geog'ly ctr'd (i.e. Texas) + among W's.

* pol. rec. } Her bias on how to make decis in face of low info, must factor in pot'l impact & b/c the pot'l impact is so high that we shld be conservative now.

Skim Cancer (overall not most imp., but it gets polit. most attn & b/c we have data)

↓
 (?) How cld. this be mitig'd by behav chg? (i.e. wearing clothes!)

- ↳ some can be avoided, but also those that cld not. (plus trend twd > outdoor activ's)
- ↳ no data.
- ↳ sunscreens exist.
- ↳ we also can't predict the self-inflicted

Pub pol question-- (?) Is a \$ spent today beat spent on:

- controls twd ~~control~~ cancer preven in 100 yrs.
- research
- sunscreen.

(*) Equity question for LDC's -- we ask them to forego use of CFC's when we have reaped the growth bene's

(*) → [UK = climate chge is key to them]

Skin Cancer

Types	Data
① Common (i.e. RR's) non-melanoma	500,000 new cases in 1987 mortality = 2% ∴ death = 10,000

② Malignant Melanoma (sc in pigment prod'g cells)	25,000 new cases in 1987 mortality = 30% ∴ deaths = 7,500
---	---

∴ even the 2% mortality in common skin cancer is now a bigger problem. (2% of a bigger # is large)

It's from sunlt --
75-80% -- from the UVB sunlight.

Ⓛ How do studies control for -behav

- geog (latit)
- susceptibility to sc (i.e. unequal distrib of pigment)

Mar 21 - Sept 21

→ they the key time period for outdoor actw's.

Pot'l prob w/ EPA data on skin cancers: } relshp of UVB to sc's.

- 125% latit'l diff in UVB's.

∴ move from MN to So & ↑ incidence

* yet chart of EPA showing ↑ in sc geog'ly is b/c looked only at one variable.

[EPA says they've looked at other variables.]

There is also a longitudinal effect

→ The knowledge of immune^① systems, plants^② & aquatic^③ will not be available in long time.

SAB recommends high priority of study in these areas.

* Once you recog ozone may be chg'g - then must ask, so what?
we've spent lots \$ to find this out. -- & no \$ to find out, so what?
↳ we don't have lots of info. about the plants & aquatic = the most imp't.
Yet effects wld be ① disastrous & ② irreversible

↓
A factor, though, is are the substitutes any better?
↳ maybe, maybe not.

* - there's not enuff data for plants & aquatic even for a range.

~~Ozone Depletion~~

5% chg ozone = 10% chg ozone = corresponds to 125% chg in lat of U.S. = moving 250 miles south.

→ UVB reduces the abil of plants to resist -- the immunog sys weakened.

Analogy
Areas of envir'l pol probs = where prob in system was noted by scientists alerting w/o quantification. & no get quantified prob was there.
① Lake Erie
② Everglades

(X) What caused the readings on PGI

- ① - some data on crops
- ② disturbing balance of ecosystem is a very threatening thing.

[?] = High orders of pot'l damage about which little is known

How much of a reduc. is nec. to get indus seriously moving toward substitu's?

- not our BL, not what's reasonable for this mty.

of our indus wants } consumption base -- not based only on adjusted produce

↓
Europe is very much opposed.

To be revisited in the future.

The need to do this int'lly

↳ NGO's really on the warpath.

↳ vote in Cong old be trouble. -- old be a unilateral

* → ↳ strong enough to ① not result in any agreement & to ② not trigger int'l

Q's & A's

imp memo to Wallis
& Whitehead on
even.

What is the US position for April 27-30?

Isn't this a "retreat" from the original position?

Does the US still believe there should be a virtual
~~phase~~ elimination of ozone-depleting chemicals?

Is the US still endorsing "automatic"
reductions in EFC's? *We are endorsing planned reduction*

What does the US believe should be the next
step after the initial 20% reduction?

What evidence is there that
~~how~~ ^{20%} a reduction be sufficient to stimulate
substitutes?

Prep for deleg.

W Kg Gps

① Chairman's Text (incl'g measurement surrogate)
↳ past, but re-design'd to TRADE

JR
Eileen
Marty

② LDC's

Bill Z.
Debby
John H.

③ Trade

Ed S.
Bob R.
Ted
Jim Z.

④ Science

Bob W
Albrechtin

Ozone

① Meeting Mon. aftn
of small gp.

↳ purpose = to frame issues for
working group consideration
of whether to take ozone
to the DPC.

↳ whig gp will consider whether
ozone shld be brought to DPC
w/ paper provided by small gp.

(Mt small gp again 4/6
(and whig gp. ~~mt~~ ~~wk of 4/10~~
mt 4/8

↳ DPC mt wk of 4/13.

Issue is

[?] what shld U.S. do ~~about~~ w/rt
ozone depletion?

Subissues:

↳ any need to depart from
current pol devmt track?
↳ domestic & intl action.

Gibbons + DeCanio

↳ econ'ly, what is the impact here?

Science

↳ St says we need hrs of sci briefings to understand.

↳ RCB: not need lots sci. -- making pol decis based on what we know ~~now~~ & shldn't lock ourselves in to a posture that will not be flexible w/ future sci devmts.

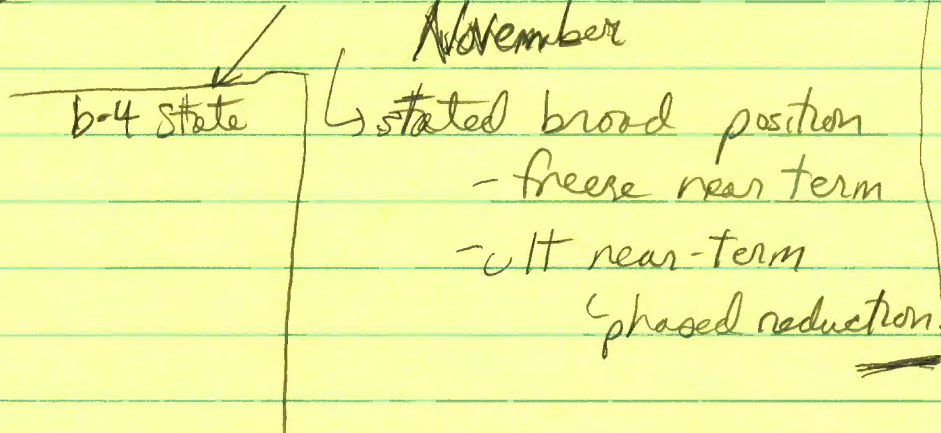
→ Proposed program

↳ basis for prep of paper.

all
chopped

Commerce
OMB

Circular 1175
November



Pearlman -- DOI

↳ not finally on concurrence chain

↳ shld have gone to DPC

↳ 2 mtgs -- paper received the right b-4

Except ST & EPA -- principal not advised.

Jan ① -- level of knowledge of people in process
DPC was not used; shld have been

② what shld US posit be beyond freeze.

[OMB, CEA, Commerce, GPD = no
basis for asking > than freeze.

Gibbons -- x 4586

[?] What is the Circular 175 Process?

[?] What are the economic impacts of the freeze proposal?

[?] Why EPA & HHS? Why Moscow?

Gibbons--
it is most def'dly going to the DPC & that's what he'll tell them at State

~~He~~ drafts it memo to Sec NeRAPonte (Benedick's boss)

↳ want auth to negot protocols as addendum to treaty.

[Draft Instruc for negot'g]

↳ Broad treaty on atmospheric exists

↓
OMB & send for inter-ag clearance

↳ Sec approves it & signs it & NeRAPonte.

↓
Inter-ag clearance
↳ sign off for

Specific ~~Negot~~ Instruc's for negot'g

① negot a freeze at '86 levels

② can negot twd goal of 95% ↓ in future as Goal linked to subseq sci finding (i.e. dependent on)

③ dependent on.

(2)

What happ'd = St. put out the stats
as ex's. &
Enviro's & Press have portrayed
this as US posit -- St & EPA
not stop b/c they want it as posit.

[Hill & Envir. gp's were there as
observers invited by State Dept.]

Phase down = backwards. --

Envir --

Cheap easy lbs are the
first 80%
not the 1st 20%.

[Complic'g all this is the SA == that EPA
must comply May 1.

→ HH is presenting Thomas
Go back to ct. & ask for
> time.

domestic decis driving int'l

- & -

int'l decis driving domestic

(3)

- use CFC's to clean microchips
- can't drill on OCS w/o CFC's

Econ Anal → major emitters

- ↳ auto a/c's, 3 yrs leak.
- ↳ cost estim's.

Dave =

A Freeze is cost-effective at '86 level
& wld get 95% of health bene's.

↳ opt that geometrically ↑'g cost curve.

ICF models.

↳ if take no action now
60,000 cancers
w/ freeze save 45-50,000
cancers.

OZONE

6210
1835

3/27/87

Benedick's Mtg St.

This wk had one in a reg
Series of bi-lat. envier w/ european commun:

- ↳ biotech
- ↳ chem & hazwaste
- ↳ multi-lat lending
- ↳ wildlife
- ↳ ozone.

EC will propose ① freeze at '86 level ~~to~~ in 2 yrs ^{aff} _{prob} ^{ed}

EC prev'ly had
50% ↑, then
freeze, now
20% ↓

- ② reduce of 20% - 6 yrs
- ③ review periodically.

This is signif chg in EC posit.

Japan will chg. posit also (indic's)

↳ Bill Long EPA & NASA reps going to Japan.

Industry Mtg -- CFC Alliance Earlier This wk:

- accept idea of freeze
- uneasy about reduce
- mostly want certainty ∴ shld give suffic lead time.

Circular 175 = - not all ag's have signed off.

- any U.S. posit will go thru inter-ag review

[?] Is existing circ 175 sufficly flexible for
next negot's?

Protocol now sched'd for Sept.

(?) !! [Charac'd the current Circ 175 as "providing for a 95% reduc.]"

EC has invited "us" to have further discuss' b-4 final negot.

EPA "Economic Analytic Underpinning"

John Hoffman, EPA, made briefing

↳ cut to handout.

(?) Dave's Briefings
 (2) Science } purpose is for the DPC process.
 (3) Economics

~~##~~ Sci. & econ. shld come quickly b/c DPC shld come b-4 April Mtg.

EPA: trying to (1) construct an int'l reg regime to respond to env'n. hrm.

(2) spur move away from dam'g agents

(3) push for hard sci.

→ Initially countered push by Canadians & SU which wld have

Position

→ EC + Japanese "agreed to US posit that need to go further than freeze."

Benedick: US is no longer "out in front"

↳ ? [What infl has US had on the EC & Japan.]

"Chairman's text" at last negot.

→ Must now look beyond freeze to see what shld be done

EPA April negot'g session = want to know where to go.

Other countries will take stands.
in April

Steve DeCanio — bene/cost ratio = $\frac{\$100\text{'s of billions}}{10\text{'s of billions}}$

↓
is shld use this to max. US adv
in posit. negot'g & in DPC process.

Dave = Is the issue [?] = shld we do > than a freeze? or is it

[?] = how much > shld we do than a freeze?

US posit was
"vp to 95% depends
on the science"

→ Even if have 100% compliance in dev'd world w/ freeze, then CFC's wld double b/c of dev'g countries.

Scientists -- a genuine freeze wld do reasonable good.
prob = LDC's; exclsions of LDC's
-- can't support 95% ↓.

Issue to the Wk's Gp - what shld DPC do w/ ozone position of US domestically & int'lly.

Ⓛ Do we have to alter our

[Are we willing to put on the table mid term numbers

Benedick:- Needs instructions for April

- must not lose control of Int'l \$ control

- Needs another number or a range to go back to negot's with.

- instruction shld be to not confirm an agreement.

↓ ↓
Peptoler
USTR

→ DPC had opp early & declined to get involved --
"said EPA & State had it under control"

Wig Gps/

① Econ Gp

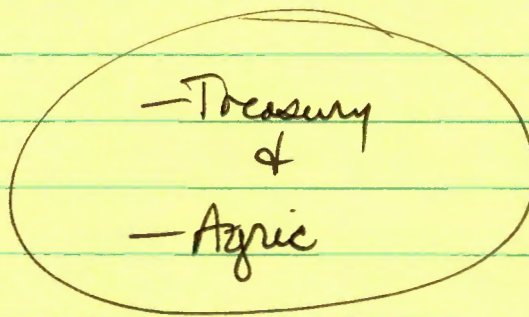
- study of timing & stringency
- Apr. 8

② Trade Among Parties

- produce
- Apr 8

③ Trade w/ Non-pties

③ Dev'g Countries



- for mtg
- issue paper

- ① freeze
- ②
- ③

4/17

1:00pm

POINTS OF AGREEMENT

The Stratospheric Ozone Problem

1. A USG goal is to prevent harmful depletion of stratospheric ozone.

A. Atmospheric concentrations of certain ozone-depleting chlorofluorocarbons and halons are increasing.

B. If the stratospheric ozone layer is significantly depleted, significant adverse health, crop, and environmental effects are likely.

C. Despite the remaining uncertainties, the scientific findings to date have prompted strong domestic and international pressure for action to reduce emissions of ozone-depleting chemicals.

2. The USG prefers international action over unilateral domestic action for economic and environmental reasons.

A. Insuring the progress of the international negotiations toward an agreement is important.

B. The international agreement must include as many countries as possible.

C. The international agreement should cover the five main ozone-depleting chemicals (CFC 11, CFC 12, CFC 113, Halon 1201, Halon 1311).

D. Parties to the agreement should share equitably in the costs.

(1) The Departments of Interior and Commerce recommend that an international agreement give the USG due credit for past unilateral reduction of aerosol emissions.

(2) EPA and the State Department question whether the USG is due credit for such past unilateral reduction and note that past attempts to obtain such credit have failed.

E. The international agreement must contain an enforceable trade provision to encourage compliance by parties and to encourage non-parties to join.

F. The international agreement must provide for periodic scientific assessments to verify or change the scope of the agreement as to reduction targets, reduction schedules, chemical coverage, compliance and trade.

Actions to Date

1. The USG has participated in two international negotiating sessions toward a Protocol to the Vienna Convention on the control of ozone-depleting chemicals. The next negotiation is scheduled for April 27-30.

A. The State Department received authority to negotiate a protocol pursuant to interagency approval of the Circular 175 authorizing the USG delegation to negotiate a protocol 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."

B. The Executive Branch is currently considering options within the terms of the Circular 175 including the definition of a freeze, the delineation of near-term and long-term and the specification of a percentage reduction.

2. The USG delegation is currently developing the USG position for the April 27-30 negotiations.

A. The USG negotiating position in the past two meetings has been for a near-term freeze and a 95 percent reduction in an unspecified time period.

B. The State Department and EPA believe the future progress of the negotiations depends upon USG adjustment of its position to reflect the developments of past sessions.

C. The Interior Department, the Commerce Department and OMB resist finalizing the USG position prior to DPC consideration, yet do not wish to jeopardize the continuation of the international negotiations.