

Thursday September 23, 1992

Sunsettary

Daw ASPs that the two meetings

the explanation

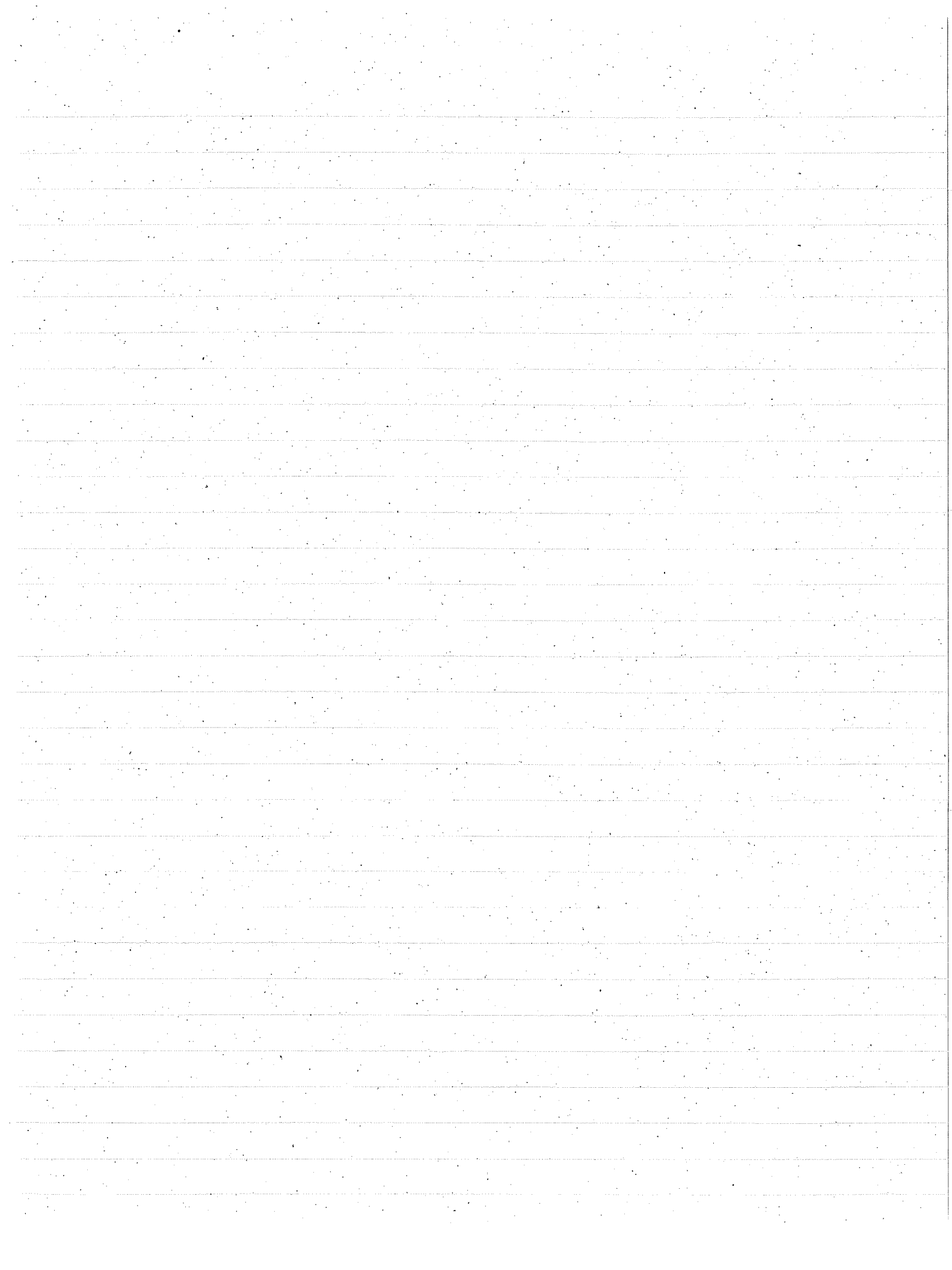
day I stakeholders

day II environmentalists forum

Sunsettary a process where chemicals
that need to be phased out are identified
according to generally accepted criteria
see the definition page 3
1989 OECD Day Prof. Waldhram Sweden

candidate chemicals - how to identify
what are their characteristics
only the beginning - implementation
economic, social considerations

Jim Eder - "Poisonation" 2 years ago to one of first
out chemicals based on 850 + should
be banned or phased out
criteria for testing new chemicals
and whether they should
be used



why necessary?

• health effects

fish advisories

wildlife impacts

effects more subtle - more we look more

we find

children studies learning difficulties

there's work on immunology - demyelination

reproductive interference

• for many of these chemicals there

is no safe levels

Dr. Susan Baker level for PCB's - population

already at that level (esp. women)

(children)

• gov't's have already committed

to eliminate these chemicals

1972 Clean Water Act debate congress

rejected part of ban had to do

with character of industrial production

section 301 of all discharges in economic

exceptions - 7 of these exceptions have brought

1978 CLEA → virtual elimination

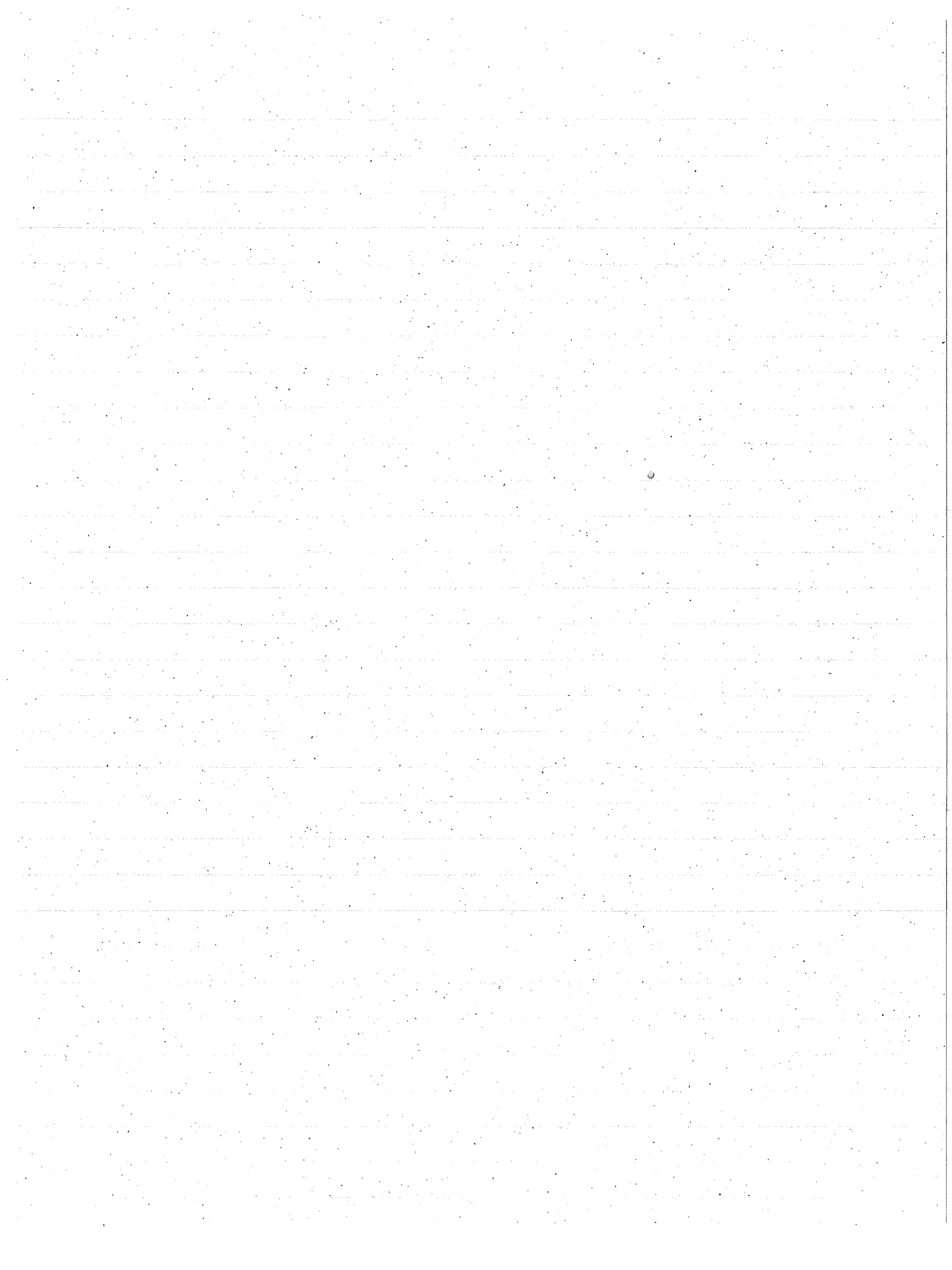
virtual necessary the cause of historical

production

• existing approach has failed

part of showing on producers

already to take other evidence is gathering



muting genes and addition allowed
cumulative effect on metabolites
not measures

preventing water organisms often
means shifts to other media
worker exposure

problems in A.D. cumulative - sinks
retention

sums that in the past has worked
lead (80% decrease 1975-85)
DOT 79%
PCB's 75%
dioxin in body fat
mercury 80%

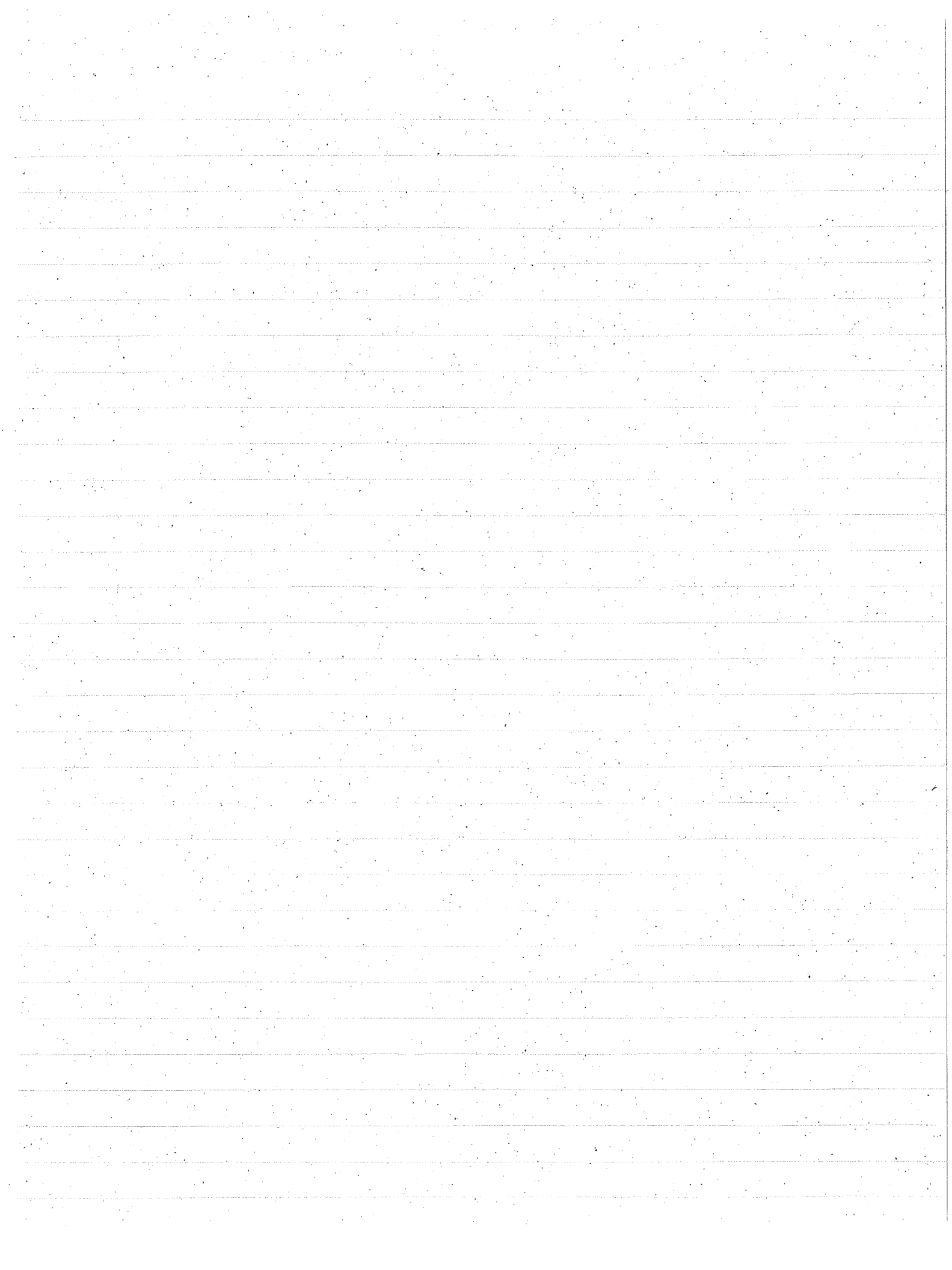
only chemicals that have been
revised significantly have been covered
- Bush's Council on Environmental Quality

in Visual Examination Task Force 11
chemicals

Criteria / Comments
most - at potential chemicals for banning
New Questions Group -

APR 25 Assessment reduction

a multi stakeholder group



C&PA undergoing a five year review
- sunseting on agenda

COA - on agenda
in U.S.

Yd WQ initiatives - no timetables for
phase-out.

Reauthorization of Clean Water Act.
prohibited discharge of 8 chemicals
higher YOSCA to issue regulations
to sunset

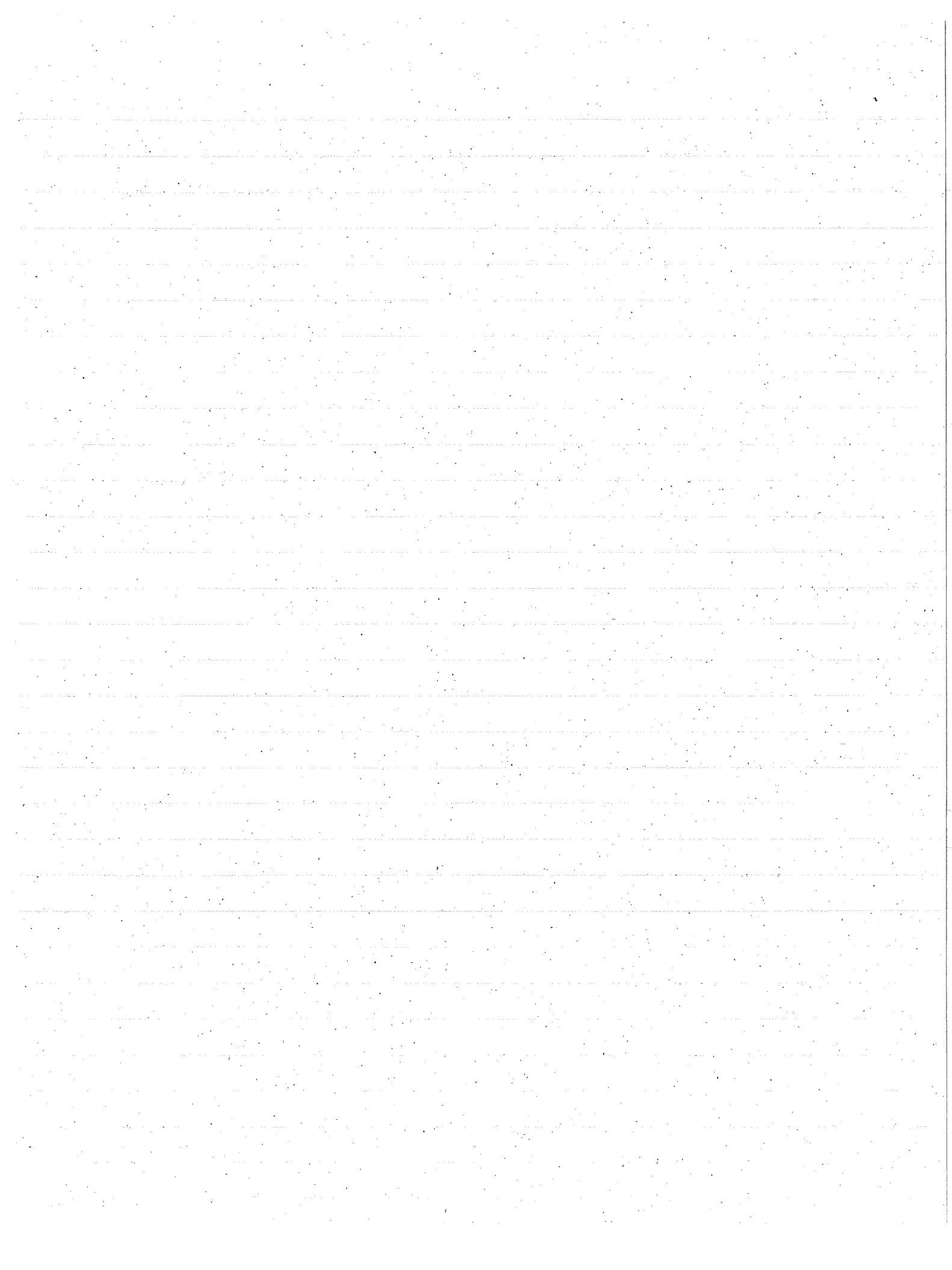
Paul Muldowney
Implications of Sunseting
Policy Context.

the scope - sunseting ^{alone} will not solve
the toxic contamination problems
only a component

what are the chemicals of concern.
persistent toxic chemicals.

not to devalue the evaluation of
all chemicals.

assumption's re: sunseting
eliminate of use generation release
a component of pollution prevention.



how does sunseting fit into a comprehensive strategy?

won't look at overconsumption products use and policies

sunseting an interim launching pad
policy issues

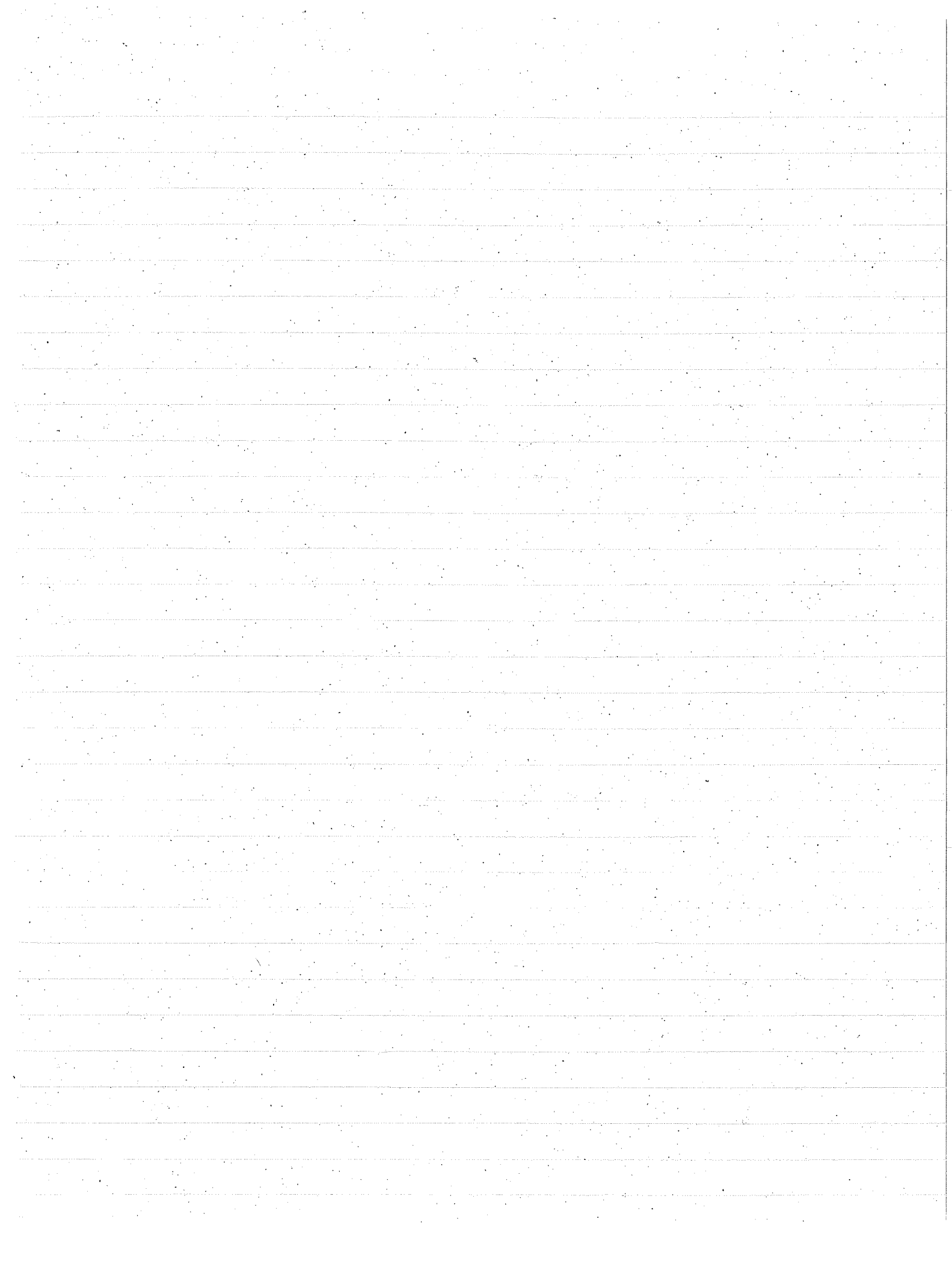
definition - ITC's definition
page (3)

may require processes of manufacturing to change

is there inconsistencies if we are eliminating chemicals one by one without looking at the context in which they are produced.

PAH's prevention their production should occur

chemicals - ~~before~~ belong to chemical families how ban up the family
free do we go in banning
do we ban whole families of chemicals
where is the best place to address the problem?? * more closer to the source.



why criteria - rules of the game
sunrise criteria chemical
characteristics - out of bounds

forces prioritization where product
develop should be going.

there are data gaps that will impede
use of criteria

who should have the onus of providing
the data

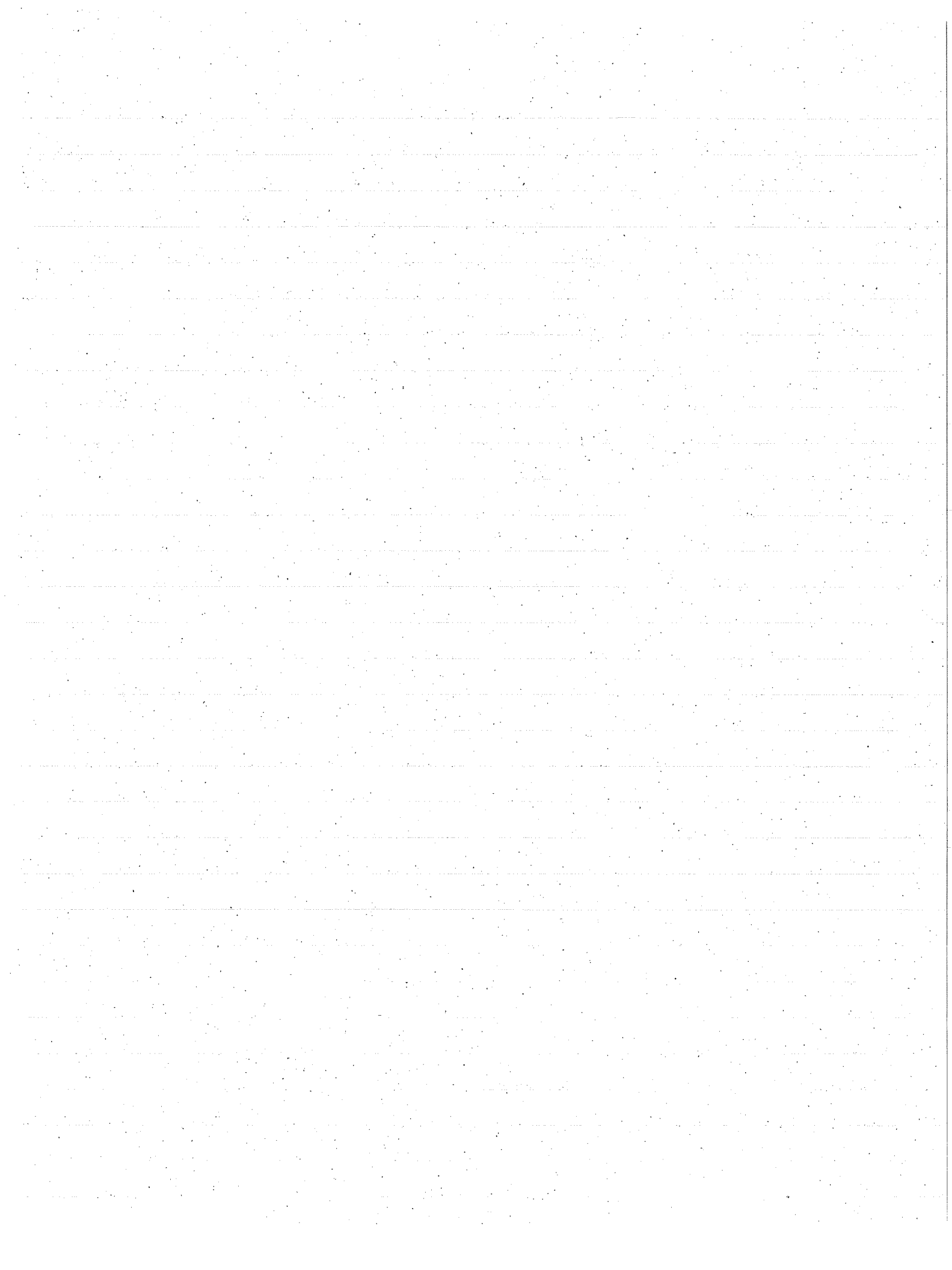
what happens if we cannot get the
data

How do you apply criteria?
Will it be up to industry to prove
criteria is wrong.

How are social economic factors
applied

How - timing - transition from dirty to clean
worker protection

Legal questions evoked by sunseting
authority - coercion
geographic scope - global = local
level?



who has legal authority - who can act

how to del. phase sunseting into current regulatory regimes.

how does sunseting relate to whole plant product.

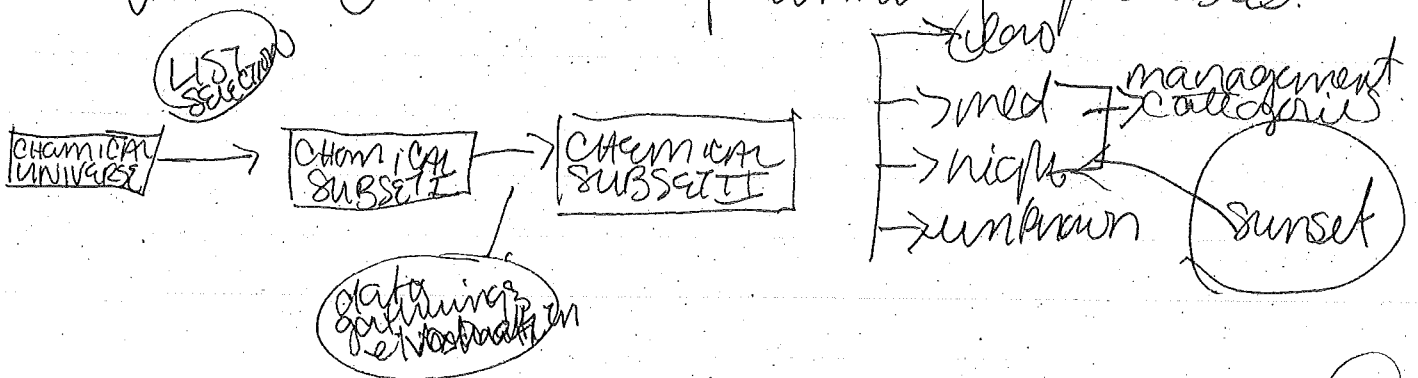
interface with product development and approvals

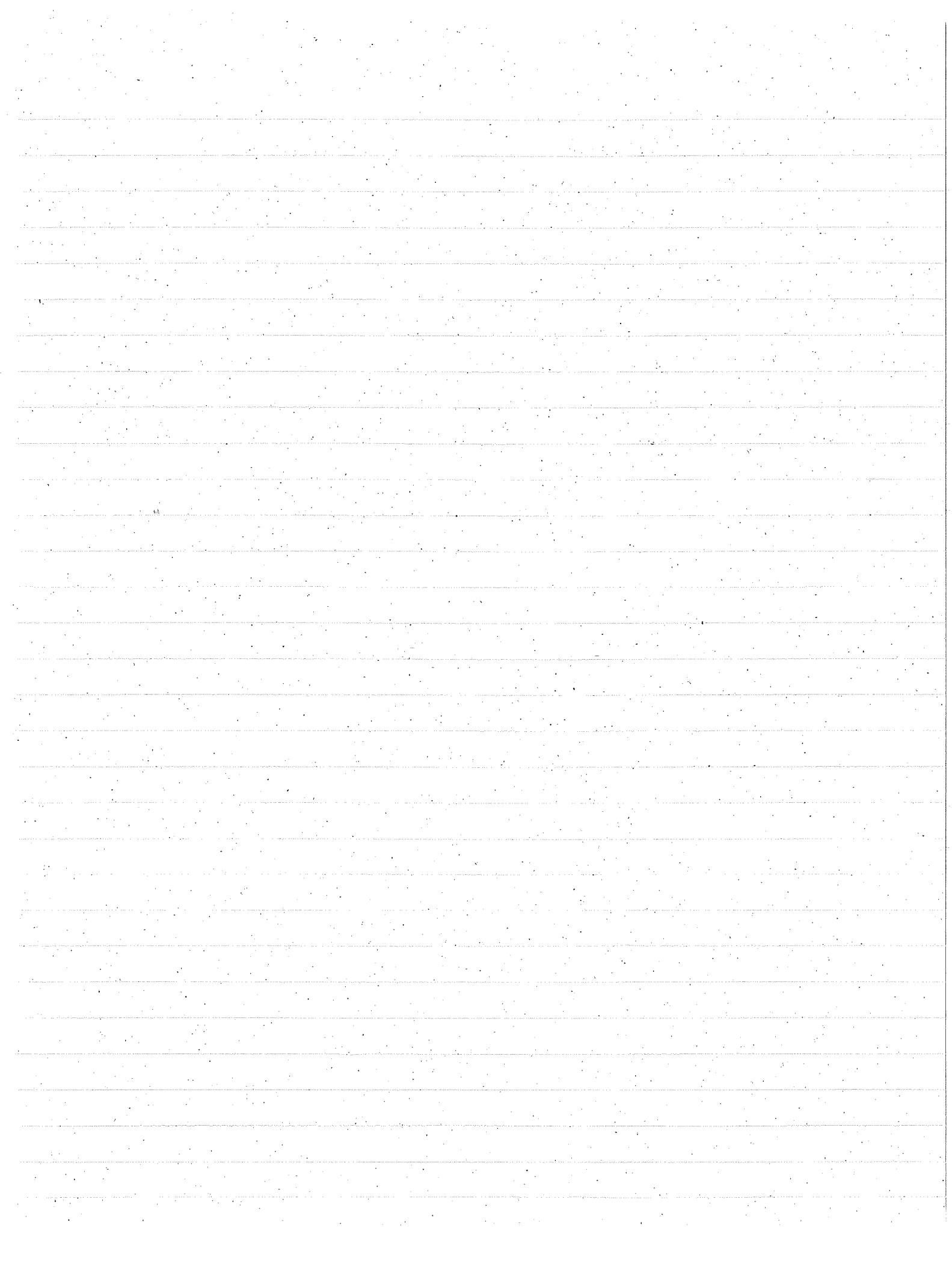
new decisionmaking modes and opportunities

Jeff Foran

why criteria are useful

- predictable
- modifiable
- locally adjustable (this criteria U.L. Basin applications only)
- to identify sunseting candidates.
- to " " chemicals for other management activities
- useful to screen new chemicals sunset
- useful for other planning processes.





Selecting Sunset Candidates

Highly toxic to humans

" " " Wildlife

Ecological Disruptor

Long-term consequences

High volume release

Emphasis on Environmental Exposure

(Does not deal w/ occupational exposure)

quantitative data emphasis

Some value judgments necessary.

can place a compound on a scale
in comparison with other chemicals
need to make a judgement on which
chemicals should be considered.

scoring system requires a minimum
amount of data

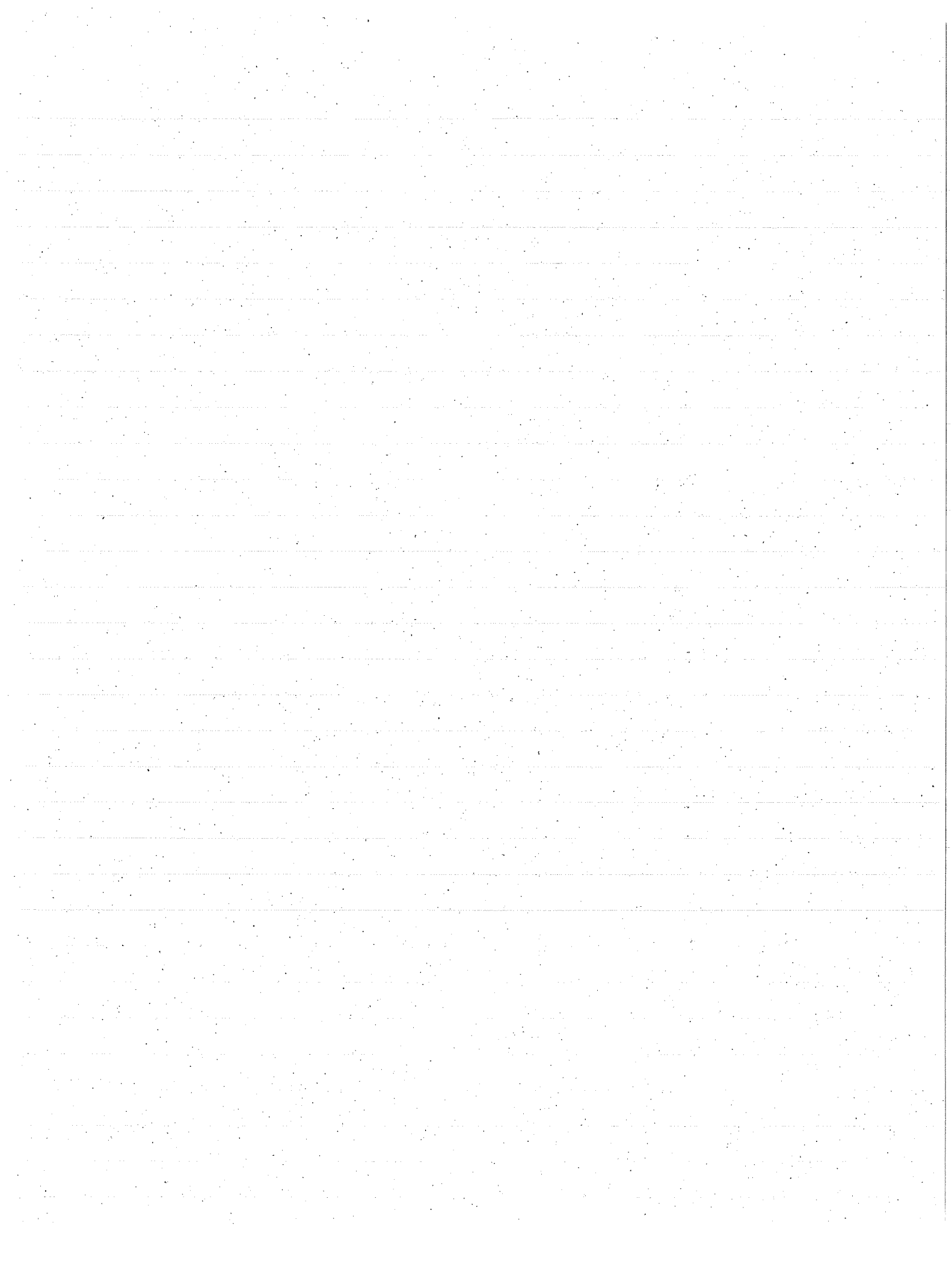
-where not available cannot make a determination

Chemical
universe

800+ compounds
from many
sources

chemicals without CIS ID # (which are not
in data bases) eliminated

22 selected # 21 others (from 150
EPA lists)



could it do a detailed evaluation of each chemical
used existing data bases and supplemented them.

then did bibliographic search to fill in gaps unknown - not enough data should drop off list.

Exposure Parameters.

indications for exposure
bioaccumulation - (Log P, BAF)
persistants - half-life residence time in media.

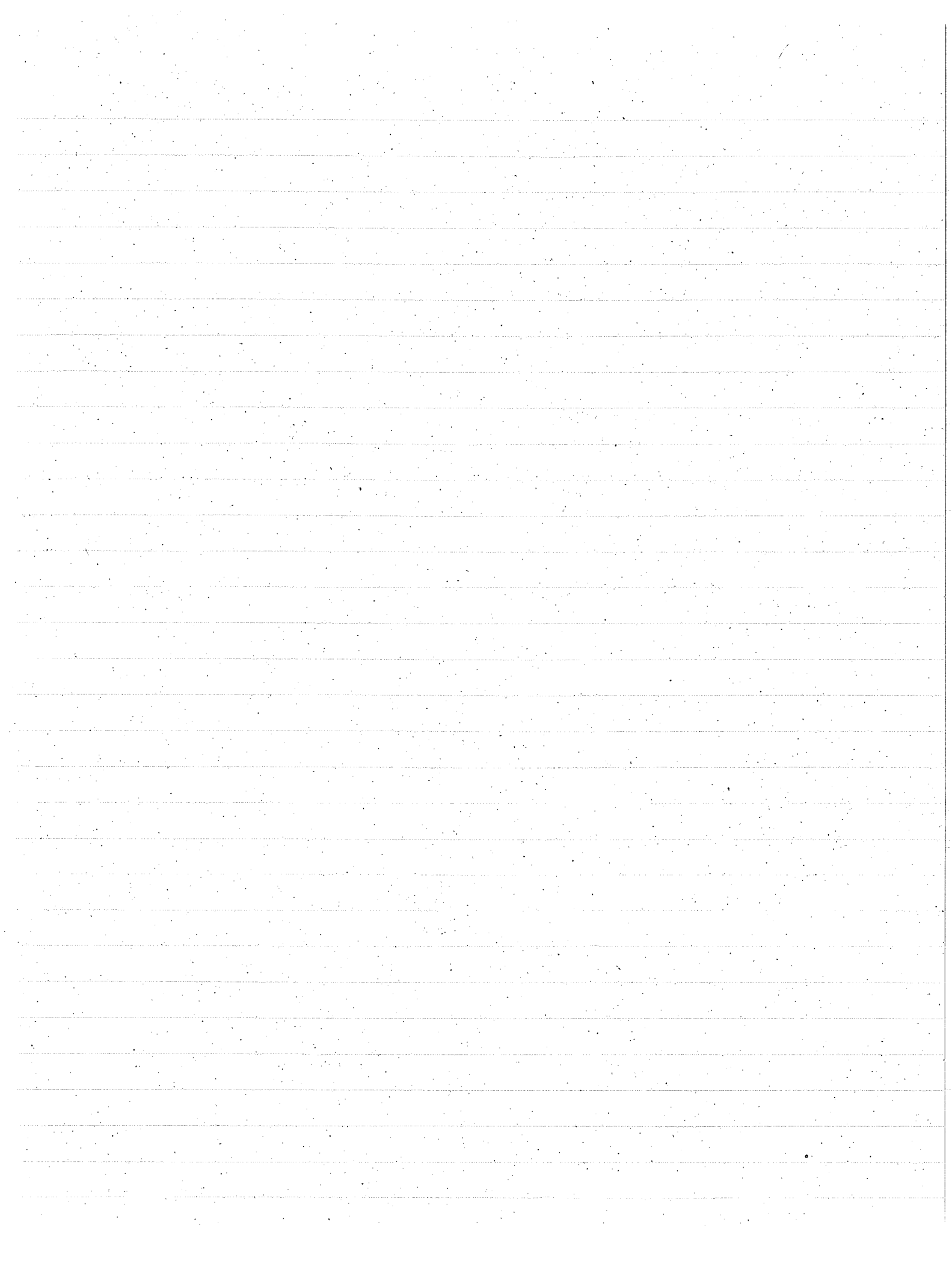
release production volume

Effects

ecological disruption
aquatic, acute/chronic
terrestrial and avian non-mammalian
mammalian
reproduction developmental
carcinogenicity.

Bioaccumulation ^{bioacc - looked at} diet thru gills skin
low lab measurement of concentration in lipids
X food chain multiplier

HIGH + 5,000 BAF
MED 5,000
LOW - 5,000



persistance in a critical medium based on half-life - residence time (to add's fate and transport) where chemical spends most of its time (air, water) does not track metals which are all high.

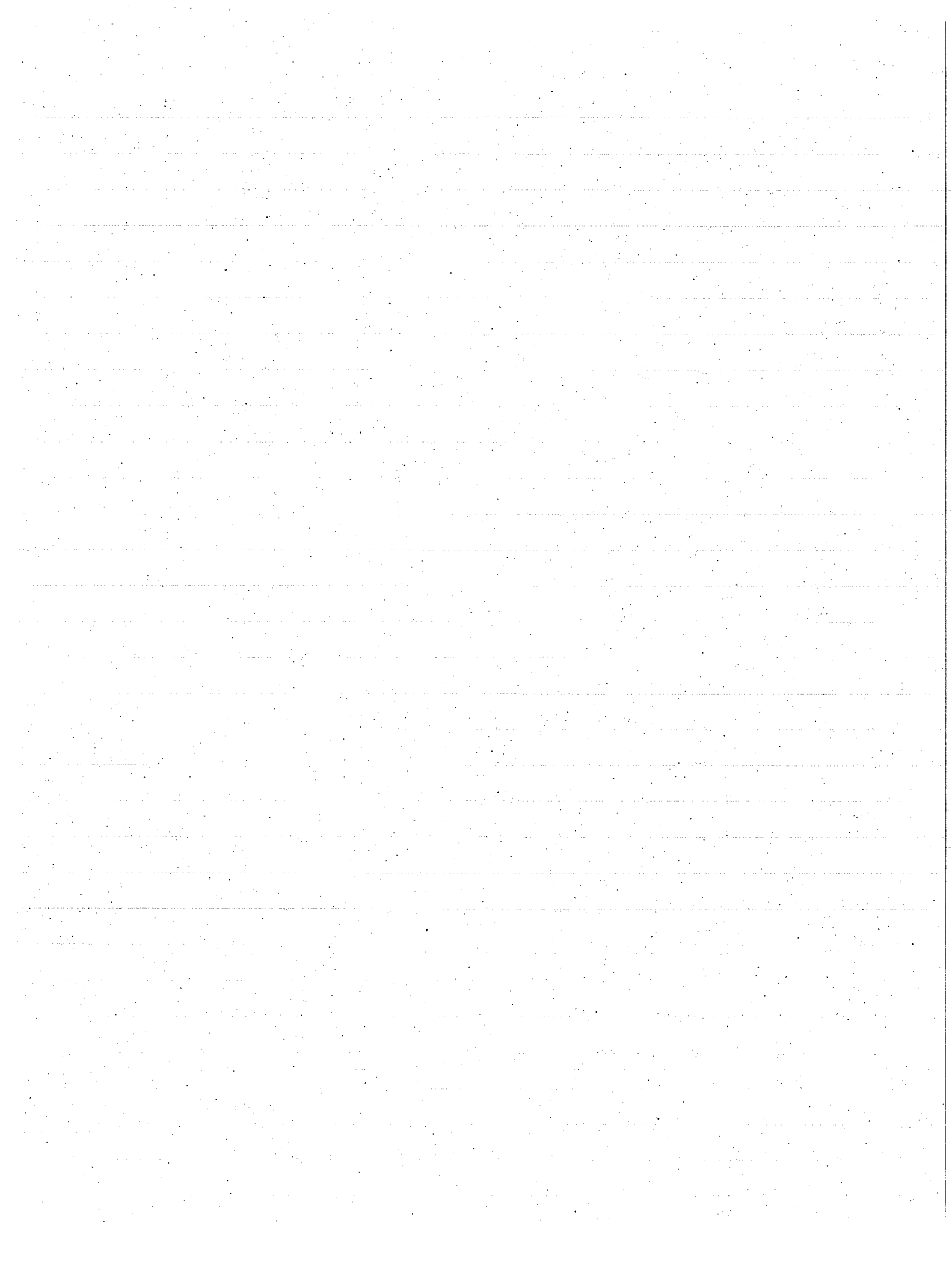
open and closed systems (application)
closed systems (accidental release transport potential for release) so looked at it too

production 1 million kg
release 5,000 kg ~~release~~
did not look at release from consumer products. used toxic release inventory
higher toxic - bioaccumulate
some products → constant exposure
small release
predicteable release parameter
worried about acute toxicity from spills accidents.
thresholds high for production than for accidental release.

aquatic organizations acute toxicity
50% of compound

cut off for high 1 mg per litre
low - 10

systemic toxicity - looks a many organ systems and severity (irreversible effects)
low effects transient



lowest adverse effect level \leftrightarrow no observed effects
Ontario MOE used \uparrow \uparrow MWD used

combined potency score with severity score for total score 10-12 high.
5-9 medium

if chemical ^{in medium range} seen in more than one species then it's bumped to high.

Reproductive Effect

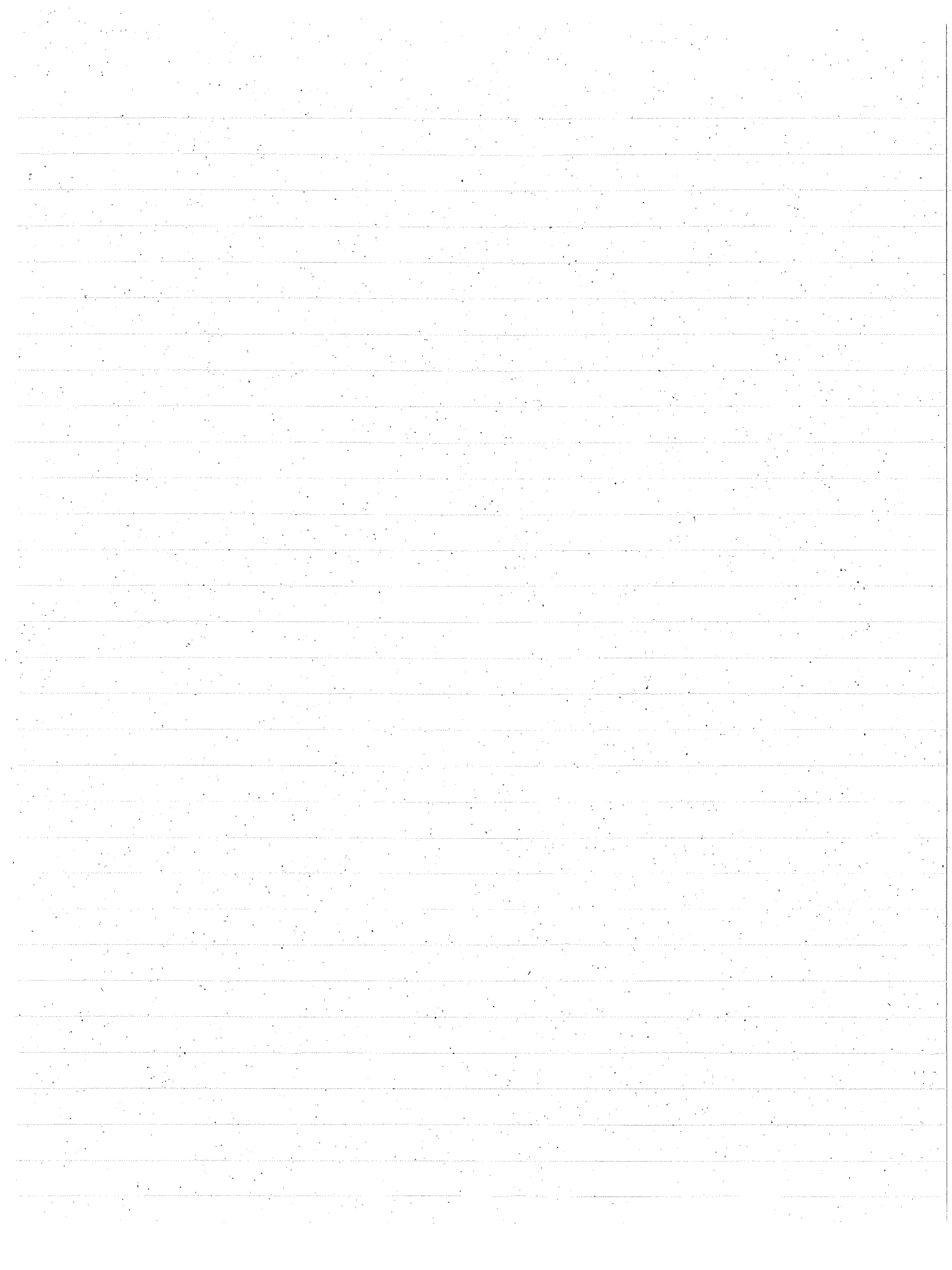
of species
potency
hard to measure dose in humans
use extrapolate weight of animal evidence

Cancer potency
weight of evidence

How the data was combined
if anything got a high in ^{one} toxicity and exposure \rightarrow sunset candidate
(except pesticides (released in high quantities))

chronic mammalian - Yohlene chlorobum
surprise high scores

benzo a pyrene



by products dig in benzene pyrene by products
should look at processes.

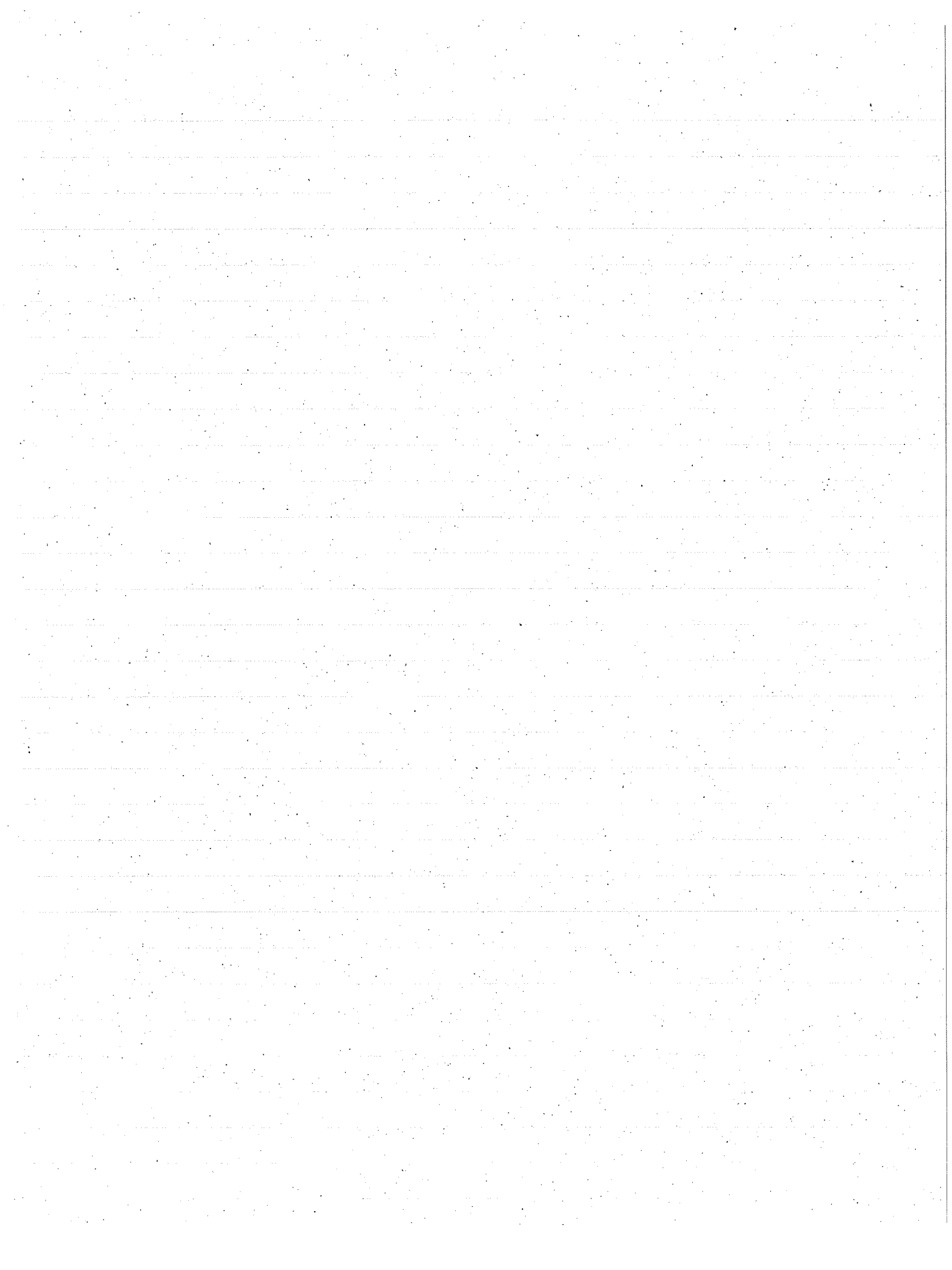
scores
unknown 3
no exposure 8
no effects 4
~~no~~ high effects
no exposure

entire
reports available by the end of the year
finalized set of criteria and scoring
~~as well as an examination of the a~~
variety of scoring methods.

this list is a demonstration of how
criteria works is only an examination
of 43 out of 800 chemicals
is not a definitive sunset list.

Bob Ginsberg chlorine - how it is used
and released is not part of the
criteria - where there is wide agreement
(chlorine in pulp and paper)
didn't score chlorine

These criteria are not currently in use
in sunrise - may need something
similar and make.



next steps in evaluation - needed

did they look at degradation products.

afternoon

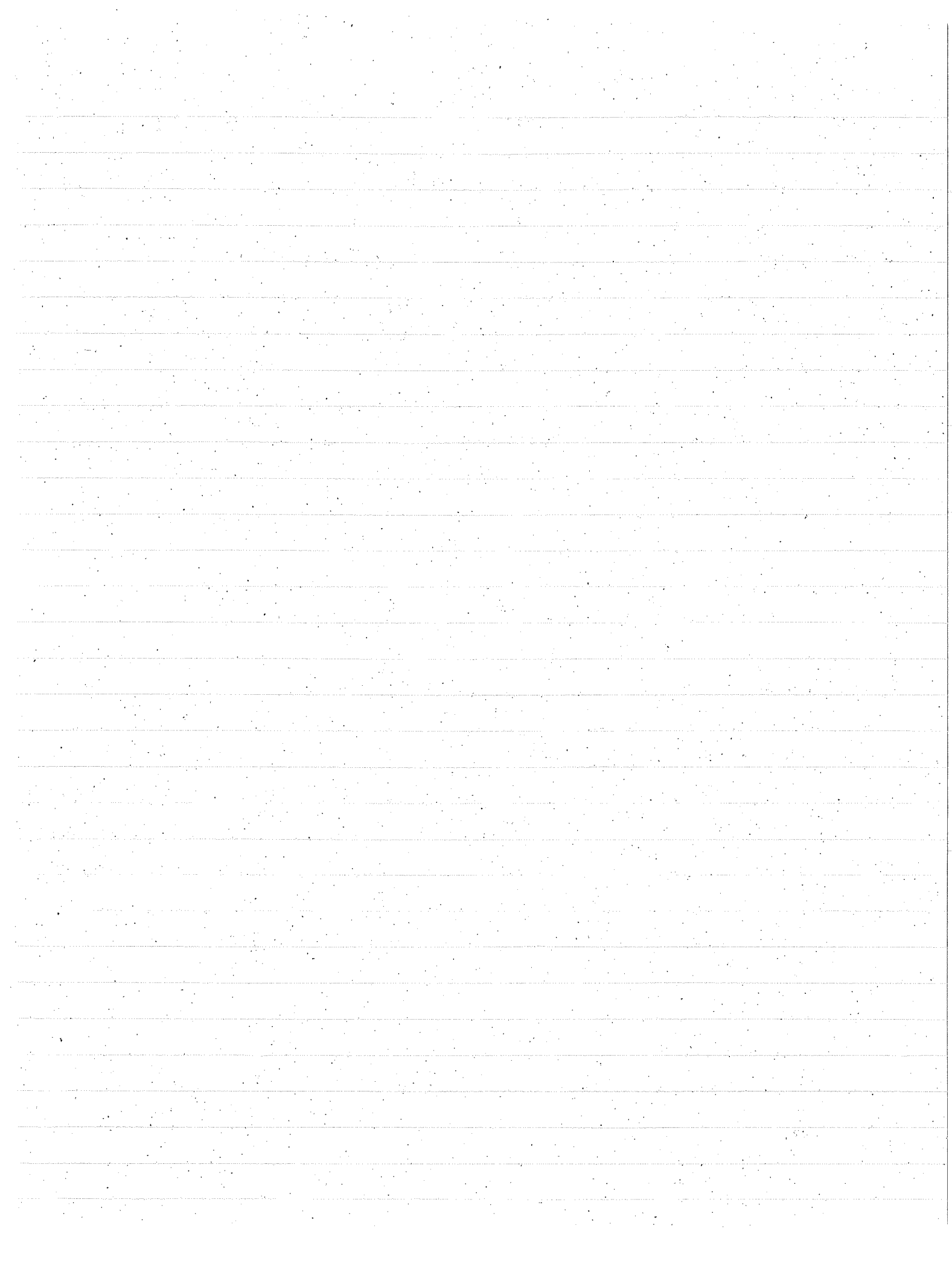
Karen Palmer ^{economist} Resources For the Future
incentives for industry to change.

RFF newsletter Resources
Role of Economists goals - strategy
sunsetting in a cost effective nature

tradeable permits -
taxes on production & release

tradeable quantity permits
raising cost of polluting
command & control \leftrightarrow uncertainties
lower compliance costs with regulations
phase-out of lead in gasoline
began mid 1970's industry wide standards
standard for leaded gasoline
trading approach - to take advantage
of differential between producers.

blend to 0.1 over 5 years
state of art refineries \rightarrow greater reductions
reduced in excess could sell excesses
to those who could meet standards right
away
all trading to stop in 1987



other option to bank reductions ^{credits} for
use in future to 1987
allowed them to
take big jumps in beginning but level
at end.
226 million \$ savings over 5 year period

administrative costs high for permits.
Compliance cost savings.

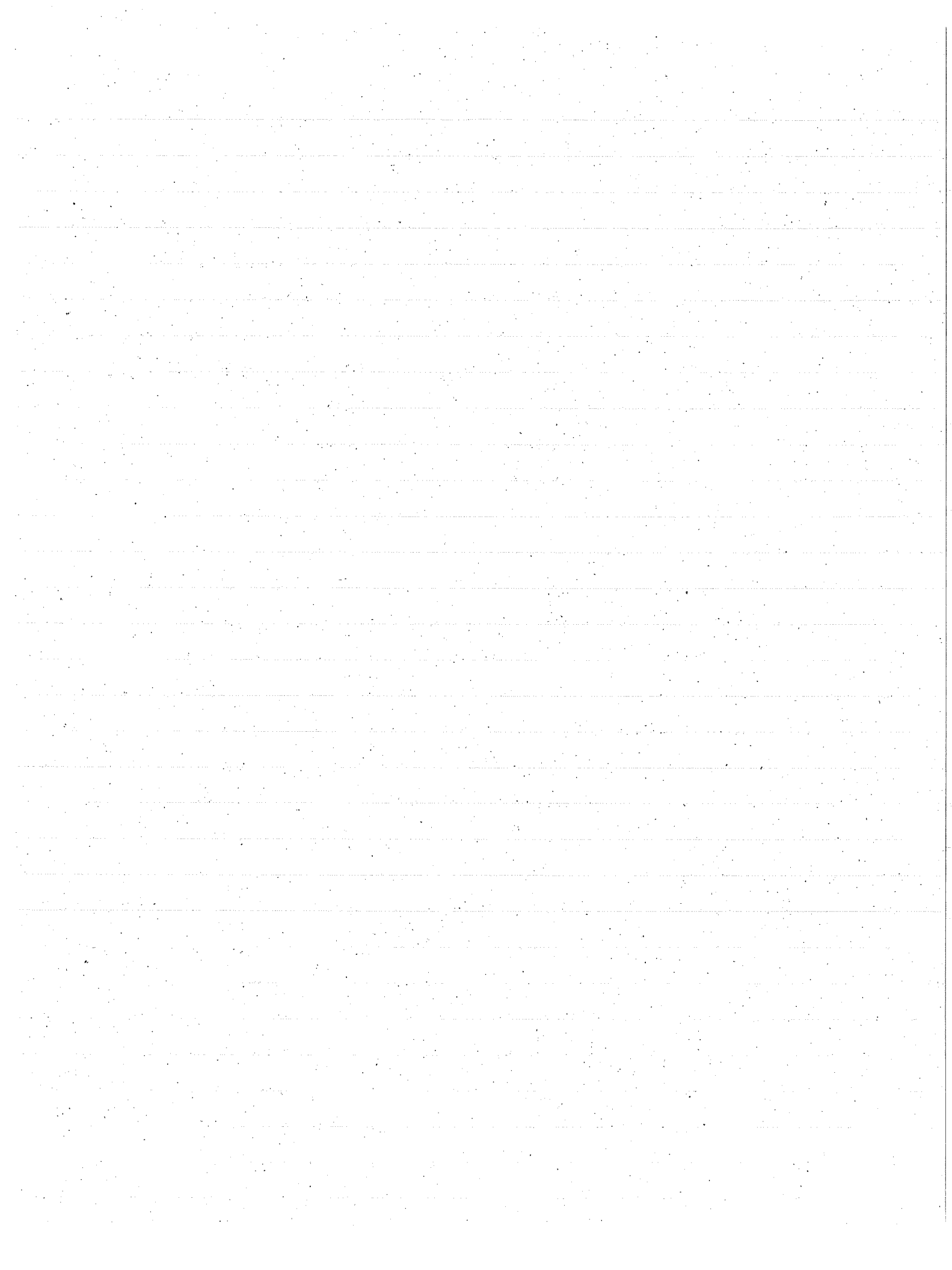
1. instruments to be used

2. optimal ^{assuming a timetable} phase out path. How to get
from here to there.

3. tax verses permit ^{escalating} tax for production
and use.
uncertainty with costs - not acute odious
big effects mitigates success.

concentrated markets
small # of players strategize for permits
tax better in this situation

arguments against taxes
setting the right amount, path.
authority to tax



agreement among multi-jurisdictional players on taxes.

- use models for limited natural resources to arrive at timetable pricing, nature of damages (cumulative versus acute)

- assumptions regarding availability of lead stop technology

Potential for negotiation

Picking end date

Initial date negotiated

• use economics to analyze social costs of varying the deadline

Geographical scope

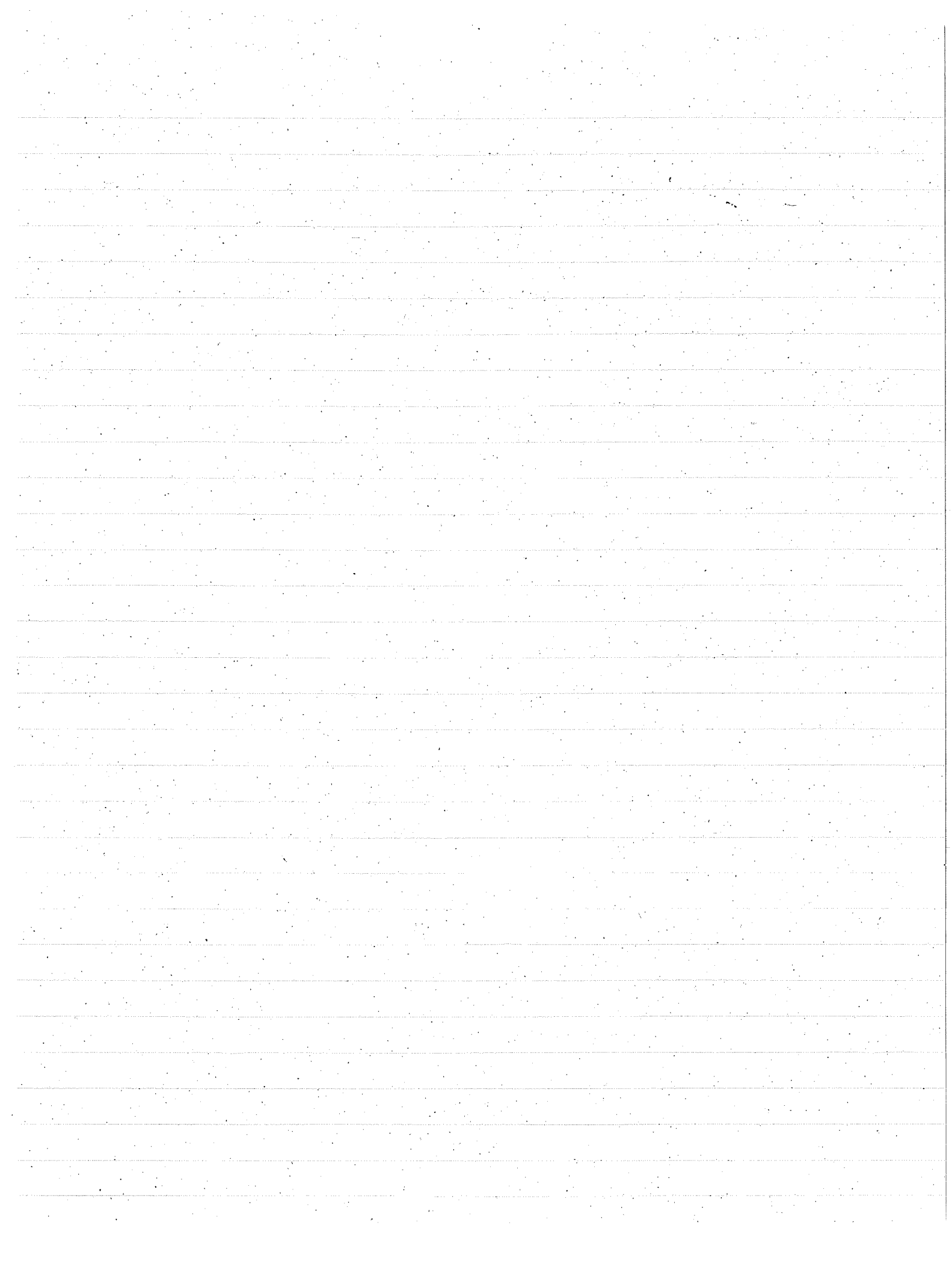
Size and composition of regulated region

air sleep
Great Lakes

political constraints

- impact considerations. Rules

- transportation "



process or product substitution should
be considered first - could be most cost
effective

back working
on-line

lists or families

chemicals -> industrial processes

great dates chose the most developed
entry for this discussion

ITC, conditions, environmental, scientific,
communities, dialogue, history of
the debate -> good exchange -> sunsetting

is sunsetting a good means to achieve
your discharge yes

we need a concept that will not undermine
the goal of your discharge

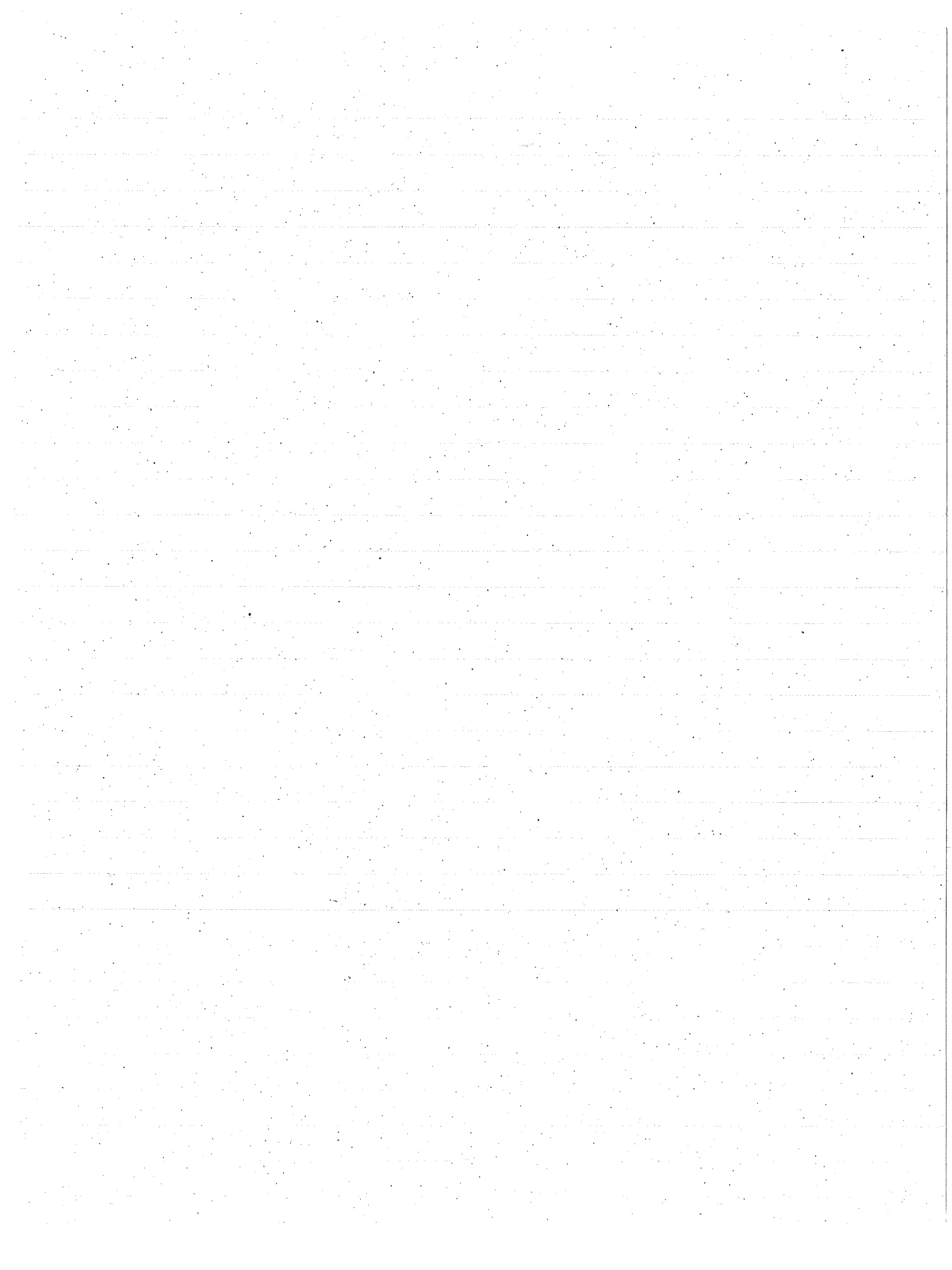
definition must be broad
to have a consensus of approach.

areas of concern:

false representation of assumptions

every on-line is an accumulation
of assumptions.

things we know most about are covered
and things we know less about
we seem out.



origin of chemical - where its going to
polyvinyl chloride plastic production
→ toxics.

ultimate fate
breakdown products in burning
degrading it becomes a source.

screening must look at cradle to grave
life

Families of chemicals.

Ozone depleting chemicals CFC's, HCFC's
trying to get their fast
alternatives like (HCFC's) mandated
w/ fast results. will become problems them
selves.

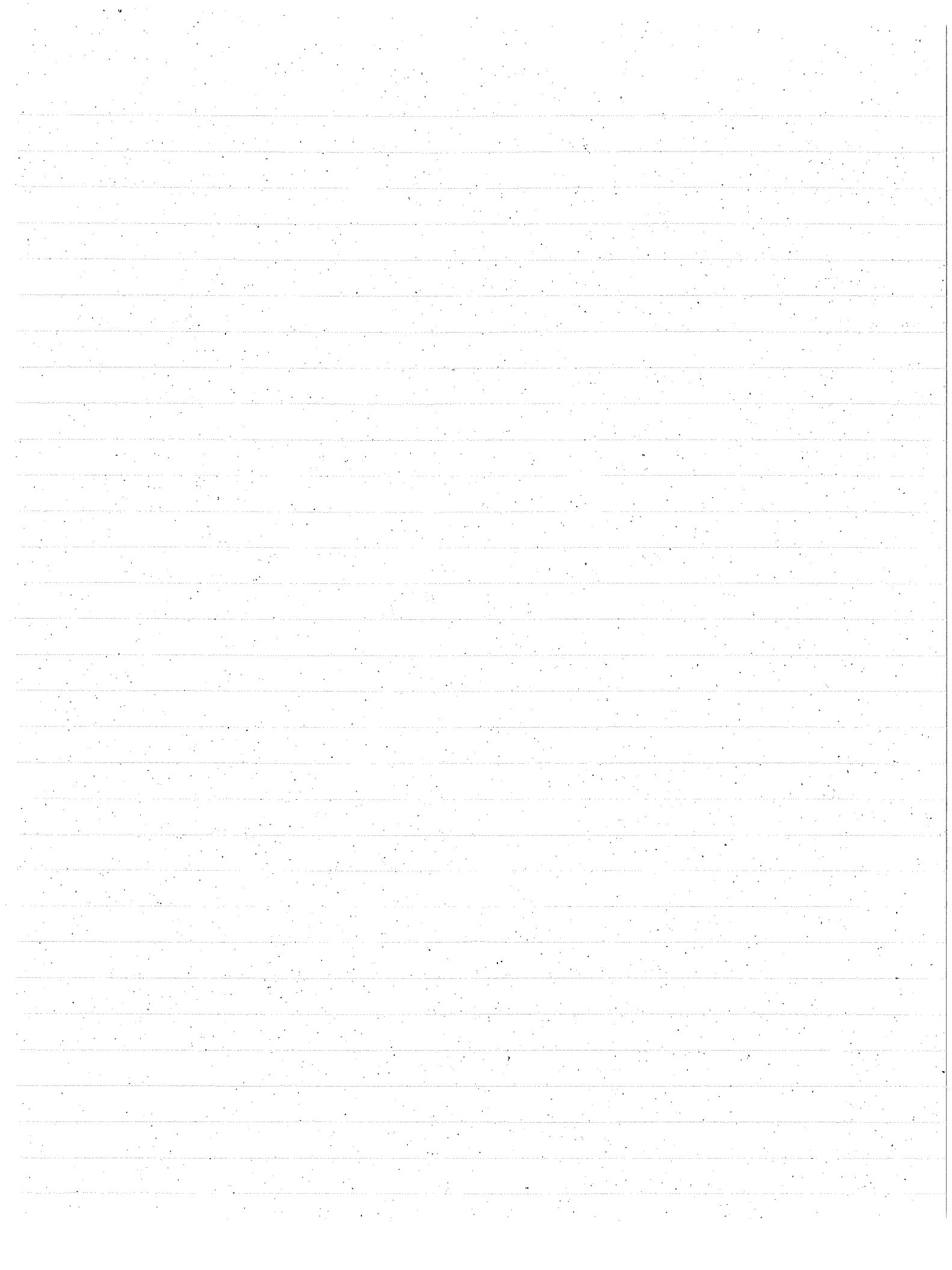
problems bigger more systemic

families impt. 60,000 chemicals
ITC chlorine based chemicals
you can argue to take some out of
family reverse ones.

metals - may want to take out iron
families begin looking at size of
the problems the scope.

want to deal with the big problems

ways chemicals are used and produced.
looking at them process by process
are social economic impacts of sunsetting (17)
what are alternatives



a sunset permit is needed

Willie Owen pulp mill chemist Procter & Gamble employee from the American Paper Institute.

Wang Steel 51.8% of dioxin releases.
Steps to reduce Dioxin

- substitute chlorine dioxide
- substitute Oxygen and Hydrogen Peroxide
- clean Refiners
- Improved Chemical/Pulp Milling (avoid high concentrations)
- Partition Chemical additives (avoid high concentrations)

Canadian Dioxin Releases

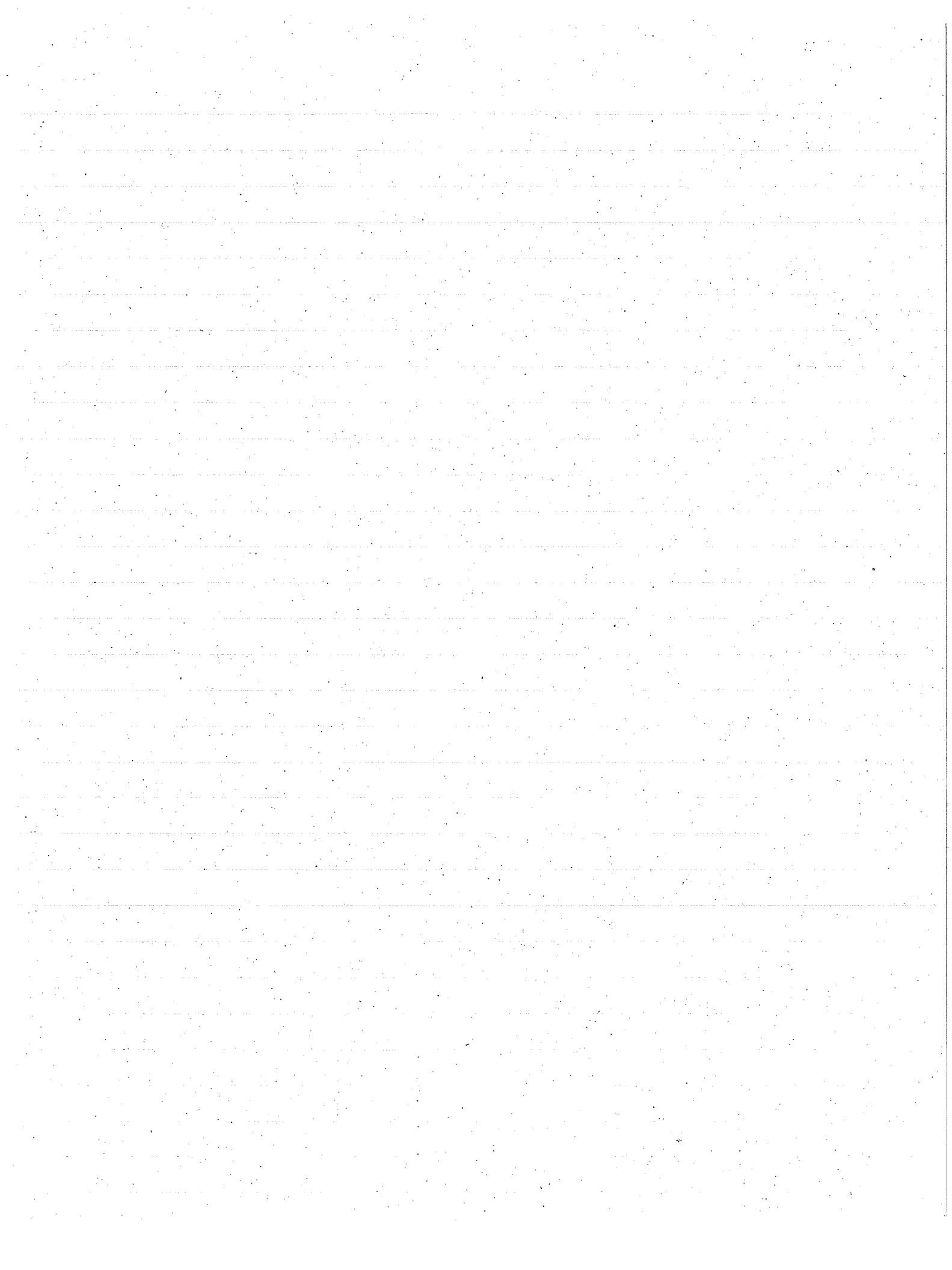
350 25
1986 1991

AOX characterization - 1,000 compounds in AOX.

more chlorine molecules more bioavailability
chlorine dioxide substitution
wastewater treatment impacts
significant on AOX.

myths
all organochlorines are man-made
" " " " " " " " " " " "
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There's a large background of natural occurring chlorine compounds



industry can modify their processes
what's near plants is 'natural background'

David Bennett C.I.C. environmental Rep.
failure of control \rightarrow failure to protect
workers

poisoned on the inside & outside ^{garbage} exposure
environmental protection always
community oriented not inside the
plant.

prevention doesn't always go to zero
less use less worker exposure

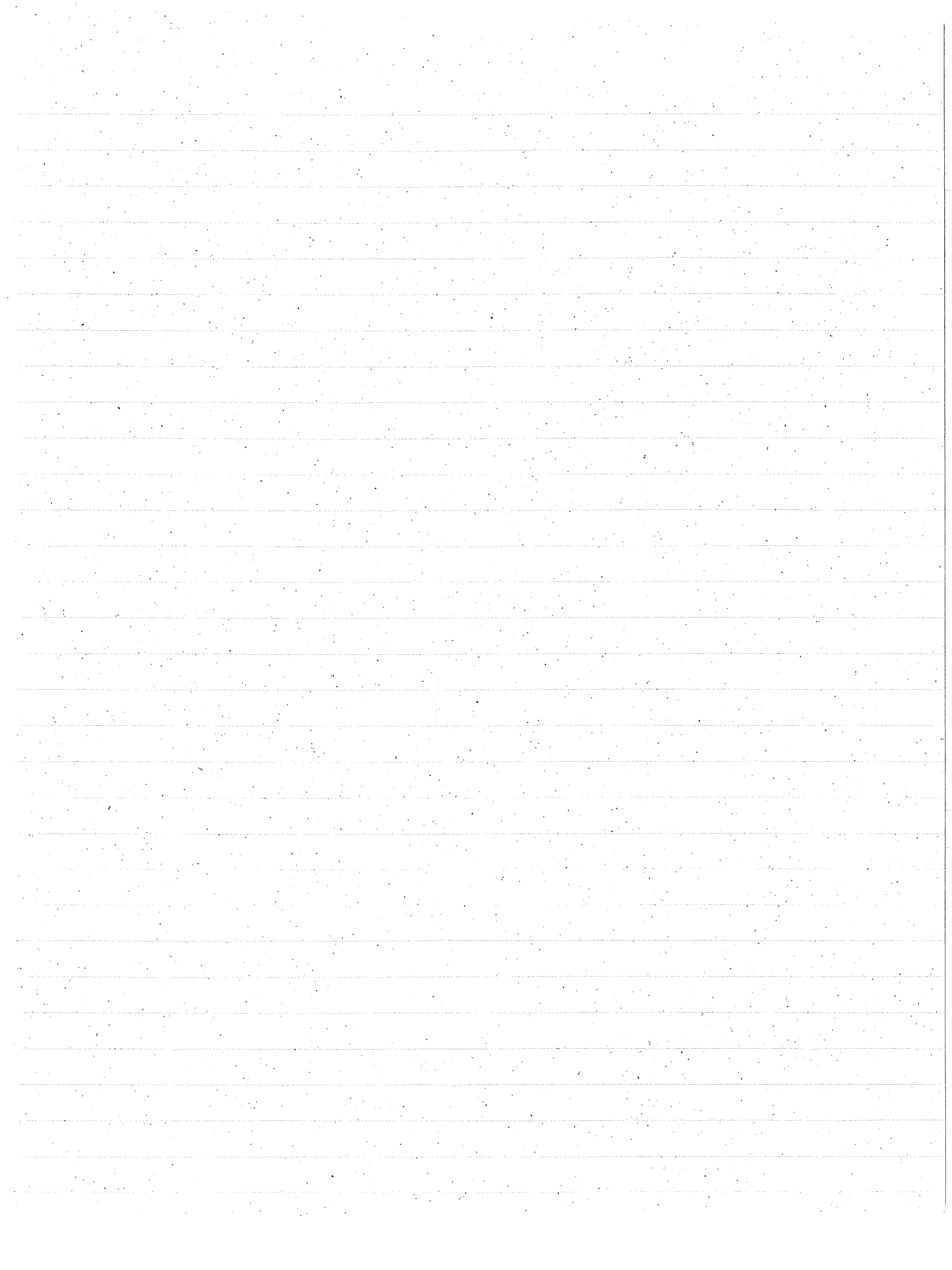
build worker protection into pollution
prevention at least to the degree
the community is protected.

worker options

- all industry to stagnate (eastern Europe)
nostalgia for old system when capitalism
is being introduced as it
is in eastern Europe

- closing it down

toxic economy a disability
a buy out, reeducate workers
for more jobs? misguided
industrial suicide



deindustrialization of large parts of
US
continuation → a depression.

or adopt a pollution prevention
strategy risky alternative.
workers can get caught up in
these changes are winners and losers

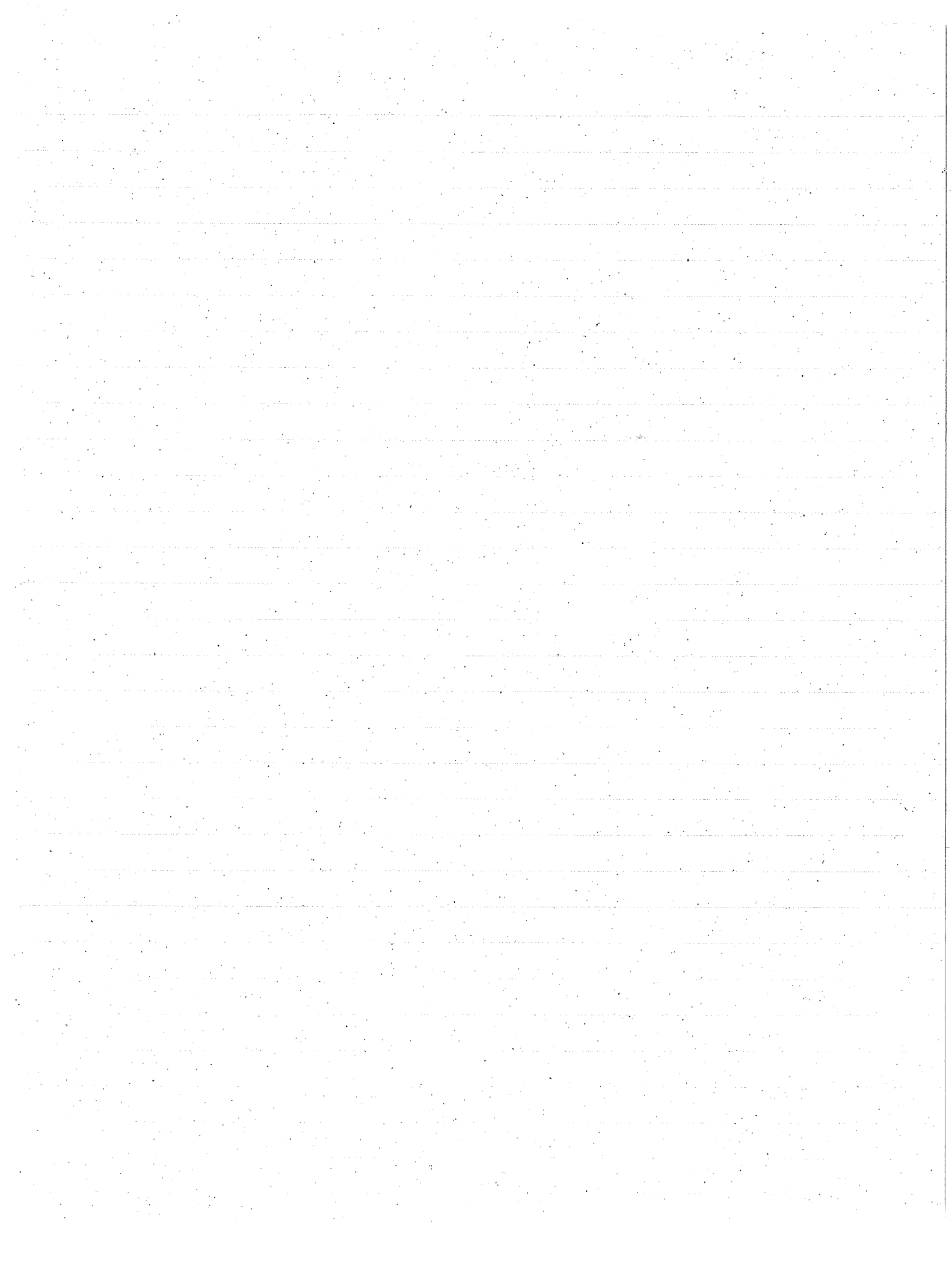
need much wider industrial policy
with pollution prevention
can go hand in hand.

agree socio-economic analysis & criteria
~~with~~ ^{need to be part of} sun setting
a broad & comprehensive program
a global program ^{which deals with}
main nasties

prevention plans for the workplace
whistle blowers provisions
right to refuse
right to do em audits

substitution — there has to be
grounds to prove new chemical
is safe.

is this system sensitive enough to
be used to suggest alternatives that
won't endanger workers.



can it do we have a problem

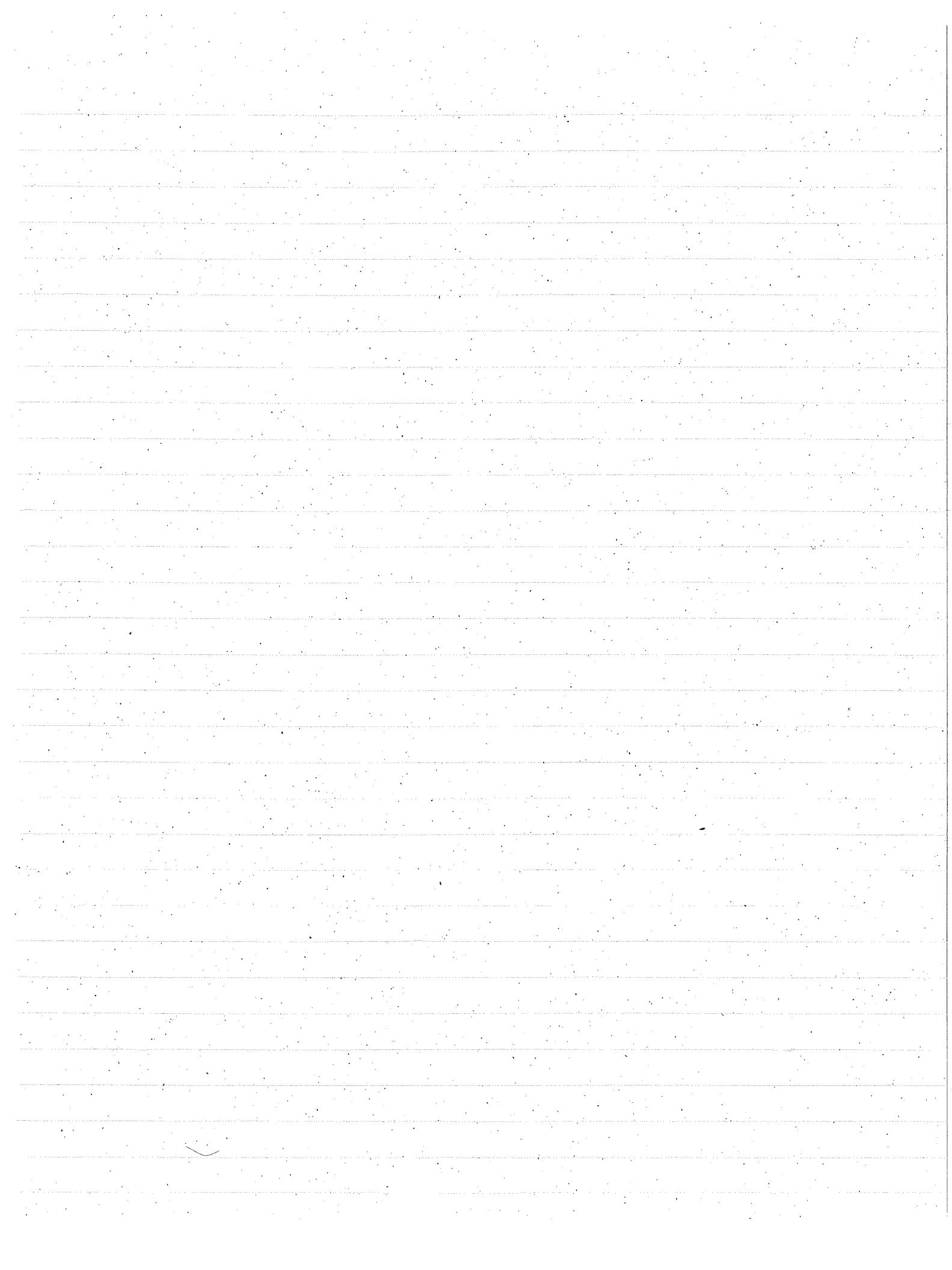
How does screening deal with synergistic impacts have to test biological systems to see impacts of multiple chemicals can't predict them

industry probably doesn't accept zero discharge are all causing biological harm?

only a small portion of the 1500 organochlorines have been looked at
look at learning curve with PCB's.

PC 2002 for zero discharge for pulp paper
Sunka California Louisiana mill by 1995.
PC 8 date arbitrary date no guarantees.
no mechanisms for evaluation.
evaluation should happen on biological level

CFC's are already being sunsetted
are there enough economic incentives being utilized
should be being studied -
are workers being involved adequately
Ozone depletion - no risk analysis
has been done - alternatives aren't being
examined.



Ken Geiser Mass. YAR ~~Office~~ Institute
environmentalist dealing with industrial manager
am I getting co-opted
CMAA has launched a campaign against
TAR. Videos - threat to America etc.

Differences safe materials, consumption
patterns, industrial technologies,

exploring how to get there technologies
one can't become very deterministic about
chemicals as the problem.

sunset work criteria helps us
where to look.

environmentalists tend to focus on materials
what comes out of plants.

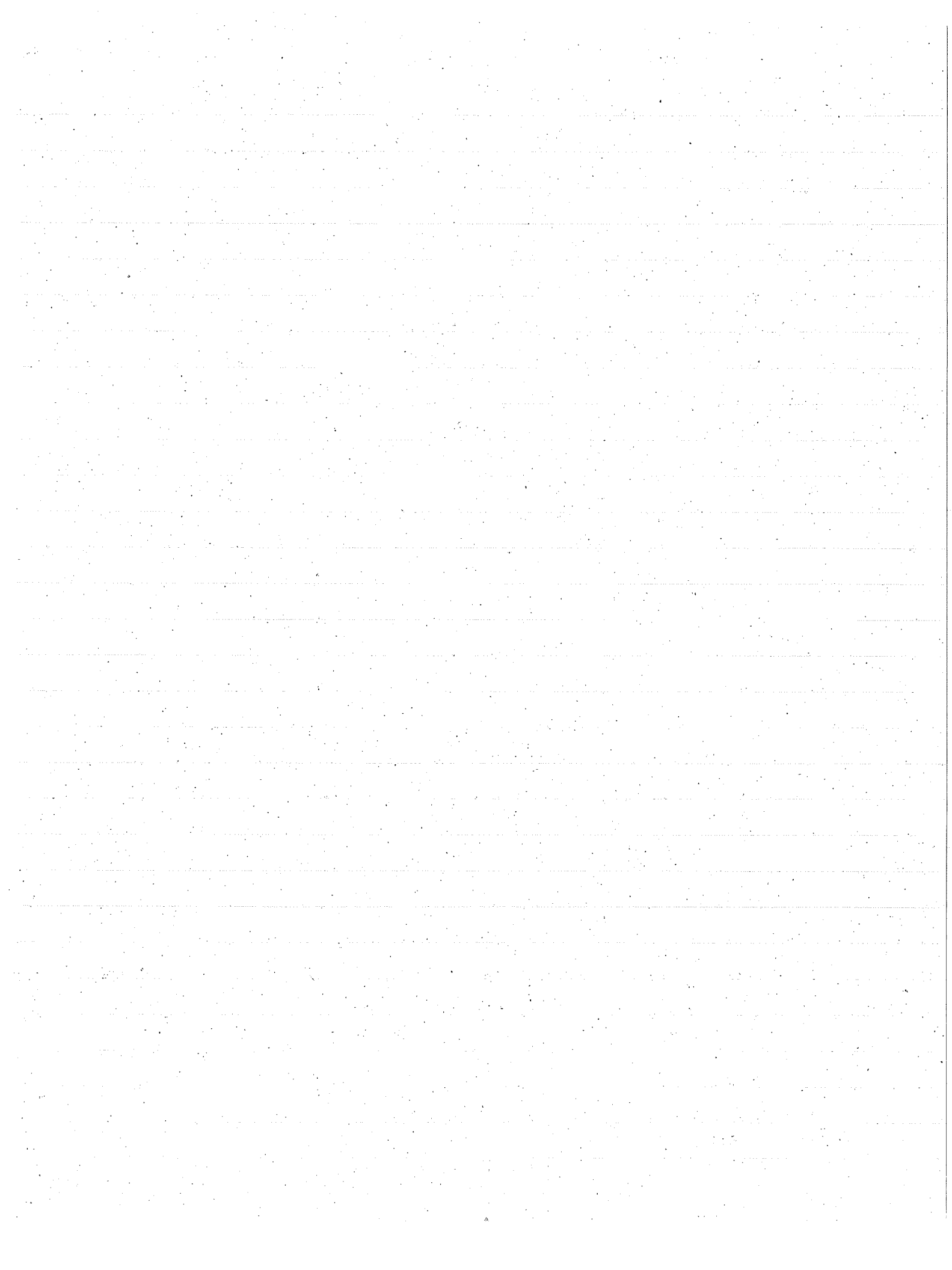
Doesn't deal with what goes on in plants.
chemicals a symptom of a problem.
pose the problem inside the plant.

what is it about toxicity that's important
to your process.

we are asking our materials to be persistent
paints etc.

asks public questions about what should be
our rate matters

train industrialists differently
They train " to rethink



Goals & Rejuvenation of Sunset Policy
Role of criteria
Place of "use free" for Policy
Role of legal authority
Info base or lack of info.
Safe alternatives.
Context
Scope Geography
Strategies to get there.

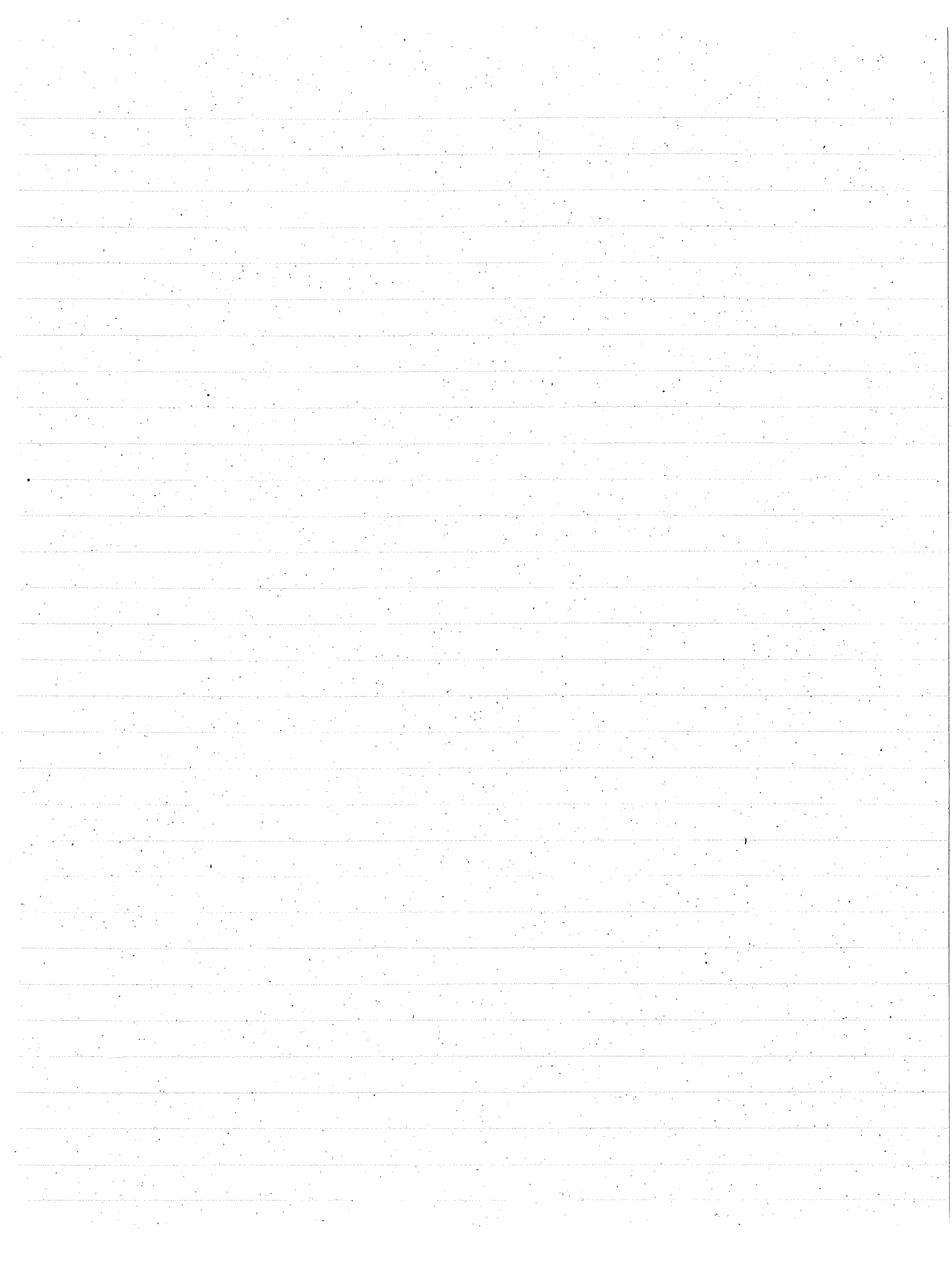
Dow should be focusing on circumstances
that lead to overexposure
scientific rigor on ~~real~~ demonstrating
health effects.

Dr. Ginsberg
much production processes designed to
release toxics are 19th century
sunset processes as well as chemicals.

Jerry Page
National Institute on Environmental Health
50 chemicals being studied a few years ago
now only looking at 10 & not there for
telling us what's hazardous and their
health impacts. ~~What's~~ mercury and PCBs
received attention of CFC's.

no political will - need scientific high ground to
make it into the political arena.

paralysis by analysis could become a swamp.



act goal: sunseting framework for
action & Policy - Comprehensive
w/ time tables, sunset-sunseting

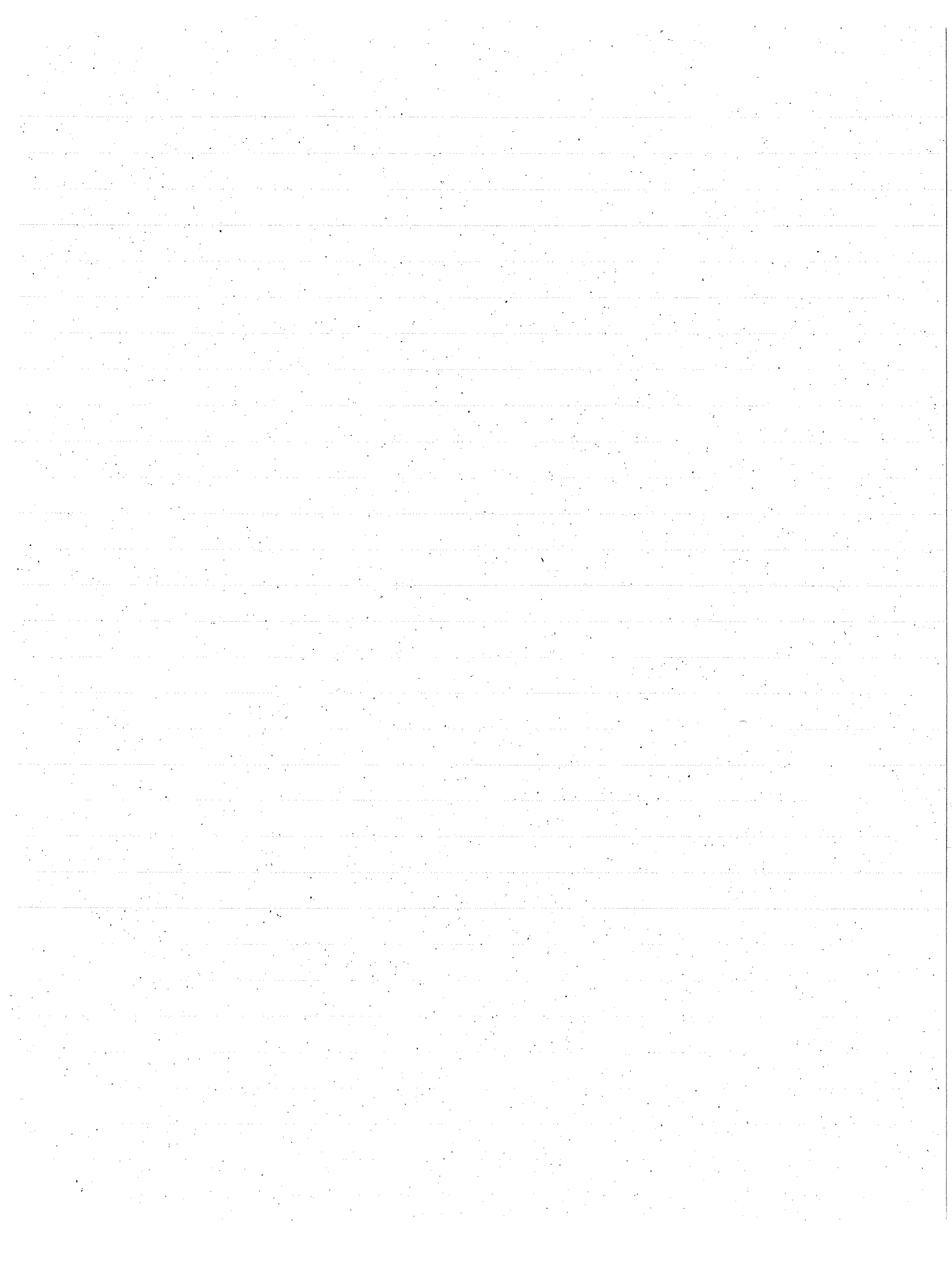
dioxin

P. Bennett
dealing even with the top 21 will take
years.

A large # of things have to happen
simultaneously.

A broad brush program

Rosoff, Hall
2 hacks one where we have data
1 hack for unknown.



CPPT did a survey of their members
 have you got a reduction in elimination cost and
 pharmaceuticals they use less than 50% and
 companies are doing this to some degree
 which can't all companies do it
 there is a pharmacologic resistance to neoplatin

don't have the resources to do
 energy water consumption, heat reduction
 weight processes can place
 need like cycle
 more water - future product development
 needs criteria to put
 does industry really believe in bans
 chemical users
 chemical users

need to start with a chemical
 use clusters
 there are products that are toxic chemical
 industry
 need to start with criteria - to have the
 data - in independent manner
 but not as many tool
 need to start with criteria - to have the
 data - in independent manner
 but not as many tool
 need to start with criteria - to have the
 data - in independent manner
 but not as many tool
 need to start with criteria - to have the
 data - in independent manner
 but not as many tool

Dam Sage - journey after Kodak

Waste watch Centre - consumer products
with hazardous ~~product~~ components
homes & small business.

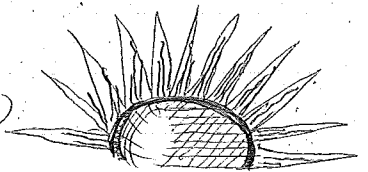
community right to know more coalition
has met with great resistance to regulation.

Massachusetts has set out goal gives a
range of options to achieve them.

year three of recording reductions
1 1/2 years ago took on metal plating
experimenting with non-cyanide bath
process.

Paul -

Where we go from here
has collected more questions



Jeff will finish with new input
more thinking on policy questions.

P.P. will look at economic questions
past cases of banning to the studies
legal study

Jim - 4LWB initiative published this winter - point out how they fail to have rules to reach zero - need sunset dates.

Rick CAW - Pollution Prevention in Auto Industry. Workshop November 25, 1992 in Windsor
Community Right to Know - Fuel by-law

Jeff Lomax. Environ. Law. Centre ~~the~~ working with city in N.J. - incinerator ban - ordinance maybe overturned

Alenda ^{LME} - Sewage District. Projects encouraging them to clean or toxic dumps. Ken - Massachusetts.

~~Further~~ 5 stage sunset, sunrise process into MR

Must fund - polluters pay into: regulator used for technical assist institute.

Examining chemical feed stocks
Center for Clean Products & Clean Technology Unvers
C-7
Safe substitutes for ^{at least} ~~pollutants~~
& a ranking system

Friday September 25 1992

Definition: Sunsetting IJC's
"comprehensive"
are we only talking about Q.L's?
why are we limiting this to assistants?
how important is the IJC in advancing
sunsetting?

Sunsetting - the means to get to zero

It is intention that sunsetting is generic
and not media specific

criteria should have the ability to apply
to sunrise and set chemicals.

^{D. Bennett} problems meshing sunsetting criteria
with existing system

approvals process not rigorous
(PRR is a permissive system - not a prevention
system)

linking sunrise & sunset might be
misconstrued that the disappearance
of one chemical ports another chemical
will be substituted ~~not necessarily~~

Separating sunrise & sunset
more rigorous? for sunrise ^{need} include
energy resource depletion as fact as an
approvals.

identifying key players
Smoking Gun - EPA dioxin reassessment
coming out.

translate into terms people can understand.
stand. → human health information
for persuasion

EPA is using use cluster approach for industries

Should St Protection Fund fund a
study of dioxin emitters.

human breast milk - dioxin
if it were cows would not be allowed on market
need to personalize issues.

- needs to be a sequential process
- inclusive
- finite

co-ordinated bi-national strategy
IJC is in the best position to do this
"the slide show"

AFLCIO & CBE in Wisconsin working
on a law to ban IJC's 217 heavy metals
in Milwaukee Harbor finetables.

Dec. 4-6 Greenpeace conference

Working Group on Community Right to Know
will send everyone a copy of ~~an~~ newsletter

How expensive is the application of the criteria for 45 Set the data is collected. For the rest of the 800 would have to agree on what the criteria are.

MOE was able to come up with the list in a month because they already had the data they just had to decide what criteria to use.

GWU's assumptions made by criteria are well accepted toxicological principles might have to debate criteria (for a year) data is available

asbestos ban was a ten year process saw B. Canadian experience set down with industry's toxicologists being scientists little understanding what happens inside their bandages into policy. obstructing throwing up road blocks - however they seem willing to allow criteria the crunch will come when the criteria moves to policy.

fartily separate criteria phase from policy. John - unknown in court how hard will it be to have data completed.

Barbara - a - may mean no impacts demonstrated - none of these studies are long-term. results may not be valid for sometime

realistically can't do it on all chemicals very expensive

sectors - incinerators crucial in dioxin chain what if disposal is impossible educate as to how pervasive the problem is.
target industrial sectors.

Lunch

how will we get there - ~~community organizing~~
→ strategy

take a particular chemical follow through how it is sunsetted
analysis of uses - where to get largest reduction
industry specific setting might be most useful.

dioxin → incineration → source materials being burned PVC
Pulp & Paper Louisiana Pacific - a suit from the surf riders. say they're not guaranteed of markets should we be working on the markets of chlorine free paper.

state & local legislation ^{best} simultaneous introduction of legislation

fight information changes among people working on the issues.

Paul
alot of info. in private files of government
and industry. that is not available

if there is not real movement on IJC's recommendation
in two years - we've lost the battle
have to mobilize all of the available
scientific information
Jack
also has to go into the communities
where the problems are occurring.

best criteria system will be used against
us to stall (lawyers will argue unbusiness
if all chemicals have not had testing)

How many chemicals will come out.
Criteria designed to only have a few
come out (political reasons)

Should criteria identify families
→ isobutanes?

BREAK

Paul: need to discuss other components
of sunseting - strategy.

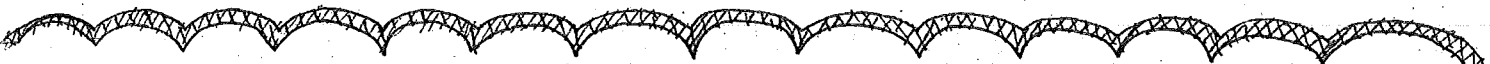
Ross - sunseting - criteria driven
what we can do - restructuring for zero
may end up with campaigns on use of chemicals

D. BENNETT

confusion of technical & policy issues
many criteria bloating around
ontario - IWC has built an volume of use,
Canada isn't doing this will likely end
up with 2 sets of criteria hard & soft
hard will include bioavailability
building in volume distorts the picture
must keep chemicals (haz) high on the list
if they are toxic.

Rick carrot - go to industry about what
we know now where there are substitutes
but have the stick as well.

only sunsets ^{that} have taken place to
date have been created by crises


need to create an urgency
not one approach

Dow has an international decision-making
body with one U.S. ~~USA~~ rep. that make
the big decisions.

what if dioxins are banned
→ many worst application & incineration
etc.

→ public will - how to create this will
in local battles