III. On a Clear Day

● On a Clear Day

The Sulphur Springs Valley of southeastern Arizona, a fairly typical alluvial valley of the southwestern Basin and Range geophysical province, and one of the longest continually-inhabited areas of the US, some twenty miles wide and 50 miles long, stretches at about 4200' elevation roughly north-south between the Chiricahuas and related ranges on the east and the Mules and Dragoons on the west. Whitewater Draw (formerly the Rio Blanco, before the 1887 earthquake, climate change and severe overgrazing changed it from perennial to ephemeral) drains the valley, becoming the Rio Agua Prieta at the US-Mexico border, which joins first the Rio Bavispe then the Rio Sonora and eventually enters the Gulf of California south of Bahia Kino.

Here, on the southwest flank of the Whitewater, with back-to-the-land visions of lush pasture and apple orchard and thriving vegetables gardens, I decided to settle (to *homestead*, I thought of it) on 40 acres of badly-eroded mesquite bottoms. Driving back home from the White Mts after fire season in 1974, I found the valley filled with dense smoke. I assumed there was a massive brush or forest fire, but soon found that the eye-burning sulfurous smoke was, instead, emissions from the Douglas Reduction Works, the antiquated Phelps Dodge copper smelter on the border 25 miles to the southwest. I wrote my first letter about the smelter to PD early in ‘75.

Thus began my engagement with clean air politics, my third major toxics issue, and the start of a ten-year campaign to get the smelter cleaned up or closed, a campaign which led to strong cross-border working relationships with activists in Mexico and worldwide—since sulphur dioxide in the smelter smoke was a highly significant contributor to acid rain, damaging (among other things) forest vegetation as far as 1000 miles north. Acid rain was just then the main target of US activists seeking reform of the new *Clean Air Act* (CAA, 1971), and of activists all over the world working on similar measures against similar polluters in their own and neighboring countries.

The Douglas smelter became an internationally-known mark on the map (a *gray triangle*, as it came to be known after disclosure that the Douglas smelter was soon to be joined by a a new smelter in nearby New Mexico and another in nearby Sonora, and that if all three were operating simultaneously, they would together emit a higher SO_2 concentration than in the whole L.A. basin).

After some preliminary investigation, I joined with other residents to start the clean-up process. One of the residents, Dick Kamp, who lived in nearby Bisbee Junction, became a close and long-time colleague in this and, as it turned out, many later struggles. Dick and I along with several members of the Friends Southwest Center in McNeal formed what we called the Cochise County Smelter Study Group. Some of the Friends were active in the Democratic Party and knew our Congressman, Mo Udall, one of the main sponsors of the *Clean Air Act*, and we decided that they would ask Mo to help us.

Obligingly, Mo stopped off at the Bisbee-Douglas airport on his way to a meeting in New Mexico. We met him with signs waving, calling for clean air and smelter clean-up. Mo, ever-personable, explained to us that he had in fact for many years been trying to keep the smelter, a major employer in the area, open, and that the exclusions for copper smelters in the Act (the “Non-ferrous Smelter Orders”) were his doing. Lesson #1 in electoral politics. As it turned out, though, Mo (still, to my mind, one of the cleanest politicians I’ve ever met, and one of the last true statesmen in Congress) did the right thing: when our campaign got going, he didn’t oppose us but instead, “stepped aside” (as parliamentary language puts it), and we were eventually able to have the NSOs revoked. The smelter closed down in 1986.

On the way to that compromised conclusion, Dick and I became deeply involved in clean air politics and a host of other environmental issues, over the years forming or helping to form a number of other organizations, from the Smelter Crisis Education Project, to GASP (Groups against Smelter Pollution), to the Gray Triangle Action Group, to the more broadly-focused and persistent Border Ecology Project (under Dick's directorship) and Arizona Toxics Information (under mine).

One of our first actions, under auspices of the Smelter Study Group, was to collaborate with Priscilla Robinson, director of Southwest Environmental Services in Tucson and a *Clean Air Act* specialist, in the writing and publishing of *What's in the Smoke?*, a pocket-sized booklet on Douglas smelter pollution, which was funded by contributions from the Huachuca Audubon Society, the Sierra Club, Greenpeace San Francisco, and several individuals in Cochise Co. The booklet achieved wide circulation and brought attention to the problem.

In 1983 in the midst of our campaign, PD copper workers led by the United Steelworkers went on strike, which turned out to be a protracted process with significant effects on the four southern Arizona communities (Ajo, Douglas, Clifton and Morenci) where PD had active mining/smelting operations (underground workings at the Bisbee mine having shut down a decade earlier).

At first, the Steelworkers wanted nothing to do with environmentalists, but as the strike drug on they joined environmental health safeguards to their demands for worker protections and the environmental campaign put increased effort into our longstanding demand that effective jobs retraining, relocation, early retirement and other worker compensations be required in PD's closure plan for the smelter.

Union cooperation became even greater after Gov. Babbitt, in an effort to stem increasing violence in Clifton-Morenci, called in the National Guard, thereby allowing PD to resume operations with non-union workers and in effect "bust the union," a condition made legal when new workers and some old workers who returned voted to decertify the union in early 1984.

Not long after he sent in the Guard, Babbitt called together a meeting of those calling for clean-up of the Douglas smelter. Two of those at the table were union leaders from the Pittsburgh office. After we left the particularly amicable meeting, having been assured that the Governor understood our position and shared (many of) our concerns, one of the union leaders as he was getting into a taxi said to me in a vehement tone I hadn't heard from him before, "That sonofabitch will never get elected!"

Our case for cleaning up the smelter (we always insisted our goal was clean-up, not closure) grew over the next few months to include scientific proof that the acidic emissions were obscuring vistas in nearby national parks and monuments (in violation of the *Clean Air Act*), killing trees in national forests in Colorado and Montana, killing amphibians (including the endangered Tarahumare Frog) throughout southern Arizona, causing asthmatics to suffer near-fatal attacks, and similarly affecting people and environment south of the smelter in Mexico where the emissions typically fell at night when the prevailing wind changed directions (a meteorological condition that fortuitously for PD meant they could crank up production at night without registering permit exceedances on the monitors, all of which were strategically located on the northern side of the border). The testimony of Mexicans who lived south of Douglas had a telling effect at the later EPA hearings, making the smelter a truly international issue.

By the time PD retired the smelter rather than retrofit with state of the art pollution control technology, Dick and I and our colleagues from both sides of the border had developed strong

working relationships with a wide range of clean air activists and government officials on both sides of the border—many of the same people and organizations we would be working with on NAFTA and other upcoming issues.

Amendments to the CAA in 1977 and 1990 with their corresponding regulatory changes at the state level led to my involvement in the process of revising Arizona's clean air law and regulations—which principally meant trying to keep chamber of commerce and big industry lobbyists from watering down the new CAA requirements, many of which were already lamentably weak thanks to the analogous prior process in Washington. Progress, as usual, was incremental and always subject to reversal.

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the plagues continue

flood
drought
freeze

clap
crabs
locusts

and now an indiscriminate itch
in the legs at odd moments
especially at night when in bed
when I try to fall asleep

thinking about the law of the land
west of the Pecos and east of the sun

It's Christmastime at the end of my thirty-ninth year
under the full moon in Gemini according to astrologers
in Taurus according to astronomers, east-north-east
over the Swisshelms in the evening in any case,
west-north-west over the Mules by morning. Smoke
from the Douglas smelter clouds the sunrise. The chill
lingers longer than normal. The white-crowned sparrows
stay longer among the blackened branches of mesquite
waiting for the warmth of day before they feed or sing.
It's dry, so the irrigation pump at the alfalfa factory
is running, growling down the north wind away from me
for a change. This poem is spoken to the wind and written
on sand. If it fills your eyes and lungs breathe deep
and close them. This is a medicine poem of clear blue skies,
shining waters and green plants everywhere on the red earth.
This poem is not radioactive or poisonous with brimstone,
arsenic and lead. This poem is not for sale. This poem is free.

"Father Christmas in the Desert"
Hunger Weather 1959-1975

rpnt., *Mr America Drives His Car*

What's in the Smoke? A Breather's Guide to Douglas Smelter Pollution (1982)

Michael Gregory, Richard Kamp and Priscilla Robinson, for the Cochise County Smelter Study Group, Bisbee, Arizona (February 1982)

What's the Problem?

Judged by State and Federal health standards, the Phelps-Dodge Reduction Works at Douglas, Arizona, is the filthiest copper smelter in the United States. Despite drastic cutbacks ordered by the State of Arizona in 1978, during the first four months of 1 981, the Douglas Smelter continued to release an average of 1,030 tons/day of sulfur dioxide (SO_2) into our air,[1],nearly three times the amount discharged daily into the entire Los Angeles basin.[2]

The Phelps-Dodge operation at Douglas is by far the worst offender among the ten copper smelters in our vicinity, including six others in southern Arizona, two in nearby New Mexico, and one a few kilometers south in Sonora. Unlike the other smelters, Douglas is run without any technological equipment for controlling sulfur pollution, and so sends its foul emissions unchecked over thousands of square miles of the Southwest. Pilots have tracked the denser parts of the plume over a hundred miles from Douglas,[3] and less visible components of this airborne waste travel even further once they get into the upper atmosphere. Arizona smelter pollution, the largest share of which comes from Douglas, has been recorded ain the mountains of Colorado and is thought by scientists to each even east of the Mississippi River.[4]

SO_2, one of the invisible gases in the smoke, is a powerful lung poison and suspected carcinogen capable of causing and helping to cause a wide variety of illnesses.[5] State and Federal regulations permit the Douglas operation to emit an average 1122 tons/day of SO_2 in any one-month period. This enormous allowance is based on a hypothetical production at a constant 73% or better of the plant's peak capacity without removal of any sulfur from the emissions stream.[6]

According to the Arizona Department of Health Services, the lead agency regulating smelter emissions in the state, this "sulfur balance" method of emissions assessment is "probably accurate on a yearly basis, may have some validity on a monthly basis, and is guesswork on a day-to-day basis.[7]

But routine contamination of our air with high concentrations of SO_2 is only one of the public health problems caused by the Douglas Smelter. Besides SO_2, Douglas also emits thousands of pounds per day of various non-gaseous pollutants known as "suspended particulates." These include unmeasured amounts of several known and suspected carcinogens and mutagens like arsenic, cadmium, radon and zinc, heavy metals like beryllium, iron and vanadium, compounds like sulfuric acid, and clusters if bacteria and other micro-organisms that accumulate with the moisture and dust that compose the clouds we see coming from the stacks.[8]

Most of these pollutants from the Douglas Smelter are not monitored at all, and health regulations concerning them are weakly enforced at best. In recent years, the Department of Health Services has taken a few samples of arsenic and concentrations of four heavy metals from the air around Douglas, and Phelps-Dodge is said to take occasional "voluntary" measurements. But the only continuous monitoring is for SO_2 alone, and that, unfortunately, is carried out in an altogether inadequate manner.

Beating the SO_2 Game

SO_2 monitoring around Douglas is supposed to tell us when ambient concentrations of V within 10 miles of the smelter exceed the 3-hour and 24-hour average limits set by Federal and State regulations. The monitors are maintained and recorded by Phelps-Dodge employees, who send reports regularly to the state health department.

Like all smelter companies, Phelps-Dodge plays a poker game with the monitors. PD loses when enough fresh SO_2 hits the monitors to set off the violation buzzers at the plant. PD engineers seldom hear the buzzers, however, not because emissions do not exceed standards, but because PD has become very adept at playing the game. Here's how it works.

The US Environmental Protection Agency (EPA) has so far allowed PD to control SO_2) stack emissions by means of "Supplemental Control System" (SCS) rather than "Direct " or "Continuous Control Systems" required for other smelters. This means that rather than retrofitting with modern control technology such as that built into PD's Playas smelter,[9] or recently required by EPA for PD's Ajo and Morenci operations,[10] at Douglas, PD simply (and cheaply) curtails production when necessary to adjust illegal concentrations of SO_2 at the monitors.

Since SO_2 is a gas which supposedly presents the greatest danger through inhalation, monitors are placed only at mouth level. Fewer than ten such monitors are located within a ten mile radius of the smelter on the U.S. side of the line. The monitors do not register SO_2 that occurs at other locations, nor SO_2 occurring above or below mouth level. Furthermore, the monitors are fairly insensitive to any but fresh gases, so SO_2 that has hung in the air for a few hours before blowing into a monitor will usually not be recorded.

As a result, given prevailing wind conditions around Douglas, and given monitor locations and height, much smelting at Douglas is done at night when the smoke will remain high and blow south into Mexico where there are no monitors.

Violations are most likely to occur in late morning or early afternoon when wind and temperature tend to push the smoke north again but closer to the ground. When that happens, about 7 A.M. on a normal morning, the converters at the Douglas plant are shut down. During the operation of turning copper ore into "blister copper," the converters release about 60% of the SO_2 emissions at Douglas; but a much smaller percentage of the visible smoke. The roaster and reverbatory furnaces, earlier and visibly dirtier stages of the smelting process, may be shut down at the same time as the converters if the violations seem serious enough, but generally these furnaces are kept working, sending smoke and fumes out the north stack.

By 2. P.M., wins in the broad, flat Sulphur Springs Valley are usually carrying the plume northward well beyond the monitors and dispersing SO_2 and other contaminants over a large portion of southeast Arizona and southwest New Mexico. Monitor violations are then unlikely, so the converters and roaster are turned on and production is upped until the wind changes again.

As a result of this ritual, the Douglas Smelter has a good air quality score on paper, but the figures really only reflect the inadequacy of the present monitoring system which does not measure SO_2 emissions at the stacks, the only place to get an accurate sample, and does not measure any of the other toxic substances traveling in the smoke.

What are We Breathing?

Sulfur and Sulfur Oxides

Various forms of sulfur are the best known pollutants from copper smelters. Medical attention has focused on health effects of the inhalable gaseous oxides, particularly SO_2. Toxic by themselves, once in the air sulfur and sulfur dioxide readily com bine with other substances to form compounds of varying degrees of toxicity,[11] Sulfuric acid, for instance, is commonly formed in the air and in our lungs.[12] It is sulfurous compounds that we taste and smell in smelter smoke.

In recent years, the adverse effects of gaseous sulfur compounds have been studied intensively. They include lung disease, blood disorders, immune-system disruption, and genetic damage,[13] any of which may develop slowly through years of exposure such as residents of the smelter influence zone might experience.[14] The death rate from lung disease in Arizona is nearly 60% higher than the national average,[15] and there can be little doubt that the thousands of pounds of poisons emitted by the Douglas smelter contribute heavily to this toll. In 1980, 67% of all cancer deaths in Cochise County were from lung cancer.

Sulfurous gases may also contribute to secondary health effects, especially in certain susceptible segments of the population.[16] People with heart trouble, for instance, are more likely to have heart attacks if they breathe polluted air.[17] Cigarette smokers who regularly breathe sulfurous compounds are even more subject to lung cancer than those who live in areas of low sulfur contamination.[18] The elderly, the young, the pregnant, the unborn, the poor, and those already affected with respiratory or pulmonary illness ar4 at even greater risk than others to all forms of smelter pollution.[19]

Total Suspended Particulates (TSP)

Smelter smoke also contains a bewildering mixture of non-gaseous substances. During s normal day's operation, the smelter will emit tons of such electromagneticallly charged particles, 70% of which are smaller than one microgram. They include sulfur in its solid forms; soft and heavy metals (copper, lead, zinc, iron, manganese, aluminum, sodium, etc.); other elements (silicon, arsenic, etc.); and a complex chemical, biological and radiological stew produced by interactions among the emissions and other components of the atmosphere.[20] (See Table B)

In the mid-970s following a series of EPA rulings, Phelps-Dodge installed equipment at Douglas to control particulates. This baghouse system, as it is called, works like a vacuum cleaner to filter out large, heavy particles from the emissions stream. The system is very effective in bringing the smelter into compliance with the weight-defined EPA emissions limits, but not at all effective in capturing the fine particulates which are the greater threat to pubic health.

Larger particulates tend to be stopped by our bodies' natural defense systems; fine particles, however, easily get past our defenses by inhalation, ingestion or absorption. Small amounts of these contaminants may accumulate in the body through multiple exposures and can produce a broad spectrum of chronic, developmental or otherwise long-term ailments in significant segments of exposed populations. Inhalation is the main route of entry, so chief among these are respiratory problems. Other effects include nerve damage, heart disease, liver and kidney dysfunction, genetic damage, eye and skin diseases.[21]

Smelter smoke ordinarily contains several known and suspected carcinogens: cadmium, beryllium, titanium, uranium, nickel, chromium, lead, zinc, arsenic, etc.[22] Since the actual composition of the Douglas Smelter emissions has not been determined and is not now being monitored, no one knows what concentrations of which hazardous pollutants workers and the general pubic are being exposed to, but abnormally high concentrations of lead, cadmium, zinc and copper have been found in soils near the smelter,[23] and a 1977 study of Douglas children

found that the cells of their hair contained an average 4.6 times more arsenic than normal.[24] Similar tests of populations near smelters consistently show higher than normal concentrations of contaminants from the smoke.[25]

The only legally-established health standards for most of these pollutants have been set by the Occupational Safety and Health Administration (OSHA) of the US Department of Labor.[26] While OSHA standards apply only to workers in the workplace, they do represent the state of medical concern about the regulated substance and serve to direct our attention toward those substances likely to present a public health hazard as well: EPA public health standards are often derived from OSHA recommendations.[27]

The OSHA standard for arsenic, for example, was lowered in 1978 to 1/50th of its former level, and best estimates indicate that 40% of Douglas Smelter workers are exposed to arsenic levels in excess of the OSHA limits.[28] EPA's public health standards for arsenic have been "in process" since OSHA's new standard went into effect, but the pubic health regulations for arsenic, like the regulations for air borne radiation, lead, zinc, and other ingredients in the acid rain from copper smelters have not yet been written; and may never be written if attacks on the *Clean Air Act* by industry lobbyists and the Reagan Administration succeed.

What about Acid Rain?

Some environmental effects of smelter pollution are obvious: the sickly yellow smudge against an otherwise clear blue sky, the paint peeling off cars and buildings, the corrosion of metals exposed to the smoke. Farmers in the Sulphur Springs Valley north and south of the smelter have known for decades that a bad wind from Douglas can kill some of their crops almost instantly: squash, beans, grapes, melons, cucumbers, peas, alfalfa, tomatoes and others are all susceptible.[29] SO_2 damage to crops has been documented over 40 miles north of the smelter.[30]

As the result of a 1955 court decision,[31] growers on the US side of the border have been able to collect compensation from PD for crop damage caused by the smelter. If they are willing to go through the red tape: the claims inspector is a PD employee, compensation awards are usually small, the appeal procedure is lengthy and, if the farmer loses the appeal (as he usually seems to do) he must pat arbitration costs as well as suffer the crop loss. Consequently, few growers have felt it worthwhile to challenge PD in court on the basis of the 1955 "smoke rights" decision.[32]

Some effects of smelter pollution are more subtle. Like the chronic diseases of people, the slow death of lakes and forests from acid rainfall, for instance, has only recently come to public notice, and the long-term effect of those deaths on the whole life chain is just beginning to be understood.[33] Acid rain has been recorded in Tombstone, some 40 miles from the smelter.[34]

Studies of smelter pollution's effects on the waters and vegetation of the mountains and valleys surrounding Douglas have been practically nil. The same may be said for studies of pollution residues in the soils of surrounding farmlands and in the plants and animals which manage to survive long enough to arrive at our dinner tables.

What You See Is What You Get

Smelter pollution has a strong adverse effect on visibility, both in and around the Douglas operation. As in other respects, visibility pollution from Douglas has been largely exempt from official notice, but statistics from other smelters known to pollute less than Douglas suggest the magnitude of the problem. EPA studies in 197, for example, showed that the plume 75 miles downwind from Magma Copper Co.'s San Manuel smelter was more than 30 miles wide and

reduced visibility 69% on an otherwise clear day.[35] At that time San Manuel was producing only about 70% as much pollution as Douglas.

Visibility studies conducted during the 1980 copper strikes show dramatic increases in visibility in the remote Grand Canyon area and even greater local improvements near smelter towns.[36] There is no question that smelter pollution has a disastrous effect on Southwest visibility.

Many people who live in the Douglass Smelter influence zone came here to enjoy the wide horizons and clear blue skies that are the region's natural heritage. The Cbiricahua National Monument and the Chiricahua Wilderness were set aside by Congress to preserve here in Cochise County these areas of great scenic beauty, unique wildlife habitat, and primitive recreational conditions for a public greatly in need of refuge from industrial pollution. Over 5,000,000 people visit our mountains every year seeking the restorative benefits of the natural setting.

But the plume from the Douglas Smelter often falls onto these pristine parklands, obscuring their world famous vistas and destroying the wilderness experience of visitors in violation f the *Clean Air Act* standards and the *Wilderness Act* of 1964. Similarly, the peaks and range of these surrounding mountain preserves are often lost to view for those who live in the valleys and foothills around Douglas; the very advantages they moved into the area to enjoy are ruined, the quality of their lives immeasurably deteriorated, their psychological well-being, like their physical health, burdened with yet another environmental stress.

In 1979 the National Park Service, and in 1981 the US Forest Service, began monitoring visibility in the mountain lands they administer around Douglas. The Park Service has taken the lead in these studies, and at Fort Bowie National Historical Site some 55 miles north of Douglas has found some of the highest sulfate concentrations yet recorded by EPA's "Fine Particulate Monitoring Network."[37]

What About the Law?

Emissions from Arizona's seven copper smelters are regulated by both State and Federal laws and regulations stemming from the Federal *Clean Air Act* as amended in 1977. The primary purpose of th4 Act is "to protect and enhance the quality of th4e Nation's air resources so as to promote the public health and welfare and the productive capacity of its population."[38]

The *Clean Air Act* is scheduled for reauthorization by Congress during 1982, so some or all of the provisions outlined below may be changed during the review process. The Reagan Administration, through EPA, has called for a massive rewriting of the Act which, if adopted, would amount to a fairly complete dismantling of the law's regulatory framework. State laws and regulations are adopted almost entirely in response to Federal requirements, and wll undoubtedly be modified to conform to changes at the Federal level.

Most of the regulatory scheme called for by the 1977 amendments has never been implemented for Arizona copper smelters. There are perhaps several reasons for this, the most obvious being the complexity of the Act itself, and severe limitations on the funding of both Federal and State agencies. A debate over revising the Act mounts in Congress, the political background of these limitations and complexities is brought into focus. The following outline is a blueprint for a series of regulatory actions that may come to pass if the4 Act survives in something like its present form.

Ambient Air Quality Standards

Under provisions of the *Clean Air Act*, the EPA must establish maximum allowable limits for air pollutants in order to protect human and environmental health. These are called Primary and Secondary Standards, respectively. So far, standards have been set for only seven major cl;asses: particulate matter, sulfur oxides, nitrogen oxides, carbon monoxide, hydrocarbons, photochemical oxidants, and lead. Standards for arsenic, cadmium, zinc, radionuclides and several other chemicals and elements have been proposed but not yet adopted by EPA.

Emission Limits

The Federal law, and parallel State laws and regulations, require that specific emission limits be adopted for each pollutant that may be emitted per unit of time, such as tons per day or year, or pounds per hour. At present, Emissions Limits on SO_2, particulates and sulfur have been set. These limits for each smelter are specific to that smelter, based on the smelter's capacity, impact of emissions on air quality, and other factors. According to the law, Emissions Limits must be achieved through constant controls, not by the use of Supplementary Control Systems or tall stacks, both of which are nonetheless still used at Douglas.

The State has adopted Emissions Limits for Arizona smelters based on a method referred to as "multi-point rollback." Arizona submitted these limits to EPA in September, 1979, and it appears likely that the multi-point rollback concept will soon be approved with slight modifications. Although these proposed Arizona regulations would allow more emissions than those proposed by EPA, they would require drastic reductions from existing levels.

In April, 1981, two copper companies, Phelps-Dodge and Asarco, signed agreements with EPA to bring their emissions within EPA limits. Significantly, the Douglas Smelter was excluded from this agreement which includes major renovations of the plant process for all three of the other plants, as well as addition of new pollution controls. All of the agreements contain clauses allowing modifications of the Emissions Limits if the Clean Air Act is changed or lower Emissions Limits are approved by EPA.

With the signing f agreements to bring these three smelters into compliance with emissions regulations, a total of five of the seven Arizona smelters are expected to meet standards. The remaining two smelters, Douglas and San Manuel, together responsible for over 50% of the total smelter emissions of SO_2 in Arizona, have applied for Nonferrous Smelter Order exemptions.

Nonferrous Smelter Orders

Ini specified circumstances, the *Clean Air Act* allows a stay of enforcement of Emissions Limits normally required by law. The Nonferrous Smelter Orders or NSOs are a provision of the law that applies only to copper smelters, a result of intense political bargaining by Arizona's congressional delegates. The law provides for two possible stays: one until 1983, the second until 1987, and can exempt a smelter from the requirement that Emissions Limits be met through constant, rather than supplementary, controls. The NSO clause cannot provide a stay of Air Quality Standards, which the State is required to achieve by 1982, nor can Visibility Standards be set aside by an NSO.

There are two main issues in a Nonferrous Smelter Order. The first is whether or not the stay should be granted. This decision by EPA is based primarily on financial and economic information provided by the smelter to the Arizona Department of Health Services.

The second issue, which has many parts, concerns the requirements that may be placed on the smelter as conditions under which the stay is granted. These requirements may

include identifying the liability the smelter may incur as a result of violating Air Quality Standards, details of monitoring systems, design and operation of control systems approved under NSO emission limits, a plan to control fugitive emissions, compliance with visibility plans where they exist, and most important, evidence that Ambient Air Quality Standards will not be violated.

Applications for NSOs from Douglas and San Manuel include financial and economic information required by the law. The State Bureau of Air Quality Control is studying th information submitted, but so far has taken no action. Some, but not all, of the information is available to the public for review, and public hearings must be held before any NSOs are issued. Public hearings on the NSO application for Douglas are scheduled for March 2, 1982.

Discrepancies between Federal and State NSO regulations may also be an issue in the granting of an NSO, for in order to serve as a stay of Federal regulations, the NSO will have to meet Federal requirements and be approved by EPA.

Nonattainment Plans for Smelter Towns

One of the provisions of the Federal law requires each State to prepare plans showing how areas were Air Quality Standards are now violated will be cleaned up by 1982. Although attainment plans were completed long ago for Phoenix and Tucson, no progress has been made on plans for Arizona's smaller smelter towns and surrounding areas, most of which are nonattainment for SO_2 and particulates. The usual reason given for this is that no plan can be written un til final Emissions Limits are approved by EPA, since cleaning up plant emissions is the main strategy for cleaning up the air in smelter influence zones.

However, once the Emissions Limits are finalized, the State will be required to demonstrate that concentrations of the pollutants in the ambient air ill no longer exceed standards. Awarding of an NSO does not relieve the State of this duty. Both NSOs and compliance agreements must be designed in such a way that the requirements of a nonattainment plan are met.

Both State and Federal rules require that pubic hearings be held in the nonattainment area before a clean-up plan is adopted by the State.

Dollars & Sense & Pesos

International law is hazy at best concerning matters of air pollution, which is one reason neither Mexico nor Canada has had much success in getting the United States to stop the acid rain that travels from our industries across their borders. Border ethics and diplomacy are clearer, however, and it does not take much imagination to see that it is in our best interest to stop pouring our pollution into a Sonora whose own industrial boom is just beginning. Mexico's newest smelter under construction near Nacozari is far cleaner than any in Arizona, however we can easily sympathize with Mexican officials who say that their country will be perfectly justified in allowing new industries to pollute U.S. air and water as Phelps-Dodge for over seventy years has continued to pollute theirs.

Whenever the question of installing pollution controls is brought up, Phelps-Dodge claims that they would cost too much to install in the ancient Douglas facility, and if the regulations are enforced the smelter will have to be closed down. The economic effect such closure might have on th Douglas area is one of the environmental impacts governmental agencies must consider when formulating and applying regulations. Possible economic hardships if PD were to pull out are often cited by State and Federal officials as reasons for not enforcing the *Clean Air Act* in

Douglas.

The question of Douglas' economic future is no a simple one, but one of the major dfactors that allows the smelter to evade clean air regulations ha also given the town a monetary boost: Mexico.

Some 15,000 people live in Douglas. Three times that number live across the line in Agua Prieta, and many of these Sonorans shop in Douglas and other nearby communities. New highways from Chihuahua and Nacozari bring even more Mexican trade to Douglas. During the period from July 1, 1980 to June 30, 1981, Douglas retial sales increased 13% over the previous year, despite a four-month copper strike that closed down the smelter during the same period.[39]

As Douglas grows with the rest of the Southwest, a smaller percentage of the population is employed or otherwise dependent on the smelter. At present some 350 workers are stationed at the smelter. Those who have some age and/or seniority are protected by the "70/80" clause in the United Steelworkers contract with PD, which allows for worker pensions in the event of plant closure.[40]

Land I the valley near the smelter usually costs less than comparable land at a greater distance. Yet the land remains unused and desolate. People don't like smelter plumes in their backyards, and new companies are not inclined to locate in towns where both air and politics are already dominated by a multinational corporation. One thing companies consider in choosing new locationss is the environmental conditions their employees will have to live unsewr, especially when prospective sites are located in semi-rural areas.

If Phelps-Dodge insists on closing the smelter rather than cleaning it up, there will undoubtedly be some hardships for some residents of the County, but the difficulties can be expected to be temporary and limited to a relatively small number of people. If the company chooses this alternative, it has a moral obligation to aid the town and its workers by making public its plan for closure well in advance of the act, and by transferring employees to other operations or granting pensions whenever possible.

In the long run, Douglas has enough economic base in Mexico and in new residents who will come as a result of the cleaner environment. There are no reasons to warrant further exemption of the smelter from full compliance with State and Federal standards for emissions, visibility, and air quality.

Summary

Smelter smoke is a complex stew of chemical, elemental, biological and radiological ingredients. The list of pollutants discovered so far in smelter smoke includes substances rated as toxic or highly toxic by the federal government, substances that science has found to be implicated in cancer, chromosome damage, birth defects, lung disease, etc.

Research on the genetic effects of most of these substances is still in the preliminary phases. A few that have been tested (arsenic, cadmium, titanium, lead, radionuclides, *e.g.*) are such powerful mutagens that they are regulated for the public safety by a variety of Federal, State and local agencies. As testing continues, the number of smelter smoke components added to the toxic substances list grows steadily (see Table B), but, curiously, almost none of these hundreds of regulations apply when the pollutants occur as copper smelter emissions.

Mercury and beryllium limits, for instance, are included by EPA in the4 National Emissions

Standards for Hazardous Air Pollutants, but the limits are for steel foundries, sludge plants, etc., not copper smelters.[41] Cadmium pollution, the major cause for EPA's closing down the Bunker Hill zinc smelter is not regulated by EPA when it comes from copper smelters except as it makes up part of the weight and volume of Total Suspended Particulates.

Several air pollutants have come under regulation by the Department of Labor's Occupational Safety and Health Administration (OSHA) as health hazards to copper smelter workers, but so far the only ones regulated by EPA as threats to public health are sulfur dioxide, nitrogen oxides, photochemical oxidants like ozone, Total Suspended Particulates, hydrocarbons, carbon monoxide and lead (see Table A).

Unfortunately, government regulations of most air pollutants other than auto exhaust in big cities is usually done only on paper. State and Federal bureaucrats quibble about how to measure the poisons, the Reagan Administration wobbles on the whole issue of public health protection and advocates completely gutting the *Clean Air Act*, and there is little or no enforcement of regulations already on the books.

In fact, until recently only one of these poisons, SO_2, was officially monitored to estimate just how much exposure Douglas-area populations might be suffering. In 1969, the State of Arizona began to take measurements of arsenic concentrations in th air of southeast Cochise County, and in 1971 began measuring four toxic metals found in the Total Suspended Particulates of the smelter smoke: iron, lead, copper and since (see Tables).[42]

The monitoring program for these pollutants, a normal and necessary part of any attempt at regulation, has the same design faults as the current SO_2 monitoring, and then some. But as is the case with SO_2, the results of even minimal testing clearly indicate that Douglas Smelter smoke presents a serious theat to the public.

Certainly the continuing pollution problem at Douglas should rate the same attention from the Bureau of Air Quality Control as Inspiration Consolidated Copper Co.'s relatively tiny smelter at Miami, Arizona. In 1980, the Miami Smelter emitted an average 75.4 tons/day of SO_2, compared to over 900 tons/ per day from Douglas. Yet the State has characterized the Miami Smelter as "Arizona's worst air polluter," and has forced Inspiration to install expensive pollution control equipment or shut down.[43]

Douglas, meanwhile, was averaging over 1000 tons per day ini 1981, still without any sulfur pollution controls—another instance, like the 1981 EPA compliance agreement with Phelps-Dodge and Asarco, in which Douglas seems to be above the law. Not only does Douglas continue to operate at the expense of public health, but selective enforcement policies give PD an unfair advantage over other companies who are cleaning up their smelters.

Conclusions

The Cochise County Smelter Study Group was formed in 1978 among residents of the Douglas Smelter influence zone in order to investigate effects of emissions on punlic health and to find ways to alleviate the problem. The results of that study, summarized in this booklet, have convinced us that:

(1) Smelter smoke from Douglas does present a serious immediate threat to public health and well-being throughout the County and south of the border in Sonora; and that

(2) Current regulations , monitoring and enforcement are incomplete, lax, biased and

often nonexistent; and that

(3) The continued dumping of waste products from the Douglas smelter into the air is an invasion of privacy and assault by Phelps-Dodge Corporation against citizens of the County, who are exposed to smelter emissions against their will; and that

(4) The problem is allowed to continue not because of scientific disagreement about the health dangers, but because of bureaucratic boondoggling and political juggling.

Trusting that an informed public is the surest safeguard of our rights, we present this booklet to the people of Cochise County, and call for combined support in our efforts to bring clean air back to the 12,000 square miles now polluted by the Phelps-Dodge Reduction Works at Douglas.

What Can We Do?

With these considerations in mind, the Cochise County Smelter Study Group urges you to join with us in our efforts to bring clean air back to southern Arizona. The health of all of us is at stake. It is up to all of us to protect ourselves. Here are some positive suggestions on how ro bring back clean air.

1. Write or call your elected representatives in Congress. Tell them exactly how you feel about being subjected to poisonous smelter emissions. The *Clean Air Act* is up for grabs in 1982, so now is the time to let them know that you want the laws and regulations strengthened, not weakened.

The Honorable Morris K. Udall
The Honorable Robert Stump
The Honorable Eldon Rudd
The Honorable John Rhodes
The Honorable Henry Waxman, Committee on Energy and Commerce

House Office Building, Washington, D.C. 20515

The Honorable Dennis DeConcini
The Honorable Barry Goldwater
The Honorable Pete Dominici, Committee on Environment and Public Works

Senate Office Building, Washington, D.C. 20510

2. Our state legislators are supposed to represent our views in Phoenix. Write them anout your views on smelter pollution, or call the toll-free number at the State Capitol, Phoenix, Arizona 85007, (800) 352-8404.

Senator Ed Sawyer	Representative Joe Lane
Senator Bill English	Representative Bart Baker
	Representative Jeff Hill

3. Whenever emissions seem to exceed health or visibility standards, call the Phelps-Dodge Complaint Department (602) 364-2441, the Arizona Department of Health Services (602) 255-1147, and the EPA (415) 556-6150. When you write your representatives in Congress, also send a letter to EPA letting them know that you want the Douglas smelter brought into strict compliance with all existing regulations, and that you want them to write new regulations to

cover toxic airborne wastes now going unregulated . Tell them how you feel about the State of Arizona failing to get required Emissions Limits and Clean Air Attainment Plans for Douglas.

Chief, Case Development Section,
US-EPA Region IX, Enforcement Division
215 Fremont St.
San Francisco, California 94105

Director, Arizona Department of Health Services
Arizona Department of Health Services
1740 W. Adams St.
Phoenix, Arizona 85007

4. Let the National Park Service, the US Forest Service and your congressional delegates know that you favor full visibility protection for our National Parks and Forests as provided for in the *Clean Air Act*. Let them know what it is like to see nothing but gray haze from the peaks of the Chiricahua Wilderness or to taste sulfur while picnicking in the Coronado Memorial.

Director, National Park Service
US Department of the Interior
Washington, DC 20240

Chief, US Forest Service
Washington, DC 20250

5. For more information:

Cochise County Smelter Study Group
Post Office Box 317
Bisbee, Arizona 8560

Arizona Clean Air Coalition
3643 E. Winchcomb
Phoenix, Arizona 8032
(602) 867-2026 / 966-1715

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Table A. The Eight Regulated Air Pollutants*

Pollutant	EPA Primary Health Standards	EPA Secondary Health Standards	EPA Emission Limits	ADHS Emission Limits	Douglas Actual Readings[1]	OSHA Standards[3]	Medical Concerns[4]
Carbon Monoxide (gas)	10mg/m^3/hr	10mg/m^3/hr	†	†	†	50 ppm	Lungs, Heart
(particle)	40mg/m^3/hr	40mg/m^3/hr	†	†	†	55 mg/m^3	
Hydrocarbons	160 ug/m^3	160 ug/m^3	†	†	†	†	Lungs, Heart Blood
Lead	1.5 ug/m^3	1.5 ug/m^3	†	†	0.1-0.3 ug/m^3/yr	0.2 mg/m^3	Cancer, Nerves
Nitrogen Oxides	100 ug/m^3	100 ug/m^3	†	†	†	25ppm or 30mg/m^3	Lungs, Eyes
Ozone	235 ug/m^3/hr	235 ug/m^3/hr	†	†	†	9.1ppm or 0.2 mg/m^3	Respiratory
Sulfates	†	†	†	561 TPD/month	5125 TPD ‡	†	Lungs, Eyes
Sulfur Dixoide	80 ug/$m^{3/hr}$ 365 ug/m^3/24 hr/	1300 ug/m^3/3 hr	1122 TPD/month	12,940 lb/hr	40 ug/m^3/yr	5 ppm or 13 mg/m^3	Lungs, Heart, Suspected Cancer
Total Suspended Particulates	260 ug/m^3/24hr 75 ug/m^3/yr hr	150 ug/m^3/24 hr 260 ug/m^3/yr	†	100 t/hr	388.9 lb/hr	variable	Lungs, Heart, Nerves., Cancer

Notes to Table A and B

* Values represent information available to compilers as of December, 1981, expressed in averages and geometric means.

† Standards or measurements do not exist.

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Table B. Some Other Pollutants in Smelter Smoke*

Pollutant	EPA Primary Health Standards	EPA Secondary Health Standards	EPA Emission Limits	ADHS Emission Limits	Douglas Actual Readings[1]	OSHA Standards[3]	Medical Concerns
Antimony (gas) (particles)	† †	† †	† †	† †	† †	50 ppm	Lungs, Heart
Arsenic (gas) (particles)	† †	† †	† †	† †	0.18 ug/m^3/yr	0.5m g/m^3 0.05 ppm	Cancer, Blood
Aluminum	†	†	†	†	†	†	Nerves, Bone
Beryllium	†	†	†	†	†	2 mg/m^3	Cancer
Cadmium (gas) (particles)	† †	† †	† †	† †	† †	0.1 mg/m^3 0.2 mg/m^3†	Nerves, Kidneys
Copper (gas) (particles)	† †	† †	† †	† †	0.35-1.06 mg//m^3/yr	1.0 mg/m^3 0.1 mg/m^3†	Digestive, Respiratory
Chromium (salt) (chromate) (metal)	† † †	† † †	† † †	† † †	† † †	0.5 mg/m^3 1.0 /10/m^3 1.0 mg/m^3	Cancer
Gold	†	†	†	†	†	†	Nerves, Liver, Skin
Iron Oxides	†	†	†	†	1.7-2.7 ug/m^3//yr particulate	10 mg/m^3/ gas	Lung Cancer
Manganese	†	†	†	†	†	5.0 mg/m^3	Nerves, Lungs
Mercury	†	†	†	†	†	1.0 mg/10 m^3	Nerves
Molybdenum insoluble soluble	† †	† †	† †	† †	† †	5.0 mg/m^3 15 mg/m^3	Cancer
Nickel	†	†	†	†	†	1.0 mg/m^3	Cancer
Radon	†	†	†	†	†	†	Cancer
Radiation	†	†	†	†	†	1.25 rem/quarter	Cancer
Selenium	†	†	†	†	†	0.2 mg/m^3	Nerves
Silica	†	†	†	†	†	30 mg/m^3	Lungs

Silver	†	†	†	†	†	0.1 mg/m^3	Nerves
Sulfuric Acid	†	†	†	†	†	1.0 mg/m^3	Lungs, Eyes
Titanium	†	†	†	†	†	†	Lungs
Uranium	†	†	†	†	†	†	Cancer
Vanadium	†	†	†	†	†	†	Respiratory
Zinc	†	†	†	†	0.16 $ug/m^3/yr$	0.2 mg/m^3	Blood, Respiratory

Life, Liberty and the Pursuit of Clean Air (1985)

Michael Gregory, *for* the Sierra Club Grand Canyon Chapter, presented at the OSHA/Environmental Network "Right-to Know Conference," University of Arizona, Tucson (12 October 1985).

It's been about ten years now since people in Cochise County started organizing for clean air. In some ways its gratifying to know that people all around the world now know that the Phelps Dodge smelter in Douglas is one of the worst air pollutors on the continent, and that it is soon to be joined by an even larger uncontrolled smelter 50 miles south of the line at Nacozari.

But in some ways it's also an admission of our failure so far that we have had to make the threat of the smelter triangle common knowledge to millions of people.

When I was trying to decide what to say to you today, I remembered some smelter hearings I went to in Douglas a few years ago; and in particular I remembered the testimony of one man. What he said then is still valid today.

The hearings were held in the high school auditorium in Douglas, and David was one of those people the Douglas mayor was calling "outsiders". An obvious troublemaker brought in all the way from Bisbee. David wore a mask when he testified.

The mask he wore was a larger-than-life rubber replica of a human nose. As he stood at the microphone in front of everybody, he had no neck or head; from his shoulders up he was just one, big nose. When the laughter in parts of the audience had died down, he gave his short message. He leaned into the microphone and in a muffled voice said, "I just want to say, it *stinks*!"

Despite all our efforts so far, it still stinks.

That story about David's mask is funny, but I'd like to start out this morning on a softer, more humble note by reminding us all that life is very short. No matter how many years medical science and clean environment can add to it, life is very short.

And let me make clear that when I use the word *environment* I'm thinking of the workplace environment and the home environment as well as the common environment we all share.

Even if we live our life semi-consciously, merely eating and sleeping, getting and spending, laboring and dreaming; even if we don't much appreciate our life while we're living it; still, life is far too short to have even one year taken off because the air we breathe and the water we drink and the food we eat are filthy with chemical and elemental wastes and so-called "economic poisons" like pesticides.

Life is certainly too short to have it shortened by even one second for the private profit of any individual, group or corporation.

As a sentient human being, as an American citizen, I feel very strongly that we have the right not to be poisoned; and I resent the habitual failure of our local, state and federal governments to enforce the laws that were passed to protect public, occupational and environmental health.

Contamination of my air, water, soil and person because of private actions or govenmental

inaction is a violation of my civil rights and an invasion of my privacy so intimate as to aptly deserve the name of rape (with the difference that the laws which deal with environmental rape allow us even less often the opportunity to have our rapists tried in criminal court).

We live in a time when disasters like Bhopal and Seveso can happen, when a Three Mile Island or a Palo Verde might blow some night. We live at the tail end of an industrial age that for the last 40 years has subjected the whole globe to DDT, PCBs, strontium 90, dioxin, acid rain and the rest.

Historically, the courts have been slow to acknowledge the environmental implications of our right to life, liberty and the pursuit of happiness. But the major environmental protection laws of the past 15 years were written to make the environmental implications of the Bill of Rights explicit. Recently the courts have begun to respond to this aspect of the laws.

I'm thinking in particular of the remarkable series of environmental victories in the Ninth Circuit Court that have placed a more or less nationwide moratorium on the aerial application of pesticides to public lands. In judgments against the US Forest Service and Bureau of Land Management, the Ninth Circuit told the agencies in unusually clear language that the *National Environmental Policy Act* means just what it says about the requirement of federal agencies to disclose the effects of their actions before they take action. The public has the right to know.

According to NEPA regulations, if an agency while planning a project finds that the date it needs to evaluate impacts is unavailable; that is, if the agency finds it cannot with confidence project the potential costs of its proposed action; then the agency, if it decides to proceed with the project, must first conduct a worst-case analysis of the environmental consequences. The purpose of the worst-case requirement is simply to disclose to the agency and to the public, what would likely occur if we knowingly acted in ignorance and the factors about which we were most ignorant turned out to have the worst impacts.

Under current NEPA worst-case regulations, the government must disclose the impacts of its actions in environmental impact studies so the public can scrutinize and criticize them before final decisions are made. When the government can't find or develop the information it needs to make reasonable decisions, then the government must say so, and must tell the public what the potential impacts are if the missing information proves to be significant.

Worst-case analysis seems to me to be a reasonable, even a modest effort at protecting the public. Certainly it was not written by any bunch of red-eyed extremist environmentalists. NEPA was passed during the Nixon Administration by a Congress that had gone through a strenuous exercise in compromise. The law simply says, "If you're going to do something that has a reasonable chance of harming me, at least tell me what it is you're planning to do, and how badly I can get hurt, and then let me tell you what I think of your proposal."

As I said, the Ninth Circuit has also begun to find these worst-case requirements quite reasonable. Better late than never. But while the judiciary has begun to respond in its own slow-motion fashion, some other branches of the government are moving even more slowly. Some are going so slow they're going in the opposite direction. The judicial branch may be conservative (judicial branches almost always are), but some offices in the executive branch these days are just plain reactionary.

For instance, you might think that because the Ninth Circuit decisions made the Forest Service and BLM curtail most of their spray programs, that you can walk or hunt or fish in our public lands today without fear of being exposed to toxic chemicals. No such luck.

Court decisions, though too often the only recourse we have, are typically narrow in scope and strictly limited in their effectiveness as means of reform. The Ninth Circuit put a crimp in Forest Service and BLM spray programs, but another office of the USDA was not affected by the Court decisions. Last summer APHIS (the Animal and Plant Health Inspection Service) sprayed several million acres in Arizona and other western states trying to kill grasshoppers on rangelands. The chemicals of choice were the insecticides Carbaryl and Malathion, both of which have been shown in animal tests to cause genetic damage. It was only another Ninth Circuit decision (OEC v Kunzman) that stopped APHIS from spraying several thousand more acres for gypsy moths in the northwest.

Among the tortoises in our resource agencies, APHIS is a strong contender for the title of King Dinosaur.

But APHIS has always been backward. From its very beginning the agency was a refuge for the DDT groupies who were put out of work by the publication of Rachel Carson's *Silent Spring*.

What's more alarming is to see government agencies that have traditionally been strong advocates for public and environmental health now begin to turn around.

Take the President's Council on Environmental Quality (CEQ), for instance. The CEQ was created along with NEPA to oversee administration of the law. CEQ wrote the worst-case regulations the Ninth Circuit decisions are based on. But that was a different CEQ under a different president. The present CEQ has recently proposed doing away with worst-case disclosure requirements altogether so that agencies would have to disclose only as much of their ignorance as they chose to.

The main impetus for this turnaround by CEQ seems to be the heavy pressure applied to the Council by the defendants in the Ninth Circuit cases, the BLM and Forest Service, and by the US Department of Justice who tried to defend them and lost. Finding that under the current regulations their spray programs were not going to be allowed, the Forest Service and BLM, aided and abetted (iif that is the right term) by their attorneys, rather than amend their programs to comply with disclosure regulations have decided instead to just get the regulations eliminated, thereby in effect overruling the federal court of appeals for the Ninth Circuit.

If CEQ's proposed changes are adopted, we can look forward to several years of litigation about the questionable legality of the Department of Justice's influence on the CEQ's decision-making process.

In the long run, even if the regulation is dropped, it won't make much difference since the worst-case requirement was firmly embedded in NEPA case law. The existing CEQ regulation merely codified the existing precedents. Changing the regulation won't change those precedents. But meanwhile, until all that is settled a lot of time and energy is going to be wrapped up in arguing the issues, and life is very short.

So is my remaining time at this microphone, so let's change the subject slightly.

The main medical issue in worst-case analysis involves the nature of cancer and cancer-causing pollutants.

For example, in one of the Ninth Circuit cases (Save Our ecoSystems v. Watt) one of the herbicides in question was 2,4-D, one half the ingredients of the infamous Agent Orange. Plaintiffs contended that there was sufficient credible evidence showing carcinogenic effects of

2,4-D that the Bureau of Land Management should have included a worst-case analysis in their environmental assessment. BLM responded that *in their opinion* there was no valid evidence of 2,4-D's carcinogenicity, so a worst-case analysis was not required.

The Court decided against BLM on the grounds that there was sufficient scientific evidence to consider 2,4-D a carcinogen, and ordered BLM to prepare, before spraying again, a worst-case analysis to see what the impacts would be if they sprayed hundreds of gallons of carcinogen over thousands of acres of forests and forest inhabitants, including people.

BLM and the Forest Service both strongly object to preparing such worst-case scenarios. Why, I wonder. And I wonder if maybe they don't protest a little too much. And I wonder why they don't seem to be very concerned about spreading toxic chemicals around.

The answers to such questions involve the toxic properties of carcinogens and other genetic toxins.

By definition, a carcinogen is a substance the smallest particle of which can cause cancer. That is, to use the technical jargon, there is no *threshold level* below which the carcinogen ceases to be carcinogenic. Every molecule of a carcinogen has the capability of causing cancer in a host organism. Just one molecule in the wrong place at the wrong time.

The implications for public health protection are enormous. The safe does of a carcinogen is zero. People shouldn't have to be exposed to them at all. Absolutely none should be allowed in our air, water, food and lungs. The achievement of zero exposure was, in fact, the intent of Congress in writing our clean air and water laws. But legislated mandates are one thing, regulatory standards another, and enforcement still another. And the further we get away from the Potomac, the less protection we seem to get.

There are no easy answers to how carcinogens should be regulated, but down in Cochise County where the PD stacks are always leaning over us, our theme song is titled "Clean It Up or Close It Down." If they can't detox the wastes by recycling or reprocessing or whatever, or if they can't at least contain the poisons securely on their own property, then they shouldn't be allowed to continue production. Clean it up or close it down.

In general the agencies aren't very comfortable with those two alternatives. EPA in particular has trouble with it. Things have eased up a little at EPA since the Gorsuch-Lavelle days, but the agency continues to bend over backwards for the economic pleasure of highrolling polluters like Phelps Dodge.

Back in 1983, for instance, EPA figured that arsenic emissions from the Douglas smelter might be killing as many as three people out of every thousand of the most-exposed population living in the vicinity of Douglas. And that's just the risk for the U.S. side of the border. Three or four times as many people live just across the line in Agua Prieta.

But 3 per 1000 is high enough. Since there is not threshold for genetic toxins, as a practical expedient scientists and regulatory agencies have generally agreed that a reasonable approach to protecting the public is to control carcinogens and the like well enough to keep the risk at one death per million or less.

A year or so ago, on the basis of new figures submitted by PD, the EPA revised their risk estimate for arsenic at Douglas downwards to the range of one to one-and-ahalf deaths per thousand. Even assuming that PD's figures are accurate, one death per thousand is still an

enormous risk factor, especially when that one is a human being and a neighbor, not just a statistic. One death in a thousand, and that's just for arsenic. Smelter smoke contains a number of other known carcinogens.

But the Reagan Administration is clearly not opposed to allowing public exposure to man-made carcinogens. Instead of just outright prohibiting manufacture and dissemination of carcinogens, the EPA prefers to practice what they call *risk management*, a kind of numbers game in which the agency weighs public health against private profits and makes decisions on the basis of what they call *Acceptable Risk.*

That term *acceptable risk* is one to pay attention to. Essentially it means that some of us, according to some others of us, are expendable. Obviously, what's acceptable to one may not be acceptable to another. So here we are talking about civil rights again.

Since EPA has chosen not to limit arsenic emissions at Douglas, one to three deaths per thousand is, in effect, an acceptable risk for EPA. It is, of course, not at all acceptable to those of us who have to breathe the waste matter from the Douglas smelter. We don't have access to all EPA's fancy computers and statisticians, but if even the smallest amount can cause cancer and there are no antidotes, then no amount is acceptable. Clean it up or close it down. And life is very short.

Actually, EPA's estimate of arsenic risk at Douglas is probably far too low, and that is typical of governmental risk assessments. Not only does the arsenic assessment ignore the population of Agua Prieta, but it is not based on any monitoring of the air to see what is really out there. EPA has not monitored the air, nor has it conducted any analysis of the ore being smelted too see what concentrations of arsenic are in it. Instead, EPA has relied on PD's own estimates of ore composition.

That phrase "right to know" covers a lot of ground. It follows logically from our right not to be poisioned that we also have the right to know <u>if</u> we are being poisoned, and if so then by what and by whom, and what is going to be done about it. Accurate monitoring is obviously one of the first steps in exercising our right to know.

But despite more than ten years of protests and calls for monitoring at Douglas, neither the company, the state nor the feds know what all is coming out of the stacks. They have never even tried to find out, despite the known presence of several carcinogens.

The state of Arizona requires continuous monitoring of only one toxin at Douglas-sulfur dioxide. But the monitoring system is notoriously inadequate, which reminds us that just saying there should be monitoring is not enough. We have to become watchdogs to make sure that the monitoring is done accurately.

There are several problems with monitoring at Douglas. First, monitoring is not done at the stacks where the only complete readings are possible; instead, monitors are placed in various field locations north of the smelter. No monitoring at all is done in Mexico (where the smoke falls about half the time), and most of the monitors on the US side are placed too close to the stacks to catch the plume which falls some miles away.

But even the monitors that do receive the smoke can't be trusted. Just in the past two months we have found that state and PD monitors are incapable of recording all the SO2 that falls on them. They are calibrated to read just so high, then they cut off. It's interesting that the PD monitors can only record about 50% as much SO2 as the state equipment, but it's even more significant that no monitoring has yet been done by anybody that will tell us the total amount of what we're

actually breathing.

It is estimated that during peak periods, actual concentrations of SO2 around the smelter may be two or three times higher than those recorded on the monitors.

And that means that all the risk assessments by EPA, and all the assertions of no problem by the Department of Health Services are thrown into a cocked hat. And now we know to trust our human monitors, the asthmatics and other sensitive individuals who become disabled by the smoke even when the monitors record no violation of National Ambient Air Quality Standards.

This ten years' failure of PD and ADHS to accurately measure the pollution from Douglas is the subject of several lawsuits now in the making. More time in court. And meanwhile, we continue to be poisoned.

Heavy metals from the smelter have been found in above-normal concentrations in the soils near Elfrida, forty miles north of Douglas.

Air samples from around Douglas have shown arsenic concentrations 14 to 18 times higher than non-smelter areas of Arizona.

Levels of arsenic and heavy metals four to five times above normal have been found in the hair and urine of Douglas school children.

Tests in Bisbee between 1980 and 1983 showed arsenic levels in the air seventeen times higher than at non-smelter sites like Yuma and Page.

The only OSHA health and safety investigation at Douglas in the past ten years found arsenic levels in the reverbatory furnace areas in excess of legal limits. No follow-up investigations have been made to see if the limits are still being exceeded.

You want to talk about acid rain? We don't have to go to the Colorado Rockies or Norway or Maine. We have it right here at home. When the wind blows from Douglas, the Research Ranch at Elgin and the USDA experimental watershed at Tombstone record some of the most acidic precipitation in the world. Rains have been recorded at the Elgin station with a pH of 3.7; that's about the same acidity as vinegar.

You will hear them say that sulfuric acid is good for our alkaline desert soils, but it's obviously not good for the Chihuahua Pines in the Huachucas that are turning yellow from the smelter smoke, it's obviously not good for the crops that are damaged in the Sulphur Springs Valley north of Douglas. Sulfuric precipitation has been shown to cause serious yield losses in crops like cotton, corn and beans.

I could go on and on with statistics, but time is short, so I will close with another short story.

Recently Mr. Ed Haase of Phelps Dodge told a meeting of Governor Babbitt's Commission on Arizona Enironment that it was true that fallout from the smelter did damage some vegetation in the immediate vicinity of Douglas, but he insisted that the damage was not important since there were only a "few species" affected.

The blend of ignorance and arrogance in such a statement is typical of the neanderthaloid attitudes of some of our pollutors. I can easily imagine someone with a similar outlook saying after Bhopal, "Oh it's only a few Indians."

This is not as farfetched as it may seem. In the Pacific Northwest forests it's fairly common to hear helicopter pilots and cat skinners express such sentiments about the citizens trying to stop their spray and rape programs.

A similar attitude underlies the recent statement by an ADHS to the effect that if the whole population of Douglas were to die from smelter pollution, it wouldn't matter statistically because there aren't enough people down there to make a difference. As the business editor of the Arizona Daily Star said, why worry about a bunch of jackrabbits and sagebrush?

At the bottom of these statements and attitudes is a contempt for life itself. It is not a far cry from Mr. Haase's callous disregard of a "few species" to the bombing of the *Rainbow Warrior* by the French government. Only a matter of degree.

It may only be a few species, but down in Cochise County more and more people are starting to ask, "If it's bad for the plants, what's it doing to us?" They worry that someday the government is going to get around to telling them that they, are only a few, and therefore expendable.

Until that attitude is ended, until they stop talking about people as figures in an account book, our fight for the right to know will not be over.

On the EPA's Proposed Denial of an NSO to the PD Reduction Works, Douglas, Arizona (1986)

Michael Gregory, for Sierra Club Grand Canyon Chapter, and Southwest Regional Conservation Committee, presented to the US Environmental Protection Agency, Douglas, Arizona (17 May 1986)

My name is Michael Grebgory. I live about 20 miles northwest of here outside the town of McNeal where I have a small orchard and greenhouse operation. I work here at Cochise College and at the Sierra Vista campus as a part-time instructor in English Composition and the History of Western Civilization. I also own and operate a printing and publishing business in Bisbee.

In addition, I serve on a volunteer basis as Conservation Chairman for the Grand Canyon Chpater of the Sierra Club (representing some 4000 members throughout Arizona) and as Smelter Issues Coordinator for the Sierra Club's Southwest Regional Conservation Committee (representing 17,000 members in the four-state area of Arizona, New Mexico, Colorado and Utah).

Every poll taken of these members, like polls of the general public nationwide, indicates an overwhelming support for clean water and clean air. On behalf of those members, I thank the Agency for the opportunity to present the following comments on the proposed denial of a Non-Ferrous Smelter Order (NSO) to the Phelps-Dodge Reduction Works in Douglas, Arizona.

Too often environmental laws and regulations are implemented in a blanket fashion: everyone gets lumped together into some statistical category labeled "The Public" which, because it is a little bit of everybody, represents nobody in particular.

We need to keep reminding ourselves that we are not a statistical fiction called "The Public" but are, instead, individual human beings with personal lives and very particular needs.

The *Clean Air Act* is an extension into the natural environment of the Bill of Rights, which was meant to address those personal needs. The Constitution guarantees us the right not to be poisoned, not by an individual person and not by any of those legal fictions we call "corporate entities" which are said to have the same rights as individual human beings under the law.

We have the right not to be poisoned by any individual or individuals, or by any corporation or other business and, maybe most significantly, we have the right not to be poisoned directly or indirectly by our own government.

We have this right not only in common, as "The Public," but also in particular, as individual human beings.

I speak to you as the representative of the Sierra Club, but also as an individual who has lived and worked and breathed in this valley for nearly a third of my life and who, unless the smoke or population explosions or something drives me out, intends to be here for some time yet.

The EPA is to be commended for proposing to deny the NSO. The NSO should be denied. The company has no right to go on poisoning us and our environment. PD has no legal claim to yet another exemption from the law. The first requirement for getting an NSO is to meet minimum health standards. he company has not met this requirement. Despite all the special exemptions and extensions PD has received from EPA and the State of Arizona, the smelter has violated the

most basic environmental sanitation rules at least 24 times since 1984. Maybe more. The monitoring system is skewed in PD's favor, so it's hard to be sure. But 24 is more than enough.

The company has also failed to submit a plan that was due more than a year ago telling how PD would control the fugitive emissions problem. Submitting that plan is a second requirement for getting an NSO.

Furthermore, before granting an NSO, EPA itself must first state what standards the company will have to meet to protect the health of those among us who are susceptible to sulfur dioxide poisoning in doses as low as one-half part of SO_2 per one million parts clean air, and even smaller doses of SO_2 when the air is not laboratory pure, but is filled with all the other poisons smelter smoke is made of. The sensitive are even more at risk than laboratory tests show, because of the total burden of environmental insults they are subjected to.

The EPA should deny the NSO not only for the reasons stated in its proposal, but because the uncontrolled emissions from the smelter present an immediate threat and imminent endangerment to people's health.

When the EPA estimates that somewhere between one and three out of every thousand lifetimes spent in the fugitive emissions zone will be ended by arsenic-induced lung cancer, I wonder why the Agency hasn't made PD clean up its act long before now. One to three people out of every 1,000, not even counting the thousands more who live in Agua Prieta, still within the fugitive zone.

We have the right, on both sides of the border, not to be poisoned.

Like SO_2, inorganic arsenic fumes present an imminent endangerment to the people exposed to them. They are especially a problem in the immediate area around the smelter, especially during periods of fumigation when the smoke settles down on Douglas rather than blowing out on the rest of us. The only air sampling of the smelter done by OSHA between the years 1976 and 1985 found illegally high levels of arsenic in the workplace. Studies have found unnaturally high levels of arsenic in the soils as far north as Elfrida. Several valley farmers are engaged in suits with PD because of the high levels of arsenic and other metals they have found in their crops.

Arsenic has been identified by EPA and OSHA as one of the 20 or so most powerful carcinogens, those likely to cause at least one cancer death among every 1,000 people in the most exposed part of the population. Based on a high degree of scientific confidence, the EPA considers cadmium, chromium, nickel and lead to be just about as deadly as arsenic. All five of these metals are normal components of smelter smoke.

Protection does not mean cleaning up after the fact. Protection is supposed to take place before the dead bodies start to appear. Environmental protection requires preventative actions, not just remedial reactions like Superfund.

The *Clean Air Act* makes it very clear that the EPA is supposed to set standards on the basis of public health protection. Although the law provides for consideration of the polluter's economic condition during the NSO decision-making process, public health protection takes precedence.

When the EPA decides, as it has up to n ow, that it will not protect those one, two or three of us who face statistically certain death from arsenic poisoning on the grounds that taking protective actions would cause PD and its dependents financial hardship, I wonder which one, two or three of us the Agency and the company will find expendable.

At a recent meeting of Governor Babbitt's Commission on Arizona Environment, of which I am a member, PD executive Ed Haase admitted that smelter emissions do kill vegetation north of Douglas but that this should be of not concern since "it is only a few species." The ecological naiveté expressed in that statement is indicative of PD's outdated Robber Baron attitude toward environmental and public health. The EPA should not share in such an attitude or condone its manifestation at Douglas.

Insofar as EPA considers the healthy profit of a legal fiction to be as important aor more important than the physical and psychological health of each and every living breathing human being, by that much some of us get put into the drawer marked "Acceptable Risk" and get targeted for lung cancer from arsenic poisoning.

Because the EPA has not yet cleaned up the fugitive emissions problem, some of us who live our lives under the cloud of the Douglas smelter have already been assigned to unnecessarily cruel, gruesome, disgusting deaths from lung cancer. Meanwhile, business goes on as usual.

The economic difficulties of a legal fiction are not matters of life and death. Lung cancer is. Even if it happens to only one of us in every hundred years, that is one too many if it is caused by a private business in search of private profits. Few of us are opposed to making an honest profit, but none of us want someone else to profit at our expense. That is why we have a Bill of Rights, and a *Clean Air Act*.

But all the talk about economic hardship is beside the point anyway. PD is obviously not hurting financially. Its profits for the past two quarters have outstripped most competitors. Since the 1982 hearings when the Arizona Department of Health Services (ADHA) approved PD's NSO application, the company has been a ot item in the business page, just as it has been for most of its corporate existence. And, undoubtedly, just as it will continue to be in the future no matter what happens in Douglas.

The company is not going to die from either cleaning up or closing down the smelter. Not like a human being dies of lung cancer, and not financially either.

And the City of Douglas is not likely to kick off in the near future either. All the economic indicators point toward increased population and spending in the Douglas area. Population growth is already rampant throughout the Valley. The question is not if our population is going to grow fast enough and spend enough; the question is, how can we keep the growth from getting out of hand. Small industries as a rule don't like to settle in company towns, and most people don't like to breathe poison, but there is little doubt that once the smelter cleans up or closes down, Douglas will grow.

A lot has been said a bout the plight of smelter workers and other PD dependents if PD pulls out of Douglas rather than cleaning up its pollution and staying in town. Not much has been said about the effects on workers and the rest of the town if PD decided to invest some of it s profits in pollution controls.

An editorial earlier this week in a local paper argues that PD should be granted another year or two exemption from health standards so the company would have more time to diversify its investments a little more profitably before the inevitable end. Not time to clean up, just time to get away with as much more as possible before the law catches up on January 1, 1988.

The company has had more than enough time to diversify, or do whatever, in preparation for

closure. It has had plenty of time for clean-up too, if it had so chosen. It has had plenty of exemptions and extensions and exceptions, plenty of privileges and favors and hand-outs.

I'm sympathetic to the plight of victimized workers, but not as sympathetic as I was a few years ago. PD has said for years that it would close rather than modernize the Douglas smelter. Everyone, including PD's stockholders and employees, has known for at least ten years that the law does not allow the smelter to continue polluting after January 1, 1988. And everyone, especially shareholders and workers, has known for a long time that the company makes its profit at the expense of copper companies that *have* complied with the law by installing pollution controls; and at the expense of "The Public" whose right to breathe clean air is denied every day that the smelter continues to operate without pollution controls; and especially at the expense of our sensitive few.

The *Clean Air Act* is supposed to protect everybody's health, including the health of those of us who are most susceptible to smelter poisons.

The testimony of asthma victims has dramatically illustrated the inadequacy of EPA's current 3-hour standard for sulfur dioxide and lends weight to the advice of EPA's own scientific advisors who recommended several years ago that the Agency adopt a one-hour standard in order to protect people like asthmatics who are susceptible to severe poisoning during short-term exposure episodes.

The one-hour standard is not unreasonable or impossible to meet. Other companies are meeting it. California industries have been operating profitably for some time under a one-hour standard. In order to protect our asthmatics, those of us who have emphysema or bronchitis, or heart disease, or liver dysfunctions; any of us, in other words, who are more sensitive than the statistical norm; in order to protect the public health, the Agency should adopt a one-hour standard that will prevent ambient concentrations of SO_2 from exceeding level of one-half part per million over a six-minute period. By adopting the one-hour standard the Agency would re-affirm its commitment to take the *Clean Air Act* seriously and to believe that the Act means it when it says that we have a right not to be poisoned.

In closing, I would like to bring two other rights to the Agency's attention, the right to pursuit of happiness and the right to privacy.

The pursuit of happiness is problematical at best when the gray cloud you are walking under or walking in is made up of a witches' brew of acid rain, carcinogens, mutagens, respiratory toxins, teratogens and other poisons.

As for the right of privacy, if I were to take my garbage down to Douglas and dump it on PD's property, I could be and probably would be charged with a crime. But PD hs been allowed ot dump its garbage on my property and on my person without any legal repercussions. Again, the legal fiction is given preferential treatment by the EPA.

Contamination of the body with toxic wastes is one of the most terrible invasions of privacy, yet the EPA has continued to allow PD to assault our bodies and senses with unknown levels and combinations of toxic wastes.

Even if the smelter wastes were not toxic, no one should be forced against their will to have their body subjected to foreign substances, Chemical trespass is a violation of civil and human rihts, and the EPA should no longer allow PSD to get away with it.

Not only has the Agency failed to take legal action against PD's violations, now it has given the company yet another 90-exemption from the law and at the same time has prevented "The Public" from protecting itself by citizen suits.

The Sierra Club agrees with the Environmental Defense Fund and others that the *Clean Air Act* does not give EPA authority to issue the 90-day waiver now in effect. The State Implementation Plan (SIP) for Arizona that EPA approved, requires that as of January 14, 1986, smelters either had to have installed pollution controls or have an NSO. PD-Douglas has neither. By law, it must now meet the same standards as other smelters of close down.

In summary, we recommend that the EPA (1) deny this NSO not only on procedural grounds, but on the grounds of imminent endangerment; (2) set a one-hour SO_2 that protects all of us, even the most sensitive; (3) set a similarly protective standard for arsenic and the heavy metals; (4) rescind the 90-day exemption; (5) enforce the SIP; (6) begin monitoring immediately to determine what biophysical impacts the closed smelter may have; (7) require PD to submit a plan for maintaining the property without adverse impact to the air or water or people on either side of the international border.

Is the State Ready to Give up Health-based Air Quality Standards? (1991)

Michael Gregory, Bisbee, Arizona (1991)

For the past few months, the state capitol has been the scene of some pretty intense wrangling between industry lobbyists, the state Department of Environmental Quality (DEQ), and environmentalists.

Called together by the chairs of the House and Senate environment committees, the groups have been tasked with trying to decide how to conform Arizona's air pollution law to the new federal Clean Air Act amendments passed by Congress last fall.

The new federal law is stronger in some ways than the 1977 version it replaced. For instance, it will require cleaner cars and trucks and cut down on the emissions of coal-burning power plants.

But in at least one important area, the new federal amendments are weaker than the old law. Under the old law, standards for the emission of air toxins—those substances that cause cancer, birth defects or other disease--were supposed to be set strictly to protect human health and the environment. In the new amendments, Congress decided to pull that requirement and set standards only on what kind of equipment industries use for controlling their emissions. The health-based standards are deferred for the next five to fifteen years or so.

Existing Arizona law is health-based and the Department of Environmental Quality permits industrial air emissions according to the guidelines on pollution limits established by the state Department of Health Services.

Industry lobbyists argue that the science used by the health department to estimate risk is inexact so we should give up our health-based regulations and go to a technology standard based in large part on the costs of the pollution control equipment.

The DEQ apparently agrees. In the Phoenix discussions the department has been arguing that we have to give up regulating air toxics on the basis of human health needs until we've studied the problem a few more years; then maybe we can set health-based standards. Meanwhile we'll just set standards for the kind of equipment industry uses.

There are several things wrong with this picture. First, neither industry or the DEQ is even talking about pollution prevention. Instead of working to prevent toxic emissions, they propose at least for the next few years only to regulate equipment to control pollution—setting standards only for the kinds of industries already operating in the state and only for the end-of-the-pipe technology industry's cost-benefit analysis tells them to use.

Instead of preventing pollution, a technology standard like the one adopted by Congress in effect gives industry the right to pollute. It requires only that a given facility's pollution control equipment meet some industry average, even if that equipment puts out unhealthful levels of toxics. With a health-based standard the state has a clear legal grounds for limiting emissions whatever is necessary to make sure that our air is safe to breathe.

The difference between the two approaches is illustrated by the situation at Hayden, Arizona, where the ambient levels of arsenic run 165 times higher than the Department of Health Services guidelines say are safe and where the death rate from lung cancer in the surrounding Gila Valley is 50% higher than the rates in Phoenix and Tucson. Yet ASARCO, whose Hayden copper

smelter puts over 1000 pounds of arsenic a year into the air, says it is in compliance with state and federal law and that its cost-benefit analysis shows its arsenic control technology is as good or better than the industry standard.

Another problem with the DEQ approach is that the kind of studies they're planning won't make the science of risk assessment any more absolutely certain or any more acceptable to industry than it is today. What the studies will do is give us more data on what levels of what kinds of air toxics industries are emitting; give the EPA and other federal agencies to come up with a new theory on how to do risk assessment; give industry a three-year free ride; give the state DEQ and the federal EPA an excuse not to act; and force the public to continue paying the price of industrial air pollution.

Finding out what levels of pollution are out there is worth doing, but the studies should be paid for by polluting industries, not by the public. And study or not, the question remains: how are we going to protect public health and the environment in the three or more year interim until DEQ finally sets health-based standards?

The industry argument that because our knowledge is incomplete and our science is not perfect we therefore can't act, is specious. In fact, we can never have all the answers and science can never give us absolute certainty. Those two human conditions are not going to be erased by a three-year government study. Nonetheless, we still have to do the best we can, using the best tools we have to protect ourselves from ourselves.

Industry not only thinks that health-based standards should be dropped or deferred. It also argues that the number of substances included in the state law should be only a handful of the known air toxics. Last spring the state passed a weak hazardous waste bill that requires industry to identify and practice minimum pollution prevention measures for 800-1000 toxic wastes and other hazardous substances. Industry agreed to that list, but now argues that those same substances, when they are emitted as waste products into the air, should be exempt from the state's clean air law.

The new federal law requires regulation of only 189 substances and industry says the state should not go beyond that narrow list. But the state currently regulates several others, and the environmental community points out that several existing state and federal laws list several hundred more known air toxics, including carcinogens, pesticides, substances known to cause birth defects, as well as substances identified under workplace and transportation safety laws.

Instead of losing its way in the industry smokescreen, the DEQ should accept its responsibility to prevent adverse effects on human health and the environment by using the best tools it has available. Instead of giving up the health-based numbers, the department should refine them as best it can and use them in combination with the new technology standards to regulate all air toxics.

Sound science, however, is not the only basis we have for setting standards, or even the most important one. Standards are a matter of public policy, and science is only one tool. Whether it's the physical, biological or economic kind, science is advisory not dictatorial. In setting sound public policy, we have to give weight especially to public needs and public opinion.

That tough job falls to our elected officials. Existing policy, adopted in 1986, says that "no further degradation of the air in the state of Arizona by any industrial polluters shall be tolerated." In the next few weeks, Governor Symington and the current Legislature are going to have to decide whether to stick to our policy of protecting public health and the environment to

the best of our ability, or to let industries choose the kind of air we breathe based on their corporate profit margins.

Air Toxics, Maximum Achievable Control Technology and Residual Risk: an Opportunity for Clean Air Reform in Arizona Or, On a Clear Day You Can See Which Way the Wind Blows (1991)

Michael Gregory, presented to the Commission on the Arizona Environment, the Arizona Lung Association and the Environmental and Natural Resources Law Section of the State Bar of Arizona Conference, "The 1990 Federal Clean Air Act Amendments: Their Interpretation, Impacts and Implications for Arizona," Mesa, Arizona (27 September 1991)

> "The policy of this state [is] that no further degradation of the air in the state of Arizona by any industrial polluters shall be tolerated."
>
> *- Arizona Revised Statutes, 1986*

It has been refreshing for the past two days to hear so many speakers remind us that clean air is not primarily a matter of technological fixes, industrial economics and political buzzwords, but of health—public health and environmental health. I would add that it is also a matter of human and civil rights.

The first major rewrite of the *Clean Air Act* in 1970 (it was originally passed in 1955) was not only a great milestone in the progress of environmental and public health protection, it was a giant step forward in the civil rights movement because it translated Bill of Rights protections and the Declaration of Independence rights to life, liberty and the pursuit of happiness into the environmental arena. The 1970 amendments codified our natural right not to be poisoned—and in particular our right not to be poisoned for somebody else's profit.

That basic premise is behind the Clean Air Act's requirement that air quality standards be based on protection of human health without regard to industrial economics; cost factors could be considered in deciding how the standards would be met, but were not to be allowed to compromise the standards themselves. It is exactly that basic protection we have lost in the 1990 amendments along with the hope some of us had in 1970, that we would see clean air in our lifetimes.

An Ample Margin of Safety

Section 112, added to the Act in 1970, required the EPA Administrator to set emissions standards for Hazardous Air Pollutants (HAPs) "at the level which in his judgment provides an ample margin of safety to protect public health from such hazardous air pollutants." The major controversy over air toxics regulation has revolved around that "ample margin" language.

By definition, a carcinogen is a substance one molecule of which can cause cancer: there is no "safe" exposure limit. The agency claimed that if it had to write standards that provided "an ample margin of safety" for carcinogens, many industries would have to stop polluting altogether. (Perish the thought!) Facilities would have to stop poisoning us or shut down. That solution was no more politically acceptable to the Administration in Washington than in Phoenix or in most other state capitols. Almost immediately, the EPA began saying that the new *Clean Air Act* didn't really mean what it said.

In setting its 1975 regulations for vinyl chloride, for instance, EPA argued that even though no level of exposure to the carcinogen was safe, section 112's "ample margin" clause could be interpreted as authorizing "standards that require emission reduction [not to the level needed to

prevent significant health effects, but only] to the lowest level achievable by use of the best available control technology. . . ."

EPA took the position that although section 112 *could* be read as requiring zero emissions of carcinogens, the most *reasonable* interpretation allowed the agency to permit enough pollution to maintain the economic viability of the polluter. The Environmental Defense Fund sued over this interpretation (EDF v. Train, No. 76-2045 [D.C. Cir.]), and EPA agreed in the settlement of June 1977 to adopt zero emissions of VC as a "goal" and to periodically review and adjust the standards to reflect advances in control technology.

Ten years after the EDF decision, after EPA had set its vinyl chloride standards at the tightest level it considered technologically and economically feasible, NRDC sued and the appeals court ruled that EPA's technological approach was illegal (NRDC v. EPA, 824 F.2d 1145 [D.C. Cir. 1987). This decision effectively brought EPA's toxics "program", such as it was, to a complete halt.

That Congress did, in fact, consider the consequences and did intend to require zero emissions if necessary, is made clear by the 1970 Senate Report on the *Clean Air Act*, which includes Sen. Edmund Muskie's statement that "emission standards for hazardous air pollutants. . .must be set to provide an ample margin of safety to protect the public health. This could mean, effectively, that a plant would be required to close because of the absence of control techniques. It could include emission standards which allowed for no measurable emissions."

As the court decided in the case of Union Electric Co. v. E.P.A. (427 U.S. [1976]), the 1970 amendments "were a drastic remedy to what was perceived [by Congress] as a serious and otherwise un-checkable problem of air pollution" and although the technology-forcing concept was not without risks, the Congress considered those risks and "decided that the dangers posed by uncontrolled air pollution made them worth taking."

Unfortunately, that Congress is long gone. In the Reagan-Bush era, civil rights and the environment have both been under serious attack and section 112 is one of the major casualties. During the twenty years following adoption of the "ample margin" language, despite court decisions to the contrary EPA continued to insist that Congress didn't know what it was doing and, consequently, promulgated regulations for only seven of the hundreds of known Hazardous Air Pollutants.

In light of this Administrative intransigence, worn down by ten years of fighting for reform of the Act, and facing the prospect of losing other important parts of the bill, public interest advocates negotiating the 1990 amendments finally decided that going after EPA in court one pollutant at a time was never going to take care of the problem; so they struck a compromise.

In short, the 1990 amendments displace the health-based toxics standards of the 1970 Act with technology-based standards that are driven by profit motive more than by health protection. The technology-*forcing* principle behind the "ample margin" language is replaced by a concept of Maximum Achievable Control Technology (MACT) which, instead of pushing industry to find innovative solutions as it has done in the past, merely institutionalizes current existing technology for the foreseeable future. In effect, more business as usual: as though there were a right to pollute.

And if EPA happens to miss its statutory deadlines, which is has done fairly consistently in the past, the new law says it will be up to the states to set MACT standards on a case-by-case basis, a process for which there can be no end in sight. Instead of clean-up, the 1990 amendments put

EPA in the permanent mode of playing *catch*-up.

The 1990 amendments don't entirely give up health-based standards, but their implementation is deferred for 15 years or more; the first ones won't be due until nine years after the first MACT standards go into effect, and in practical terms they are about as good as non-existent in the meantime.

Acceptable and Expendable

Furthermore, even if health-based standards do come into effect some day to deal with the so-called "residual risks" left over after MACT has failed, they won't be the strict standards of the 1970 Act, but will be arbitrarily set at a level that *allows* (which, in effect, means *preordains*) the death by cancer of one person out of every million of those most exposed to a given pollutant—which means primarily those of us with low incomes who work and live where exposures are heaviest.

The expendability of that unlucky one-in-a-million is now the official federally-mandated "acceptable risk" of breathing air in this country. And, as we heard from EPA yesterday, the agency is now proposing (on the basis of the NRDC *Vinyl Chloride* case and the resulting benzene standard) to set the "acceptable risk" for the most-exposed populations at one in ten thousand. A far cry from the kind of standard Sen. Muskie wrote into the law.

Not only is that concept of acceptability ethically repugnant in a society based on the rights of the individual, but it is also scientifically corrupt.

Risk assessment is a phony science, no more than a sophisticated computer game. Put ten risk assessors in a cage and feed them the same data and they will come up with ten different risk assessments depending on who is paying them and which model they use (all of which, of course, are mathematically correct). In practice, it is usually done the other way around with even less pretense of scientific objectivity: you give the statistician the "acceptable" risk you want to end up with and he juggles the figures to prove that's all the risk there is.

To see the implications of a public policy that considers a one-in-a-million risk "negligible" or "acceptable," consider the following analogy. If someone carries a loaded shotgun into a room crowded with one million people and deliberately fires into the crowd, even knowing with absolute certainty that no more than one person will be killed, is that shooting acceptable? Should that death be considered negligible?

I should hope not. Murder would be a more appropriate term. But that is exactly what we allow industries to do to us when we con-done a one-in-a-million risk. And the situation is even worse than that. The one-in-a-million risk assessment only considers the risk of one chemical at a time. But when we walk through downtown Phoenix, we are not in a laboratory exposed to one toxic at a time. We may all be guinea pigs, but the experiment we're in isn't that controlled; in fact, it's decidedly and deliberately uncontrolled.

The brown cloud is a toxic soup and nobody knows or probably ever can know the full range of effects. But we do know it's toxic, that we're being poisoned every time we breathe it. Science never has all the answers, but common sense should tell us we can't go on trying to breathe the soup at the same time we're making it thicker, and we can't afford the luxury of deferring action until we have all the answers.

Yet that is what the 1990 amendments call for and that's what is being proposed right now in the

state Legislature by the Department of Environmental Quality (DEQ) and industry.

The public doesn't expect zero risk, but we shouldn't have to be exposed to risks that are avoidable and unnecessary. In general the public doesn't give two hoots about how many ppm or ppb of alphabet soup it takes to kill us. What people want is not lower risk, but less exposure. Not computer games, but real life limits on emissions to the greatest extent possible.

Given the shortcomings of the 1990 amendments, especially the deferral of toxics regulation for the next decade or two (putting the burden on the next generation in more ways than one), we have to take action now at the state level. In accordance with the Reagan-Bush agenda, the federal government has abdicated its responsibility to protect human health and the environment, so the state has to take up the slack.

At the end of this paper I make some specific recommendations on measures needed to effectively reform Arizona's air quality program, improving it rather than letting it get cut down to the level of the federal law, but first I'd like to give you some picture of the scope of the air toxics problem.

Scope of the Problem

Air toxics are primarily a problem of our dependence on petrochemicals, a relationship that began in the late 19thC with the second phase of the Industrial Revolution, but whose disastrous implications have become clear only in the past 30-40 years.

In the 1940s, when the basic petrochemical technologies of fractional distillation, thermal and catalytic cracking and molecular splicing had become economically feasible, the U.S. produced about one billion pounds of synthetic organic chemicals a year. By the 1950s, that figure was closer to 30 billion pounds. In the 1980s, it rose to over 400 billion and is still growing (Davis 1990; Greig 1990).

"Conventional" agricultural pesticides (a term that includes insecticides, herbicides, fungicides and many other "-cides") are typical petrochemical products. From almost zero in the 1940s, their use grew to more than 740 million pounds in 1970, and today amounts to more than 1.2 *billion* pounds/year (Arcos 1991). If we add in other commercial-use pesticides like wood preservatives, sterilants, and antiseptics, the figure more than doubles, and if we add in non-agricultural uses (like lawn sprays and other home use), the numbers go even higher.

It is not just coincidental that during these same 40-50 years, cancer has become epidemic in the industrialized world, with nearly half a million deaths and a million new cases per year reported in the U.S. (Epstein 1991). About one in three of us will have cancer and one in four will die of it. (Epstein 1991; Montague 1991). And the rates are increasing (Davis 1990; Epstein 1991; Greig 1990; Montague 1991): while there have been major reductions in deaths by cardiovascular disease in the past few years, and rates for stomach, cervix and rectal cancer have gone down, the rates for many other cancers (including lung, breast, colon, prostate, testis, urinary bladder, kidney, skin, blood and lymphatic system) have been going up (Epstein 1991; Montague 1991).

While many cancers are related to various lifestyle or inherited factors, most cannot be explained that way (not even many lung cancers, an increasing number of which occur among non-smokers, and a growing number of which are cancer types not generally associated with smoking) (Epstein 1991).

Cancer may be the least of our worries. The increasingly widespread development of insect

varieties resistant to the chemical pesticides we have tried to wipe them out with, and the existence of industrial toxins in the blood of animal species (including humans) worldwide, raises the very frightening specter of trans-generational mutations in viruses and bacteria and other microorganisms that we are not capable of monitoring or of even guessing what plagues they may cause our children and grandchildren (Potter 1991).

The EPA lists about 70,000 toxic substances manufactured for commercial purposes. The Occupational Safety and Health Administration estimates that about 50,000 are hazardous in the workplace. The European Community lists some 100,000 that require the hazardous label when they're put on the common market (Condray 1991).

Percentage-wise, almost none of these substances has been adequately tested—most have not been tested at all—for chronic toxicity, carcinogenicity, teratogenicity, or for reproductive, immunologic, or neurologic effects. Yet industries are permitted, even legally encouraged, to routinely dump them into our air, water, food and bodies as though toxic chemicals and their corporate parents both had the right to be considered innocent until proven guilty.

According to reports they gave to the EPA, U.S. manufacturers in 1989 routinely released 5.8 billion pounds of toxic chemicals to the environment—counting only those 250-300 chemicals they're required to report under section 313 of the *Emergency Planning and Community Right-to-Know Act* (EPCRA). Over 2.4 billion pounds were released to the air. About 1.4 billion pounds of the total were substances known to cause birth defects and 464 million pounds were carcinogens (even by EPA's limited OSHA-derived definition, which doesn't include generally-accepted chemicals like TCE) (EPA 1990).

Last year in Arizona (according to unofficial TRI tabulations), 195 manufacturing facilities released about 70 million pounds of toxic chemicals to the environment, including 11.5 million pounds to the air (3.8 million as fugitive emissions and 7.7 million from smokestacks). The year before last (the last year we have records for), Arizona manufacturers released 2.6 million pounds of carcinogens, and 11 million pounds of substances known to cause birth defects.

What is *not* reported in the EPCRA Toxics Release Inventory is significant. For instance, four of the biggest toxics-using industries—mining, utilities, agriculture and transportation—are not required to report; neither are small manufacturers or non-manufacturing businesses. And the reports don't mention emissions of the other 60,000 or so hazardous substances not on the 313 list.

All in all, the section 313 reports account for only a tiny fraction of actual toxic releases into our air and lungs—less than 5% according to some estimates. EPA has estimated that *actual* air emissions of just two chemicals on the list—benzene and toluene—exceed the total *reported* air emissions for <u>all</u> of the section 313 chemicals.

Mercury emissions from electric power utilities, which are exempt from 313 reporting (and exempt from CAA regulations for the next two years), are estimated to be eight times greater than the total mercury emissions reported from all the section 313 facilities combined. (But I don't think I remember hearing President Bush mention this when he was up at the Canyon last week.)

Mining operations, probably the largest toxics-user by far (at least in terms of sheer volume and tonnage), are also exempt from 313 reporting, as they are from many other regulations. A few years ago the EPA reported to Congress that the gold-mining industry (a booming business in Arizona these days) generates over 14.7 billion pounds of cyanide-contaminated toxic wastes

every year, and that number is growing rapidly with the explosive growth of solvent extraction techniques in the hardrock industry. The wastes are typically located in huge exposed dumps and tailings where they can blow in the wind and spread toxic dust throughout the environment.

Agriculture is another exempt industry, even though one of the occupational groups whose cancer rates are growing is farmers, and studies by the National Cancer Institute and others increasingly implicate chemical pesticides. In 1987, when there were about 600 registered pesticides, the National Research Council of the National Academy of Science estimated that about 60% of all herbicides, 30% of all insecticides and 90% of all fungicides were "oncogenic or potentially oncogenic."

Given our climate and high percentage of non-food crops, it is not surprising that Arizona has some of the highest per-acre use of pesticides in the nation and because of our explosive growth rate, high percentages of the pesticides are sprayed in or near urban residential populations. In 1990, the Arizona Auditor General reported that annual agricultural use of pesticides in the state is close to 11 million pounds. I don't know of any categorical analysis of these figures, but if we extrapolate the National Research Council calculations to Arizona use statistics, it looks like agriculture in the state uses about seven million pounds of carcinogens every year, most of which are released into the air. If we add in structural and other non-agricultural pesticide use, we can probably increase those numbers by 50-100%.

None of these figures takes into account the so-called "inert" ingredients that make up 10-90% or more of all pesticide formulations and are in many cases toxic in their own right, sometimes even more toxic than the so-called "active" ingredients, even though they are not identified as such on pesticide labels.

Another example of the scope of the toxics problem is the explosion in hazardous waste. It has been estimated that the amount of hazardous waste disposed of in the U.S. in the 1940s was less than one million tons/year, but in the past decade that figure rose to over 400 million tons; i.e., a little more than one ton/year for every citizen in the United States.

Today there are over 50,000 hazardous waste landfills in this country, more than 20,000 of which have been officially recognized as imminent and substantial dangers.

And this does not include the 180 million tons/year (4 lbs/day/person) of municipal solid waste we generate, much of which is hazardous in fact if not by legal definition.

By comparison with other states, Arizona generates very little hazardous waste, about 50,000 tpy (based on 1989 DEQ figures). But we are trying hard to make it a bigger problem by continuing to import tens of thousands of pounds a year from other states. And, of course, like everybody else we keep finding more and more illegal dumps and spill sites around the state.

Another important source of air toxics is accidental releases. EPA's National Response Center currently logs about 15,000 chemical spills a year. The Maricopa County emergency response unit responds to about 600 chemical incidents a year. Many of the spills are trivial, but EPA's Acute Hazardous Events Database shows that there were 11,000 events in the U.S. between 1982 and 1986 that released *extremely* hazardous substances into the environment, resulting in 303 deaths, 11,341 injuries, 464,647 evacuations. And this does not include the oil spills that are becoming almost routine, or the mass destruction of the Sacramento River (caused by a chemical the EPA does not consider *extremely* hazardous).

The accident problem, like the cancer problem, is getting *worse,* not better. The period from

1987 till now has been one the deadliest in the history of the petrochemical industry. According to one compilation, the twelve worst accidents in that period have killed 79 people, injured 933 and cost about $2 billion in property damage (Schneider 1991). In 1989 (the last year we have insurance industry figures for) there were eight major avoidable chemical accidents, including the catastrophic Phillips Petroleum explosion in Pasadena, Texas. So far in 1991 there have already been at least 6 major chemical accidents in the U.S. killing 17 workers and injuring hundreds; for instance, the Louisiana fertilizer plant explosion that killed 8 workers.

And it could be worse; the only reason we haven't had our own Bhopal yet is because we've lucked out, not because of good planning or adequate response. It is no wonder that the Oil, Chemical and Atomic Workers union has called its own industries "Out of Control."

Reforming the Arizona Air Quality Program

Every year the brown cloud over our cities and our national cancer epidemic get worse. One of the main reasons they get worse is that our state and federal air programs since the beginning have been based on three false principles: first, the principle that dilution is the solution to pollution, a principle we all know is false. Dilution does not get rid of toxics and cancer, it just spreads them around.

Second, the principle of assimilative capacity, the assumption that we can keep pumping poisons into the environment and the environment will assimilate them and make them harmless. Twenty years of environmental regulation based on the assimilative capacity model prove that it doesn't work. The earth is not assimilating our poisons; instead, incremental loading is turning our entire biosystem into a toxic waste dump. There is a growing hole in the ozone layer, the oceans are filling up with toxic gunk, and there are growing levels of industrial poisons in living tissue all over the world.

And third, that toxic chemicals have the right to be considered innocent until proved guilty.

It's an insult to our bodies and to our basic rights as human beings for the government to continue forcing us to be exposed.

The only reasonable solution is to stop adding to the soup and start cleaning up the existing mess. This means we have to start serious—by which I mean mandatory—implementation of toxic use reduction and other forms of pollution prevention, rather than relying on volunteerism and end-of-the-pipe controls. It means that the Governor and Legislature have to direct DEQ to begin enforcing the law we passed in 1986 that says "*the policy of this state [is] that no further degradation of the air in the state of Arizona by any industrial polluters shall be tolerated*." [ARS 49-401(B)]

The state has the opportunity now, while we are incorporating the 1990 federal amendments, to reform our air quality program to protect human health and the environment. The following points are essential components if Arizona law is going address the air toxics problem adequately.

1. First, we need to repeal the current prohibition against having standards stronger than federal standard. The Federal law is weak, weaker now than when the state Legislature passed the prohibition. State law must be stronger than the federal Act in order to provide even minimally adequate protection.

2. Second, since car exhausts are a major, if not <u>the</u> major contributor to the toxic soup, the state

should adopt the California tailpipe standards rather than the weaker federal standards.

3. Require Phase II vapor controls for volatile organic compounds (VOCs).

4. Rather than adopting the federal strategy of deferring the health-based standard for a decade or so (the first MACT standards won't be implemented until 1996, the first residual risk standards not until 2005), Arizona should strengthen its current strategy of coupling health-based and technology-based standards.

It shouldn't be a matter of either/or. Industries should be required to eliminate releases altogether where necessary to protect public health and the environment with an ample margin of safety; *and* to cut down emissions to the maximum extent achievable by the best available technology; *and* to monitor and report their use and release; *and* begin *now* to implement the health-based standard, rather than wait 10-15 years for the federal toxics program to kick in.

To begin with, the state should adopt a straightforward narrative standard requiring that no facility shall be permitted to emit pollutants in an amount that causes or contributes to adverse human health or environmental effects. The precept should be the same as for the Clean Water Act: no toxics in toxic amounts. And the burden of proof should be on the polluter, not the state, to prove that it is complying with the law.

Then, in setting permit conditions, require whatever control strategies will guarantee compliance with the narrative standard and will reduce emissions the most.

Currently, the state gives precedence to its health-based Air Quality Guidance (AQG) list, the numeric values of which are based on the state's one-in-a-million acceptable risk level policy; if an emission does not exceed an AQG, DEQ never even considers Best Available Control Technology (BACT), which in many cases would require stricter limits.

Industry has proposed that the state weaken its current strategy either by requiring the AQG list to go through rulemaking or by dropping it altogether and using only technology-based MACT standards for the next decade or so until the feds issue residual risk standards for the short (189 substance) federal list.

None of these industry and government proposals is acceptable. Instead of dropping the AQG list or tying it up in rulemaking for years, the state should (a) expand it to include all known air toxics; (b) adjust its numbers to provide adequate margins of safety for humans and the environment; then (c) use the list as rule of thumb guidelines (as was originally intended), but require facilities to meet the narrative standard whether they use BACT or MACT or whatever.

5. DEQ's AQG list is based on the EPCRA Sect. 313 list. Last week the department proposed incorporating the federal list from the 1990 amendments, which would bring the total number of regulated toxics to about 340. That still falls far short of the number of known air toxics. The state list should include at least the following substances if they are known to get in the air:

> a. Any chemical, chemical compound or mixture listed in sections 112(b)(1), 112(r)(3),602(a) or 602(b) of the Clean Air Act.
>
> b. Any pesticide registered in Arizona and routinely and deliberately released into our air, and especially the approximately 69 pesticides undergoing "Special Review" by the EPA (40 CFR 154); those undergoing other administrative review (including cancellation of use pursuant to section 6 of FIFRA [7 USC 136(d)]); those that are classified as

"restricted use" pesticides pursuant to FIFRA section (d)(1) [7 USC 136a(d)(1)]; and the 100 or so listed on the state's "Groundwater Protection List" of pesticides (ACC R-18-6-301).

c. The (90 or so) reproductive toxins identified by the California Department of Health Services pursuant to Proposition 65 (CR 25249.8); 90 California Regulatory Notice Register 990, July 1990.

d. The 500 or so substances regulated by OSHA as workplace air contaminants pursuant to 29 CFR 1910.1000, which—in order to comply with OSHA rules—are routinely vented out of workplaces into the outside atmosphere.

e. The 100 or so Extremely Hazardous Substances listed pursuant to EPCRA section 302 [40 USC 11002(a)(2)] and the additional 100 to be listed pursuant to the Accident Prevention clause (section 112[r]) of the 1990 amendments.

f. Any substance identified as a carcinogen by the Carcinogen Assessment Group of the EPA, by the International Agency for Research in Cancer or by the National Toxicology Program as a known or probable human carcinogen.

g. Any liquid or gas identified as toxic through inhalation by the Secretary of the federal Department of Transportation (under 49 CFR 171).

h. Any other air contaminant on the hazardous substance list adopted by the state in 1991 pursuant to HB 2121. One of the main purposes in establishing that list in the last Legislative session was to provide the basis for DEQ to develop a comprehensive, multimedia database for coordinating all of the state's toxics regulatory programs. Plugging the air quality program into that data system should be the second step in the process.

Provisions should be made for delisting substances by petition on a showing that the substance in question does not get into the air (cf. California's *Air Toxics Control Act*).

6. Address more than one chemical at a time. The federal standards and the state's current regulatory scheme are based on the risk of inhaling only one chemical at a time, which does not correspond to our real-life situation. They don't take into account either aggregate or cumulative exposures to multiple chemicals, and don't make allowance for extremely potent toxins which may not be adequately controlled with a 10^{-6} standard.

A 1984 EPA study, for instance, found that health risks from simultaneous exposure to just 10 to 15 air toxics in urban areas were typically as high as 1/1000 or 1/10,000. These risks were not associated with single sources but with the additive effects of the chemicals.

7. Furthermore, the Arizona system is based primarily on cancer risks and acute poisoning risks to humans and should address other chronic and genetic problems, as well as address any adverse effects in animals and plants, including effects like bioaccumulation, biomagnification and persistence, which have already been recognized as toxic characteristics by the state in H.B. 2121.

Recent studies in the Maryvale area of Phoenix, for instance, have shown that chlordane residues are still around a decade or more after application for termite treatment, and DDT (which was banned from use 20 years ago) is still found in high concentrations in the Gila River and in real

estate throughout Arizona.

8. Begin controlling area sources now (do not wait 10-20 years for the federal Act to do it); area sources were not even funded in EPA's 1991-92 budget, so the federal program is off to a typically inauspicious start.

9. The state should define a major source as one that emits five tons or per year (tpy) or more of a single pollutant, or 15 tpy of any combination. Under the 1990 federal amendments, which define major source as 10 or 25 tpy, almost nothing but smelters and power plants are likely to be regulated as major sources. The current DEQ definitions (which define a major source as one that emits 100-250 tpy) need to be rewritten to address air toxics. Regardless of the size of a source, it should be required to comply with the health-based narrative standard.

10. Major sources should be required to install best available continuous emissions monitoring equipment and make periodic reports to the state.

11. There are fewer than 200 facilities in Arizona reporting high levels of toxic releases. Many of them report no air releases. Similarly, fewer than 100 facilities account for almost all the hazardous waste generated in the state and sent off-site for disposal. Even fewer account for most of the toxics discharged into our waters. If the DEQ ever gets around to doing a toxics audit of the state, we'd probably find a lot of overlap among those various categories of toxics users and be surprised at how few companies use and release the bulk of toxics in the state.

The air program should focus on these priority facilities, which probably number fewer than 100, and require them to begin implementing stringent pollution prevention measures now.

12. The state should also start requiring Accident Prevention plans [cf. section (112)(r)], from any facility handling 500 pounds per year or more of any one or 1000 pounds or more of any combination of EPCRA section 302 Extremely Hazardous Substances (42 USC 11023) or the 16 additional Extremely Hazardous Substances listed in the 1990 amendments [42 USC 7412(r)(3)].

Again, Arizona should not wait for the feds. EPA regulations for Accident Prevention are not due until November 1993 and the first facility plans not until November 1996. And these dates will probably be pushed back because Vice President Quayle's Council on Competitiveness declared the Board unconstitutional, so President Bush didn't even appoint Board members until a week or two ago (when faced with a lawsuit by NRDC and others).

Arizona facilities should be required to submit hazard analyses, risk management plans and emergency response plans by the end of 1992, demonstrating how accidents will be prevented and how effects of accidents that do occur will be mitigated.

13. Last but not least, the state should require clear labeling of consumer products to disclose the toxic effects of their contents, including how and how much they contribute to the air toxics problem during manufacture, use and disposal. A great deal of our problem is consumerism, and a great deal of the problem can be solved if consumers are given a clear choice in the marketplace.

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Groups Denounce Weak Air Quality Bill, Call on Legislature to Protect Human Health and the Environment (1992)

Michael Gregory (1 June 1992)

Members of the public health and environmental communities have expressed concern for some time about the continuing lack of progress in Arizona's air quality legislation. For several months, and especially in recent weeks, our concern has turned more and more to alarm as the legislature has rejected one strengthening amendment to SB 1430 after another. Our concentrated effort to improve the bill has met with little success: the problems we pointed out six months ago still remain.

If it were to pass in its present form, SB 1430 would constitute a significant retreat from current levels of protection allowed under Arizona law. The bill would:

- Weaken existing state regulatory policy that allows the DEQ director to limit emissions of toxic air pollutants strictly on the basis of human and environmental health protection
- Allow many loopholes for polluters to escape regulation
- Weaken citizen suit provisions
- Weaken citizen right-to-know
- Weaken DEQ director's ability to require data about hazardous air pollutants from industries

It is our considered opinion that the state would be better off with no bill than to have SB 1430 pass in its present form. Fortunately, those are not the only alternatives.

This morning we presented proposals compiled by the Arizona Center for Law in the Public Interest, Arizona Public Health Association, Arizona Toxics Information, the Sierra Club and others, which presented not only a list of concerns but suggested corrective language for some of the bill's more serious problems in four specific areas: Policy; Scope of the Program; Public Participation and Public Disclosure; and Administration and Implementation.

We are not proposing improvements at this time to many other areas of the bill for instance, enforcement and penalties, funding and fees, timelines and schedules, jurisdictional issues or other matters which have been decided by state and county negotiators.

The task was undertaken in an attempt to improve a terribly complex and awkward bill which, in attempting to conform the state's regulatory program to the federal Clean Air Act amendments of 1990, too often has forgotten its primary purpose. We offer these proposals in the spirit of continuing cooperation and the hope that the conference committee can resolve the differences of the various parties to achieve a final product that offers genuine protection for human health and the environment from the hazards of air pollution.

Policy

Sound public policy for assuring safe air quality involves questions of what kind and what level

of protection the state will afford its citizens and environment. Current law addresses the second of these questions in ARS §49-401(B), which says that "the policy of this state is that no further degradation of the air of the state of Arizona by any industrial polluters shall be tolerated." This policy is not well served by SB 1430, which does not address pollution from existing sources, allows numerous exemptions in permitting requirements and limits citizens' right to know and their ability to sue for protection from toxic pollutants.

Perhaps most significantly, SB 1430 would substantially weaken the current Arizona program by providing a weak definition of adverse health effects and by adopting the new technology-based approach of the amendments to the federal Act while dropping or deferring for several years the current DEQ practice which sets emissions limits in permits based on health guidelines established by the state Department of Health Services.

We are strongly opposed to abandoning the current health-based regulatory policy by replacing it with just the new federal concept. It is not a question of one or the other: instead of dropping or deferring health-based limits, the bill should (1) clearly authorize the director to keep using health-based methods of setting permit limits, (2) add the technology-based standards required by federal law, and then (3) require polluters to meet whichever standard best protects human health and the environment.

Definition of "Adverse Effects to Human Health" Instead of creating a technology-derived definition of adverse health effects taken from language in hazardous waste laws as proposed in the House-engrossed bill, SB 1430 should adopt the health-based definition in the Clean Air Act.

Rules; hearing In order to help reduce existing pollution as well as to help prevent future pollution, the bill should cross reference the toxic use reduction section from last year's HB 2121 which includes both carcinogenic and other toxics that are covered in the air quality program; the air quality program would thereby meet the objectives of the US Department of Health and Human Services plan, *Healthy People 2000*.

Risk Management Analysis (RMA) In order to adequately protect public and environmental health, the Director must have clear authority to go beyond SB 1430's technological standards of MACT (so-called "Maximum Available Control Technology) or HAPRACT ("Hazardous Air Pollutant Reasonably Available Control Technology"). To this end, just as the bill would allow a polluting industry to use RMA to escape MACT or HAPRACT, the Director should be able to use RMA to go beyond MACT or HAPRACT in permitting.

Public Participation and Public Disclosure

The public's right to know and to participate in the political process are both threatened by various provisions of the bill, which would curtail notification of and comment on department actions, as well as sharply limiting the director's ability to gather information necessary to adequately run the state's air quality program.

Redesignations Provision should be made to require an opportunity for public comment on proposed redesignations. As written, the bill would only require public comment on "technical" issues by "affected communities," a reference (p.19 line 16) that could be read as applying only to municipalities.

Public comment on permits By eliminating the current two-stage permitting process

whereby the public has at least two opportunities to comment on permit proposals, the bill substantially diminishes public participation rights. The unitary permit concept might be acceptable if the bill provided sufficient compensatory opportunity for public involvement, but instead the bill would establish only a woefully inadequate public notice and comment procedure, whereby the public might receive as little as two weeks notice of a proposed permit.

Moreover, the form of public notice required under the bill is very inadequate: notice would consist either of notice in two newspapers "of general circulation" (notices typically run in fine print in the classified sections, making them difficult or impossible to find), and by posting of the property, which does little good unless an interested citizen happens to pass by the posted spot during the two week period.

If the public's opportunity to comment on air quality permits is going to be cut in half, then the quality and scope of public notice must be substantially improved. At a minimum, DEQ should be required to maintain a mailing list of interested parties, who will receive individualized notice of permit proposals. Counties should be required to do the same.

In addition, the time period for public comment should be at least 30 days, and opportunity should be provided to request additional time in the case of particularly complex or controversial permit proposals. Finally, the statute should require the director to place a copy of the permit application file, including the proposed permit, at some readily available location in the community where the source is located. Otherwise, concerned citizens will have to travel all the way to Phoenix simply to find out what is being proposed in their own backyards and why. The procedures that we are suggesting here are in most respects similar to those already followed by DEQ under the Aquifer Protection Permit program.

In addition, language on p.26 attempts to limit the content of public comment on permits. Such a limitation is truly offensive, and could very well violate the first amendment and due process rights of commenters. DEQ is perfectly capable of discerning relevant from irrelevant comments and there is no justification for legislative attempts to limit what people say about permit proposals.

Director's authority to require emissions data SB 1430 would unnecessarily restrict the director's authority to gather information about the pollutants emitted by a source, a limitation which would in turn severely restrict the public right to know what toxics are in the air.

Access to Public records (page 40, starting on line 7) The bill would allow industry to shield from the public vital information about polluting activities merely by asserting that the information contains trade secrets. Information submitted by a company to DEQ that would otherwise be public information will be presumptively treated as a trade secret whenever the company submits a "notice" that the information contains trade secrets. Thereafter, the only way that a party can obtain the information is if the Director goes to court to contest the claim of confidentiality.

This procedure is completely backwards. Under the water quality provision of the EQA (ARS 49-205), information submitted by discharging facilities is presumed to be public information unless the party submitting the data first demonstrates to the director's satisfaction that the information or part of the information contains trade secrets. Thus, the burden of proof is placed where it should be, on the party asserting some need for confidential treatment. Not only does SB 1430 shift this burden to DEQ, but also it gives DEQ the discretion not to contest confidentiality claims at all. Because DEQ would have to go to court to contest such claims, it is

unlikely that the Department would often dispute trade secret claims. Thus, the public would be barred from reviewing information directly relevant to public business without any effective redress at all.

Scope of Program

A. Pollutants Hazardous air pollutants, also referred to as air toxics, are substances which cause cancer, birth defects, nerve damage, reproductive dysfunctions, immune system disease, and other kinds of acute or chronic health problems. Some 1200 air toxics have been identified under various federal and state laws. Arizona's existing air program currently identifies and regulates about 250 of these according to ambient air quality guidelines developed by the state Department of Health Services. These 250 pollutants are known to be emitted by Arizona industries and are currently regulated through DEQ permits.

But SB 1430, instead of adopting this list of 250 substances already regulated by the state, would substitute a list of 189 substances covered by the 1990 amendments to the federal Act, only about half of which are on the Arizona list. According to the latest EPA figures, over 5,000,000 pounds of substances regulated by Arizona but not on the federal list of 189 were emitted by Arizona manufacturers in 1990. (And that is just for the 12 substances that have to be reported by manufacturers under the community right-to-know law; it doesn't include the other 130 or so toxics not on the federal list and doesn't count the toxics emitted by facilities like power plants and other non-manufacturing industries that aren't required to report their releases.)

SB 1430 as passed by both Houses of the Legislature, marks a significant retreat from the level of protection afforded by the current Arizona program. First, it would not adopt any list of hazardous air pollutants in the immediate future. Second, by November of 1993, it would require the director to adopt only the shorter federal list, missing many of the toxic pollutants already being emitted by Arizona industries. Furthermore, the bill would not adopt either list by statute, requiring instead that both lists be run through an expensive and time-consuming rulemaking exercise to prove what we already know--that the substances are toxic. Meanwhile, Arizona industries would continue to emit tons of toxic pollutants.

We propose instead that both of these short lists should be designated in statute, and two other lists—containing approximately 500 toxics not on either the Arizona list or the federal list of 189—should be adopted by rule within one year of enactment. These two lists include pollutants currently regulated as workplace air contaminants under OSHA, and acutely hazardous wastes currently regulated under state and federal law ("the RCRA P-list"). It should not be permissible for facilities to comply with OSHA or avoid RCRA simply by taking these substances out of the workplace and out of the regulated wastestream and putting them into our ambient air where they will not be regulated. Substances on the OSHA and RCRA lists that do not meet Arizona's criteria for hazardous air pollutant designation would not be listed.

B. Sources

1. Mobile Sources

Stage II Vapor Recovery The environmental community has argued for months that Stage II recovery should be required statewide, not just in Maricopa County. The size of a county's population is irrelevant to this issue: uncontrolled gas pumps directly expose individuals to fumes of benzene and other toxics. Why should people in Sierra Vista, Kingman, Yuma and Flagstaff have to live with a lower standard of health protection than that provided for Phoenix?

Not only does SB 1430 not provide equal protection, it leaves a loophole through which even Maricopa County could escape installation of Stage II systems. To prevent this, the bill should clarify that Stage II Vapor Recovery will still apply even if Phoenix is "bumped" into a more serious ozone classification.

Transportation control measures (p.17, starting on line 28) The bill would delete requirements in existing law that regional planning agencies prepare implementation plans that include specific transportation control measures. Instead of deleting requirements for transportation control measures, the Legislature ought to be requiring a redoubling of efforts to reduce vehicle emissions through a reduction in vehicle traffic.

Proposed Miscellaneous "new" sections on Particulate Controls The Phoenix area is facing EPA sanctions within approximately 16 months unless the state comes up with an adequate plan to reduce airborne particulates. This bill contains virtually nothing to address this problem. A proposal to mandate California diesel fuel standards in Arizona—which would do much to cut particulate emissions—as been deleted in the House. The bill also fails to mandate tougher emissions testing for diesels, clean fuel requirements for all municipal buses, particulate traps for diesels or transportation controls to reduce particulate-generating vehicle traffic. Without serious legislative efforts to address particulates, Phoenix runs a serious risk of federal sanctions.

2. Fixed Sources

Definition of "commence" The bill should clarify that a source owner cannot escape new source requirements unless all necessary approvals have previously been obtained from both federal *and* state agencies. Also, in order to more closely track the federal definition, a reasonable limit should be placed on duration of exempt construction.

Definition of "construction" As proposed, "construction" arguably would not include a change in the method of operation that is not accompanied by a physical change. This would amount to8 a major weakening of the EPA definition and would improperly allow major facilities to escape new source review (and public review) of substantial operational changes that increase emissions.

Definition of "major source" The bill leaves the definition of "major source" entirely to rulemaking. The bill should clarify that sources defined as major under existing DEQ rules or under the Clean Air Act will be "major" without rulemaking. Otherwise there could be a regulatory gap in which DEQ arguably will not be able to regulate major sources that clearly should be regulated merely because rulemaking hasn't been finished. Also the definition should be amended to make clear that DEQ need not designate each major source by rule. The proposed language might be read as requiring this (p.14 line 36).

Exemption of sources from permitting requirement The bill would allow the director to exempt individual sources or whole classes of sources from permitting merely by finding that the source or sources will have an "insignificant" adverse impact on air quality. The term "insignificant" is completely undefined in the bill, leaving enormous room for abuse by the department. To prevent gross abuse of this authority, the provision should be modified to establish limiting criteria for a finding of insignificance.

3. Toxics Sources

Designation of sources of hazardous air pollutants

Sources required to have permits The bill fails to regulate existing sources, an entirely unreasonable exclusion since existing sources are obviously responsible for current air toxics.

Accidental Release Prevention Program Although some substances and facilities that handle hazardous air pollutants are covered by planning and reporting requirements of the Emergency Planning and Right-to-Know Act, many are not. The federal Clean Air Act recognizes this loophole by requiring an accidental release prevention program for some substances and some facilities; but the federal program does not cover all the sources and pollutants covered by the state program and would not, in any case, go into effect for several years. The state must require Arizona sources to put accident prevention and minimization programs in place now.

Administration and Implementation

Definition of "modification" The definition of "modification" should be changed to make clear that where there is no established "de minimis" amount for a particular pollutant, then any change that results in any increase in emissions of that pollutant constitutes a modification. Without this change, regulated parties might argue that changes in their operations that result in emission increases are not "modifications" that trigger various requirements unless DEQ has affirmatively established a "de minimis" level for that pollutant. With respect to air pollutants, the task of setting "de minimis" levels for all air pollutants would be daunting indeed. Unless and until EPA and DEQ are able to set "de minimis" levels for specific pollutants, the statute should establish a presumption that any increase in emissions is more than "de minimis."

Preemption of more stringent local standards The bill implies that local standards can preempt state standards only if the local standards "are specifically identified as applicable to the permitted source or component of the permitted source." This would arguably require local ordinances governing air pollution to identify by name every source to which that regulation might apply before the regulation could preempt state rules. If so read, the statute would make it virtually impossible for larger counties to adopt regulations that would ever preempt state regulations, because it would be essentially impossible to identify sources by name in each regulation.

Director's duty to maintain SIP The bill would require the DEQ Director to maintain a state implementation plan as required under §110 of the Clean Air Act. The reference to §110 is too narrow. A number of other sections of the Clean Air Act prescribe requirements for SIP's.

State backup for local government commitments The Clean Air Act requires state implementation plans to provide "necessary assurances that, where the state has relied on a local or regional government, agency, or instrumentality for the implementation of any plan provision, the state has responsibility for ensuring adequate implementation of such plan provision."

The bill (p.20, starting at line 47) does not provide the assurances required by this section of the federal Act; it merely provides an opportunity for the state to seek injunctive relief against local governments that fail to implement SIP commitments. This provides no assurance whatsoever that local SIP commitments will be implemented. Not only is the filing of the injunctive action contingent on a non-implementation "finding" by the director, but also the outcome is contingent on the vagaries of a judicial action for injunctive relief which could drag on for years while SIP

commitments remain unfulfilled. EPA is likely to disapprove any SIP provision that relies on an assurance provision such as the one in the bill and, consequently, impose sanctions on the state for failing to comply with the Act in this regard.

Citizen Suits The citizen suit provision in the bill is far too limited in scope and inconsistent with the rest of title 49. Under the bill, citizens can file suit only against the director for failing to perform a non-discretionary duty, or for unreasonably delaying action. The provision effectively shields industry from citizens' suits under state law, even for repeated and egregious violations that are being ignored by state and local officials. Citizens' suits are already allowed under state law against industries that violate water quality standards and permit requirements. Industries that pollute the air should not be treated differently.

Permits: Financial and Technical Capability The water quality provisions of the EQA allow the director to deny an aquifer protection permit if he determines that the applicant lacks the technical or financial capability to fully carry out the permit terms. (ARS 49-243.I) In addition, the Director may deny a permit based on the applicant's poor compliance record with respect to other environmental laws. Similar authority should be given to the director and the counties under SB 1430 for air quality permits.

Some of our worst environmental problems have come from companies that lacked the resources or the competence to adequately control pollution, to clean it up after the fact, or to compensate citizens injured by such contamination. The director of a county air quality control district was recently quoted as saying that he lacked authority to deny a permit to a felon who had been convicted of tax fraud.

Minor modifications The bill would allow sources to make very substantial changes in their methods of operation without any meaningful DEQ review. Under current law, a permit modification occurs if a source plans to shift to an entirely different kind of production process, or replace pollution control equipment with entirely different equipment. In addition, under current law, such a source would have to obtain a separate operating permit before it could start using such new equipment. This approach, which has been followed for many years in Arizona and other states, enables DEQ to ensure that new processes and pollution control equipment will in fact operate as promised, and will produce continuous compliance with relevant standards.

The bill would do away with this sound, preventative approach. Under the proposed version of ARS §49-426 - 49-426.01, a source could completely change its pollution control equipment without any real opportunity for DEQ review. Under the proposal, a permit modification would generally be required only where there is a change in actual emissions.

The problem with this approach is that it relies entirely on the technical competence and good faith of the persons who operate the source. Such persons might believe that a change in pollution control equipment will not result in a change in emissions, but careful DEQ review could very well reveal that they are wrong. Even worse, a source operator might know or have reason to know that a change in operations will in fact result in a significant emissions increase, but simply fail to report that fact to DEQ. When the "mistake" is discovered, the source operator would doubtless claim that he honestly believed that there would be no change in emissions and, therefore, did not apply for a permit revision. At this point, it would be extremely difficult or impossible to demonstrate what the source operator knew or should have known; and until the "mistake" is discovered, the source would be emitting more pollutants than were allowed under the original permit.

The problem is compounded by the fact that the bill requires a source to give DEQ only seven days advance notice of a proposed change. This is a totally inadequate amount of time for state officials to review even a moderately complex proposal to change operations. In most cases, DEQ will simply be unable to respond at all to such notices. The Clean Air Act does not require such results, but merely requires that for a state permit program to be approveable by EPA, that program must include provisions to allow for certain changes within a permitted facility without requiring a permit revision, provided that the source provides a minimum seven days advance notice of proposed changes, so that DEQ has a meaningful opportunity to perform its role of reviewing changes that could have severe environmental consequences.

Permit transfers The bill would eliminate a restriction in current law on permit transfers and allow any permit holder to transfer the permit to anyone else merely by providing notice to the director. This provision could have disastrous consequences. In deciding whether or not to grant a permit, the director should be able to consider the capability of the permit applicant to maintain and operate the pollution control equipment properly, and to otherwise carry out permit conditions. SB 1430 would allow transfer of a permit to a person with no capability whatsoever for operating the facility, and potentially to someone who has a long history of violating state and federal environmental laws.

The director would apparently be powerless to stop such a transfer. Moreover, the transfer procedure could very well be used by a permittee as a way of evading an enforcement action. In the face of an administrative or court action for injunctive relief and penalties, a permittee might simply transfer the permit to another party, and that party would doubtless then assert that the enforcement action should be halted because the new owner is not responsible for the past violations. Although DEQ might have some arguments against such a position, the permit transfer would undoubtedly result in a major complication and delay in the enforcement process.

Conditional Order The House Bill would allow DEQ to completely waive all applicable statutes, rules, and permit requirements for as long as 7 years merely by finding; a) that such waiver won't endanger public health or the environment and won't impede attainment; and b) that the source has experienced an equipment breakdown "beyond" its control or that "there is no reasonable relationship between the economic and social cost of, and benefits to be obtained from achieving compliance."

This sort of blanket waiver provision guts the entire statute. The public will never be assured that emission limits, monitoring requirements, work practice requirements, and other vital conditions will be adhered to and enforced. Sources will be able to confuse and obfuscate enforcement actions by applying for waivers of the conditions sought to be enforced.

The waiver provision is not saved by the restrictions on its use. The requirement that the waiver cannot endanger public health or impede attainment is of limited value, since it may be very difficult to show that a single source is causing such results. Moreover, many important permit conditions such as monitoring and reporting requirements, could arguably be waived without any direct impact on public health; yet such waivers would severely undermine enforcement efforts.

The requirement of a finding that the cost of compliance exceeds the benefits is equally untenable. Not only is this a highly subjective standard that could be grossly abused, but also it would allow sources to second guess standards that had been long established and carefully developed in prior rulemaking and permit proceedings that were subject to public review. The public is entitled to certainty that, once emission limits and other requirements have been set in rules or permits, they won't be subject to case-by-case weakening just because a source claims

it's "too costly" to comply.

If a waiver provision is justified at all, it ought to follow the much narrower approach taken under the aquifer protection permit program. ARS 49-251. That statute allows waivers under only two limited circumstances and never for more than 90 days.

On Proposed Arizona Air Permit Rules (4 July 1993)

Michael Gregory, submitted to the Arizona Department of Environmental Quality (4 July 1993)

Dear Ms Wrona:

The following comments on the department's proposed rules for controlling air pollution are submitted in addition to those comments submitted on our behalf, and on behalf of other organizations, by the Arizona Center for Law in the Public Interest.

During the regulatory negotiation workshops conducted by the department preparatory to development of these proposed rules, we offered many suggestions for improving the various versions of draft rules to make the final product protective of public health and the environment; in reviewing the rule currently proposed, we find that almost none of our suggestions have been incorporated. Consequently, we find the proposed rule highly inadequate, aping the weakest aspects of the federal rules even when not required to follow the federal example, and allowing an inordinate number of exemptions, waivers, and other unjustifiable means for polluting industries to escape regulation. The following comments are not intended to be address all the inadequacies of the proposed rules and are made in addition to comments we submitted during the workshops, and incorporate by reference such of those earlier comments as are applicable to the current proposal.

R18-2-101. Definitions

2. *Actual emissions* This definition is indicative of a major problem with these rules, which is their terminological obscurity, an obscurity so pervasive that it borders on obfuscation, all but precluding meaningful participation of the lay public. The term "actual emissions" is here defined, for instance, contrary to common usage, to mean, first, an average of emissions "representative of normal source operation" during a prior two-year period based usually not on "actual" monitoring, but on "calculations"; and then to mean "the potential to emit." Calculated averages and potentials not only do not fall within the normal scope of meaning of the term "actual", but their use in these rules, when coupled with similar twisting of standard English in other sections, strains even the bounds of typically garbled governmentese.

We are sensitive to the pressures of time and politics which have to a great extent driven the department to adopt the tortured language of EPA's rules and the even more tortured language of lawyers trying to build loopholes into the rules, but given these conditions on top of a federal law and a state statute that are substantively complex, we urge the department to take advantage of the period between this draft and the final rules to revisit this issue and to go the extra mile(s) in trying to write these rules in plain English.

13. *Applicable requirement* As used throughout the rules, this term is highly confusing, especially in contexts that refer to requirements imposed in addition to "applicable requirements." The unsuspecting reader (i.e., the general public) has good cause to ask, "When would a requirement *not* be an 'applicable' requirement?"

36. *Excess emissions* The confusion here between "limitation" and "standard" was brought up in the workshops but has still not been cleared up in this draft.

50. *Incinerator* The qualification limiting the definition to devices used "for the purpose of reducing the volume of material" should be dropped. The purpose of the device is irrelevant; its manner of operation is what matters. Furthermore, to limit the definition this way would again

contradict normal usage, in which the term also includes combustors that are used to change physical characteristics in other ways than volume reduction, and those which change chemical or toxicological properties.

R18-2-303. Transition

C. While a source notified by the director of the source's obligations should have to respond in a timely manner, so should those sources that are obligated by law but not notified by the director. The burden should not be on the department (and therefore on the taxpayer) to provide sources with notice that they are subject to permit requirements, but on the sources themselves to determine their applicability and act accordingly. While the department should generally publicize the requirements of law, it should not squander scarce resources searching out and spoonfeeding industries who are supposed to be responsible for their actions.

Furthermore, while the proposed 180-day deadline for a source to respond to the director's notification perhaps in most cases would not constitute an unreasonable burden on public health and the environment, the rule should also specify that (a) sources obligated by law must apply no later than one year after the effective date of the rule, unless notified by the director that a later date will be acceptable (thereby allowing the director to stagger the department's application review load; and (b) that sources must submit not just applications but *complete* applications.

We note that in an earlier draft the department would have required specific deadlines for submittal of complete applications by Class II sources

D. The proposed five year deferral of application deadline for major sources puts an unreasonable and unnecessary burden on public health and the environment. Complete applications should be required within three years, unless the source demonstrates convincingly to the director and the public that an extension is necessary and in the best interests of public health and the environment.

E. While we are glad to see the proposal for a schedule of compliance included for submittal of elements missing from permits "determined to be complete prior to the effective date of these rules," the rule should require that the schedule be limited by a deadline of 180 days, after which the source will be considered in violation. Also, the phrase "elements addressed in the application" should be clarified (perhaps by reference to R18-2-306).

R18-2-304. Application processing procedures As we said in the workshops, the rules should provide clear procedures for involving the public from the beginning of the application process. Provision should be made for notification to the public by the department that an application has been received, and the applicant should be required to post effective notification in the community where the source is located or to be located, including signage of the property and notice in the electronic and hardcopy media in the vicinity. Application for a permit to pollute is certainly no less important than application for a business license and should require even more notice to an participation of the public.

C.2. The word "greater" should be replaced by the word "more".

E.1. The first sentence should end at the end of the first parenthesis "(standard application form section). The exemption provided in the rest of the sentence in unwarranted, unnecessary and unenforceable, since (a) the phrase "related to" is irremediably vague and (b) the form provided by the department should not require unrelated information.

E.4. Public health and the environment cannot affords for the department to be strapped to a 60-day response deadline. Since careful review of an application may take a great deal longer even with utmost diligence by the department. The 60-day requirement would establishes a presumption in favor of issuance, a "right-to-operate" under any conditions.

H. The clause "based on information and belief formed after reasonable inquiry" should be dropped; it makes the certification useless, since certifiers would not be certifying to anything. They either certify that the application is true, accurate and complete or they don't. The same language should be corrected at R18-2-309.A.5.

R18-2-305. Public Records The rule should spell out that only specific information may be deemed confidential and prohibit "blanket" exemptions.

B.2. Rule should specifically require that the applicant's "supporting information" include a demonstration that the information for which a claim of confidentiality is made, is not subject to the disclosure requirements of 305.A.

B.2. The rule should require that "supporting information" also be "sufficient to allow" citizens equivalent evaluative opportunity, including a general description of the nature or category of information being withheld; without such information, it would be difficult if not impossible for citizens to exercise their legitimate right to petition for disclosure.

C. The director's notice should include not only a statement that information has been withheld, but the descriptive information required in B.2.

R18-2-306. Permit Contents

A.3.b. The language of this paragraph is so nearly opaque as to appear meaningless, being circular and/or referencing non-existent referents. Besides referring without explanation to the difficult concept of "periodic monitoring" that is not "periodic testing or instrumental or noninstrumental monitoring," the paragraph suffers from apparently circular referents, especially in the clause the phrase "yield reliable *data* from the relevant time period that are *representative of the source's compliance* with the permit as pursuant to subsection (A)(4)." Section A.4. deals only with recordkeeping, so the only requirement seems to be to make sure that the recordkeeping corresponds to the monitoring record—not that either correspond to actual conditions monitored. The same semantic difficulties occur at R18-2-309.A.1.b.

Furthermore, the phrase "that are representative of the source's compliance" appears to condone the source's ignoring of "reliable data" that are representative of the source's *non*-compliance.

A.4. Rather than just listing all these elements, the department should provide a form to gather all the required data. The form as we said in the workshops, should be modeled after the NPDES Discharge Monitoring Reports in order to provide the lay public with a useful document for determining a source's compliance.

A.5.a. Monitoring records should be submitted monthly, not every 6 months as proposed.
A.5.b. We agree that the director should have discretion to define "prompt" in regard to reporting of "deviations", but there should be a limit: all deviations should have to be reported at the most within 48 hours (as the department proposes for "emergencies" in 306.E).

R18-2-309.A.2. The syntax here makes the rule fairly indecipherable. It reads in relevant part (starting with §A): "All permits shall contain the following elements. . . . 2. All applicable recordkeeping requirements and require. . . ." Part of the problem is that it requires a permit to "contain. . . . requirements" rather than comply with them.

This kind of imprecise language, as we noted several times during the workshops, pervades the rules; in this same section (A.2.a.iii and iv), for instance, "permits" are to "require. . .Records of required monitoring that include. . . . The company. . . [and]. . .techniques. . ." when what is evidently intended is something like "The *name of the* company" and "a *description* of the techniques. . . ."

A.2.b. has similar problems with parallel structures: "All permits shall contain. . . .retention. . . ." simply makes no sense, even as governmentese; it probably could be challenged as violating the English-only law.

A.3. "with respect to compliance. . . . with respect to monitoring. . . ."

A.3.b. The referent of the phrase "the applicable requirements" is not clear, so it is not clear what requirements are applicable to what; is the phrase meant to refer back to "permit requirements" which were deviated from in the opening clause of the paragraph?

I am sorry to belabor the point, but if the rules are not readable, they are not accessible to the public, and are not legally valid or enforceable. A.4.b., for instance, says "Permits shall include. . . .means to monitor." Does this mean "Proof that the source has financial means. . . ."? Cf. A.4.c: "A requirement that the. . .certification include. . . .Whether. . . ."One cannot in English "include whether." (And, arguably, one cannot in English—or at least in formal English—have a "whether" without an "or not.") Again, A.5 the parallel structure breaks down completely: "the following elements. . . . .Any documents. . .shall. . . ." And again at A.7.c: why does paragraph c.iii break the parallel structure which is properly followed in c.i and c.ii?

Another problem with t.c.iii is the requirement for a schedule to "resemble and be at least as stringent as that contained in any judicial consent decree or administrative order." The requirement to "resemble" is, I suspect, meaningless in terms of enforcement, and the requirement to be "at least as stringent. . .as that contained in any. . .decree or. . .order" assumes against common experience that decrees and orders are never flaccid.

R18-2-309.B This rule is a little too open-ended. What kind of "special guidance documents and forms," for which "certain sources," based on what criteria to determine when such documents or forms will be developed and which sources will qualify for the special treatment, and at whose expense?

R18-2-310. Excess emissions

A.1. The verb tense and mood in this paragraph are confusing, going from past at the beginning (e.g., "resulted") to future conditional ("would result") to present at the end ("is performed").

As we said in the workshops, this whole section should be dropped. The needs of industry to escape penalty for unavoidable excesses is sufficiently addressed in the emergency provision (R18-2-306.E) and the language proposed here is utterly undocumentable and unenforceable; e.g., "minimized to the maximum extent practicable"; "impractical"; "in an expeditious fashion"; "all feasible steps were taken."

D. This paragraph would allow continuous or recurrent emissions to continue and recur without end as long as proper notice is given: "Excess emissions occurring after the estimated time period or changes in the nature of the emissions as originally reported shall require additional notification," but there is no equivalent requirement for stopping the exceedncesor for the department to issue notice of violation. The open-endedness is apparently eternal in regard to recurring excess emissions, since the term is not limited in time (i.e., frequency of recurrence is not taken into account) and may be allowed to recur again and again without penalty as long as the source notifies the department that they will recur. Presumably, an exceedance that occurs once may recur again a month year or a year later or several times over the life of the facility without being considered a violation.

R18-2-312. Performance tests

D. As we said in the workshops, the public should be given equal opportunity to observe tests. Therefore, the two week notice should be changed to 45 days and the word "observer" should be made plural (i.e., "observers") so the department may have more than one observer (one or more of whom may be members of the public) present.

G. The rule should spell out precisely how "emission limits. . .shall be determined by the performance tests." What are the formulas or conversion factors? Apparently this paragraph means that emissions limits will be set not according to needs of human health and the environment, but simply at whatever the tests indicate the source will emit or is capable of emitting.

If the limits are to be determined in this wholly mechanical manner, then they should be set at whatever the tests indicate is the best performance the mechanisms is capable of, not just an average performance level.

R18-2-313. Existing source emission monitoring The rule should require monitoring not only of the four source categories listed in the proposal, but of all sources for which reliable monitoring methods are reasonably available.

A.2. Why are we bothering with sources closing before 1982? Is this typo?

A.3.a. If the source is going to be exempted from continuous monitoring then periodic monitoring should be more frequent than the proposed annual stack test; they should be no less frequent than quarterly in any case, and monthly or more often in some cases.

A.3.b. This paragraph seems to say that since some CEM devices or systems will not provide accurate readings in some cases, then *no* CEM will be required. Rather, if any CEM system or device is reasonably available, it should be required.

A.3.c. The term "infrequently" needs definition. The department offers "less than one month per year" as an example, but where will it draw the line? Does twice a year get you out of CEM? Four times a year? Twice a month?

A.3.d-c are redundant; they are already covered in A.3.a.

A.4. Again, "expeditiously as possible" is vague; the repair process could go on indefinitely under this criterion.

C.2. The end of this paragraph should be dropped, beginning with the words ". . .when such facility of located." If the source puts out that much, it should have to install CEM.

E.1. The phrase "if known" is unnecessary and in any case difficult to prove/enforce. It should probably be dropped, since the source *should* know "the nature and cause of the excess emissions." If it is not dropped, language should be added to the effect that the report shall contain the information if known or if the owner/operator should have or can be reasonably expected to have known.

R18-2-315. Posting of permit These requirements should apply equally to any draft permit issued by the department so the public has a chance to review the draft before the end of comment period.

R18-2-316. Notice to building permit agencies "Special Use Permits" should be added to "building permits or approvals" since modifications, revisions and other potential emissions increases will not necessarily come to the attention of agencies concerned only with construction or buildings, per se. The word "may" in the phrase "If it appears that an air pollution permit will be required," should be changed to "may" so the county official is not given the burden of second-guessing the state.

R18-2-317. Changes allowed without permit revisions This rule is substantially similar to the draft rules upon which we commented in writing to the department and workshop on 11 February 93; we incorporate those comments here by reference. In addition, we suggest that A.2. be revised to read, "The changes do not cause or contribute to the exceedance of emissions. . . ."

Notification should also be required at the property and in the vicinity of the source as in the permit posting requirements.

R18-2-318. Administrative amendments

A.4. Changes in ownership should not be considered administrative changes and should require notification to the public.

C. The director should not be strapped to the 60-day limit; provision should especially be made for later response in cases where review has required submittal of additional information.

R18-2-319. Minor revisions We incorporate by reference our 11 Feb 93 comments on this subject made in writing to the department and workshop.

A.6. As with R18-2-317, revise to read, "The changes do not cause or contribute to the exceedance of emissions. . . ."

E. We continue to object strongly to the proposal to allow sources to make changes before they have received the director's approval. The opportunity for abuse is too great. A source could submit its "proposed revised permit terms and conditions" and implement them fully expecting the department to reject them, but willing to go through that process due to the cost savings in lowering controls or procedures in the interim between submittal and rejection.

R18-2-320. Significant revisions Again, we incorporate by reference our 11 Feb 93 written

comments to the department and workshop, where they are still applicable.

R18-2-321. Permit reopenings

A.1.a. The proposed rule would allow facilities to go on polluting too long after "additional applicable requirements" become applicable. The three year cutoff allowed by the Act should be shortened to two years for Arizona sources.

A.3. After the phrase "before a notice of such intent is provided to the source," insert the phrase "and the public."

R18-2-323. Transfers Again, we incorporate by reference our comments of 11 Feb 93.

B. Change the word "organization" to "person".

R18-2-324.B. Portable sources Following the sentence, "Upon issuance of a permit by the Director, the county shall terminate the county permit for that source," insert the sentence, "The Director shall not issue a permit with less stringent requirements than the county permit it replaces."

R18-2-328. Conditional orders

A.2.b. This clause should be dropped; it is totally opaque (i.e., meaningless) even if we assume that "reasonable" is being used in the reductionist sense of classical economic theory. It could reasonably be argued, for instance, that there is always a reasonable relationship between such variables.

B.1.e. Changes the word "applies" to "is claimed"; as written, the rule would improperly support the presumption that the Section in fact applies.

D. Change "may" to "shall"

E.1. Other sources should be limited to the same one year as Title V sources.

E.2.b. After "shall begin" insert "and proceed with due diligence."

E.3. The proposed renewal provisions as written are confusing and very much overly permissive. In general, the department should be making it very difficult, not very easy to get renewals for exemptions. In order to facilitate public review (and more thorough departmental review), petitions for renewal should be allowed as much as 120 days before expiration of the order. But the order should not be allowed to go on for 5 years as proposed. One deferral is more than enough. There should be no renewals.

R18-2-330. Participation

B. As noted above (and in our 11 Feb 93 comments which we again incorporate by reference) the public notice provisions should apply to more than "complete applications"; the rules should require that the public be notified (by more than notices buried in the classified ad sections) of permit applications and all proposed revisions.

On Proposed Modifications to Bowie Power Plant Special Use Permit (2007)

Michael Gregory, presented to the Cochise County, Arizona, Board of Supervisors, Bisbee, Arizona (14 March 2007)

The original Special Use Permit (SUP) for this facility was granted for an entirely different kind of operation than that being proposed. The proposed "modification" is not, in fact, a modification but a substitution for the original. Consequently, the applicant should be starting anew, filing for an entirely new permit, not a modification.

This is especially true since the proposed facility is both considerably larger and will generate a great deal more hazardous emissions and byproducts than the original.

A great many questions about the proposed facility remain unanswered at this time, among them: "What kind of operations will take place at the Renewable Energy Center?" and "Will the University Arizona actually participate and, if so, in what capacity?"

In regard to hazardous substances, the following questions at a minimum need to be answered before a revised SUP is granted:

A. **Air Emissions**

1. What is the difference in emission amounts for the following pollutants between the proposed and original plants?

a. SO_2
b. CO_2
c. NOx
d. Particulates
e. Mercury

2. What will the actual hourly and annual emissions of each of these pollutants be?

3. How will emissions of these pollutants be monitored?

4.Once an exceedance of emission limits is discovered, how long will it take to bring the emission back into compliance?

B. **Oxygen**

1. How much oxygen will be stored on-site at any given time?

2. How will the oxygen be contained?

C. **Ash and Slag**

1. What is the maximum amount of ash and slag to be stored on-site at any one time?

2. What are the hazardous constituents and percentages of these substances in the ash and slag?

3. What is the potential for these constituents to get into groundwater?

4. What mitigation measures will be taken to prevent off-site migration of the ash and slag (to air, water, soil or vegetation)?

5. Will there be any on-site treatment of ash or slag (e.g., vitrification, conversion to slag-based lightweight aggregates)?

6. Will off-site shipments of ash or slag take place? If so, how often and in what quantities?

7. What kind of vehicle will be used to transport the ash or slag?

D. **Other By-Products**

1. What are the maximum amounts of Mercury, Ammonia, Hydrogen and Methanol that will be on-site at any given time?

2. What containment procedures will be used for each?

3. How often and in what quantity will off-site shipments of each take place?

4. What if any CO_2 Sequestration process(s) will be used, what percentage of CO_2 emissions will be captured, and how much will be sequestered on-site at any given time?

5. What other treatment process(es) will be used on-site for by-products?

F. **Renewable Energy Center**

1. What kind of operations would be conducted at the Renewable Energy Center?

2. What hazardous materials will be present at or generated from the Renewable Energy Center and in what quantities?

Recommendations:

If issued, the permit should contain at least the following conditions:

1. Mitigation measures should be required to prevent off-site migration of ash and slag and their constituents.

2. Facility should meet all Fire Marshall requirements.

3. The Renewable Energy Center should be a zero-discharge, non-polluting facility (e.g., photo-voltaic panels).

4. Unannounced inspections to assure compliance should be conducted no less than every six months.