

USE OF DE-ICING SALT— POSSIBLE ENVIRONMENTAL IMPACT

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•STEP with me for a moment through a warp in the space-time manifold. The date—morning of a day early in March 1984. The place—an apartment in METRO RING D. It rained last night, a bone-drilling rain that froze and coated everything—roads, walkways, structures—with skating-rink smooth ice. Suddenly the satfax on the desk comes to life. BLUE FLASH. The message silently forms on the CRT: ALPHA INDEX 105. PV's PROHIB METRO RINGS A-F. This message is no longer cryptic; it has occurred several times the last three winters. You know it means delay in getting to work in Metrocenter, for, even though you have the required four riders in your PV pool to pass the Ring C barrier, the flash has just told you that the weighted average of the chloride ion content at the 150 monitoring stations within the Metro Rings is above the maximum allowable concentration; therefore, no more ICC (ice control chemicals) can be used, and ice will remain until the impulse scrapers or the sun can remove it—sometimes a 2-day job—and all personal vehicles are banned. So you are resigned to taking the tube or the tracked ACV to work, but you know how jammed it will be. You reflect on the events of the last few years that led to this situation. Back in the early 1970s the plant pathologists, limnologists, public health authorities, and others raised the first questions about the long-term effects of rising chloride concentration in surface water and groundwater. Reaction was slow: More research was needed was the reason given in retrospect.

Then, in 1976 Ms. Whistle, president of the National Association of Clergymen's Wives, riding the crest of the great environmental surge, obtained an injunction against the use of any chloride-containing ICC on federal-aid highways and any highways carrying interstate commerce. A desperate search for alternatives ensued. Abrasives were used in tremendous quantities even though the hard, sharp granular material was soon exhausted, and slippery high-clay-content material began appearing. But then the same Ms. Whistle blew the whistle on abrasives and obtained an injunction against their application. The great clouds of dust that traffic kicked up from the piles lining the road-sides exceeded the particulate limit of the Clean Air Act and was injurious to health. Any conceivable chemical was pressed into service in 1978—urea, calcium formate, para-aminophenol, β -lactose, polyvinyl pyrrolidone. Someone even suggested in a letter to the editor of Better Urban Roads, you recall with a rare smile in this mirthless age of Big Brother, that hot, farm-fresh cow manure be rushed to the city for ice control. But all these chemicals had their own form of alpha pollution and had to be discarded.

You recall another instance of the desperation of just those few years ago when farmers suddenly began noticing the mysterious disappearance of salt licks from their fields, and grocery stores could not keep the shelves stocked with table salt. Salt was being bootlegged. Quickly, legislation banned the possession by an living unit of more than 2 pounds of salt, either iodized or plain. Then in 1980 a modus vivendi evolved whereby the alpha index proposed several years earlier was enacted into legislation. This was based on the steady-state concept of a salt tolerance level in the environment. Salt could be used for ice control until the monitoring stations detected an alpha index approaching 100. Then the BLUE FLASH and no more fast ice control until the alpha dropped, which in 1981 took 3 months, in 1982 took 4 months, last year took 6 months.

But there's a way out! Find that space-time warp and step back onto the firm earth into 1972. Maybe you can taste the salty sweat of the portent of the future. Is this

flight along time's arrow crooked? Is the picture merely the distortion of a fun-house mirror? But what will be the consequences of our present dependence on chemicals for ice control—as well as the use of pesticides and herbicides? Do we know where we stand today? Is there a need for alternatives? The papers in this Record will not answer all these questions, but they will make an attempt to tell it like it is and get you thinking.