

ILLINOIS POLLUTION CONTROL BOARD

May 5, 1983

In the matter of: )  
 )  
PROHIBITION ON LANDFILLING OF ) R81-25  
HALOGENATED SOLVENTS (CBE) )

PROPOSED RULE. FIRST NOTICE

PROPOSED OPINION OF THE BOARD (by D. Anderson):

On September 23, 1981 Citizens for a Better Environment (CBE), an Illinois not-for-profit corporation, filed a proposal for adoption of a rule prohibiting disposal of chlorinated solvents at landfill sites. The proposal was authorized for hearing and appeared in the Environmental Register on November 6, 1981. On February 3, 1982 CBE amended the proposal to conform with codification requirements and state the relationship with the newly adopted RCRA rules (R81-22, 5 Ill. Reg. 9781, October 2, 1981; 6 Ill. Reg. 4828, April 23, 1982). The amended proposal was for adoption of 35 Ill. Adm. Code 729, a separate Part prohibiting landfilling of hazardous wastes in RCRA or any other facilities.

The Board held two merit hearings and two economic impact hearings on the proposal as follows:

- |    |                   |             |
|----|-------------------|-------------|
| 1. | February 23, 1982 | Springfield |
| 2. | March 8, 1982     | Chicago     |
| 3. | March 31, 1983    | Urbana      |
| 4. | April 15, 1983    | Chicago     |

Following the second hearing the matter was referred to the Department of Energy and Natural Resources (DENR) for preparation of an economic impact study: "The Economic Impact of Proposed Regulation R81-25: Prohibition of Chlorinated Solvents in Sanitary Landfills," DENR Doc. No. 83/08 (Exhibit 2). Members of the public and the Illinois Environmental Protection Agency (Agency) participated in the hearings.

CBE's evidence in support of the proposal came from the testimony of Dr. Robert E. Ginsburg who received a Ph.D. in inorganic chemistry from the University of Wisconsin in 1978. His experience is summarized in Exhibit No. 1 (R. 6).

The Board received six public comments during and after the hearings:

- PC1 Monsanto Chemical Intermediates, February 19, 1982
- PC2 Illinois Manufacturers' Association, March 8, 1982
- PC3 Agency, March 26, 1982

PC4 Caterpillar Tractor Company, April 21, 1983  
PC5 Illinois State Fabricare Association, April 28, 1983  
PC6 CBE, May 2, 1983

Although it presented no testimony, the Agency supports the proposal (PC3).

#### HAZARDS OF CHLORINATED SOLVENTS<sup>1</sup>

The health hazards of chlorinated solvents are not seriously disputed. Hazards include the following (R. 90, 101, 117, 209, PC5; Ex. 1):

1. Direct toxicity to specific organs: liver, kidney, central nervous system, cardiovascular system and the lungs/pulmonary system.
2. Fetotoxicity.
3. Mutagenicity and teratogenicity.
4. Carcinogenicity and suspected carcinogenicity in animals.

Chlorinated solvents are capable of bioaccumulation in the food chain and in man.

#### PROBLEMS WITH LANDFILLING

CBE asserted that the basic problem with landfilling is the danger that the chlorinated solvents will penetrate the liner and contaminate groundwater. Bulk organic solvents are able to degrade synthetic liners (Ex. 2, p. 35). Recent laboratory studies have shown that such solvents are able to penetrate clay liners far faster than would be predicted from permeability studies with water. This may take place through a mechanism whereby the solvent desiccates the clay, resulting in cracks and bulk flow, not only of the solvent, but also of any aqueous leachate (R. 18, 31, 77, 90, 93, 122, 189, 202, 233).

Organic solvents, including chlorinated solvents, have been detected in groundwater near several landfills. In Illinois, it has been shown that chlorinated solvents have migrated from disposal trenches at Wilsonville and Sheffield, although the causes have not necessarily been determined (Ex. 3,4; R.85, 212).

<sup>1</sup>In the proposed rules the Board has replaced the term "chlorinated" with the more general "halogenated". All of the halogenated solvents involved in this rulemaking are chlorinated, so for present purposes the terms are equivalent. Use of the more general term in the rules will make it easier to expand the list should it be found necessary to regulate the similar non-chlorinated halogenated solvents.

The State of California has prohibited landfilling of chlorinated solvents after January 1, 1985, and sludges and solids after July 1, 1985 (22 California Administrative Code 66905).

#### ALTERNATIVE DISPOSAL

Spent solvents can be recovered by distillation and by sedimentation and filtration. Still bottoms and sludges produced by these operations can be incinerated. Alternatively, the entire bulk of the spent solvent can be incinerated.

Incineration of chlorinated solvents will require a RCRA permit as thermal treatment of hazardous waste. Incineration also poses environmental risks, including: emission of hydrogen chloride (hydrochloric acid), emission of unburned hazardous wastes and formation of hazardous compounds (Ex. 1).

Hydrogen chloride is an end product of complete combustion of chlorinated compounds. It may be controlled with a scrubber similar to those designed for sulfur dioxide removal from coal combustion products. Incineration in cement kilns has also been effective in controlling hydrogen chloride, which reacts with the lime present in the cement manufacturing process (Ex. 1, R. 24).

Chlorinated wastes require high temperatures, long residence times and carefully controlled air supply to achieve complete destruction. The RCRA rules require 99.99% destruction removal efficiency for principal organic hazardous constituents from these incinerators (35 Ill. Adm. Code 724.443).

The chlorinated solvents may form dioxins under incinerator conditions, and some wastes may be contaminated with dioxins. The problem of dioxin formation in hazardous waste incinerators may not be as severe, however, as dioxin formation in coal furnaces or municipal incinerators. The dioxins are expected to adhere to particulates and be removable by scrubbers (R. 83, 99, 267).

In addition to the chlorinated solvents, the wastes may contain metals, such as mercury or nickel. Mercury is gaseous at incinerator temperatures, and both mercury and nickel are capable of forming gaseous compounds. These would be converted to particulates under conditions in the incinerator or scrubber, and would be removed by the scrubber as particulates (R. 36, 72, 134, 184, 230).

Incinerators will produce ash and scrubber sludges which will require further treatment or disposal. Whether these can be landfilled will be judged by the same standards as the original wastes. Incinerators may be best thought of as a

treatment which reduces the volume of the waste and makes it less hazardous, rather than as a disposal technique (R. 83, 99, 267).

In addition to an abstract comparison of ultimate risks, incinerators are more easily monitored than landfills: poor operation should be immediately obvious. If detected, stricter operating controls would be imposed or the incinerator shut down. On the other hand, a problem such as a leaking liner in a landfill could go undetected for decades, and it could be impossible to completely clean up groundwater contamination (R. 39).

CBE has weighed the relative merits and believes that direct incineration, or recycling with incineration of residues, are the preferable alternatives for ultimate disposal (R. 38, 111, 260). The Board agrees.

#### ECONOMIC IMPACT

The economic impact study found that recycling of chlorinated solvents is already widespread even in the absence of a regulation. The quantity disposed in landfills decreased from 410,000 gallons in 1980 to 124,000 gallons in 1982, although part of this may have been due to the recession. There is abundant excess capacity in the solvent recycling industry, and there are incinerators in operation which can accept the solvents, sludges and distillation residues (EcIS, Ex. 2, R. 8, 176, 200, 226, 230, 232).

The proposal is expected to increase solvent disposal costs to generators. Current costs are estimated at about \$40 per barrel. Where the solvents can be recycled, the proposal will actually save money. Where wastes are incinerated, the cost could be as high as \$194 per barrel. Based on 20% recycling, overall costs would be \$340,000 per year based on 1982 volume (R. 179, 194, 205, EcIS 58).

Benefits include protection of the public from groundwater contamination. The recycling and incinerator industries will benefit from increased utilization of their existing capacity. Generators may benefit indirectly from reduced liability for clean-ups should liners fail. State government may benefit from not having to monitor chlorinated solvents and having a simpler rule to enforce.

The benefits to the public from improved water quality, and the potential costs to generators of a cleanup, are too speculative for estimation. The increased disposal costs to generators, and lost revenues to landfills, are simply increased revenues to the recyclers and incinerators. In addition, transporters will gain some \$1,500 to \$5,000 from increased waste

movements. State agencies may save some \$48,000 per year, which will be partially offset by some \$1,240 in lost landfill hazardous waste fees (R. 180, 189).

In summary, the costs of the proposal are minimal and partially offset by immediate benefits. If a major landfill clean-up is avoided, a large benefit will accrue.

#### PROPOSED ACTION

The Board has proposed to adopt the CBE proposal, with certain additions in response to comments received during and after the hearings. The following is a discussion of the proposed rules:

##### Section 729.101 Purpose, Scope and Applicability

Paragraphs (a) through (e) follow the CBE proposal almost verbatim. A second sentence has been added to paragraph (b) to make it clear that "landfills" includes hazardous waste landfills with RCRA permits (R. 242). "Landfills" also includes surface impoundments and waste piles in which waste residues are expected to remain after closure.

Paragraphs (c) and (d) elaborate on the relationship to the RCRA rules: landfill prohibitions do apply even to RCRA small quantity generators, but do not apply to residues in containers or empty liners which would not be hazardous wastes under the RCRA rules (R. 152, 158, 262).

There is no need for elaborate definition of waste or hazardous waste in this proposal. The proposal presently covers only certain named chemicals, all of which are hazardous under the RCRA definition, and which the Board finds to be hazardous in this rulemaking. Since the proposal bans only landfilling, there is no need to differentiate waste solvent from non-waste solvent: if it is to be landfilled, it is obviously waste.

Paragraph (e) states the intent to supplement Chapter 7 and the RCRA disposal rules in Parts 724 and 725. Regulations in those Parts which could be construed as authorizing prohibited landfilling are superseded. The relationship to Chapter 7 is elaborated on in Section 729.104.

Paragraph (f) has been added to the CBE proposal. This makes it clear that the Board intends that the landfill ban be applicable not only to landfill operators, but also to the generators and transporters of the waste (R. 247).

Section 22(h) authorizes: "requirements to prohibit the disposal of certain hazardous wastes in sanitary landfills." Taking the words in their ordinary meaning, the generator and

transporter are disposing of the waste by sending it to a landfill.

From a practical standpoint it is necessary to regulate generators and transporters directly. It would not be economically feasible for landfill operators to inspect every load coming into the landfill. There would be no incentive for generators and transporters to keep prohibited wastes out of landfills if the only penalty were rejection of an occasional load which was detected. On the other hand, the generator has actual control over his disposal practices, and the transporter has the opportunity to inspect every item before loading it.

Paragraph (f) leads into the next two related Sections which deal with a complete and partial defense which could be used by the transporter and disposer.

#### Section 729.102 Generators Assertion of Exemption

The transporter and disposer may insist on a written statement of compliance from a generator. Section 729.102 allows introduction of such a complete defense in an enforcement action, except where knowledge is shown. Such a written statement would be used as documentary evidence against the generator, and could be evidence of intentional violation.

The generator exemptions are keyed to the quantity of waste generated rather than the quantity landfilled. The transporter cannot simply weigh the monthly loads to satisfy himself that the generator is in fact in compliance, since the generator could be utilizing another means to dispose of part of the waste. Section 729.102 allows the transporter to rely on a written statement asserting exemption or exception. Of course, if the transporter were actually transporting waste in excess of the exempted quantity allowed the generator, he would be held to have known that the waste's disposal was prohibited.

#### Section 729.103 Mitigation

This establishes a partial defense under Section 33(c) of the Act. A person who conducts employee training, posts signs and conducts random sampling of wastes should not have a substantial penalty levied against him in the absence of other aggravating circumstances.

#### Section 729.104 Wastestream Permits

The Board notes that Section 39(h) was added to the Act by different legislation than Section 22(h). It requires, after 1986, individual authorization of hazardous wastestreams by the Agency (R. 146). It is beyond question that the Agency could not approve a wastestream which has been banned by the Board.

Paragraph (d) deals with the details of Agency review of wastestreams. The Agency may require the applicant to demonstrate that halogenated solvents are present at less than trace levels or that an exemption applies. The Agency is expected to reach a decision on the applicability of Part 729: it is not to issue the wastestream authorization with a caveat that Part 729 may apply.

The Agency's review of wastestreams which are routinely generated is to focus on the average quantities and properties of the waste. It may establish conditions necessary to assure continued approval under Part 729. However, conditions which would allow landfilling some months and prohibit it in others are to be avoided. These would frustrate long-term planning. For example, a waste which averages 0.9 mg/kg halogenated solvents, with a range of 0.4 to 1.4 mg/kg, could be landfilled even when in the upper range of variability.

A wastestream authorization should identify the waste by composition with a range of acceptable variation. Once the wastestream has been authorized for landfilling, Part 729 will be superseded by the conditions of the authorization. The main limitation on this is the description of the wastestream. If this gets outside the parameters which identify it, a new authorization will be needed (R. 246).

#### Section 729.121 Landfilling Prohibited

This Section prohibits landfilling of wastes containing more than traces of halogenated solvents, which are defined in the next sections. Violation of this Section can be the basis of an enforcement action.

The rule prohibits disposal in landfills. This is to be taken as equivalent to "land disposal" in proposed 35 Ill. Adm. Code 724, under which lagoons and waste piles in which wastes will remain after closure are to be treated as landfills [R82-19, 7 Ill. Reg. 4520, April 15, 1983; Sections 724.210(b)(2), 724.328(a)(1) and 724.358(a)].

The other "disposal" methods are considered to be treatment or storage under the RCRA rules. The Board intends to promote thermal treatment such as incineration. Bona fide treatment or storage in lagoons or, to the extent possible, in piles is not prohibited. Land treatment is likewise not prohibited, although the operator would have to demonstrate that the hazardous constituents would be "degraded, transformed or immobilized", which seems unlikely in the case of chlorinated solvents (35 Ill. Adm. Code 724.372). Underground injection pursuant to UIC permit will also be allowed (35 Ill. Adm. Code 704 and 730, 6 Ill. Reg. 12,479).

## Section 729.122 Definition of Halogenated Solvent

Halogenated solvents include the chlorinated compounds in generic hazardous wastes F001 and F002 in 35 Ill. Adm. Code 721.133(f): carbon tetrachloride, chlorinated fluorocarbons, chlorobenzene, 1,2-dichlorobenzene, methylene chloride, perchloroethylene, 1,1,1-trichloroethane, trichloroethylene, trichlorofluoromethane and 1,1,2-trichloro-1,2,2-trifluoroethane.

Alternative names for many of these chemicals have been listed. Some chlorinated fluorocarbons have been specifically listed (R. 114). Physical properties and alternate names are summarized in Table I.

The CBE proposal was framed in terms of generic wastes F001 and F002. The first is solvents used in degreasing, including still bottoms from recovery of these solvents. The second is other chlorinated solvents in general. At the hearings it became apparent that F002 is a catch-all which would include wastes containing solvent residues from any source. Accordingly, the proposal has been rephrased without special reference to solvents used in degreasing apart from other solvents. This also makes it clear that the result of any treatment process is to be tested against the same standard as any other waste to determine whether it contains halogenated solvents (R. 76, 99, 243, 267, 274).

## Section 729.123 Definition of Trace Levels

This Section defines trace levels as 1 mg/kg. Tapwater usually contains traces of trihalomethanes. These can be as high as 0.5 mg/l, although the Board has recently adopted a standard of 0.1 mg/l as the maximum level in public water distribution systems. Trihalomethanes include chloroform, which is a chlorinated solvent similar to the halogenated solvents which are the subject of this rulemaking. In that similar chemicals are accepted in drinking water, it is apparent that there exists a de minimus concentration below which wastes can be accepted for landfilling (R. 15, 199, 285).

## Section 729.131 Burden of Proving Trace Levels

Most of the remainder of the Subpart contains exemptions for types of generators, quantity generated and concentration of halogenated solvents in the waste. These were not contained in the original proposal. CBE indicated concerns about enforceability if such necessarily complex rules were included. Because the Board has found it necessary to add exemptions, rules on burden of proof and circumvention are necessary.

Section 729.131 provides that a person seeking enforcement need show only trace levels of halogenated solvents in the waste.



TABLE I

		2) Solubility mg/kg in water	1,2) b.p. °C
B010	benzene, chloro- phenyl chloride $C_6H_5Cl$	500	131
B020	benzene, 1,2-dichloro- orthodichlorobenzene $C_6H_4Cl_2$	100	179
B030	chlorinated fluorocarbons	--	--
B040	ethane, 1,1,1-trichloro- methyl chloroform $CCl_3CH_3$	4,400	74
B050	ethane, 1,1,2-trichloro- 1,2,2-trifluoro- $CCl_2FCClF_2$	--	48
B060	ethene, tetrachloro- perchloroethylene tetrachloroethylene $CCl_2:CCl_2$	150	121
B070	ethene, trichloro- ethinyl trichloride trichloroethylene $CHCl:CCl_2$	2) 1.10 3) 1000	87
B080	methane, dichloro- methylene chloride methylene dichloride $CH_2Cl_2$	20,000	40
B090	methane, tetrachloro- carbon tetrachloride $CCl_4$	800	77
B100	methane, trichlorofluoro- trichloromonofluoro- methane $CCl_3F$	1,100	24

1) Ex. A to Ex. 1

2) Ex. 2, p. 24

3) Handbook of Chemistry and Physics, 44th Edition.

The burden then shifts to the respondent to show that he falls within an exemption. It will be incumbent on persons landfilling these wastes to maintain adequate records to support these claims.

In an enforcement action the complainant will not have to take a representative sample of the waste or average all samples taken: a violation can be found if any sample from the waste exceeds trace levels. For example, it would be sufficient to sample a layer present in a poorly mixed waste. Traces present in the layer would establish a prima facie case. It will then be up to the respondent to take a representative sample and establish compliance with a concentration exemption. However, in the case of a permit application, the applicant will be required to establish less than trace amounts with representative samples.

"Representative sample" refers to sampling rather than analytical procedures. If the result is close to 1 mg/kg it may be necessary to repeat the analysis enough times to establish the concentration with sufficient confidence to establish a violation.

#### Section 729.132 No Circumvention

Paragraph (a) prohibits mixing; paragraph (b) provides for recomputation of concentrations. Paragraph (a) may be alleged in an enforcement action.

These paragraphs are not intended to prevent mixing which is a necessary part of a process. What is prohibited is unnecessary mixing or intentional mixing to avoid application of this Subpart. These rules are intended to apply both to the mixing of waste with waste and to the addition of other material to waste (R. 255, 265).

The RCRA rules contain express provisions authorizing addition of absorbent material to liquid wastes and disposal of "lab packs" in drums of absorbent. The Board's intent is to prohibit such practices in the case of halogenated solvents if the waste is to be landfilled in Illinois (R. 95, 123, 261).

Paragraph (c) attributes transferred waste to the "last person who used the solvent." A straw party who holds another's waste cannot take advantage of a separate small quantity exemption. Because such transfers could be for bona fide purposes, there is no direct proscription. However, the generator could be charged with a violation for exceeding quantity limits.

#### Section 729.141 Small Quantity Generators' Exemption

This authorizes landfilling by persons who generate less than 1 kg/mo. of solvent waste. As used in this Section the mass of solvent in the waste is the determining factor (R. 251).

The 1 kg is determined by a 12 month moving average. To determine applicability, a generator adds up the preceding 11 months. The amount which can be landfilled in the current month is the difference between that sum and 12 kg. The idea is to look to long term performance rather than having generators subject to the prohibition during some months but not others.

Like the RCRA and Chapter 9 small quantity rules, the exemption depends on the quantity generated rather than the quantity landfilled. The alternative approach would allow even very large generators with recycling capacity to landfill 1 kg per month. It should be more economical for large generators to adopt more sophisticated disposal or recycling techniques.

At the final hearing CBE requested a small quantity rule of 1 kg per landfill per month. Although this would be easier to enforce, it could be too restrictive in terms of the amount of halogenated solvents which could be safely handled. Furthermore it fails to differentiate landfills on the basis of size (R. 245, 249, 259). It would also be difficult to enforce against generators and transporters who would not know the quantity the landfill had received.

#### Section 729.142 Residential Waste

The Board has expressly exempted residential waste (R. 237, 292).

#### Section 729.143 Dry Cleaners' Temporary Exemption

This section exempts dry cleaners who generate less than 100 kg/mo. of contaminated waste. As used in this Section, the mass of the waste is determinative, regardless of the actual quantity of halogenated solvents.

Dry cleaners appeared at the last hearing and indicated that recycling activities are conducted at typical dry cleaners. Wastes include distillation residues and filters which are contaminated, but from which all recoverable solvent has already been stripped. These are usually landfilled (R. 287, 294, 302, PC5).

Dry cleaners indicated that they had been prepared to comply with Chapter 9 where more than 100 kg/mo. is generated (R. 292, 297, 299). Recognizing that dry cleaners have faced

expenses in complying with air pollution rules, and that recycling is in a more advanced state in this industry, the Board will exempt for two years dry cleaners who generate less than 100 kg/mo. Thereafter incineration or other treatment will be required of those who generate more than 1 kg/mo. The dry cleaners who will have to come into immediate compliance are the ones who are already subject to Chapter 9.

#### Section 729.144 Recycling Wastes

This Section contains a general exemption for two years for recycling wastes such as still bottoms and sludges. This has been added to avoid placing any unnecessary burden on the recycling industry, since recycling is preferable to incineration of the bulk solvents. Two years should give adequate time for establishment of incinerators by the recyclers (PCL, 4).

#### Section 729.151 Concentration Exemptions

Wastes are divided into three categories for application of concentration limits (R. 185, 189, 278):

1. Solid wastes;
2. Aqueous liquid wastes; and
3. Non-aqueous liquid wastes.

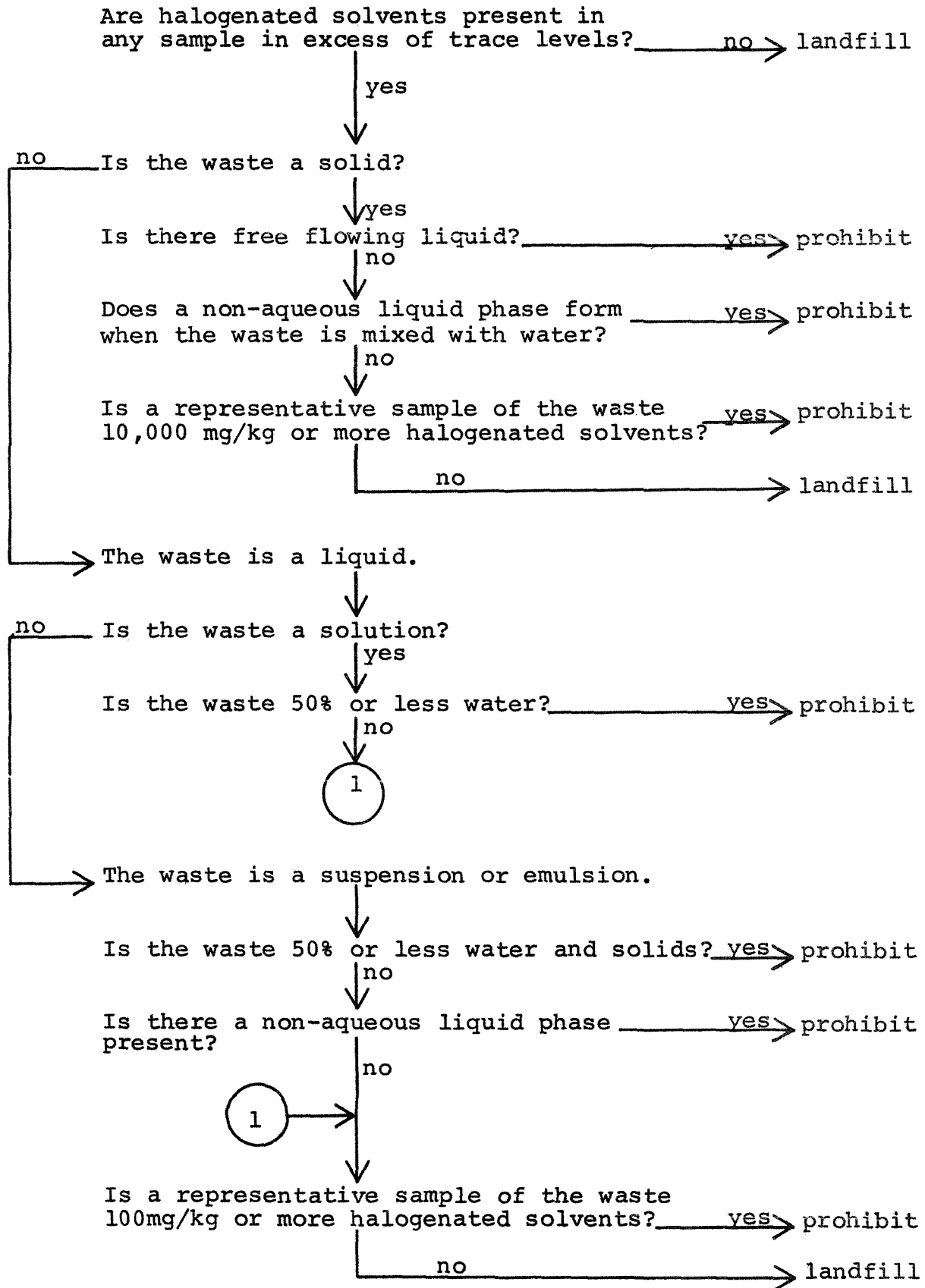
The basic thrust of the proposal is to prohibit the disposal of spent chlorinated solvents in barrels or bulk (R. 18, 31, 77, 93, 122, 132, 233, 275, 283). However, the solvents may come to the landfill in other forms, mixed with other solids or liquids. The purpose of the concentration limits is to establish lines of demarcation between a barrel of pure chlorinated solvent on the one hand, and traces of solvent in a solid or solution on the other hand. Table II summarizes the trace level and concentration exemption rules.

Solid wastes include spill residues.\* Distillation residues could be solid. The result of fixation processes would be solid; however, simple mixing of chlorinated solvents to avoid the concentration limits is prohibited (R. 42, 71, 74, 123, 125, 130, 157).

Solid wastes less than 10,000 mg/kg (1%) may be landfilled, provided they contain no free liquid and do not form an oily layer when mixed with water. Free liquid would be apparent

\*The Board solicits comments on whether a special exemption should be established for spill residues.

Table II



from observation of a large quantity of the waste. The other limitation is to ensure that the halogenated solvent is bound to the solid tightly enough that it will not be removed by water which could come into contact with the buried waste. If a non-aqueous phase separates from the waste/water mixture, it is prohibited as though it were pure chlorinated solvent (R. 94, 126, 129, 283).

As an example of the application of paragraph (a), consider a spill residue containing 9,000 mg of methylene chloride and 50,000 mg of hexane in 0.941 kg of soil. The potential applicability of the Subpart would be established by the presence of traces of chlorinated solvent. The generator (or disposer) could then establish an exemption by demonstrating that chlorinated solvents were less than 10,000 mg/kg, the absence of free liquid and the absence of a non-aqueous phase when the waste is mixed with water. Note that the concentration of chlorinated solvents in any non-aqueous phase is irrelevant.

Solid wastes correspond most closely with the "sludge high-solids solvent category" identified in the EcIS (p. 22, R. 185, 199). Solid wastes include spill residues which apparently were not classified in the EcIS. The degreasing sludges and still bottoms given as examples in the EcIS could fail to meet the test for solid wastes in Section 729.151(a) if they either contain free liquid or form a non-aqueous phase with water. In this case they would be classified as non-aqueous liquid wastes rather than solid wastes.

Aqueous wastes include liquids which are more than 50% water and solids. This includes both solutions and suspensions. Note that a "solution" is different than a mixture, suspension or emulsion. A solution is homogeneous and cannot be separated except by means involving chemical change or change of state, such as distillation (R. 186, 197).

Aqueous wastes may be landfilled if they contain less than 100 mg/kg of chlorinated solvents, provided that there is no non-aqueous liquid phase present. This would be similar to the layer formed in the test for solids above. If such a phase is present, the mixture is prohibited as though it were pure chlorinated solvent (R. 284).

As an example of the application of paragraph (b), consider a mixture of 90 mg of methylene chloride in 0.4 kg of methyl alcohol mixed with 0.4 kg of water and 0.2 kg of soil. The waste could be landfilled if there is no non-aqueous liquid phase present. As a second example, consider 90 mg of methylene chloride in 0.6 kg of methyl alcohol and 0.4 kg of water. This could not be landfilled even if it were a one-phase system because the phase would be only 40% water.

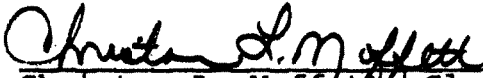
Aqueous wastes correspond most closely to the liquid-aqueous solution category identified in the EcIS (p. 22, R. 185, 199). Note that "solution" has a different meaning than in the rule (R. 197). If the waste contained a separate non-aqueous phase, or if it were less than 50% water, it would be a non-aqueous liquid waste. Liquid-aqueous solution may be produced by washing parts with water after solvent washing.

Non-aqueous liquid wastes include any wastes which are not solid wastes or aqueous liquid wastes as defined in Section 729.151(a) and (b). Paragraph (c) includes a positive statement of what this residuum includes: solutions which are 50% water or less; liquid mixtures which include any non-aqueous phase; and, solid wastes containing free liquid or which form a liquid phase on mixture with water. Non-aqueous liquid wastes may not be landfilled if chlorinated solvents are present at more than trace levels. These wastes are the ones which pose a special threat to liner integrity.

Non-aqueous liquid wastes correspond most closely to the liquid-high solvent content category in the EcIS, although, as noted above, many wastes from the other EcIS categories would fall into the Board's non-aqueous liquid wastes category. Typical liquid-high solvent content wastes would include 0 to 13% solids, 0 to 9% oil and grease, 1% inorganic salts and up to 100 mg/l lead or zinc (EcIS, p. 22, R. 185, 199).

This Opinion supports the Board's Proposed Order of this date. The Clerk is directed to file a first notice for publication in the Illinois Register. The record will remain open for 45 days for public comment following publication in the Illinois Register.

I, Christan L. Moffett, Clerk of the Illinois Pollution Control Board, hereby certify that the above Proposed Opinion was adopted on the 5<sup>th</sup> day of May, 1983 by a vote of 4-0.

  
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Christan L. Moffett, Clerk  
Illinois Pollution Control Board