

ILLINOIS POLLUTION CONTROL BOARD  
March 1, 1990

IN THE MATTER OF: )  
 )  
DEVELOPMENT, OPERATING AND ) R88-7  
REPORTING REQUIREMENTS FOR ) (Rulemaking)  
NON-HAZARDOUS WASTE LANDFILLS )

PROPOSED RULE. SECOND FIRST NOTICE.

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

SUMMARY OF TODAY'S ACTIONS\*

In Docket R88-7, by Opinion and Order of February 25, 1988, the Board adopted a set of proposed regulations for first notice publication in the Illinois Register. These proposed regulations contained development, operating and reporting requirements applicable to new and existing landfills which dispose of non-hazardous waste. In adopting this proposal, the Board considered the extensive record developed in the predecessor R84-17, Dockets A, B, C and D (dismissed in February, 1988). The Board's proposal was largely based on the proposal submitted by the Board's Scientific/Technical Section (STS) which was the subject of hearings in R84-17, Docket D. The rationale for the Board's

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\* At the outset, the Board wishes to commend the Board's Scientific/Technical Section (STS) for the quality of its participation in this proceeding. Since initiation of this R88-7 docket, the principal STS contribution has been made by Dr. Harish Rao, STS Chief, with the assistance of Anand Rao and Morton Dorothy, STS environmental scientists. A special acknowledgment is due to Richard A. DiMambro, (during the course of his former employment as STS environmental scientist) both as coordinator of the various consultants and other experts whose testimony has been sponsored by the Board's STS during the course of the predecessor R84-17 proceeding, and as principal author of the 1988 STS Recommendations. The Board also acknowledges the contributions made to the 1988 STS Recommendations by Dr. Harish Rao, Dr. Gilbert Zemansky (during the course of his former employment as STS Chief), and Karen Mystrik (during the course of her former employment as STS librarian).

The Board also wishes to acknowledge the special contribution made by Senior Attorney, Kathleen M. Crowley, who has served as Hearing Officer throughout these proceedings, and who has participated in the drafting of the Board's Opinion and Order in this and related matters.

proposal was expressed in its February 25, 1988 Opinion, which must be read in conjunction with the STS "Recommendations For a Non-Hazardous Waste Disposal Program In Illinois and A Background Report To Accompany Proposed Regulations For Solid Waste Disposal Facilities, Part A: Landfills" (Final, March 7, 1988) which was entered as Exhibit 1 in Docket R88-7.

Pursuant to the requirements of the Illinois Administrative Procedure Act (APA), Ill. Rev. Stat. 1987, ch. 127, par. 1001 et seq., First Notice of the Board's proposal was published in the Illinois Register on April 22, 1988 (12 Ill. Rev. 7069 et seq.). As noted in the Board's February, 1988 Opinion (pp. 43-46) pursuant to then-existing requirements of Section 27 of the Environmental Protection Act (Act) Ill. Rev. Stat. 1987 ch. 111 1/2, par. 1027, the Department of Energy and Natural Resources (DENR) determined that the preparation of an economic impact study (EcIS) was necessary in this proceeding.\* DENR's analysis, entitled "Economic Impact Study of Landfill Regulations (R88-7)" (Ex. 10) was filed with the Board on September 12, 1989. Required public hearings were held concerning the EcIS on November 17 and 27, 1989; the required post-hearing comment period closed on January 2, 1990.

In the ordinary rulemaking, the usual next step would be adoption of a second notice Opinion submitting the proposal to the Joint Committee on Administrative Rules (JCAR) for a 45 day review period, after which rules could be finally adopted and filed with the Administrative Code Unit of the Secretary of State (Code Unit). This is not, however, the usual rulemaking.

Section 5.01(d) of the APA provides that "No rule....may be adopted...more than one year after the date the first notice period...commenced." The one year period expired April 25, 1989 during the period in which the EcIS was being prepared. Accordingly, the Board's only procedural recourse is publication of a new first notice in this Docket.

This Opinion, and the accompanying Order, then, re-start the required APA notice process. As explained in detail later, today's proposal is not identical to that proposed in 1988. Today's proposal includes modifications from the prior proposal made on the Board's own motion in light of events which have occurred in the past two years, as well as hearing testimony and written comments made by various participants in these proceedings, and the STS 250-plus page "Response to Comments on Proposed Parts 807 through 815, R88-7 Non-hazardous Solid Waste

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\* Section 27 has since been amended by P.A. 85-1048 (also known as SB 1834), effective January 1, 1989, to authorize the Board to determine whether an EcIS should be prepared for any given proposed rules.

Landfill Regulations", (Final March 1, 1990) which is entered as Exhibit 26 in this proceeding.

In general, the Board will not repeat today the discussions presented in the Board's 62 page Opinion of February 25, 1988 other than where such repetition is absolutely necessary to an understanding of today's proposal. Today's Opinion instead focuses on areas in which the proposal has evolved since 1988, and issues requiring an updating of the Board's 1988 discussion. The Board will not address minor modifications made in the prior proposal to comport with style and format requirements of the APA as reflected in the implementing rules of the Code Unit and JCAR. To the extent that the Board has adopted modifications that comport with STS comments (Ex. 26), the Board accepts the rationale contained in that document, with the exceptions noted herein, which will be distributed to persons on the notice list in this proceeding along with today's Opinion and Order.

#### MAJOR PARTICIPANTS

The record in this matter, developed in R84-17, Dockets A, B, C and D as well as in this R88-7 docket, is too voluminous for the Board to synopsise all testimony presented. The following individuals and organizations have made contributions to this proceeding as noted.

#### The Agency (Proponent in R84-17, Docket A)

Questions concerning the Agency's R84-17, Docket A informal proposal were received by, and the Agency was from time to time represented in the R84-17 dockets by:

Lawrence Eastep, P. E.  
Permit Manager, Division of Land Pollution Control (DLPC)

Harry Chappel, P. E.  
Manager, Compliance Section, DLPC

Monte Nienkirk  
Manager, State Site Management Unit, Remedial Project Management Section, DLPC

Linda J. Kissinger  
Environmental Protection Specialist, DLPC

Charles Mikalian, Esq.  
formerly of Enforcement Programs

Scott O. Phillips, Esq.  
Enforcement Programs

Phillip Van Ness, Esq.  
formerly of Enforcement Programs  
(currently employed by the Board)

Virginia Yang, Esq.  
Enforcement Programs

Gary King, Esq.  
Enforcement Programs

Of this group, Mr. King, Mr. Eastep and Mr. Chappel have continued involvement on the part of the Agency in R88-7, which is currently also represented by:

Edwin C. Bakowski  
Manager, Solid Waste/UIC Unit, DLPC

Illinois State Chamber of Commerce (Proponent in R84-17, Docket B) Illinois Environmental Regulatory Group.

The R84-17, Docket B proposal was prepared by the Illinois Waste Regulatory Committee of the ISCC. Testimony concerning the language of the R84-17, Docket B proposal was presented by:

Sidney M. Marder, P. E.  
Environmental Consultant

Jeffrey C. Fort, Esq.  
Gardner, Carton & Douglas

The Illinois Environmental Regulatory Group (IERG), formed in 1986, is an affiliate of the ISCC which currently represents some 34 Illinois Industries interested in the development of the state's environmental regulations. (P.C. 50, p. 1) Since formation of IERG, ISCC has not participated in the R84-17 docket as a separate entity. IERG is currently represented in this proceeding by:

Sidney M. Marder, P. E.  
Executive Director, IERG

Katherine D. Hodge, Esq.  
General Counsel, IERG

James T. Harrington, Esq.  
Ross & Hardies

In addition to presentation of testimony by Mr. Marder, both ISCC and IERG have sponsored technical testimony in R84-17, Dockets B & D and R88-7, concerning the properties of wastes generated by certain industries and the state of the research concerning disposal of such wastes. These industries, and their representatives have been:

Illinois Steel Group:  
David H. Miller  
Consulting Engineer

Thomas M. Barnes, Venture Manager  
Outokumpu, Oy (sic)

Illinois Utility Industry:  
Thomas Hemminger  
Director of Water Quality, Commonwealth Edison

Foundry Industry:  
Michael Slattery  
President, Illinois Cast Metals Association

Thomas Kunes:  
Executive Vice President, RMT, Inc.  
Chairman, American Foundryman's Society  
Committee 10F on Water Quality & Solid Wastes

Waste Management of Illinois, Inc. (Proponent in R84-17, Docket C)

Various representatives of Waste Management of Illinois (WMI), its parent corporation Waste Management, Inc. (WM, Inc.), and Waste Management of North America (WMNA), another WM, Inc. subsidiary, presented testimony in support of WMI's R84-17, Docket C proposal, as well as considerable comment concerning the STS R84-17, Docket D proposal and the Board's proposal in R88-7. The representatives for Waste Management have been:

Peter Vardi  
Vice President For Environmental Management, WM, Inc.

Gary Williams  
Director, Environmental Compliance WM, Inc.

Ronald Poland  
Director, Environmental Engineering, WM, Inc.

John Baker  
Manager, Environmental Monitoring Programs, WM, Inc.

Henry L. Martin  
Manager, Gas Recovery, WMNA

Tom Tomaszewski  
General Manager, CID Processing, WMI

Dale Hoekstra  
General Manager, Midway Landfill, WMI

Dr. Jay Lehr  
Professor of Groundwater Hydrology, Ohio State University;  
Executive Director, National Water Well Association

E. Clark Boli  
President, Meredith/Boli and Associates

Carolyn Lown, Esq.  
WM, Inc.

Percy Angelo, Esq.  
Mayer, Brown & Platt

STS (Proponent in R84-17, Docket D)

The STS sponsored the testimony of various witnesses in R84-17, Docket A, which testimony served as the basis for some components of the STS proposal supported by further testimony in R84-17, Docket D and R88-7. The STS witnesses and consultants, and the subjects of their testimonies were:

Richard DiMambro  
ERM, Inc.  
former Environmental Engineer, STS

STS R84-17D Proposal as  
principal drafter

Morton Dorothy, Esq.  
Member, STS

R88-7 proposal financial  
assurance

Dr. Harish Rao  
Chief, STS

R88-7 proposal-revisions  
in response to comments

Dr. Richard C. Berg,  
Thomas M. Johnson,  
Bruce R. Hensel  
Dr. William R. Roy

Various geological consid-  
erations regarding landfill  
siting and potential for  
groundwater contamination

Dr. Robert A. Griffin  
Illinois State Geological Survey

Dr. David E. Daniel,  
Assistant Professor  
University of Texas

Landfill/Liners and other  
earthen barriers

Dr. Robert K. Ham,  
Professor of Civil &  
Environmental Engineering  
University of Wisconsin

Generation and character-  
istics of landfill leachate  
and gas

Dr. Cecil Lue-Hing,  
Director of Research  
and Development  
Metropolitan Water Reclamation  
District of Greater Chicago

A case history of landfill  
leachate treatment at a  
publicly owned treatment  
works (MWRD Calumet Sewage  
Treatment Works)

Dr. Aaron A. Jennings,  
Associate Professor of  
Civil Engineering  
University of Toledo (Ohio)

Groundwater contamination  
modeling

Department of Energy and Natural Resources

The Division of Energy and Environmental Affairs of the Department of Energy and Natural Resources (DENR) has participated throughout these proceedings for the purpose of determining whether DENR would prepare an economic impact study concerning the various proposals and the scope of any such study. DENR employees present for these purposes have included:

Bonnie Eynon Meyer  
Coordinator, EcIS Analysis Program

Elliott Zimmerman  
Resource Planner

Stanley Yonkauski, Esq.

Fred Zalcman, Esq.

Technical testimony concerning special waste disposal issues was presented by a representative of another division of DENR:

Dr. David Thomas  
Director, Hazardous Waste Research and Information Center

The Board further notes that the Illinois State Geological Survey is also a division of DENR.

DENR's EcIS concerning the R88-7 was presented at hearing by employees of DENR's EcIS contractors, the consulting firm Camp, Dresser, and McKee. These individuals were:

Jeanne F. Becker  
Wayne P. Pferdehirt  
Kristine Uhlman

Illinois Chapter, National Solid Waste Management Association,  
and Various Landfill Operators

The Illinois Chapter of the National Solid Waste Management Association (NSWMA) has sponsored testimony and comments on behalf of the Illinois Chapter and its various member disposal facilities. As the Illinois Chapter has not provided the Board with a membership list, the Board is unsure of how many of the individual waste management companies who have participated in this proceeding are NSWMA members. In listing these companies in this section for convenience, the Board is not implying that these companies are necessarily affiliated with NSWMA. These participants have been:

Joseph R. Benedict  
former Chairman, Illinois Chapter, NSWMA  
Director of Regulatory Affairs, Sexton Companies

Dr. Charles A. Johnson  
Technical Director, NSWMA

Dr. Edward Repa  
Institute of Solid Waste Disposal, NSWMA

Bob Peters  
State Program Manager, NSWMA

Fred A. Prillaman, Esq.  
Mohan, Alewelt, & Prillaman

James Ambroso  
Chairman, Illinois Chapter, NSWMA  
Environmental Manager, Land & Lakes, Co.

Carl Ball  
President, Environmental Reclamation Co.

Paul DeGroot  
President, States Land Improvement Co.



Leo Lentz  
Modern Landfill Co.

Francis J. O'Brien  
Environmental Control Manager, Browning Ferris Industries of  
Illinois, Inc.

William A. Speary, Jr., Esq.  
Tenner & Bentley  
former General Counsel, Pioneer Processing, Inc.

### Environmental Groups

Various environmental groups have participated in these proceedings through their directors, as well as through counsel representing a coalition of groups. (Individual members of these groups are too numerous to list). These have been:

Patricia A. Sharkey, Esq., formerly representing in R84-17,  
Citizens for a Better Environment (CBE),  
Great Lakes Sierra Club, McHenry County Defenders (MCD),  
Center for Neighborhood Technology,  
Coalition For Appropriate Waste Disposal,  
South Chicago Development Commission

CBE: Kevin Greene  
Research Director

Dr. Robert Ginsburg  
former Midwest Research Director

MCD: Gerald Paulson  
Executive Director

Greg Lindsay  
Environmental Consultant

### Environmental Consultants

In addition to those previously listed, various environmental consulting firms have participated, particularly in R84-17, Docket D, on behalf of themselves or their clients. These include:

James Douglas Andrews, P. E.  
Andrews Environmental Engineering

Darryl Bauer  
Baxter and Woodman, Inc.

Daniel P. Dietzler, P.E.  
Patrick Engineering, Inc.

Richard W. Eldredge, P.E.  
Eldredge Engineering Associates, Inc.

Roberta L. Jennings  
Consultant Hydrologist

## PROCEDURAL HISTORY

### Predecessor Dockets to R88-7

The Board adopted its "Chapter 7" regulations covering operations of sanitary landfills in 1973. These regulations, since codified as 37 Ill. Adm. Code Part 807, have remained virtually unchanged since that time, save for the addition of regulations concerning financial assurance for closure and post-closure care. In 1976, the Board adopted its "Chapter 9" regulations concerning the hauling of special waste. These regulations, since codified as 35 Ill. Adm. Code Part 809, have also existed virtually without change, except for the addition of regulations concerning hauling and disposal of hazardous hospital waste.

Abortive attempts to modernize these rules commenced in the 1980s. Docket R80-20 was initiated by a proposal of the Illinois Environmental Protection Agency (Agency) to update Chapter 7, and Docket R81-31 was initiated by a Board proposal to update Chapter 9. These proposals were consolidated and dismissed by Order of the Board on October 5, 1982, after hearings indicated that extensive revision of the proposals was necessary. In that Order, the Board noted that:

The Agency and the Illinois State Chamber of Commerce [ISCC] indicated that they were working together on a substitute proposal which would replace both Chapters 7 and 9. During [the hearing] process it has become clear first that the subject matters of Chapters 7 and 9 require coordination to insure consistency and, second, that it will be difficult to relate the testimony on the former proposals to the evolving combined proposal. The Board therefore hereby consolidates R80-20 and R81-31, and at the same time dismisses both.

In that same Order, Docket R82-21 was opened to consider the anticipated Agency/ISCC proposal for permits for waste management and hauling, and Docket R82-22 was opened to consider the anticipated proposal for landfill operating criteria. The Agency filed a proposal in the R82-21 docket only, which proposal was the subject of hearings. Both dockets were closed by Order of June 16, 1983, as a result of Agency withdrawal of its R82-21 proposal. The proposal was withdrawn as the Agency believed that the best solution to various problems identified at hearing was submission of an amended and expanded proposal.

This docket, R84-17, was initiated to consider a draft proposal filed by the Agency on May 31, 1984. Two inquiry hearings were held at which participants identified concerns with the proposal and questioned the Agency concerning its intent. At the last hearing the Agency indicated its intention of filing a revised proposal. As the Board noted in its Resolution of December 6, 1984 announcing its intention of committing some of the resources of the Scientific Technical Section (STS) to this proceeding, no revised proposal had been submitted. Although the Agency has been a very active and helpful participant in subsequent phases of this proceeding, it has not filed a new proposal or presented evidence in support of the existing draft proposal.

On April 4, 1985, the ISCC filed an alternate proposal. By Order of April 18, 1985, the Board established Docket B for consideration of this proposal. Four hearings were held in Docket B concerning this proposal.

On August 15, 1986, Waste Management of Illinois filed another alternate proposal, which the Board designated as R84-17 Docket C. This proposal was the subject of nine hearings.

Concurrently with the hearings held in Dockets B and C, the Board held additional hearings in Docket A. The purpose of these hearings was presentation of testimony by various consultants and other scientific experts whose appearance was arranged by the STS. These consultants and other experts did not critique the various proposals pending before the Board, but instead provided testimony concerning their research and experience concerning subjects integral to analysis and/or development of comprehensive regulations for the management of waste.

By its Order of February 19, 1987, the Board determined that only one additional hearing would be held in Dockets A, B, and C. One basis for this determination was that:

"The record to date in R84-17 is sufficient to enable the Board to determine that, while each proposal has meritorious components, no single proposal pending before it is sufficiently

refined or comprehensive to be adopted by the Board as the Board's own proposal for the purposes of first notice publication pursuant to the Illinois Administrative Procedure Act, and resulting additional hearings. It is clear to the Board that the Board itself, with the assistance of its scientific/technical and legal staff, must craft a proposal to address the sum of the various concerns which have been brought to the Board's attention."

The Order went on to establish the form and procedures for the filing of a proposal by the STS, including required filing of documents for public inspection contemporaneously with distribution of copies to the Board Members, consistent with ex parte restrictions articulated in the Board's "Protocols of Operation For the Scientific/Technical Section", RES 86-1, January 26, 1986 and the Board's Procedural Rules, 35 Ill. Adm. Code 101.121.

By Order of March 5, 1987, the Board established that the final hearing in Dockets A, B, and C would be held on April 28, 1987, that the public comment period would close on May 20, and that the Board would commence deliberations on May 28, 1987.

Consistent with the directives in the Board's Orders of February 19 and March 5, 1987, on May 22 and May 26, 1987, the STS filed an initial set of proposed regulations consisting of new Parts 810, 811 and 812 with its supporting "Recommendations for Non-Hazardous Waste Disposal Program in Illinois and A Background Report To Accompanying Proposed Regulations For Solid Waste Disposal Facilities" (Background Report). On June 12 and June 21, 1987, the STS filed another set of proposed regulations, consisting of Parts 813 and 814 and a supporting Background Report.

By Orders of May 28 and June 22, 1987, the Board authorized the STS proposal for hearing. The May 28 Order established a Docket D for consideration of the STS proposal. The Board expressly noted that it was taking no action at that time on the proposals in Dockets A, B, C.

The STS proposal was the subject of ten hearings. To expedite the proceedings, participants were required to file written questions and comments concerning the STS proposal, to which the STS provided written responses to be discussed at

hearing. The comment period was closed in Docket D on December 30, 1987.\*

At hearing, the STS had committed to redrafting various portions of the proposal in response to testimony and to consider redrafting in response to any subsequent written comment received. Accordingly, the STS filed revised versions of various portions of its proposed rules and Background Report on January 15, February 4 and 18. Consistent with prior practice in this docket, the STS dealt with the Agency's untimely comment, filed January 5, 1988, as a matter of discretion and to the extent that time permitted.

By Order of February 4, 1988, the Board adopted an Order which realigned its relationship with the STS. The Board's Order stated:

The Board has been deliberating the STS revised proposal, as well as the records in Docket A, B, & C since January 21, 1988. The Board has limited its discussions with the STS consistent with the February 19, 1987, Order and the Board's Protocols. The Board has found that in order to fully and expeditiously deliberate these matters it is necessary to informally consult with STS staff concerning the technical details in the voluminous R84-17 record.

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\* Post-hearing comments will sometimes be referred to herein by Public Comment (P.C.) number without identification of submitter. The following is a listing of post-hearing public comments in Docket R84-17D by number and submitter: P.C. 42, Wagner Casting Company by James Mason, Vice President Manufacturing Services; P.C. 43, Andrews Environmental Engineering, Inc. by J. Douglas Andrews, P. E., President; P.C. 44, Northeastern Illinois Planning Commission by Lawrence B. Christmas, Executive Director; P.C. 45, Environmental Reclamation Company by Carl Ball, President; P.C. 46, McHenry County Defenders by Gerald A. Paulson; P.C. 47, National Solid Wastes Management Association Final Comments by Fred C. Prillaman, Esq.; P.C. 48, Pioneer Processing, Inc. by William A. Speary, Jr., General Counsel; P.C. 49, Land and Lakes Co. by James T. Ambroso, Environmental Manager; P.C. 50, Illinois Environmental Regulatory Group by James T. Harrington, Esq.; P.C. 51, Waste Management of Illinois, Inc. by Percy L. Angelo, Esq.; P.C. 52, Illinois Department of Energy and Natural Resources by Fred Zalzman, Esq.; P.C. 53, Illinois Environmental Protection Agency by Phillip R. Van Ness, Esq.

As the bases for and comments concerning the STS proposal are a matter of public record, the Board now feels that it may, without prejudice to the integrity of its process, terminate its "arm's length" dealing with STS staff. Accordingly, as of this date, the STS staff will no longer be considered "exterior" to the Board within the meaning of the Protocols. STS staff is directed to resume communications with the Board in the usual Board/staff relationship. The ex parte constraints of 35 Ill. Adm. Code 101.121(b) shall apply to STS communications with persons other than Board Members and staff.

Deliberations continued on February 5, 1988.

On February 11, 1988, the Board adopted an Order directing its staff to develop a revised proposal for its consideration on February 25, 1988 finding that:

The Board is in full agreement with the essential elements of the proposal. However, the Board wishes to see regulatory language embodying certain concepts which either are not contained in the existing proposal, are not clearly expressed, or are alternative to those presently proposed.

Docket R88-7

As earlier explained, Docket R88-7 was opened by the Board's Opinion and Order of February 25, 1988. The proposal was published at 12 Illinois Register 7069 et seq., April 25, 1988. DENR commenced preparation of the EcIS, and further formal proceedings of the Board were accordingly held in abeyance until June, 1989. On June 16 and 20, the Board conducted two hearings to receive into the record testimony and exhibits commissioned by the Board's STS from outside consultants who had previously had major roles in the R84-17 proceeding.

Mr. Bruce Hensel, of the Illinois State Geological Survey, presented the study commissioned by the STS alluded to in the Background Report and at hearing, entitled "Numerical Estimates of Potential For Groundwater Contamination From Landfill Burial of Municipal Wastes in Illinois" by Bruce R. Hensel, Richard C. Berg and Robert A. Griffen. (Ex. 7). Dr. Robert K. Ham, Professor of Civil and Environmental Engineering University of Wisconsin, presented narrative testimony regarding landfill siting performance and design requirements and potential for groundwater contamination. Richard A. DiMambro, primary author of the STS Recommendations and Background Report in the R84-17

proceeding during the course of his former employment with the Board was available to participate in discussion of any issues relating to the proposal.

Members of the STS who participated on both hearing days were Dr. Harish Rao, STS Chief and Mr. Morton Dorothy. Mr. Dorothy presented his concerns regarding problems with the existing financial assurance regulations particularly as they related to the extended post-closure care period. Draft amendments to the financial assurance rules were presented for initial discussion.

Additional testimony and comment was also presented on June 20 by the Agency and WMI.

On September 12, 1989, DENR filed its EcIS. At hearings held on November 17 and 27, 1989, DENR's EcIS contractors, the environmental consulting firm of Camp, Dresser and McKee, presented the EcIS and answered questions concerning it. Participants who presented testimony in response to the EcIS included WMI and the Illinois Utilities, speaking on their own behalf as well as that of IERG. The post hearing comment period expired on January 2, 1990.

Since publication of the first notice proposal in 1988, the Board received 24 public comments, which were numbered as indicated:

- 1) Gisela Topolski;
- 2) St. Clair County Solid Waste Task Force;
- 3) Kristine Uhlman, CGWP, Senior Project Hydrogeologist and Douglas J. Hermann, Vice President, Geo-Environmental Group, STS Consultants, Ltd.;
- 4) Deere and Company by John E. Smith, Environmental Control;
- 5) Citizens for Controlled Landfills, Belleville, submitted by Thomas Sintzel;
- 6) Land and Lakes Company by James Ambroso, Environmental Manager;
- 7) Illinois Chapter of the National Solid Wastes Management Association submitted by Fred C. Prillaman;
- 8) Illinois Department of Transportation submitted by Gregory W. Baise, Secretary;
- 9) Comments of the Illinois Steel Group by James T. Harrington;
- 10) Comments of the Illinois Environmental Regulatory Group by James T. Harrington;
- 11) McHenry County Defenders by Gerald A. Paulson, Executive Director;
- 12) Illinois Utilities;
- 13) Illinois Case Metals Association by Michael P. Slattery, President;
- 14) Waste Management of Illinois by Percy L. Angelo;
- 15) Comments on Behalf of John Sexton Contractors Co. by Joseph R. Benedict, Jr., Director of Regulatory Affairs;
- 16) R. K. Ham, Professor, Civil and Environmental Engineering;
- 17) Bert Fowler - Engineer and Architect submitted by Bert Fowler, Consulting Engineer;
- 18) Illinois Environmental Protection Agency by Phillip R. Van Ness;
- 19) Gisela Topolski, Joliet, Illinois;
- 20) Illinois Chapter of

the National Solid Waste Management Association (NSWMA) submitted by James T. Ambroso, Chapter Chairman; 21) Agency Pre-First Notice Comments submitted by Gary P. King; 22) Illinois Department of Energy and Natural Resources submitted by Fred Zalcman; 23) Waste Management of Illinois, Inc. submitted by Mark R. Ter Molen; and 24) Comments of the Illinois Environmental Regulatory Group submitted by James T. Harrington.

On February 16, 1990, at the Board's request, JCAR submitted its concerns and comments (JCAR concerns), based on its preliminary review of the 1988 proposed rules.

As was the case in the R84-17 docket, the Board directed its STS to prepare for review by the Board and analysis of the public comments received, and any recommended amendments to the rules which it believed were warranted by the comments or hearing record. As earlier stated, the STS comments have been marked as Exhibit 26. (The STS comments do not address the JCAR concerns, which were received too late for STS consideration.)

#### THE 1989 HEARINGS

The major presentations of new data received at the four hearings held in this docket are outlined below, except that testimony presented by the regulated community is later discussed in conjunction with the rules or issues which the testimony addressed.

On June 16, 1989, Dr. Ham, who worked closely with the STS in developing the regulations, and Mr. DiMambro, formerly with the STS, appeared at the behest of the Board to present information on broader issues related to the public comments received.

Dr. Ham and Mr. DiMambro addressed five issues covered in Dr. Ham's pre-submitted testimony. (Ex. 3). The STS had requested comments on the following areas: the definition of inert waste, leachate recycling, and thickness of clay liners. Review of land use on and adjacent to landfills, and adjustments for experimental practice were also commented on. Dr. Ham directed the participants to his pre-submitted testimony for any clarification of his oral testimony. At hearing, most of the focus was on the proposed inert waste category, and a relatively detailed summary is presented below.

Regarding the inert waste definition, Dr. Ham asserted that, while there is no perfect definition, the definition must remain conservative because there must be no question that the environment will be protected in the absence of environmental controls such as groundwater monitoring. Also, the conservative definition protects the generator and disposer of the waste



"against mutual liabilities that have a tendency to come back and haunt us after the fact" (R. 16). Dr Ham believed there are two aspects in protecting the quality of the groundwater: 1) the leachate must meet the drinking water standards for any parameter, and 2) if the groundwater is already above the drinking water standard for any parameter, the leachate must be no worse. (The proposed standards referenced by Dr. Ham are contained in Section 811.202 and refer to the Board's public and food processing water supply standards.) Dr. Ham noted that the drinking water standards would reflect health or aesthetic concerns. He would use groundwater standards only as tracers, and would not recommend requiring a laundry list to define the groundwater or require the leachate to meet every groundwater parameter. He believes that the drinking water parameters are all that is necessary to protect the public health and groundwater quality with respect to potential uses. (R. 15-17, 28-32, 43).

Mr. DiMambro noted, in response to the groundwater/drinking water discussion, that the proposed definition of inert waste is intended to apply over any kind of geology or groundwater: it requires that the inert waste, to be truly inert, must not create a leachate that exceeds the drinking water standards. The leachate must not cause the use of the groundwater to be diminished; that is the justification for not requiring a hydrogeological assessment to assess background quality of the groundwater. If the leachate exceeds the drinking water standards, it should be evaluated on a case by case basis. If the leachate tests high, then that would indicate that the waste is not inert. Mr. DiMambro also pointed out that the inert waste category is a bottom line category. The standards for inert waste apply directly inside the landfill; in contrast, the standards for chemical and putrescible waste are a combination of water quality and migration standards that take into account aspects of design and the existing geology, and apply a certain distance away from the waste boundary. Thus the question as to which of the two sets of standards is more lenient cannot really be answered, since they are not comparable. He noted that, to require that an inert waste landfill make a demonstration that the background concentration be met at 100 feet in 100 years, would approach requiring the trappings of a chemical waste disposal landfill. (R. 33-35, 43, 62, 75-79, 80-83).

Dr. Ham feels that, in situations where the waste exceeds the standard, the waste could still be declared as inert as long as the person is willing to do the hydrogeological work to show that the groundwater in that location is not going to be degraded. For example, there are many places where the iron in the groundwater is already at 200 ppb, and he feels it would, in that situation, be ridiculous to require a waste landfilled without an liner or leachate collection system to comply with the drinking water standard for iron. However, Dr. Ham felt that

such situations should be decided on a site specific basis. Mr. DiMambro felt that Dr. Ham's views are compatible with the proposed regulations. (R. 37,38).

Dr. Ham stated that each generator should make the leachate demonstrations, and each would have to account for variations in the source of the materials, such as variations in the coal from different sources. He also would have no problem with generators combining their waste for disposal, as long as each would make a separate demonstration. The demonstrations would be expensive, but he believes it is necessary to prove that the waste doesn't have to be worried about in the future; however, he also noted that the up-front effort has the potential for future rewards.

Based on his experience, Dr. Ham believes that the best evidence to present to the Agency that inert waste will not contaminate the groundwater would be to monitor that waste in the landfill. Waste from an existing landfill would be the best baseline information as to what the leachate will look like. Next best would be to go to a landfill where it can be demonstrated that the waste is similar. Otherwise data will have to be specially gathered to convince the Agency, such as by building a landfill with a liner so the leachate can be collected or by using a much smaller test landfill designed and operated over a year or two to detect maximum concentration (R. 18-22, 24). Dr. Ham is conducting an experimental test series in Wisconsin with piles of foundry wastes, and is comparing them with lab tests, as well conducting a parallel testing of several natural soils. The field data are showing that it is taking about two years to detect the maximum concentration. As a general statement, Dr. Ham cautioned industry about the risk of remedial action at a test location if it had no data to back up its belief that the waste is inert, and Mr. DiMambro pointed out that there are experimental practice requirements in the proposed regulations. (R. 26, 27, 30-43, 49, 54, 55-65, 70).

Dr. Ham believes that the least convincing evidence, at present, to demonstrate that a waste is inert, is that derived solely from a laboratory leach test (R. 18-22). Dr. Ham proposes use of a water test. He recognizes that on a parameter by parameter basis one could argue, for example, "for an acid test, a distilled deionized water test, a mild acid test to simulate acid rain; one could argue control of reduction potential" (R. 21) but he does not think that there is enough evidence that any such tests will exactly show what can be expected in the real world. He would suggest using the laboratory leach test as a provisional classification tool, to be borne out by later "real world" data, when seeking a less rigorous landfill design for non-inert waste; if the waste later turns out to be inert then leachate and groundwater monitoring could be discontinued, but the risk is that if it is not, the Agency might require the landfill owner to do remedial action. (R. 18-23, 57-60).

Dr. Ham next testified on the issue of leachate recycling. He stated that leachate recycling has been used widely on an experimental basis, but it is not certain that it reduces the time period for waste decomposition. There is confusion in the literature as to whether leachate recycling enhances degradation, but most of it suggests that recycling will reduce the degradation period. He noted, however, that the regulations reduce the post closure care period only for the purpose of financial assurance, and that each site still must assure that the post closure care period is finished. He feels leachate recycling is difficult to carry out in practice. The one situation where leachate recycling does seem to work is if the leachate is neutralized before it is recycled. For now, he recommends leaving the proposed regulations as they are. If an operator decides to discontinue a recycling effort because it is causing problems, any corrective actions would not be a cause for environmental concern. The operator must be prepared to export 100% of the leachate. Mr. DiMambro noted that the regulations require the operator to comply with the leachate storage capacity provisions. (R. 124-138, 152-154).

Regarding the issue of liner thickness, as noted later Dr. Ham prefers a requirement of a minimum 5 feet of compacted clay. His conclusions are repeated elsewhere. However, Dr. Ham also felt that the option of utilizing a three foot clay liner plus an artificial liner, would be equivalent to a five foot liner, assuming that the waste is compatible with the artificial liner. (R. 142).

Mr. DiMambro believes that adding more to the three foot liner for all practical purposes will not change the performance of the system, because "the measure of performance of the landfill, which is the efficiency at which the leachate is removed from the system, will not change significantly based on a change in the liner thickness". (R. 145).

Regarding land use on and adjacent to landfills, Dr. Ham feels that states, or municipalities possibly through their zoning powers, should have a method to review, over the long term, the development of land both on and adjacent to landfills. His particular concern is to make sure that there are no settling or gas migration problems, which may be of more concern than groundwater issues. He was not familiar with Illinois law, but thought that Illinois Groundwater Protection Act did not address this subject. Mr. DiMambro noted the difficulty of writing a proposal so as to avoid getting into land use planning. The proposal is framed to accommodate any specified later land use for the landfill property, as long as the closure and post closure care performance standards, including groundwater monitoring and leachate collection, are not affected. He cautioned that later changes in land use that would affect the the final cover design, such as slope, must not cause

more leachate to be generated than the standards allow. (R. 155-163).

Regarding adjustments for experimental practice, Dr. Ham is concerned that, in addition to the detailed requirements presently in the proposal, there be a simpler, more flexible, mechanism for special cases where the experiments are less global in nature and where the environmental impact would be non-detectable. For example, someone he knows is interested in moisture routing through landfills, and would want to temporarily apply different covers on, say, a 100 foot square test area; since the landfill has a full leachate collection system and is meeting the standards, the impact of the experiment would be non-detectable.

Mr. DiMambro noted that the experimental practice procedure applies to experiments where it is clearly impossible to conduct the experiment in compliance with the performance and design standards. The regulations provide for the type of observation experiment in Dr. Ham's example without going through the experimental practices process. Also, as a general comment, Mr. DiMambro stated that he does not see an adequate, more flexible, replacement for the present procedure that would comply with the requirements of Illinois Administrative law. Mr. DiMambro also explained the intent of the language in the proposal regarding an evaluation of the "success" of an experimental practice: "Success" refers only to the amount of environmental damage and is related to the extra financial assurance the operator has provided in case remedial action is needed; "success" should not be interpreted as applying to the degree or specificity of the data gathered, or its usefulness for future permitting or compliance purposes (R. 163-179).

#### The State Geological Survey Report

At the behest of the STS, the Illinois Geological Survey performed a research project to a) quantitatively rate the potential for groundwater contamination resulting from land burial of municipal waste for several mapped hydrogeologic scenarios common to the State of Illinois and b) evaluate the appropriateness of a compliance distance of 100 feet surrounding a landfill as a limit for leachate migration over a 100 year period, as proposed by the Board in the February, 1988 regulations. At the June 20, 1989 hearing, Mr. Bruce Hensel presented the results of that project, a report entitled "Numerical Estimates of Potential For Groundwater Contamination From Land Burial of Municipal Wastes in Illinois, by Bruce R. Hensel, Richard C. Berg and Robert A. Griffin (February, 1989, HWRIC/Project No. 87-033) (Ex. 7).

The Survey's methodology was as follows:

Quantitative ratings of potential for groundwater contamination were assigned to 16 hydrogeological scenarios. The conceptual models for these scenarios were based on geologic sequences in Illinois mapped by Berg, Kempton, and Cartwright (1984). Chemical transport of six constituents commonly found in municipal landfill leachate (chloride, cadmium, chemical oxygen demand (COD), methylene chloride, trichloroethylene, and xylene) was mathematically simulated for these 16 scenarios with the Prickett Lonquist Aquifer Simulation Model (PLASM; Prickett and Lonquist, 1971) and the Random Walk contaminant transport model (Prickett, Naymik, and Lonquist, 1981). The six chemical constituents exhibited a broad range of characteristics, with mobilities ranging from conservative (non-adsorbed, non-degraded constituents for which movement is co-incident with groundwater) to very low, and toxicities ranging from highly toxic to non-toxic.

Two landfill designs were incorporated into the conceptual models. One design represented a 10-foot thick bottom liner with leachate head 10 feet above the liner. The second design represented a 3-foot thick bottom liner with a leachate collection system. The leachate collection system was simulated by setting head in the landfill at 1-foot. A constant initial concentration for each contaminant was used in all scenarios. These procedures allowed comparison of relative contaminant migration rates for the hydrogeological scenarios without introducing a bias related to the landfill design or its initial contaminant concentrations. (Ex. 7, pp.ix-x.)

The Survey discovered that the predicted migration for all six contaminants modelled did not exceed the 100 foot compliance distance for 5 hydrogeologic scenarios. Extension of the distance to 150 feet raises the number of complying scenarios to 8, while extension of the distance to 1000 feet raises the number of complying scenarios to 10.

Among other conclusions, the Survey Report stated:

Based on the predicted migration distances of chloride, cadmium, COD, methylene chloride, TCE, and xylene, and given the assumptions and

initial conditions of the mathematical and conceptual models used for this study, the following conclusions may be drawn regarding the suitability of certain geologic sequences as sites for sanitary landfill disposal facilities:

It would be difficult to site a municipal waste disposal facility in areas where a continuous aquifer, having hydraulic conductivity greater than  $1 \times 10^{-4}$  cm/s, is found within 35 feet of the ground surface without posing a high potential for contamination to that aquifer. Predicted migration of all modeled chemical constituents, except cadmium, was extensive for hydrogeological scenarios representative of these areas. For example, predicted migration of methylene chloride was greater than 500 feet for scenarios with these simulated hydrogeologic conditions. This conclusion does not imply that aquifers overlain by thicker confining layers will have a low probability of contamination, since such a scenario was not tested.

It may be possible to site a municipal waste disposal facility, without posing a high potential for contamination, in areas which contain 1) cemented sandstone which may be overlain by as much as 35 feet of clay-rich diamicton, or 2) thick deposits of silty and or clayey diamicton, silt-rich loess or silt-rich lacustrine materials. This conclusion assumes that; 1) the landfill is carefully designed to minimize leakage, and 2) there are no pathways of preferential flow (i.e., joints, fractures) through the underlying materials which would allow rapid migration of contaminants. Predicted migration of contaminants with conservative to high mobility was limited for hydrogeological scenarios representative of these areas. Little migration of contaminants with moderate to low mobility was predicted.

The lowest potential for groundwater resource contamination will occur in areas where the uppermost 50 feet of geologic material contains no aquifers and consists of clay-rich diamicton or low permeability, non-fractured bedrock. Materials such as these are not

generally considered to be aquifers, and hydraulic conductivity is typically less than  $1 \times 10^{-7}$  cm/s. Mathematical modelling of contaminant transport for such areas predicted no appreciable contaminant migration over a simulated 100-year time span.

No specific sites were used for the study. The sources of data and other details of the modeling are contained in the report noted above and in the set of computer-generated sketches that were provided (Cite Ex. or P.C#) and which were further explained by Mr. Hensel at hearing (R. 238 et seq.).

At hearing, Mr. Hensel amplified that the predicted migration for chloride was focused upon, since chloride is highly mobile, is commonly found in high concentrations in landfills, and serves as a worst case scenario for contaminants that may be more toxic. The study modeled the migration over the simulated time period of 100 years prescribed in the Board proposal. Again, the results showed that if the compliance distance is 50 to 100 feet (the Board proposal sets the compliance distance at 100 feet), the siting of landfills would be geologically feasible in about 50% of the State. (R. 245). If the less mobile constituents were modeled, he felt, without confirming it, that the area would rise to about 55%. He could not estimate what percentage of the State would be available after taking into account other factors such as zoning, recharge area, or Groundwater Protection Act constraints, but did not concede that using a larger, deeper landfill could be presumed to affect the percentage. (R. 303-306).

Mr. Richard DiMambro, while not addressing policy considerations, also felt that additional engineering features could be utilized to offset the problems in the less desirable geological areas. He used the example of an industrial monofill where the owner insists on locating it in a particular place; the burden is then on the operator to design the proper engineering features. He noted that it is the economics of the situation that would drive the utilization of a site. (R. 317)

Mr. Hensel cautioned that model results described in their study can be used generally for the development of regulations and policies; they are necessarily generalized for application to the entire State and cannot necessarily be applied to specific sites. The Board's proposed use of models in the design and enforcement stages of a landfill must be site-specific, using "extensive and rigorously collected site-specific data". (R. 246) Where a worst case scenario is modeled, the actual values measured would remain lower than the model predicted values. (R. 249, 269, 270) By worst case scenario, Mr. Hensel did not mean plugging in unrealistic numbers; rather, he meant that the numbers should be reasonable. A skilled modeller who knows

geological uncertainties, will take weak data regarding, for example, dispersion and effective porosity, and err on the most conservative side of the range of values. (R. 282,283, 286,287). He stated that a model such as DRASTIC (proposed for use in the WMI R84-17C proceeding) is also too generalized to be used in a site-specific setting (R. 294-297).

Mr. DiMambro disagreed with the notion that battles will occur with the Agency over what is a good model to the detriment of using the modelling approach to meet specific design criteria. He noted that there will always be disagreements over explicit design criteria. He believes that, since the R88-7 proposal establishes minimum design criteria, it is wrong to characterize the proposal as being dependent on modelling to meet the design criteria. The design criteria have been established, and the model in the first instance is used to demonstrate that the proposed design will not allow the applicable Board standard or background concentration to be exceeded in 100 years at 100 feet from the waste boundary. The operator is also asked, based on the model predictions, to establish monitoring points within the zone of attenuation, where the operator would establish maximum allowable predicted concentrations that are reasonably conservative. If the predicted numbers are exceeded, it may be an early warning that something has gone wrong; but even in that case remedial action is not necessarily required. He has stated that it is an unrealistic scenario to believe that after the landfill is sited, the model would throw out the siting and design simply because of the model selected or the choice of an input parameter. (R. 259-262).

Mr. DiMambro also stated that the proposed monitoring system is designed not only to confirm model prediction but also catch failures. He also pointed out that minor defects in construction and the leachate collection system, and minor intrusions by objects into the liner, are expected to have relatively little effect on the amount of leachate collected; because of the nature of the hydraulic conductivity system, the leachate would "rather flow through the leachate collection system than to go through the liner". (R. 321). The hydrodynamics of the proposed system are different from those in which the liner is the sole barrier and there is no leachate collection system. The monitoring system also provides reassurance that a catastrophic failure would be detected. (R. 321-323).

Three other persons testified at the June hearings. Mr. Morton Dorothy of the Board's STS presented testimony regarding financial assurance. Mr. Harry Chappell of the Agency presented brief testimony. Mr. John Baker of WMI presented testimony for clarity when asking questions.



## The EcIS.

As earlier stated, the EcIS (Ex. 10) was filed with the Board by DENR on September 12, 1989. Two hearings were conducted, on November 17 and 27, 1989. At the first hearing, the Opinion of DENR's Economic and Technical Advisory Committee was also submitted (Ex. 14); that Opinion concurred with the conclusions of the EcIS, and particularly agreed that it is extremely difficult to quantify the incremental avoided health costs but that they are substantial. The Opinion also agreed that the indirect impact on employment and disposable income was comparatively insignificant.

We will summarize the broad conclusions of the study here, utilizing the Executive Summary (EcIS E-1 through E-8), and will reference detailed breakdowns elsewhere in the EcIS where the EcIS' conclusions were disputed at hearing or in public comment.

Only the incremental impacts of the proposed rules as compared to the existing rules were evaluated. The study in many areas utilized the Agency's implementation of the more generally worded existing Board rules for comparison purposes. The study noted that the incremental costs will, in general, be greater for existing than new facilities, because most recently proposed new landfills already incorporated features of the proposed rules. Also, costs for onsite (exempt from permitting by Section 21(d) of the Act) facilities will generally be higher than for those off-site, since onsite facilities are typically built to lower standards. This is because, under the proposal, although the Section 21(d) permit exemption will still be in effect, those facilities will be explicitly required to meet the same design, operating, closure, and post-closure requirements as will off-site facilities.

Benefits were estimated to be substantial, especially with respect to reducing the potential for groundwater contamination from landfill leachate. Avoided costs include cleanup and remediation. The study notes that there is substantial disagreement about how to place an economic value on the degradation of a natural resource, certainly on a Statewide basis.

The annualized incremental costs for development and operation of new onsite and off-site landfills combined is estimated to be about \$42 million by the year 2005. This estimate assumes that only "new" facilities, as defined in the proposal, will be operating at that time. Also, during the early years, the incremental annualized cost to operate and close existing facilities, both off-site and onsite, is estimated to be \$75 million. This cost will decline to the \$42 million estimate for 2005 because new landfills (which includes new units at existing

sites) will begin to replace those upgraded and operated under the Board's proposed interim standards.

Disposal costs were estimated to rise to about \$7.37/ton for existing landfills and not more than \$3.58/ton for new landfills. If these costs are wholly passed on to residences, there would be a resulting increased disposal cost of about \$0.89 and \$0.43 monthly per household respectively; however, if a community's existing landfill had to close prematurely under the proposal, there would be additional temporary cost increases.

Future costs may also be avoided under the proposal by the reduction of the rate of leachate generated, the amount of leachate available for escape, the reduction of leachate contact time, the quality control over liner construction, and improved monitoring and response requirements. While a comparative analysis is difficult, a rough estimate of annual savings Statewide in operating and maintenance costs resulting from fewer future remediation projects at off-site landfills was estimated to be about \$14 million per year. Regarding onsite facilities, the capital costs for remediation are estimated to be reduced by \$46 million total; assuming that about one-half of the sites will eventually require remediation, operations and maintenance savings at these sites are estimated to be \$15 million per year.

The study also noted that an unquantifiable, but potentially significant, benefit was avoided costs to repair damage caused by landfill gas, including gas induced explosions and damage to final cover vegetation, and the health and environmental threat from escaping, potentially toxic, landfill gases.

While other direct and indirect benefits and costs were identified, they were considered minor in relative terms.

#### THE DECISION TO PROCEED AT THIS TIME

At pages 23-42 of its February, 1988 Opinion, the Board presented an overview of the Illinois waste disposal system, and then went on to discuss, at pages 43-52, the inter-relation between the proposed rules and various anticipated governmental actions in the waste management area. The state of the law has changed little since that time. USEPA has not promulgated RCRA Subtitle D regulations governing the disposal of nonhazardous waste. The rulemaking review of groundwater standards mandated by the Illinois Groundwater Protection Act (codified in pertinent part as Sections 14.4(a) and 14.4(c) of the Act) is in progress,

but is the subject of such vigorous debate that it is presently uncertain as to when these rulemakings will be completed.\*

In 1988, the Board cited two "overriding arguments in favor of expeditious action", the first of which was:

the need to facilitate siting of new and expanded landfills which are defined as "new regional pollution control facilities" subject to the local government site location suitability approval process of Sections 39.1 and 40.1 of the Act, commonly known as the SB172 process. (p. 33)\*\*

This need is even more compelling today than it was in 1988. The legislature is currently studying SB 172, and the Governor commissioned a recently report on the subject. It is clear to the Board that the status of these proposed landfill rules is an integral component of the debate over landfill siting which is expected to occur in the legislative session this spring. Given the 90 day notice requirements of the APA (a 45 day first notice period for receipt of public comments, and a 45 day second notice period for review by JCAR), it is problematic as to whether the Board could have landfill rules adopted before the end of the session on June 30, even assuming expedited review of comments by the Board. It is the Board's goal, however, to submit proposed rules to JCAR for second notice as early this spring as is practicable; once proposed rules are submitted to JCAR, the only changes which can be made are those responsive to JCAR comment.

If this goal is to be achieved, the Board cannot at this time act on some of the suggestions it has received for "improvements" to the proposal, particularly as they relate to definitions and changes to the scope of the rules. The Agency, for instance, has requested that the Board address the issue of when a discarded material should be viewed as a "waste", rather

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\* These proceedings are R89-5, Proposed Amendments to Title 35, Subtitle F: Public Water Supplies (Parts 615 and 616) and R89-14, Groundwater Quality Standards (35 Ill. Adm. Code 620).

\*\* The second reason was "the need to collect data concerning the operations and effect of landfills which enjoy the Section 21(d) on-site exemption from permitting and whose activities have accordingly been largely exempt from scrutiny." This issue has since been legislatively addressed to some extent by the addition to the Act of Section 21(d)(3), which requires some permit-exempt facilities to notify the Agency every three years as to specified aspects of their operation.

than a recyclable resource. (P.C. 21) The Agency correctly notes that this has been a problem in the RCRA hazardous waste program, and the Agency is also correct in noting that this is a problem which deserves attention. However, this is an issue which has not previously been the subject of discussion in this proceeding, and certainly was not within the scope of the economic impact study. To open this subject (or any other about which there is little or no prior record) would substantially delay the adoption of those regulations as a whole. As NSWMA has aptly stated "further delays in establishing new regulations will be costly as unregulated facilities will do more harm to the environment and result in substantial clean-up burdens". (P.C. 20)

The Board acknowledges that the above SB172-based comments do not apply to the industrial, permit-exempt onsite landfills which would also be subject to some portion of the proposed rules, as these landfills are not subject to the SB172 siting process. However, the environment does not distinguish as to whether a potential contaminant source is a permitted one or not, and the data generated concerning onsite landfills since the Board's 1988 Opinion (p.41-43) indicates that design and construction standards for such sites are highly variable. The Board sees no useful purpose in indefinitely delaying the invitation of closure by those at industrial landfills that do not conform to today's basic expectations for environmental protection. As discussed in detail later in this Opinion, rather than countenancing any across-the-board delays, the Board is proposing a short delay in applicability of the proposed regulations for new facilities for certain industrial groups which have exhibited some diligence in addressing the environmental consequences of operation of landfills to dispose of their wastes.

#### EcIS ISSUES

A number of comments addressing the EcIS were received, which are discussed below.

#### Comments from NSWMA

The Illinois Chapter of the NSWMA submitted a number of comments. (P.C. 20).

We do not see where the statement by NSWMA that the costs to comply would be higher for on-site facilities as compared with off-site facilities is at odds with the conclusions of the EcIS.

NSWMA does not feel that the EcIS adequately addressed the impact on downstate businesses and homeowners from premature facility closings. The EcIS concludes that many, if not all, of the 29 small landfills (1-29 acres) may be forced to close prematurely because they might not have the financial ability to

stay open. The EcIS noted that landfills generally may only prematurely close facility units rather than the whole facility; however, a small landfill may not be able to recover the incremental costs of about \$31.45/ton of solid waste disposed to remain open after 1992, or about \$40.49 to remain open after 1997. It noted that the impacts for haulers would occur only as related to the time difference between the scheduled closure date and the premature closing date, and that the cost increases will eventually be passed on to generators under new contracts, assuming that the hauling distances are longer. The EcIS did not attempt to quantify the increase in hauling costs, stating that it is not possible to identify the landfills affected, and whether the wastes would be re-routed to an existing or new landfill that could be closer or farther away. The EcIS concludes that the incremental cost impact is expected to be relatively minor and of relatively short duration. (EcIS 6-5,6; also see Section 5 and 7).

NSWMA asserts that "it would appear" that few small facilities could pass on such an increase in their tipping fees and that the result would be long distance transfer or increased illegal burning and dumping. (P.C. 20, p.1)

We do not see where the EcIS failed to consider the tipping fee consequences postulated by NSWMA. Regarding the assertion concerning increased illegal activities, if small landfills were to close prematurely, the EcIS does factor in the incremental costs as related to the size of the landfill as well as other factors (e.g. see Table 5-1), and we fail to see how the short term effects of premature closure, per se, would be a controlling factor. We also question whether the illegal activity speculation is any more valid as related to a small landfill closure in a rural area than it is to a large landfill closure in, for instance, the Chicago metropolitan area. We also point out that an operator can seek relief by way of a variance, adjusted standard, or site specific rulemaking petition.

Regarding financial assurance, and NSWMA's concern about the availability and costs of financial assurance given the 30 year post-closure coverage required, the financial assurance provisions have been amended somewhat to account for the increase for those facilities covered by the statutory requirement for such assurance. We request comment on these changes, but remind NSWMA that any fundamental problems with the financial assurance regulations that are not related to this R 88-7 proposal will have to be dealt with in another proceeding.

NSWMA commented that, while the EcIS concludes that the enhanced groundwater monitoring requirements will help prevent significant clean up costs, it did not discuss the impact, particularly on non-monitored, unlined onsite facilities. NSWMA asserts that such facilities may have to pay more to clean up the

groundwater as a result of identifying the problem through the improved monitoring programs. We can only note that, the earlier a problem is detected, the less the cleanup costs are likely to be, so the costs could be relatively less for cleanup, not more.

NSWMA comments that the estimated cost of leachate treatment was underestimated because it assumed that the leachate would be discharged into a sewer tributary to a wastewater treatment plant, and that few sites have sewers available and the costs for off-site industrial treatment are high. Also, NSWMA asserts, the transportation costs for leachate were not included. We do not know the basis for NSWMA's assumption that the charges imposed by a wastewater treatment plant, plus the potential costs of pretreatment, would necessarily be less.

NSWMA also challenged the validity of using the Agency's "green sheets" as a baseline for evaluating the new regulations, since they are not standards. We believe that the EcIS acceptably defended the use of these documents as an aid in computing incremental costs. These documents are in fact used for permit issuance in the absence of detailed Board regulations, and, from a practical economic comparison standpoint, we believe that it was not inappropriate to use them for determining incremental costs.

Section 811.323 (previously Section 811.406) of the Board's proposal includes requirements for operators to random check incoming loads for hazardous waste. If such wastes are found, the operator is to set such waste aside, cordon it off, and take certain steps to assure that the waste is properly cleaned up and transported and disposed of, with the hauler bearing such costs. NSWMA believes that the EcIS understates the costs to the operator (see EcIS pp. 6-18 to 6-20) because it does not include direct and indirect costs such as potential insurance or other liability exposure, whether a RCRA permit might be required, and hazardous waste training requirements. We suggest that the hazardous waste liability would exist in any event; however, the existence of specific, enforceable, regulatory steps designed to reduce the likelihood of disposal of hazardous waste loads at the facility should be more likely to provide the reassurance or lessen the impact in the areas of concern than would be the case if these provisions did not exist. We also note that the EcIS appeared to factor in the training requirements referred to.

#### WMI Comments

WMI, in P.C. #23, disagreed with a number of conclusions presented in the EcIS.

WMI asserts that the EcIS should have included the costs of model recalibration or assessment monitoring, which it asserts

are significant. WMI references a recent three year assessment monitoring cost of over \$250,000 for one particular landfill, also noting that no release from the landfill has been confirmed. It asserts that the costs of remodeling and recalibration ranges from \$30,000 to \$100,000, and hydrogeologic studies required by modeling exceedances and false positives would cost from \$20,000 to \$100,000. It asserts that the Act would be violated by the failure to consider the technical feasibility of the proposed modeling or to consider the economic reasonableness with regard to assessment monitoring and recalibration. (P.C. 23, p. 12, 21)

WMI's assertions reflect its basic disagreement over the availability and use of modeling for compliance and remedial action purposes. We believe that the extensive record on this subject supports the use of modeling for this purpose. The issue was again raised at the EcIS hearings, and discussed. We take note of the post-hearing comments of DENR, which summarized its view that modeling is an effective tool for the purposes intended and listed a number of references of successful modeling efforts, a list requested at hearing. DENR stated:

The track record of ground water modeling efforts has shown that modeling is a reliable science that should not result in excessive costs to the facilities....Therefore, assessment monitoring costs are considered remediation costs in the EcIS because assessment monitoring is expected to occur only when the facility leachate containment system has failure and contaminants are discovered in monitoring wells, not when the modeling effort has failed to predict the expected performance of the system, short of a catastrophic failure. For this reason, it is not expected that an increased number of false positives would necessitate assessment monitoring, nor would it require model recalibration. As one cannot predict the accuracy of the modeling effort, one can only assume that the model would be constructed adequately, and the statistical probability of false positive analytical results would be considered within the modeling assumptions. (P.C. 22, p. 2,3)

We also note that WMI did not identify the nature of the facility it referenced and the circumstances surrounding the expenses incurred.

WMI also believes that the groundwater standards, which apply in practice only to putrescible landfill operations, are "unsupported, technically infeasible, economically unreasonable and unfair in their application", and that it is not possible to

use modeling "to show no increase above background". (P.C. 23, p. 13)

We believe that the record supports the justification for incremental costs presented in the EcIS. WMI's comments reflect its continuing disagreement over the modeling issue, which comments have been addressed above and in the STS report.

WMI criticizes the EcIS for using Agency "green sheets" for determining incremental costs for offsite landfills, but not for onsite landfills. We note that, in the absence of permit or other related records for onsite landfills, the EcIS understandably used another approach for estimating incremental costs. We also note, as discussed earlier, that NSWMA felt that onsite incremental costs may be underestimated.

WMI also believes that the costs of permitting are vastly underestimated. It based this statement on an asserted cost approaching \$5 million for the recent balefill project. Even accepting the figure as correct, we have no idea as to how much of those costs are related to the absence of regulations on which both the Agency and the applicant can rely.

#### IERG Comments

The Illinois Environmental Regulatory Group (P.C. 24) criticizes the EcIS for its failure to make a finding that the proposed performance standards can be met by an operator's compliance with the design standards or that such standards are "reasonable and necessary for the protection of the environment". (P. 2). We question the basis for IERG's expectation that such a finding is required in the EcIS. In any event, by testimony and comment, referred to earlier, it is clear that the EcIS contractors believe that such standards can be met. We also note that it is the Board, in adopting record-based regulations, that must make the regulatory decisions concerning environmental protection, and that the test is whether the regulations are arbitrary or capricious. IERG also points out that the contractors justified the economic benefits by demonstrating the reduced need for remediations of existing and future sites, but did not demonstrate that most such sites would have required remediation or "been subject to remediation under existing law or practice". (P.C. 24, p. 2) We suggest that the EcIS contractors would not, as a matter of practicality, be able to demonstrate which sites might require remediation in the future. (see p. 26, infra). As the contractors repeatedly stated, using existing Agency data and data generated from those responses they received to questionnaires which they circulated, that they were unable even to identify all of the sites which would be regulated by the proposed rules. In any event, we believe that the technical record and EcIS data developed in this proceeding supports the assumption that many sites may need remediation under existing



law and practice, and in many cases the need for remediation will not be identified until after an environmental upset occurs.

Board Conclusions Concerning the Economic Reasonableness of the Proposed Regulations.

After considering the EcIS and other economic information in the record, pursuant to Section 27(b) of the Act, the Board determines that the proposed regulations are economically reasonable and that they will not have an adverse economic impact on the people of the State of Illinois.

BOARD COMMENTS CONCERNING PARTICULAR RULES

As earlier explained, where the Board has adopted modifications to the February, 1988 Opinion as suggested by the STS in its analysis of public comments, as a general matter the rationale will not be set forth here; this Opinion must be read in conjunction with the STS response to comments (Ex. 26), which in turn must be read in conjunction with the STS Background Report (Ex. 1). To the extent that the STS response to comments presents options for Board consideration, the Board will here address the options where deemed appropriate.

The Board notes generally that, in response to JCAR concerns, the number of definitions in Part 810 have increased, and numerous minor amendments have been made in other Parts. Such amendments are largely grammatical and typographical corrections; cross references to the Act, various other Acts, and Board rules; and deletion of phrases such as "sufficient to", "necessary to", "enough to", and the like. These are not specifically pinpointed in this Opinion. The Board does note, however, that it was not its intent to change the meaning of the rules proposed in 1988. Where a response to JCAR concerns could have a major effect on the rules, the Board has requested comment.

Deletion of Proposed Amendment to Section 106.410

In the February, 1988 proposal, the Board had proposed to amend its procedural rules for RCRA adjusted standards to encompass adjusted standards for these rules. This amendment is no longer necessary, as the Board has adopted general rules for adjusted standards at 35 Ill. Adm. Code 106.SubpartG. These rules are referenced as appropriate within the proposal as a whole.

The Board also notes that its February, 1988 Opinion (pp. 52-53) discussed, and declined to adopt IERG's suggested addition of a "generic" rule to allow for adjustment of any standard in the proposed rules. The Board believed that the language of Section 28.1 precluded such action. Since that time, Section

28.1 has been amended to provide for the relief IERG had requested.

#### Section 807.105 Relation to Other Rules

The Agency has strongly recommended "the concept that these rules should represent minimum waste handling requirements in Illinois, applicable to all wastes, including hazardous wastes except in case of conflict with RCRA requirements." (P.C. 21, p. 2). The Board declines to do so for a number of reasons.

If there are to be any "patching-in" amendments to the hazardous waste regulations, it is more appropriately done in a RCRA proceeding. Exactly which of these rules should apply to hazardous wastes has not been aired at all in this proceeding. What is more stringent and not in conflict with RCRA is not easily determined. For example, the Agency has pointed out that these regulations require that groundwater monitoring must occur on a quarterly basis, whereas the Board has determined that RCRA monitoring is semi-annual. There are potential differences in test methodologies, contaminants to be monitored, etc. that do not lend themselves to easy identification and resolution. The approach taken regarding design and performance standards, and operating standards are different between the two sets of regulations.

We agree with IERG comments that wholesale application of proposed Parts 810 through 815 to hazardous waste landfills "would present a major disruption of the Illinois hazardous waste program and destroy its parallelism with the federal program". (P.C. 24, p. 10). Even if it is true that some of the hazardous waste facilities might be subject to less stringent standards than those for non-hazardous waste, we do not agree that an anomalous result will occur; this assumes that non-hazardous waste facilities are inherently of lesser environmental concern than hazardous waste facilities. We suggest that the concerns might be different, but that they are not unequal.

#### Section 810.103 Definition

##### Defining Landfill to Determine Regulatory Scope

One of the most fundamental tasks in framing regulations is to make as clear as possible what operations are subject to the regulations. When the Board proposed the instant regulations on February 25, 1988, it re-titled the proposal to reflect its intent that these regulations apply to non-hazardous waste landfills. Included are those landfills exempt from the requirement to have a permit pursuant to Section 21(d) of the Act.

It became clear that the Board would have to defer to another proceeding the crafting of regulations to properly address the rest of the universe of storage, treatment and disposal solid waste facilities. If the Board attempted here to be all inclusive, it was clear that the development of a record to accomplish this would even further postpone the adoption of the landfill regulations. The comments themselves point out the difficulty of distinguishing what is a landfill, much less distinguishing other types of facilities and the related questions as to what constitutes storage, transfer stations, treatment, recycling etc. in a regulatory context. We fully share the concerns about the potential environmental impact of other activities; however, as earlier explained, to fail to address an area of critical concern now, and instead wait until some future time when we can address everything is unacceptable. We also wish to preserve the enforceability of these regulations by assuring that they are not selectively applied, i.e. that pieces of the regulatory scheme are ignored in an attempt to expand the universe. We note that these issues were addressed in the first R88-7 First Notice Opinion and further addressed in R 88-8, Census of Solid Waste Management Facilities Exempt from the Permit Requirement as Provided in Section 21(d) of the Act, 35 Ill. Adm. Code 808, February 25, 1988.

Defining what is or is not a landfill requires one to look at other long standing terms of art such as land application or treatment units, surface impoundments, and waste piles. The testimony and comments clearly indicate that the definitions need improvement, and we have proposed language changes that more clearly reflect distinguishing features among these terms. However, the definitions must also be read in conjunction with what the regulatory standards require an operator to abide by. As noted earlier, any selective application of the regulatory provisions are not allowed unless specifically provided for in the regulations themselves.

We are proposing to change the definitions of land application unit (and to delete the definition of land treatment unit), landfill, surface impoundment and waste pile and are repeating them here as follows:

"Land application unit" means an area where wastes are agronomically spread over or disked into land or otherwise applied so as to become incorporated into the soil surface. For the purposes of this Part and 35 Ill. Adm. Code 811 through 815, a land application unit is not a landfill; however, other Parts of 35 Ill. Adm. Code: Chapter I may apply and may include the permitting requirements of 35 Ill. Adm. Code 309.

"Landfill" means a unit or part of a facility in or on which waste is placed and accumulated, over time, for disposal, and which is not a land application unit, a surface impoundment or an underground injection well. For the purposes of this Part and 35 Ill. Adm. Code 811 through 815, landfills include waste piles, as defined in this Section.

"Surface impoundment" means a natural topographic depression, man-made excavation, or diked area into which flowing wastes, such as liquid wastes or wastes containing free liquids are placed. For the purposes of this Part and 35 Ill. Adm. Code 811 through 815, a surface impoundment is not a landfill. Other Parts of 35 Ill. Adm. Code: Chapter I may apply including the permitting requirements of 35 Ill. Adm. Code 309.

"Waste pile" means an area on which noncontainerized masses of solid, non-flowing wastes are placed for disposal. For the purposes of this Part and 35 Ill. Adm. Code 811 through 815, a waste pile is a landfill, unless the operator can demonstrate that the wastes are not accumulated over time for disposal. At a minimum, such demonstration shall include photographs, records or other observable or discernable information, maintained on a yearly basis, that show that the waste is being removed for utilization or that there is a plan for disposal elsewhere.

The term "landfill" always connotes disposal, unlike the other terms, which can connote storage, treatment or disposal. We have retained the term "disposal" for landfills, but have removed the word "disposal" from the definitions of land application unit and surface impoundment; defining them in terms of disposal, as opposed to treatment or storage, is not necessary here, since they are not proposed to be regulated under this proposal in any event.

Another distinguishing, though not unique, feature of a landfill is that the waste is accumulated over time. This may or may not be true of a surface impoundment, but neither the record nor the proposed regulatory scheme really addressed what kinds of regulations would be appropriate for the various "pits, ponds and lagoons" in this state. The definition is intended to clarify what must be shown to avoid being regulated as a landfill; a flooded out dump would not be exempt. As earlier stated, regarding a land treatment unit, we note that the term is more appropriately a land application unit. Whether the activity is for treatment or not is not relevant to this proceeding. Also, the word "agronomically" has been added to make clear that, if waste is accumulated over time at a rate greater than the agronomically determined rate, the unit is subject to being regulated as a landfill, no matter what it is called. There must be some clear, positive interactive relationship shown between

the soil and the amounts incorporated. If the activity is serving an agronomic purpose, then requiring such things as liners and daily and final cover would not make sense.

Regarding waste piles, we continue to believe that there is no persuasive reason to treat them as other than landfills as a general proposition. However, we have specified the showing an operator must make (i.e. that the wastes are not accumulating over time) to allow for those activities where the waste is truly being routinely removed, for whatever purpose. We recognize that there will probably be more "gray areas" to be resolved here than elsewhere. Part of the problem is the mentality that has grown up over the years that "it couldn't be a landfill if it didn't start as a hole in the ground". We no longer think that that mentality is defensible. In any event, we believe that, with the proposed language, operators of temporary waste piles would be well advised to maintain records or other information for documentation if they do not wish to be regulated as landfill operators. It is particularly difficult for others to easily ascertain whether waste is or is not accumulating. The intent of the language is to put the onus on the operator to demonstrate that it is not.

In this context, the Board notes the concern of one of its Members that tighter regulation of waste piles could adversely affect the agricultural community, given the common practice of piling debris cleared from fields and ditches for later disposal. The Board believes that the above-described treatment of wastepiles "exempts" these individual from enforcement provided that disposal elsewhere does occur on a routine basis.

Finally, the STS suggested definitions of storage and treatment have been deleted and an optional addition to the statutory definition of "disposal" has been modified accordingly. The Board declines to propose storage and treatment additions at this time, for reasons earlier explained.

#### Other Definitions

Many definitions which appear in today's proposal and which did not appear in, or were amended since, the 1988 proposal were added or amended at the suggestion of the STS in response to public comment. (See Ex. 26, pp.4-34). Others were added in response to JCAR concerns. These include definitions for the following terms: borrow area; NPDES; 100 year flood plain; 25 year, 24 hour precipitation event; 100 year, 24 hour precipitation event; professional engineer; professional surveyor; perched aquifer; POTW, recharge zone; responsible charge; settlement; sole source aquifer; and waste stabilization. Where feasible, definitions were drawn from the Act or existing definitions.

The Board also notes the Agency's comments, and the STS response, concerning certain definitions in Part 807 which are not replicated in Part 810. (Ex. 26, pp. 45). The Board generally agrees with the STS that wholesale replication of Part 807 definitions into Part 810 is inadvisable. However, as to the specific definitions suggested by the Agency for inclusion, the Board agrees that "lift" and "working face" should be defined and has added definitions; we believe that "cover" is adequately described in the context of Part 811. The Agency is invited to comment as to whether there are other specific definitions in Part 807 which should be added to Part 810.

Section 811.101 Exemptions from, or Delayed Applicability of, the Regulations

IERG, generally, and the groups or associations representing the steel, utility and foundry industries, testified at least as far back as October, 1987, that they wanted an exemption from the regulations for existing landfills, and delayed applicability from the regulations for new landfills, the latter request based on the time needed for industry proposal and Board adoption of general rules applicable to an industry category for new landfills only. The latest requested time for delayed applicability appeared to be two years. (P.C. 24)

The Illinois Cast Metals Association and the Illinois Steel Group expect to submit a proposal jointly, with the Illinois Utilities submitting a separate proposal. The EcIS had considerable difficulty in identifying and characterizing the industrial landfills, particularly since they appear to be primarily onsite so that records of their numbers and activities are difficult to obtain. For onsite facilities, four were identified for electrical utilities (Table 3-6 through 9), four for foundries (Table 3-10), and an uncertain number for steel, although seven are listed for primary metals (Table 7-2). The EcIS estimates that there may be about 74 onsite facilities in all, but these numbers are uncertain, as well as the numbers by category, with the possible exception of the utility numbers. Of the 74, there are 48 for which specific information is known. (EcIS R. 178, EcIS 3-30, Table 3-11).

The Board is unwilling to delay the applicability of its regulations across-the-board to the existing landfills in the above industrial categories. We do not find persuasive evidence in the record as to why these existing industrial landfills, whether onsite or offsite, should not comply with the regulations. We note that an existing landfill is able to remain open for seven years, during the phase in period, with considerably lessened requirements. There is no real explanation in the record as to why these phase-in compliance requirements would not, for any of these landfills, be both technically feasible, and, as indicated in the EcIS, economically

reasonable. If a landfill wishes to stay open beyond seven years, there is still no real explanation in the record as to why none of the remaining existing landfills could not comply with those added requirements. We note that the industries do not intend to propose categorical regulations for existing landfills, and we are unwilling to assume that these landfills, without exception, merit the kind of special consideration requested here.

The Board realizes however, that much of the regulatory language in Part 811 was drafted to focus on new facilities or units and that certain aspects of those regulations were then made "applicable" to existing facilities and units by other parts of today's proposal. This segregated concept leaves open the possibility of confusion as to when any applicable obligation of Part 811 would have to be performed by existing facilities and units. The Board believes that most if not all of the questions regarding "when" an existing unit would have to perform certain activities have been answered by today's proposal. However, the Board specifically requests the participants to review the proposal from this perspective and provide comment on any confusion that might appear.

IERG argued that the adjusted standard language in Section 28.1 of the Act might not provide the relief requested, especially if the statutory language is construed as precluding a health and environment based standard. Also, IERG asserts, if all affected entities came in for an adjusted standard, the Board would be overwhelmed. (P.C. 24, p. 6).

The Board does not accept this line of reasoning. Section 28.1 does not preclude adjustment to another standard. It requires a showing that "the requested standard will not result in environmental or health effects substantially and significantly more adverse than the effects considered by the Board in adopting the rule of general applicability". (Section 28.1(c)(3), emphasis added). We do not see why the standards in the landfill regulations, as opposed to any other regulations, preclude such a showing. We suggest that the lack of data regarding these landfills is the problem, not the regulations. We note that even the onsite facilities identified in Table 3-11 of the EcIS have widely different designs, with some lacking monitoring wells, for example, so we suspect that we will not necessarily be inundated with adjusted standard petitions.

Regarding the requests to propose regulations of general applicability for the industrial categories, we note that the Illinois Utilities feel that they will have a proposal ready to file in November of 1990; the others were not as specific. The Agency strongly opposes any open ended exemption, noting that in the Board's February 25, 1988, Opinion (at p. 53) the groups asserted that they should have completed their technical studies

by July 1, 1989. (P.C. 21, p. 1,2). We will accommodate some slippage for filing of the proposals. We will postpone the applicability of the rules for new landfills for the three industrial categories named above for two years, only if the proposals are filed no later than December 1, 1990. It was not at all clear on the record the number of new landfills anticipated in the near future (the utilities appeared to be anticipating two), but the effective stay here appears to be a reasonable balance from an environmental and industry perspective.

We take particular note that the Illinois Utilities have been working on regulations that would also include ash lagoons, which are not covered by these regulations. The Utilities noted that the Agency has been exercising its technical judgment by requiring three foot liners and monitoring wells when issuing NPDES permits. The Utilities expressed a concern that the lagoons might become subject to portions of the regulations as a de facto action of the Agency. We can only note that, absent Board specific regulations for the lagoons, the Board will not prejudge what Agency actions should be in this area. We strongly suggest that it might be prudent for the Utilities to propose their lagoon regulations.

#### Section 811.306 Liner Systems

In its February, 1988 Opinion (p.56), the Board requested comment as to whether the minimum thickness of a clay liner should be three feet, as proposed by the STS, or five feet as others suggested.

The STS continues to recommend to the Board that the minimum thickness of a clay liner be established at three feet, on the grounds that the efficiency ratio of leachate containment increases rapidly as a clay liner's density is increased to three feet, but that the efficiency ratio increase is quite small as the clay liner's density is increased from three feet to ten feet. The STS emphasizes that the liner thickness, together with a comprehensive set of construction quality assurance requirements are required to ensure that the clay liner, placed and compacted according to specifications, meets the design standards of the landfill. (Ex. 76, pp.23-29).

The Board has determined to propose a minimum of five foot thick compacted clay liner, rather than the three feet recommended at first First Notice. We fully respect the expertise reflected in the record and the expertise of our Scientific/Technical Section that led to the Section's continuing to recommend a three foot liner. We recognize that the design and operating requirements in these regulations change the traditional reliance on a liner, and so change the liner requirements themselves. However, from its own experience, the



Board believes it is wise to take a more cautious approach with the newly proposed regulatory scheme; while the regulations are crafted to include a number of checks and balances, we feel that it is prudent to require an extra two feet to guard against an unanticipated potential for error in implementing the regulations that might be sufficient to cause more reliance on the liner than was intended. In so doing, the Board notes Dr. Ham's view that while there is some very good evidence that a three foot clay liner is reasonable, a five foot clay liner is a reasonable minimum which allows for errors in building the liner and changes in material quality. (R. 138, 139, Ex. 3).

The Board also considered, in addition to the five foot liner minimum requirement, the merits of allowing use of a three foot compacted clay liner plus an artificial liner as an alternate minimum. It can be argued that the use of two materials can provide greater protection than adding two feet of the same material. However, the Board requests comment about the merits of relying on an artificial liner for this purpose.

#### Section 811.319 Procedures for Groundwater Monitoring Program

The STS has recommended several clarifying changes in this Section, which the Board is including in the proposed rule. (Ex. 26, pp.144-159). The Board points out the addition of Section 811.319(a)(4)(B)(iii), a suggested option which requires an operation to notify the Agency in writing of any confirmed increase in the monitored level of a contaminant, within 10 days, and to state the source of the increase. The Board specifically solicits comment concerning the specified time frame.

Additionally, at a Board Member's suggestion, Section 811.319(a)(3) has been modified to establish an organic monitoring schedule for existing, as well as new, wells.

#### Section 811.320 Groundwater Quality Standards

This Section has been generally reworked by the STS to clarify intent in response to public comments. (Ex. 26, pp.158-168). The Board will not repeat its reasons for declining to defer this rulemaking until completion of rulemaking required under the Illinois Groundwater Protection Act; interested persons are referred to pages 47-52 of the Board's February, 1988 Opinion.

The Board notes that the term "nondegradation" has been used to describe the approach taken in these regulations. "Nondegradation" is a term of art, and is not meant to be viewed in the absolute sense or as implying that regulatory standards adopted in other Board regulations do not serve to protect the environment. Its use also requires the application of statistical methods and procedures to ensure that increases above

an established standard are shown to be statistically significant increases. Nondegradation also describes the underlying "100 feet in 100 years" contaminant transport design and compliance restrictions embodied in the regulations, and in this context we believe that the use of the term is appropriate.

The Board points out, and specifically requests comments concerning, the optional one sentence addition to the end of subsection (d)(1) contained in the STS Responses (p 84). This requires the operator to 1) maintain onsite a list of the groundwater background concentrations established pursuant to the rule and, 2) provide a copy of the list to the Agency, and 3) provide to the Agency updated lists within 10 days after any change.

The Board also wishes to note a difficulty presented by Section 811.320(e)(4)-(6). In these subsections, in response to comments, the STS has recommended a specification of various statistical tests to be used to analyze groundwater monitoring data. JCAR has commented that statistical tests cannot be incorporated by reference, which would require the Board to reproduce these voluminous materials as appendices to its rules. The Board requests comments as to whether the references to the specific statistical tests should be deleted and replaced with a performance standard similar to that contained in 35 Ill. Adm. Code 724.197(i).

#### Part 811.Subpart B Inert Waste Landfills

The Board requests more specific comment from those who have addressed the stringency of the inert waste definition and the sufficiency of the proposed groundwater protection safeguards for inert waste landfills. Regarding the groundwater protection safeguards, some felt that a groundwater monitoring program should be included. One Board Member felt groundwater monitoring as well as location standards might be necessary to detect and reduce harm from the inadvertent or intentional disposal of unauthorized wastes. We request that any commentors specifically identify what, if any, components of a groundwater monitoring program might be appropriate, as well as the implications of such requirements for inert landfill classification and requirements as proposed, including the definition of inert. We request that commentors address the following components of a groundwater monitoring program: what hydrogeological site investigations should be required to establish the location and number of monitoring wells; what standard should apply and what constituents should be monitored; what would be the compliance point and what would trigger remedial action (assessment monitoring, corrective action etc.); what reporting and operating requirements should be included; and what requirements should apply to existing facilities and to new facilities. Regarding operating requirements, we also request comment as to whether the

random load checking requirements in Part 811.Subpart D, or some other load checking requirement, might be appropriately added to these regulations as a safeguard against non-inert waste loads coming to the landfill.

We note that we do not wish to delay the adoption of the regulations; if necessary, we believe that these issues can effectively be visited in another proceeding, given the two year and seven year phase-in periods in the proposal. Also, we believe that more data will be forthcoming as the regulations are implemented, which should help in crafting added requirements, if any. In any event, the Board will determine how to proceed on these issues after reviewing comments received during this second First Notice period.

A Board Member was also concerned that the inert waste demonstration does not require that acidity of rainfall be taken into account. He noted that rainfall in Illinois has an average acidity of about pH 4.2, and that "inerts" ought to be tested with water acidified at least to that level rather than with unacidified water, which in the Chicago area at least is on the alkaline side. We note that Section 811.202(b)(2), regarding extraction fluid requirements, appears to address the concern, but we request comment on this issue.

#### Part 811.Subpart D Additional Standards for Management of Special Wastes at Landfills

The Board notes that since these regulations were proposed in 1988, rulemaking activity concerning certain special wastes issues has proceeded in Docket R89-13(A), In the Matter of: IDENR Special Waste Categorization Study, Second Notice Opinion and Order, November 15, 1989. The rulemaking implements the mandates of Section 22.01 and 22.9 of the Act, which require a) review of the manifesting system currently contained in Part 809 for non-hazardous special wastes and adoption of an annual report requirement, and b) adoption of a system of categorizing special wastes according to their degree of hazard.

The R89-13A proposed rules would establish two classes of special non-hazardous waste. Manifests for non-hazardous wastes would no longer be sent to the Agency, but would, among other things, be retained onsite and serve as the basis for periodic reports to the Agency (quarterly, in some cases, and annual in others).

The Board believes it has revised Subpart D to be consistent with the R89-13A proposal. The Board specifically requests comments as to whether there are any lingering inconsistencies.

## Part 811.Subpart G Financial Assurance

As previously mentioned, amendments to the Subpart G financial assurance rules were discussed at the June, 1989 hearings. These were largely technical amendments made in response to public comments, as well as adjustments necessary to accommodate the amendment to Section 22.17 of the Act which, effective July 1, 1990, extends the period for monitoring gas, water, and settling at permitted landfills from 5 to 15 years.

In the Board's February, 1988 Opinion (p.58), the Board had noted that it was not proposing to repromulgate the financial assurance forms currently contained in Appendix A, and requested comment. The Board is now persuaded of the advisability of retaining appropriate forms in the body of its rules, and is accordingly proposing slight modifications to these forms in this Order.

Additionally, technical amendments have been made in response to JCAR concerns. The language in Part 811.Subpart D as proposed in 1988 was largely a verbatim repetition of the language of existing Part 807.Subpart F, adopted in 1985; language which was acceptable to JCAR in 1985 would appear to be objectionable today.

### Section 813.501 Annual Reports

### Section 815.303 Information To Be Submitted

Sections 813.501 and 815.303 require the filing of annual reports; the first by permitted facilities, and the second by permit-exempt facilities. At the request of a Board Member, we are proposing to direct that an additional piece of information be filed with the annual report: the waste identification report required by Section 811.404. These reports contain chemical analyses for each different special waste (not each shipment of special waste) handled at a facility. The purpose of inclusion of the annual filing provision is to make these chemical analyses available at the Agency for public inspection. Several comments requested greater public access to information regarding nearby facilities. The Board hopes mandatory filing of the waste identification reports with the Agency will go far to satisfy these concerns.

### Section 815.401 Scope and Applicability

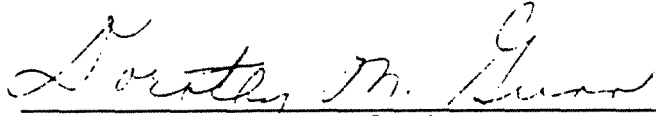
The Board has proposed, and requests comments concerning, the addition of a required quarterly report listing groundwater background concentrations prepared in accordance with 35 Ill. Adm. Code 811.320(d)(1) (see previous discussion of this Section).

FURTHER PROCEEDINGS IN THIS DOCKET

As noted in the Board's Order today, the Board will accept written comments concerning this proposal for 45 days following the publication of the proposal in the Illinois Register. In their comments, participants should detail their questions and concerns and, in particular, should identify which issues and Parts, if any, have not been covered in the 30-odd hearings held in Docket R84-17 and the four hearings held in this docket, R88-7; the Board is not disposed to have a "replowing of old ground" covered in R84-17 and in this docket. In order to expedite the process, the Board is anticipating reserving one hearing date as soon as possible. The date and location will be established shortly by the hearing officer and will be mailed to those on the Board's notice list.

Board Members J. Dumelle and B. Forcade concurred.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, hereby certify that the above Proposed Opinion was adopted on the 1<sup>st</sup> day of March, 1990, by a vote of 7-0.

  
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Dorothy M. Gunn, Clerk  
Illinois Pollution Control Board