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Environmental Impact Procedures for Landfills in Monroe County*

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by

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Summary

The concept of preparation and review of Environmental Impact Statements (EIS) was developed in the National Environmental Policy Act of 1969. A list of information that should appear in a draft Environmental Impact Statement on any landfill is provided. Also here is an annotated list of references to papers that provide a useful background for anyone reviewing an Impact Statement on landfills.

Introduction

A comprehensive study of solid waste disposal in Monroe County has been published by the Rochester Engineering Society (1). The report, widely distributed, recommends that ordinary solid waste be shredded, compacted and placed in sanitary landfills as a short-range solution. Recycling and other techniques will reduce the volume and weight of buried waste, but present estimates (1, v. 1, p. E7-E12) indicated that tens if not hundreds of thousands of tons of solid waste must necessarily be buried by Monroe County each year until - and beyond - 1980.

Consequently, the City of Rochester, the towns, and the county are then faced with the absolute necessity of selecting and operating sanitary landfills (1). These sites will be selected, designed, and operated on the basis of economic, technical, environmental (including aesthetic), and political criteria. The weighting of these criteria will vary from case to case. The Rush landfill site was initially selected, not because it was the best possible site from a technical and environmental view, but because it was available. Availability may be the determining factor in selection of future sites, too.

Therefore, it is important to establish and adhere to a uniform public review process which will insure that the public will be well informed about the potential impact at each site proposed. The process should also insure broad acquaintance with measures which minimize or eliminate undesirable impacts. The model for such a review process has evolved from the National Environmental Policy Act of 1969, which requires that an environmental statement be prepared for most actions proposed by federal agencies.

Environmental Impact Statement Procedure

Section 102(2)C of the National Environmental Policy Act of 1969 outlines a procedure that might be followed in the review of proposed landfill sites. The aim of this procedure is to compile an illustrated document which explains clearly and simply

* Dr. Kenneth Harbison's comments and suggestions were of considerable value to me in writing this Bulletin.

the expected environmental consequences of a proposed action (2). This document, which is called an Environmental Impact Statement (EIS), is intended to be the product of cooperative efforts by people who are qualified to estimate the expected consequences; economic, aesthetic, geologic, sociologic, chemical, or biologic. In the case of landfills, potential sites would be selected by an agency designated by the county legislature. Each site would be subject to a preliminary screening, and a draft EIS would be prepared for each site passing the initial screening. After review of the draft EIS some sites would be eliminated, and more detailed draft statements would be produced for the final sites to be considered.

Environmental Impacts of Landfills

The development of a sanitary landfill will have the following environmental impacts or effects. All are potentially important, and none should be neglected.

- 1) Aesthetic or neighborhood effects: Effects on the landscape and neighboring residential areas.
- 2) Public health effects in the vicinity of the site:
 - a) Vermin
 - b) Surface water contamination: Contamination of runoff and of nearby streams and the public health effect of this contamination.
 - c) Ground water contamination: Contamination of ground water in unconsolidated materials (sand, gravel) that store water in what are called shallow aquifers. Contamination of ground water in underlying bedrock in deep aquifers.
- 3) Public health effects along transportation routes:
 - a) Noise
 - b) Accident risk

Evaluation of Environmental Impacts

It is as necessary to evaluate the environmental impacts noted above as it is to state them. The evaluation should consider the magnitude, importance, and duration of each impact as outlined below (see also, 3).

- 1) Magnitude: An evaluation of the number of people affected and the geographic area affected.
- 2) Importance: An evaluation of the seriousness of the impact, say on an individual's health or well being.
- 3) Duration: An evaluation of the length of time over which an impact will be felt.
- 4) Effects on other resources: Groundwater, land with future recreation or commercial potential, etc.

All these evaluations may be difficult to provide, but the process must not permit their neglect. Even if evaluations are imperfect, systematic presentation enables reviewers to compare sites more effectively.

Environmental Impact Statement

The environmental impact statement should present all of the above information in clear and understandable form. In addition a landfill EIS should pay particular attention to providing the following information in graphic form in a manageable scale.

- 1) Geographic location and nature of surroundings. This should include current aerial photographs and land-use maps showing housing patterns and population densities. Also desirable is a transportation map with data on route length, road character, and traffic patterns and problems.
- 2) Topographic map and profiles showing precise boundaries to the site and surface drainage in area.
- 3) Geologic maps and soils maps showing the following: Distribution of soils and surficial (glacial) material, depth to bedrock, and bedrock types. An index to all drill records should be provided.
- 4) Map showing distribution of existing water wells and their users.
- 5) Inferred ground water flow patterns shown on maps and sections and index of users of ground water from deeper aquifers.

A complete hydrologic evaluation includes estimates of flushing times of important aquifers and the determination of surface channels into which they discharge.

The systematic preparation and distribution of environmental impact statements containing such information would serve to inform the public and public officials adequately and accurately. The review process would sift and clarify the gains and losses in money and environmental quality for each landfill site.

References

- (1) Rochester Engineering Society, A Study of Solid Waste Disposal Plans for Rochester and Monroe County: Vol 1 (Summary), vol. 2 (Detail Study), vol. 3 (Appendices), Rochester Engineering Society, 1972. This comprehensive study includes a separate section (Section F, vol. 2) on landfill methods.
- (2) Herman Forest and Olga Berg, "The National Environmental Policy Act: Environmental Impact Statements and Review", RCSI Bulletin #149, 1972
- (3) L. B. Leopold, F. E. Clarke, B. B. Hanshaw, and J. R. Balsley, "A Procedure for Evaluating Environmental Impact", U. S. Geological Survey Circular 645, 13 pp, 1971. Free on application to the U. S. Geological Survey, Washington, D.C. 20242

Other Sources

Department of Environmental Conservation, "Sanitary Landfill: Planning, Design, Operation, Maintenance." N.Y. State Dept. of Environmental Conservation, Bureau of Solid Wastes Engineering, 32 pp, 1971. In addition to clear and instructive statements on each item cited in the title, this report provides appendices concerned with costs, planning incentives, and New York State aid, the State Sanitary Code Part. 19, and other subjects of interest. It should be read by everyone who is involved in any way with Monroe County landfills. It is available from the New York State Department of Environmental Conservation, 50 Wolf Road, Albany 12201

M. J. Wilcomb and H. L. Hickman, Jr., "Sanitary Landfill Design, Construction, and Evaluation," U.S. Environmental Protection Agency, Solid Waste Management Office, 11 pp, 1971. Available from Superintendent of Documents, U. S. Govt. Printing Office, Washington, D.C. 20402. This report provides a checklist of requirements to be met by a sanitary landfill and another checklist of recommendations. Together these checklists can be used as a guide to the steps required in converting a dump to a sanitary landfill.

W. J. Schneider, "Hydrologic Implications of Solid Waste Disposal", U. S. Geological Survey Circular 601-F, 10 pp, 1970. Available from U. S. Geological Survey, Washington, D. C. 20242 (without cost).

End Note :

Dr. Lundgren's Bulletin is a substantial contribution toward adopting national policy and procedures to serve local needs. Interdisciplinary approaches and citizen review have been followed and special attention given to geological considerations. The review of this bulletin reveals the need for RCSI to provide a sequal giving similar attention to bio-ecological aspects.

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