

TRASH AND WASTE DISPOSAL
KOSCIUSKO COUNTY

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This paper will address an imminent problem for Kosciusko County in achieving two of its major goals. Goal One: Attract new industry and resulting population growth. Goal Two: Attract tourism and promote the lakes and scenic value of our county. The imminent problem is trash disposal. Trash disposal poses to be a major obstacle in achieving the growth goal without sacrificing this county's tourism attractions: scenic lake/river areas and rustic rural settings.

We will discuss how trash is currently being handled in this county. Existing problems will be identified and potential problems will be addressed. There are two options a population has for disposal of wastes: (1) Bury it (landfill) or (2) Burn it (energy can be a by-product). This paper will present the pros and cons of each option.

Research data for this paper was gathered by meetings, phone conversations and letters to public officials, landfill operators, private trash haulers, Indiana State Department of Environmental Management, Tennessee Valley Authority, and plant managers of solid waste to energy plants in Columbus, Ohio; Gallatin, Tennessee; Ames, Iowa; and Pascagoula, Mississippi.

The method of trash disposal currently being used in Kosciusko county is landfill. The looming problem in sustaining industrial and population growth while remaining a tourist/recreational area becomes obvious. Landfills are temporary solutions. The present capacity is being used rapidly

and new approved sites are becoming more difficult to obtain. Information from the Indiana State Department of Environmental Management shows there are presently 83 approved landfills in Indiana. The estimated remaining capacity of Indiana landfills is 50%. Trash generated in our county goes to three principal sites: Warsaw trash collection goes to a landfill in Wabash County, The private haulers servicing Kosciusko Country typically use landfills located in Elkhart County and Packerton in Kosciusko County.

The estimated population of Kosciusko County in 1990 is 61,419 people (S. M. Detwiler & Associates, pg.1). The estimated national average is 6.5 pounds of trash per day per person. At our projected population we will need to dispose of two hundred tons of trash per day by 1990. It is not too soon to start plans to cope with this problem.

Earlier in this paper we stated there were two options to trash disposal - burning and burying. A concern is that a segment of our population has opted for a third method, that being roadside dumping. Roadside dumping is increasing in a number of areas in the county. The effect on the environment, anguish of neighboring property owners, and the legal difficulties in curbing this activity would require a lengthy research paper of its own. The magnitude of this problem can be realized with the solution of stop roadside dumping on Road 250 E along the Tippecanoe river southwest of Oswego. The solution was to physically block off access to the county road.

The problem of roadside dumping certainly won't go away with either approved option of trash disposal. But, the frequency of

occurrence will certainly increase as the population grows and trash disposal costs increase.

OPTION 1

The current solution to waste disposal problems in Kosciusko County is the landfill. Presently there is one privately owned landfill in the county. There are advantages to the present alternative. The initial costs and operating capital required are lower than other methods of disposal. However, the liability to the organization operating the landfill is much greater than other options. The availability of sites is somewhat limited because of the geographical acceptability requirements and the public's acceptance of a landfill site in close proximity to populated areas. In addition, there is a continual growth in the amount of regulations from the state and federal agencies, which will make the acquisition of landfill permits more difficult. As you will see in the following summary of landfill regulations, it is not an easy task to gain a permit for a sanitary landfill and increases in regulation will only add to the difficulty.

The descriptions of solid waste landfill regulations and requirements that follow are summarized to simplify them for ease of understanding. This summary, by no means, should be considered as a complete listing of all existing regulations as it was drawn from a 114 page draft of rules issued by the State of Indiana. Any specific questions should be directed to the Department of Environmental Management in Indianapolis, Indiana.

Regulations, operating requirements and conditions of permit

can best be broken down into four distinct phases. These phases will be the application phase, the approval phase, the operating phase, and the closure/post-closure phase.

I. Application Phase

- A. Anyone interested in opening and operating a solid waste landfill is required to submit an application form to the Department of Environmental Management. The application must be complete and the following information must accompany the application:
1. Certification from the zoning board of the county in which the proposed facility will be operated, as to the location of the property and proposed facility, a description of the proposed activity, the date of zoning board approval, and the status of all zoning appeals.
 2. Detailed operating plans to include specific location information certified by a registered professional engineer. This information is to include (a.) A USGS topographical quadrangle map of the proposed facility and all areas within 2 miles of the proposed facility with property boundaries and proposed fill boundaries clearly defined; (b.) A scaled map which of the proposed facility and the area within 1/2 mile that depicts wetlands springs, swamps, legal drains, wells, buildings, dwellings, sewers, culverts, drainage tiles, pipelines, power lines, surface water, water courses and roads; (c.) Documentation of the base flood elevation within 1/4 mile of the proposed facility from the Indiana Dept. of National Resources; (d.) Topographical maps and cross-sectional drawings that show the existing interim and final locations and descriptions all geological and groundwater suitability requirements, topographical features, soil features, erosion control, leachate collection and methane control systems. (e.) Topographical maps and cross-sectional drawings for initial, interim and final development of the facility that depict, land surface, water dispersal, vegetation, fences, structures, direction of operation, depth of excavation, methods of operation and development; (f.) Topographical map of the proposed facility which depicts the number, exact locations (including elevation), dates and types of all sample borings. (g.) Hydrogeologic studies for the proposed site which indicate known aquifers, their thickness, hydraulic conductivity and effective

porosity, known or suspected hydraulic connections to existing groundwater, proposed locations of all monitoring wells and groundwater test equipment including size, drilling techniques, screen size and well development; water table flow maps.

NOTE: The commissioner of the Department of Environmental Management may request that data be provided at his/her discretion.

3. Detailed closure and post-closure plans that identify all activities that will be carried on during closure and after closure. The closure plan will include a description of the steps necessary to close the facility including a listing of all labor, materials, and testing necessary to close the facility and an estimate of the yearly cost of closure and a schedule for final closure to meet the required criteria for final closure.

Post-closure plans will include a description of groundwater monitoring activities, planned maintenance activities and their frequency, a post-closure cost estimate for the maintenance of ground cover and vegetation, and the name, address, and telephone number of the person to contact after final closure of the facility.

4. Legal documentation for the proof of ownership. This documentation will include the deed to the property on which the proposed activity is to take place or legal evidence satisfactory to the commissioner of the Dept. of Environmental Management that ownership will be transferred to the applicant prior to the operation of the facility.
5. A complete listing of all property owners including names and addresses within 1 mile of the proposed facility boundaries.
6. Proof of financial responsibility to cover closure and post-closure costs and to ensure that the costs will be paid regardless of the financial stability of the organization involved in the operation of the facility. This financial assurance can be accomplished in a number of different ways including trust funds, surety bonds, letters of credit and insurance. It should be noted that the intent of this rule is not to be restrictive, but to ensure that the criteria for closure and post-closure is met.

7. Authorized signatories - This section pertains specifically with the person or persons who accept the responsibilities required to meet compliance standards, authenticate the accuracy of and completeness of information submitted to the commissioner of the Dept. of Environmental Management. This person (or persons) is legally accountable for any fines and/or imprisonment on behalf of the organization represented.
8. A descriptive narrative is drafted that outlines the propose facility including amounts and types of wastes to be deposited, the equipment used for placement and compaction of waste, practices to control fugitive dust, access to the site, distance from the site to the nearest dwelling, supervision which will occur at the site, hours of operation, development and progression of disposal, inclement weather operating procedures, leachate and methane control systems, sampling methodology, population and area served by facility, fire prevention practices, sample testing methods.

The application form and all accompanying documentation is submitted in triplicate to the Commissioner of the Dept. of Environmental Management by registered or certified mail for action by the departmental staff. The application permit fee is submitted with the application. The fees are established by the type of permit sought. The fee for a landfill permit that allows the dumping of residential refuse, demolition/ construction materials, commercial trash and non-hazardous industrial wastes would be \$1500.00.

II. Approval Phase

- A. Upon receipt of the application and documentation, the staff of the department will ascertain that the application is accurate and complete and all the required documentation is present and accurate. If additional information is needed, the staff will contact the applicant and request it.
- B. The staff will prepare a written summary of the application and documentation.
- C. Public notice will be given in a daily or weekly newspaper of general circulation in the county of the proposed activity, describing: (1.) The proposed activity and location. In addition, (2.) The notice will make known the location where the application summary is accessible for review or copy; (3.) solicit written comments on the proposed activity and the procedure used in submitting comments; and (4.) State

that public hearing may be requested and describe the procedure for the request; (5.) make known the name, address, and telephone number of a person from whom more information can be requested.

- D. If a public hearing is requested, the staff will:
 - 1. Schedule a hearing at a convenient time and location within the county of proposed activity.
 - 2. Give public notice of the hearing and procedures required for comments at the hearing.
- E. After the public hearing is held, the staff will compile a summary of written statements prior to the hearing and the comments submitted at the public hearing.
- F. The staff will review the application and the comment summary and make a recommendation, including any suggested conditions of the permit, based on this review and submit it to the commissioner for final action.
- G. If the commissioner determines that the application meets the requirements of all rules, regulations and conditions of permit, the permit is granted.
- H. The commissioner will issue public notice of the permit determination and will make known:
 - 1. That appeal of the commissioner's determination is allowed and the steps required for the appeal process.
 - 2. The applicant should execute all pending real estate transfers and financial assurance documents. Upon execution of the documents the permit becomes effective.

NOTE: The length of the permit period is 5 years or less at the discretion of the commissioner. If continuation of the facility is desired, reapplication and approval is required. The commissioner may impose conditions on the permit or renewal of the permit as necessary to accomplish the purpose of all regulations, rules, and statutes.

III. Operational Phase

- A. The preoperational requirements must be completed before any solid waste is accepted at the site. These requirements are outlined in the operational plan submitted with the application.

B. Conditions which apply to all permits are:

1. Duty to comply with permit conditions and rules of the solid waste management rules.
 2. Duty to mitigate or take corrective action to prevent or eliminate any adverse impact on the environment.
 3. Duty of inspection and entry to the site by an authorized representative of the department of Environmental Management for the purpose of testing, site or record inspection and monitor of test equipment procedures.
 4. Duty to maintain the facility at the required levels as outlined in the permit, conditions of permit, and rules of the solid waste management rules and the operational plan.
 5. Duty to monitor and provide information on the samples, tests and analysis' of the operation.
- C. During the operational phase of the site, the operators are required to comply with the operational plan submitted with the permit application and with the conditions of the permit as issued by the commissioner. The operational plan describes what activity is anticipated and would have to conform with the solid waste management rules.
- D. Water quality devices will be maintained, monitored, and tested for acceptance.
- E. Areas of deposit will be limited to what can be compacted and covered before the end of operating hours for that day.

IV. Closure/Post-Closure Phase

- A. The facility as it is filled is partially closed. Closure requires that the closure and post-closure plans be followed as outlined.
- B. Final closure begins when the site has been closed and certification of closure is submitted to the commissioner. Certification requires that:
1. The permittee and a registered professional engineer certify that the facility has been closed according to the final closure plan.
 2. Verification that the deed to the property on which the site is located has a notation for perpetuity that the land was used as a solid waste landfill.

The recording must contain: (1.) Locations and types of waste; (2.) Depth of fill; (3.) Final topography map indicating land contour and water runoff; (4.) A statement that no construction, well, or septic system installations or any other excavation shall be done without approval of the commissioner. (5.) A statement that the land-use be restricted to agricultural and recreation.

3. After review of the documentation and on-site inspection by the commissioner, final closure is acknowledged.
- C. Post-closure requirements are defined in the post-closure plan and are to be followed as outlined. In addition, the following is a list of duties that must be followed for 10 years after final closure:
1. Inspection of the site is required at least twice per year and a report on the condition of the site must be submitted to the Dept. of Environmental Management.
 2. Maintenance of final cover and vegetation is to be continued to insure no pooling of surface water exists and soil erosion is below the accepted level.
 3. Maintenance of monitoring wells, leachate control and methane control systems as specified is required.
 4. Maintenance of access roads to the monitoring wells, leachate, and methane control systems is required.
- D. A shorter post-closure time period may be allowed by the commissioner if the permittee can prove to the commissioner that:
1. Settling, erosion, and surface cracking have stabilized within the last year.
 2. Methane gas has not been detected or caused stress to vegetation for a period of 2 years.
 3. No additional monitoring or testing is required.
 4. Leachate control and collection equipment reveal no significant contamination.
- E. Additional post-closure time periods or conditions may be imposed by the commissioner if it is determined that a threat is present to human health or the environment.

- F. Upon completion of post-closure requirements, certification by the permittee and a reg. professional engineer must be submitted to the commissioner that indicates post-closure has been accomplished. (Dept. of Environmental Management).

As stated earlier, the present solution of waste disposal problems is the sanitary landfill. It is a system we have utilized for a number of years. Analysis of the pros and cons is needed. One advantage is the low initial cost and operating capital required to start to operate a landfill. It is currently less expensive to us as taxpayers and consumers than other methods of disposal. However, the con side of the issue indicates that landfills may not fit the total requirements. As indicated in the summary of present regulations, the liability to the owner is staggering and increased regulation is making it even more difficult to obtain a permit. We certainly haven't acquired any more geologically acceptable sites and increased public aversion to landfills has significantly reduced the total number of available and acceptable sites. We are starting to run out of room. In addition, the long term stigma associated with landfills is ever increasing. Notations on deeds do not make available lands for sale seem very attractive.

OPTION 2

SOLID WASTE ENERGY PLANTS

This option has been selected by several communities throughout the country. The facility size varies from Pascagoula, Mississippi with a population of 29,000 producing steam for local industry, initial capital cost of \$4 million, to

a facility in Indianapolis on line by July, 1988 producing electricity for Indianapolis Power and Light Company. The estimated cost of the Indianapolis facility is \$84 million.

The following information was obtained from the plant managers of two successful waste to energy plants.

Gallatin, Tennessee (Plant Manager - Jerry Metcalf)

Population served - 85,000, three counties

Capacity - 200 tons per day

Material burned - Garbage, all household trash, combustible industrial trash.

Capital required to build - \$9 million with \$2 million later for upgrade of emission system.

Operating Costs - Employs 30 full time people with an annual total operations budget of \$1.6 million per year. This does not include debt reduction costs.

Type of energy generated -

1. Steam sold to three private industries located in their industrial park.
2. Electricity at rate of 500 kilowatts per hour sold to Tennessee Valley Authority.

Administrative Structure - Board of directors appointed by the three counties served by the facility.

Capital required to build secured through

- Private bond holders (payment guaranteed by three counties)
- Grant from Department of Energy
- Loan from Tennessee Valley Authority
- Grant from Environmental Protection Agency.

Cost Effective - Gallatin was generating sufficient revenue from sale of energy to cover operating costs (including depreciation and maintenance of equipment) and debt reduction until the decline in oil/gas prices. At the present time the Gallatin facility is covering total operational costs and most of debt reduction costs.

Environmental Concerns

- Preferred location would be an industrial park
- Must be in close proximity to energy users
- Traffic and accompanying activity is that of a manufacturing plant.
- Well received in Gallatin area as more desirable than landfills
- No smell problems
- Have had emission complaints until the \$2 million upgrade to the emission control system.

Ames, Iowa (Director of Public Works - Arnold Chantland)

Population Served - 59,000

Material Burned - Plastic wastes from local industry, all residential garbage and trash, light industrial trash

Type of energy produced - RDF (Refuse Derived Fuel) A combustible substance that can be used in industry as a coal substitute.

Capital required to build - \$6.6 million in 1974.

Operating Costs - Employes 14 full time people with an annual operations budget of \$1 million. Total annual cost including debt reduction is \$1.5 million.

Cost effective - The sale of energy does not cover debt reduction and operating costs. There is a taxpayer burden of \$11.32 per capita per year.

Environmental - No emission problems

- Occasional odor complaints resolved by adding deodorant blocks to the combustion.

The following is a pros and cons list of an energy generating plant as a community solution to trash disposal.

Pros

- Permanent solution to problem (trash no longer exists, landfills are a concern for years)
- Attraction to industrial growth and development of industrial parks (source of energy).
- Environmentally preferable to landfills
- Source of income or cost avoidance to community.

Cons

- Initial capital required to build.
- Must have a market for the energy produced.
- Currently more expensive than landfills. (New EPA regulations on landfills effective in 1988 will drive the national average for tipping fees at landfills to \$24/ton). The consensus of people we interviewed was that the EPA regulations for new landfills would make burning facilities the least cost option.

SUMMARY

To quote Jim Fain of the Cox News Service, "So much for fire or ice. The way the world ends is neither with bang nor sputter, but with the sad slurping of doomed souls drowning in their own waste. We will be spared radiation through loss of the ozone layer, incineration from nuclear holocaust or explosion in the crescendo burst of the galaxy. Instead, we will quietly and ignobly sink into the ooze of our rotting garbage." (Fain, 2).

The trash disposal problem facing Kosciusko County is no where near the dilemma of our East Coast cities. Cities in new Jersey are paying \$130/ton to dump their garbage as far away as Virginia. World Watch Institute in Washington D.C. says more than half of the U.S. cities will exhaust their landfills in the next three years. We in Kosciusko County have time, but need to seriously evaluate the options and develop a master plan for waste disposal. This plan should fit our needs on into the twenty-first century. We cannot leave this problem for future generations to resolve.

A joint city/county task force should be formed to develop long range planning. The long range plan should accommodate the needs of a county achieving its projected growth while maintaining the attractiveness of our natural resources.

There is a National Conference in Louisville, Kentucky, May 13-15 covering the subject "Energy from Solid Waste - An Option for Local Government". National authorities will present information needed to make decisions concerning waste-to-energy facilities. Areas covered include new technology in energy/resource recovery, financing, marketing, legal, environmental concerns, and anticipated new EPA regulations on landfills. Plant managers of several successful waste energy

generating plants will present case studies of their operations. Included in the conference is a tour of the Gallatin, Tennessee plant. The conference is sponsored by a number of concerned groups: U.S. Department of Energy, Tennessee Valley Authority, Council of State Governments, National Association of Counties, and U.S. Conference of Mayors.

We recommend that a representative from Kosciusko County and the City of Warsaw attend this conference.

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