Appendix A

Chemung County Landfill Expansion Brochure
SOLID WASTE MANAGEMENT

In 1987, daily accounts were found on the front page of newspapers throughout the country of the barge carrying Long Island's solid waste. The barge's fruitless search for a landfill willing to accept its cargo illustrates the solid waste management crisis facing the nation.

The Administrative Board of the Chemung County Solid Waste Disposal District has been aware of our future needs for some time. In 1984, the District initiated a study to determine the most cost-effective, environmentally safe means of solid waste disposal for the next 25 years.

Recognizing that drastically reducing the amount of waste generated is an ultimate goal, but also recognizing the delays of state and national legislative needs to accomplish this task, the District accepted responsibility to meet current and near future needs of Chemung County. Therefore the solid waste management plan for Chemung County in sequence is:

1. Expand the existing landfill to meet projected needs for the next 25 years. This decision was not made until detailed technical studies were completed to insure the landfill expansion site was safe and would not adversely impact the Chemung Valley aquifer or nearby private water wells.

2. Evaluate and implement waste reduction and recycling programs. Currently the County is participating in a six county regional study with Alfred University evaluating the markets for solid waste recycling projects. Successful implementation of future waste reduction/recycling plans will require much cooperation from you including sorting your wastes at home and work into recyclable (paper, glass aluminum etc.) and non-recyclable components. Successful implementation of waste reduction and recycling projects will help us to curb the spiraling cost of solid waste disposal and enhance the site-life capacity of our landfill.

3. Evaluate and coordinate with nearby Counties regarding the feasibility (siting, environmental/technical, economic, regional/political) of constructing a solid waste incinerator facility with recovery of the heat for energy production. Such facilities are called resource recovery plants. However the end product (ash), still requires disposal in a properly designed landfill.
THE PROBLEM: DEMAND vs. CAPACITY

General apathy at both the state and national level in recognizing the extent of solid waste disposal problems has led to a lack of legislation and research into better ideas on disposal methods. We are a nation of consumers and have evolved into a living style of throw away products. Everything goes into the green bags which are dutifully tied shut and put on the curb for pickup and are never heard from again. Right? Wrong! We as a nation, are now in deep trouble because of the vast quantities of solid waste we produce.

The solid waste generation of Chemung County (at the Mill) over the past 14 years is indicated in the graph to the right. The trend line reflects the economy of the area which is now on an upswing. It should be noted that the 1987 high of 64,000 tons was in spite of a doubling of disposal fees at the milling station (called tipping fees). It should be noted that the 64,000 ton figure is only from the Central Milling Station. Another 26,000 tons of industrial wastes are hauled directly to the landfill by local industrial sources making our current generation rate 90,000 tons per year and our existing landfill is nearly full.

Currently the County’s landfill is the only facility serving the residential, commercial and industrial needs of the entire County. If we are forced to close our landfill, we would be faced with short-term stop gap solutions involving the hauling of our wastes out of County to landfills up to 100 miles away at a cost nearly double our current rates!

In addition, 2,000 landfills were closed nationwide in the past five years because of capacity/environmental concerns. Graphically pictured here are the landfills in New York State, present and future which indicates the magnitude of the problem.

SOLID WASTE GENERATION
CHEMUNG COUNTY

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<thead>
<tr>
<th>Year</th>
<th>Tons Transferred from Milling Station to Landfill (in Thousands)</th>
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<td>1974</td>
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<td>1987</td>
<td>30</td>
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</tbody>
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Millung Station Only Opened To Light Traffic Due To Explosion. Major Haulers Transported Waste Directly To Landfill

N.Y.S. ACTIVE LANDFILL SITES
ACTIVE MUNICIPAL WASTE LANDFILLS

1988
- # IN OPERATION: 280

2001
- # IN OPERATION: 50
EXPANSION PROGRAM

1984 marked the beginning of studies and evaluations to determine the best site to meet the future landfill needs of Chemung County.

Final determination to expand the existing facility was based on:

1. Location - Excellent highway access, existing landfill support facilities, few residents impacted.

2. Topography - Natural screened site.

3.* Extensive Subsurface Investigations - 1/2 mile from valley aquifer, slow moving groundwater (less than 2' per year) and low well yields.

4.* Other Environmental Considerations - Air, noise, archeological, floodplains - minimal impacts.

Engineering plans developed a four phase program based on need and time considerations for a 25 year site life. Actual construction started in June, 1987 after the District acquired more of the land surrounding the existing site. The first "cell" was completed in December, 1987 and is now receiving solid waste.

*For further detailed information see "Draft Environmental Impact Statement For Chemung County Landfill Expansion" (Jan. 1988), Hydrogeologic Assessment For Expansion of the Chemung County Landfill (Sept. 1987) and "Engineering Report And Plans For The Chemung County Landfill Expansion" (Jan. 1988).
CONTROL MEASURES

The major environmental concern with landfills is potential groundwater contamination. When rainwater filters down through the landfill, it picks up all sorts of contaminated substances. This liquid is then called leachate which can continue downward, if uncontrolled, into our precious groundwater supply.

This major environmental concern (leachate) will be controlled. A profile of the first cell and future cells is pictured below and is accomplished by:

1. Excavation of the pit (cell) that will receive and hold the waste.
2. Reinstall and compact a 2-foot thick impervious soil liner which will restrict leachate flow to the groundwater.

3. Install a leak detection piping system leading to a constantly monitored manhole. This will pinpoint if, when and where possible problems occur.

4. Install a high density polyethylene (HDPE) impervious liner. These HDPE liners are the best means known to date for containing leachate.

5. An 18-inch layer of sand as a protective filter bed on top of the HDPE liner contains a network of perforated collection pipes (similar to a backyard leach field) which will collect the leachate.

6. A 0.9 million gallon leachate collection pond - also double lined with HDPE liners - receives by gravity flow the piped leachate.

7. Special valves and loading facilities will enable tank truck transfer of the leachate to the new Elmira Milton Street sewage treatment plant.

BOTTOM TRENCH DUAL LINERS
LEACHATE COLLECTION DETECTION

SAND
SAND
FILTER FABRIC
SOIL LINER
NO.2 STONE
FILTER FABRIC
FILTER FABRIC WRAP
LEACHATE DRAIN
LEACHATE LATERAL
H.D.P.E.
PRIMARY LINER
RECOMPACTED
SOIL LINER
EXISTING GRADE
LEACHATE DETECTION DRAIN
GROUNDWATER DRAIN
EXTENDED MAINTENANCE MEASURES

The most important long term element of control is the final closure plan. If you put a water tight lid on a rain barrel, you won't gather rain water in the barrel. Thus, by installing an impervious "lid" on top of our eventual maximum solid waste pile, we won't generate much leachate.

Unless better ideas/methods are discovered in the next 25 years, the final seal will be:

1. An 18-inch "clay" layer of compacted soil with the same low permeability rate as the bottom liner.

2. 6-inches of coarse sand will be placed on top of the "clay" liner to drain water by gravity to a ditch/pipe run off system.

3. A filter fabric will be installed on top of the sand to prevent clogging by the topsoil.

4. On top of the filter fabric is one foot of topsoil/sludge mixture for rapid growth of vegetation which will help prevent erosion while using rain water for plant growth.

Finally continued withdrawal of leachate will occur as it is generated to minimize potential leakage through the dual liners.

Long term maintenance control is and will be constantly (quarterly) achieved through the monitoring of groundwater via a strategically installed system of 19 wells both upstream and downstream. Should any leakage through both liners occur, which escapes even the leak detection system, it can be detected and tracked through the well water analyses. Current plans have already incorporated the responsibility of continuing the monitoring for at least 20 years after the final landfill closure.

In addition to the groundwater monitoring at the landfill, the Solid Waste Disposal District will continue to monitor private wells in the area every two years to insure private wells are safe.
CONCLUSIONS

THE PROBLEM
HELP! Chemung County (and virtually everywhere else in the country) has no more room to dispose of our waste - and we are generating 250 tons a day and it's increasing.

THE COUNTY'S SOLID WASTE MANAGEMENT PLAN
The current need for additional landfill capacity is very apparent and critical. Less apparent to you now, but certainly not in the future is the second component in our plan - reduce and recycle the tons of solid waste we currently throw out. This will require much cooperation and direct involvement on your part. The third component of the plan resource recovery will be implemented as a long-term measure pending resolution of siting, economic, air quality concerns and regional/political considerations.

LANDFILL EXPANSION CONTROL MEASURES
Environmental concerns have been met head on to ensure safe and effective disposal methods will not contaminate local water supplies.

EXTENDED MAINTENANCE MEASURES
Sealing the completed landfill will minimize leachate generation and a system of monitoring wells will ensure the groundwater is safe for future generations to come.

SUMMARY AND CONCLUSIONS
Expansion of the Chemung County Solid Waste Landfill in four phases (first phase completed 1987) at the existing site is a sound, proven solid waste disposal method which should safely serve the people of Chemung County for 25 years.

The location adjacent to NYS Route 17 with excellent access from the highway coupled with only a 10 mile truck run from the central milling station ensures the most economic alternative currently possible for the residents and businesses of the County.

The natural site features, combined with the positive control measures already installed, or planned, support the Chemung County Solid Waste Disposal District's goal of providing an environmentally safe solid waste disposal facility.
CHEMUNG COUNTY
SOLID WASTE DISPOSAL DISTRICT
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For Further Information Contact:
Robert Roller, (607) 737-2980

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