The intent of our project was to show that small or medium sized landfills can be developed for methane gas recovery. Our general circumstances have contributed toward the success of this project. We had a ready and willing user within 600 feet of the well head for the gas, the Florence-Lauderdale Humane Shelter, to provide space heating and water heating. We were fortunate that the raw gas composition (60% methane, 38% carbon dioxide, trace amount of other components) had minuet traces of sulfers not harmful to the equipment and that the raw gas has remained stable. The natural pressure has fluctuated, but has been more than sufficient (wet weather "seals" the ground and activates the bacteria that produces methane) to handle the needs of the shelter. Within this framework, our project was successful.

We are now entering a new phase to expand on this project. We will be using a new technology gas separator to bring the methane up to pipeline standards. If the equipment proves itself, then the City of Florence will purchase it and develop a "methane farm" at the landfill. This could provide a significant contribution as a "new" energy source. Estimates are that if all small or medium sized landfills can and would be developed, it would amount to in excess of 2% of the United States's natural gas needs.

In response to a letter to the Monsanto Company, a meeting was held on August 24, 1982, between Monsanto representatives and the Florence City officials to come to an understanding on using the Monsanto "Prism" separator for a test run on landfill gas. Since an agreement was reached on the installation of the "Prism" separator for a trial operation, the equipment was installed on a concrete foundation and enclosure constructed by the City of Florence. During November the equipment was installed and connected to gas supply. The equipment was enclosed by a wire fence with an aluminum roof for protection from weather and vandalism. Also, three more wells were drilled and connected to original header of well number one.

On November 18, 1982, a meeting was held between the City officials, Monsanto representatives and visitors from Methane Development Corporation of Brooklyn, New York and a visitor from Houston, Texas. They inspected the installation after the meeting. This is the first application of Monsanto's "Prism" separator to landfill gas hence the wide interest.

On September 14, 1982, flow checks were made at well number one and at the animal shelter. Rough checks are as follows: Well - 28 cubic feet per minute, Shelter - 18 cubic feet per minute. These flows compare with a test made on July 1980, of 40 cubic feet per minute. The attached curve gives pressures at the shelter preceding shutdown.
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HAVE BEEN SUMMARIZED
AND A COPY HAS BEEN SENT TO
NAT'L CTR APPR TECH
## FINAL REPORT

DOE GRANT BUDGET

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Original Budget</th>
<th>Final Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>$1,980.00 (Personnel)</td>
<td>$373.92</td>
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<tr>
<td>2.</td>
<td>$21,600.00 (Equipment)</td>
<td>$22,157.86</td>
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<tr>
<td>3.</td>
<td>$2,630.00 (Materials/Supplies)</td>
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<td>4.</td>
<td>$200.00 (Travel)</td>
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<td>5.</td>
<td>$3,590.00 (Consultant)</td>
<td>$3,570.00</td>
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<td>$30,000.00</td>
<td>$30,000.00</td>
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</tbody>
</table>

ITEM NO. 1 (Personnel) - This item reduced to cover expenditures required in Items No. 2 and 3 to set up and operate gas chromatograph.

ITEM NO. 4 (Travel) - This item increased to cover training session in Houston, Texas to learn how to operate chromatograph.