



ENGINEERING INC.

CONSULTANTS SERVING THE ENVIRONMENTAL INDUSTRY

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Mr. Timothy A. Jewett, Western Area Engineer
North Carolina Department of Environment and Natural Resources
Division of Waste Management
585 Waughtown Street
Winston-Salem, North Carolina 27107

Re: **Surry County Landfill
Solid Waste Permit #86-06
Request for Approval of Alternative Daily Cover
JEI Project No. 421.00, Task 04**

Dear Tim:

On behalf of Surry County, we are submitting this request for permanent approval of the use of an alternative daily cover, EPI Enviro Cover System. We have personally observed the use of this cover system, and believe that it serves its intended purpose very well. An operational plan is enclosed, as well as information on the product and a case history of its use in Sonoma County, California.

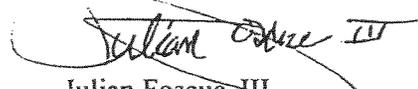
Previous correspondence on this issue includes a December 3, 1998 letter from you to Jerry J. Snow describing the requirements which must be met in order for you to issue permanent approval. In that letter, you approved the use of the product for a 90-day trial period, which has expired. During the trial period, equipment was evaluated and operational procedures were developed. This demonstration period was very useful and provided information which has been included in the attached operational plan.

We are requesting that permanent approval be given for use of this material. Please feel free to call me at (336) 323-0092 for additional information or discussion. Thank you for your assistance in this matter.

Sincerely,
JOYCE ENGINEERING, INC.

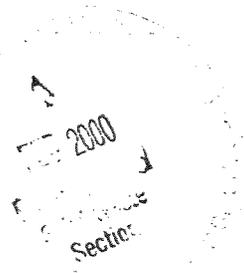

Janis D. McHargue, P.E.
Project Manager

Sincerely,
JOYCE ENGINEERING, INC.


Julian Foscoe, III
Client Service Manager

Enclosures (*Operational Plan, Manufacturer's Literature, Photographs*)

C: **Jerry J. Snow, Surry County
Jim Conroy, Solid Waste Section**



APPROVED
DIVISION OF SOLID WASTE MANAGEMENT
BY [Signature]
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**Operational Plan for the Use of Alternative Daily Cover
Surry County Landfill
Solid Waste Permit #86-06**

1.0 Purpose:

This plan is intended to provide information in support of Surry County's use of an alternative daily cover (ADC) system, specifically EPI's Enviro Cover System. This document should replace Appendix II (5.4) of the present Operation Plan.

2.0 Description of Materials:

The product used to cover the waste is a thermally degradable polyethylene film which is applied to the working face on a daily basis. The film has additives which promote its degradation into non-toxic, water-insoluble by-products over time. This in-place degradation is intended to allow movement of liquids and gases through the waste. Because of the product's degradability, rolls to be stored for a long period of time will be wrapped and protected to prevent degradation prior to placement. The ASTM tensile strength, tear strength and life expectancy are provided in the attached manufacturer's literature.

The machine used to apply the film is a patented machine called the Enviro Cover Deployer. It consists of two large drums mounted on a frame driven by a diesel engine, which is attached to a piece of heavy equipment such as a compactor or loader.

3.0 Method of Placement:

The following procedures are proposed to cover waste on a daily basis at the Surry County Landfill:

- The working face is kept as compact as possible and trimmed to a uniform size;
- The Enviro Cover Deployer is attached to a compactor or loader;
- Approximately one cubic yard of soil (which will serve as ballast for the film) is loaded into the drums;
- Wind conditions are assessed and direction of deployment is determined (machine to travel with the wind when possible);
- As the machine moves over the working face, the film is deployed over the waste;
- Soil is released from the drums onto the film to anchor it;
- Each panel is manually cut at the end of the run and is overlapped on to the previous one.

Unlike some tarps used for ADC which are removed, the film is left in place as waste is placed the next working day. On a weekly (or more frequent, depending on fill progression) basis, the working face is covered with six inches of earthen cover.

4.0 Control of Disease Vectors, Fires, Odors, Blowing Litter, Scavenging

As required by NCAC Solid Waste Management Rules, ADC's must be as effective as six inches of soil cover in the control of disease vectors, fires, odors, blown litter, and scavenging.

4.1 Disease Vectors

Disease vectors of concern in a landfill environment include rodents, flies, mosquitoes, or other animals that could transmit disease to humans. In a modern landfill, these types of vectors are rarely a problem, largely due to the use of frequent cover on the working face. Enviro Cover polyethylene film would be used at the same frequency as soil cover, and would provide an equivalent barrier against insects and small animals reaching the waste.

4.2 Fires

Landfill fires in a lined landfill are a major concern to operators, and it is extremely important to take preventive measures with regard to fire control. Some of the measures taken include load inspections, operators' attention to suspect or smoking loads, readily available soil stockpile for smothering fires, and possibly the availability of a water truck to fight fires. We are not aware of soil daily cover playing a big role in controlling fires, therefore the use of plastic film as ADC would not appear to have an affect on the potential for a landfill fire. This cover could provide an oxygen barrier, which would inhibit or retard the propagation of an internal landfill fire.

4.3 Odors

When the polyethylene cover is deployed, the anchoring material (soil) holds the cover down and seals off the waste and odors. (See: Gas and Odor Suppression: A Comparison of Polyethylene Film Alternative Cover (AC) and Daily Soil Cover.)

4.4 Blowing Litter

Windblown litter occurs at landfills during operating hours as waste is discharged from collection vehicles, spread and compacted. Screens and fences are often deployed to confine windblown material until daily cover is applied. In extreme cases more frequent cover may be in order. Properly applied daily cover, whether soil or polyethylene, should seal the working face and minimize blowing litter. (See: Alternate Daily Cover Presentation.)

4.5 Scavenging

Scavenging of landfilled materials after working hours occurs when the landfill is not adequately covered, waste remains visible and odors are not sealed in. Adequate earthen cover or ADC discourages scavengers such as dogs, birds and rodents from scavenging the waste. Enviro

Cover System's dark brown cover was noted to have prevented birds from seeing through the plastic and pecking into it. (See: Sonoma Case Study.)

5.0 Leachate and Gas Migration

Although this material initially serves as an impermeable layer to meet the requirements of daily cover, it degrades over time in the landfill environment. This decomposition is desirable because it allows free movement of leachate and landfill gas through the landfill mass, resulting in the upward venting of gas and downward flow of leachate into the collection system. As an added precaution to prevent lateral movement of leachate which might result in seeps on exterior slopes, Surry County proposes to cover with soil only within approximately 15 feet of an outside slope.

6.0 Conclusion

In summary, we trust that this documentation provides adequate support for our request for permanent approval of the use of this ADC. Joyce Engineering personnel have observed the use of this product at the Surry County Landfill. Even under windy conditions, it remained in place and intact for several days. Based on this and our review of the literature, we believe that the product meets the requirements established for alternative daily cover.