Scanned by	Date	Doc ID #
A. GANTHER	7/14/08	5156

CDM

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Raleigh, North Carolina 27612
tel: 919 787-5620
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June 13, 2008

Mr. Bill Wagner
Environmental Senior Specialist
North Carolina Department of Environment and Natural Resources
Division of Waste Management
Solid Waste Section
2090 US Highway 70
Swannanoa, NC 28778

Received
JUN 2008
Waste Management

Subject: Buncombe County, North Carolina
Buncombe County Solid Waste Management Facility
Permit No. 11-07
Alternative Cover Material – Posi-Shell and Tarps
Demonstration Report and Revised Operation Plan

Dear Mr. Wagner:

On behalf of Buncombe County (County), CDM is pleased to submit a Demonstration Report and revised Operation Plan that incorporates two alternative cover materials (ACMs), Posi-Shell and tarps, for approval from the North Carolina Department of Environment and Natural Resources, Solid Waste Section (NCDENR SWS). The intent of this report is to obtain approval for the option to use the above mentioned ACMs on a full-time basis.

The Demonstration Report has been prepared in accordance with the NCDENR SWS draft ADC guidance. Appendix A includes ACM Performance Evaluation Forms for each day an ACM was used. Additionally, a summary sheet is included which details the demonstration period and identifies rain days, Sundays, and days when ACM was used. For the 120-day demonstration period, approximately 80 days were available for ACM use. This excludes rain days, Sundays, and an assumed 15 high wind days when ACM could not be used. As seen in Appendix A, Posi-Shell and tarps were used 15 and 29 days, respectively, for a total of 44 days. Thusly, ACM was used approximately half the time during the demonstration period. The evaluation forms indicate that the ACMs performance in the control of vectors, odors, litter, scavenging, and erosion and overall appearance typically ranged from fair to excellent (3 to 1). Operational photographs are included in Appendix B.

A revised Operation Plan is required in conjunction with the Demonstration Report (see Appendix C). In an effort to help expedite the plan modification review process, only Section 6, "Cover Material Requirements", of the Operation Plan is attached, since it is the only section modified.

CDM

If you have any questions regarding the details of this submittal, or need any additional information, please contact me at 919-325-3500.

Very truly yours,

Kenton J. Yang, P.E.
Camp Dresser & McKee

NORTH CAROLINA PROFESSIONAL SEAL 028928 ENGINEER KENTON J. YANG
06/13/08

Jerry Mears, Landfill Manager

cc: E. Mussler, NCDENR SWS
J. Creighton, BCGSD
J. Mears, BCGSD
K. Smith, BCGSD
J. Wiseman, CDM
C. Gabel, CDM
M. Brinchek, CDM

Appendix A
ADC Performance Evaluation Forms

Buncombe County Solid Waste Management Facility
Alternative Cover Material Demonstration Period
Summary Sheet

Date	ACM	Type	Photographs	Comments
February 5, 2008	**Start of Demonstration Period**			
February 6, 2008	-	-	-	-
February 7, 2008	-	-	-	-
February 8, 2008	-	-	-	-
February 9, 2008	-	-	-	-
February 10, 2008	**Sunday - No Disposal Operations**			
February 11, 2008	-	-	-	-
February 12, 2008	-	-	-	-
February 13, 2008	-	-	-	-
February 14, 2008	-	-	-	-
February 15, 2008	-	-	-	-
February 16, 2008	-	-	-	-
February 17, 2008	**Sunday - No Disposal Operations**			
February 18, 2008	-	-	-	-
February 19, 2008	-	-	-	-
February 20, 2008	Yes	Posi-shell	Yes	None
February 21, 2008	-	-	-	-
February 22, 2008	-	-	-	-
February 23, 2008	-	-	-	-
February 24, 2008	**Sunday - No Disposal Operations**			
February 25, 2008	-	-	-	-
February 26, 2008	**Rain over 0.5 inches**			
February 27, 2008	Yes	Posi-shell	Yes	On-site training for new Posi-shell training.
February 28, 2008	-	-	-	-
February 29, 2008	-	-	-	-
March 1, 2008	-	-	-	-
March 2, 2008	**Sunday - No Disposal Operations**			
March 3, 2008	Yes	Posi-shell	Yes	None
March 4, 2008	**Rain over 0.5 inches**			
March 5, 2008	-	-	-	-
March 6, 2008	-	-	-	-
March 7, 2008	**Rain over 0.5 inches**			
March 8, 2008	-	-	-	-
March 9, 2008	**Sunday - No Disposal Operations**			
March 10, 2008	-	-	-	-
March 11, 2008	Yes	Posi-shell	-	None
March 12, 2008	Yes	Posi-shell	-	None
March 13, 2008	-	-	-	-
March 14, 2008	Yes	Posi-shell	-	None
March 15, 2008	**Rain over 0.5 inches**			
March 16, 2008	**Sunday - No Disposal Operations**			
March 17, 2008	-	-	-	-
March 18, 2008	-	-	-	-
March 19, 2008	Yes	Posi-shell	-	None
March 20, 2008	-	-	-	-
March 21, 2008	-	-	-	-
March 22, 2008	-	-	-	-
March 23, 2008	**Sunday - No Disposal Operations**			

Date	ACM	Type	Photographs	Comments
March 24, 2008	Yes	Posi-shell	-	NCDENR site visit to observe Posi-shell application
March 25, 2008	-	-	-	-
March 26, 2008	Yes	Posi-shell	-	None
March 27, 2008	Yes	Posi-shell		None
March 28, 2008	-	-	-	-
March 29, 2008	-	-	-	-
March 30, 2008	**Sunday - No Disposal Operations**			
March 31, 2008	-	-	-	-
April 1, 2008	Yes	Posi-shell	-	None
April 2, 2008	Yes	Posi-shell	-	None
April 3, 2008	Yes	Posi-shell	-	None
April 4, 2008	**Rain over 0.5 inches**			
April 5, 2008	**Rain over 0.5 inches**			
April 6, 2008	**Sunday - No Disposal Operations**			
April 7, 2008	-	-	-	-
April 8, 2008	-	-	-	-
April 9, 2008	Yes	Posi-shell	-	None
April 10, 2008	-	-	-	-
April 11, 2008	-	-	-	-
April 12, 2008	-	-	-	-
April 13, 2008	**Sunday - No Disposal Operations**			
April 14, 2008	-	-	-	-
April 15, 2008	-	-	-	-
April 16, 2008	-	-	-	-
April 17, 2008	-	-	-	-
April 18, 2008	Yes	Posi-shell	-	NCDENR site visit to observe Posi-shell application
April 19, 2008	-	-	-	-
April 20, 2008	**Sunday - No Disposal Operations**			
April 21, 2008	-	-	-	-
April 22, 2008	-	-	-	-
April 23, 2008	-	-	-	-
April 24, 2008	-	-	-	-
April 25, 2008	-	-	-	-
April 26, 2008	-	-	-	-
April 27, 2008	**Sunday - No Disposal Operations**			
April 28, 2008	**Rain over 0.5 inches**			
April 29, 2008	-	-	-	-
April 30, 2008	Yes	Tarps	Yes	None
May 1, 2008	Yes	Tarps	Yes	None
May 2, 2008	Yes	Tarps	-	None
May 3, 2008	Yes	Tarps	-	None
May 4, 2008	**Sunday - No Disposal Operations**			
May 5, 2008	Yes	Tarps	-	None
May 6, 2008	Yes	Tarps	-	None
May 7, 2008	Yes	Tarps	-	None
May 8, 2008	Yes	Tarps	-	None
May 9, 2008	Yes	Tarps	-	None

Date	ACM	Type	Photographs	Comments
May 10, 2008	Yes	Tarps	-	None
May 11, 2008	**Sunday - No Disposal Operations**			
May 12, 2008	Yes	Tarps	-	NCDENR site visit to observe tarps placement in high wind situations
May 13, 2008	Yes	Tarps	Yes	None
May 14, 2008	Yes	Tarps	-	None
May 15, 2008	Yes	Tarps	-	None
May 16, 2008	Yes	Tarps	-	None
May 17, 2008	-	-	-	-
May 18, 2008	**Sunday - No Disposal Operations**			
May 19, 2008	Yes	Tarps	-	None
May 20, 2008	Yes	Tarps	-	None
May 21, 2008	Yes	Tarps	-	None
May 22, 2008	Yes	Tarps	-	None
May 23, 2008	Yes	Tarps	Yes	None
May 24, 2008	Yes	Tarps	-	None
May 25, 2008	**Sunday - No Disposal Operations**			
May 26, 2008	-	-	-	-
May 27, 2008	Yes	Tarps	-	None
May 28, 2008	Yes	Tarps	-	None
May 29, 2008	Yes	Tarps	-	None
May 30, 2008	Yes	Tarps	-	None
May 31, 2008	Yes	Tarps	-	None
June 1, 2008	**Sunday - No Disposal Operations**			
June 2, 2008	Yes	Tarps	-	None
June 3, 2008	Yes	Tarps	-	None
June 4, 2008	-	-	-	-
June 5, 2008	Yes	Tarps	-	None

Total Posi-shell demonstration days = 15
Total tarp demonstration days = 29

ACM PERFORMANCE EVALUATION FORM

ACM MATERIAL Tarp

DATE: 6/5/08	WEATHER CONDITIONS	
LANDFILL FOREMAN: Jerry Mears	WIND DIRECTION: N-NE	GENERAL DESCRIPTION:
LANDFILL SUPERINTENDENT: R. Chastain	WIND SPEED: 3-7 mph	
	TEMPERATURE: 93° hot	
	PRECIPITATION: 0	

Circle the numeric value that best describes the ADC performance compared to soil cover.

Vector Control Ability to resist vectors.	Excellent (1) 2 3 4 5 Poor	Comments:
Odor Control Odor from ADC covered surface.	None (1) 2 3 4 5 Strong	Comments:
Litter Control Ability to minimize litter.	Excellent (1) 2 3 4 5 Poor	Comments:
Scavenging Control Ability to prevent scavenging.	Excellent – (1) 2 3 4 5 Poor	Comments:
Erosion Control Ability to control erosion.	Excellent (1) 2 3 4 5 Poor	Comments:
Appearance Overall appearance of applied area.	Excellent (1) 2 3 4 5 Poor	Comments:
Fire Control	Please describe any fire event that may have occurred and the impact of the ADC cover and equipment, if any. NONE	

Additional Comments

ACM PERFORMANCE EVALUATION FORM

ACM MATERIAL: Tarp

DATE: 6/3/08	WEATHER CONDITIONS	
LANDFILL FOREMAN: Jerry Mears	WIND DIRECTION: N-NE	GENERAL DESCRIPTION:
LANDFILL SUPERINTENDENT: Roger Chastain	WIND SPEED: 2-3mph	
	TEMPERATURE: 98°+ hot	
	PRECIPITATION: 0	

Circle the numeric value that best describes the ADC performance compared to soil cover.

Vector Control Ability to resist vectors.	Excellent 1 (2) 3 4 5 Poor	Comments:
Odor Control Odor from ADC covered surface.	None (1) 2 3 4 5 Strong	Comments:
Litter Control Ability to minimize litter.	Excellent (1) 2 3 4 5 Poor	Comments:
Scavenging Control Ability to prevent scavenging.	Excellent (1) 2 3 4 5 Poor	Comments:
Erosion Control Ability to control erosion.	Excellent (1) 2 3 4 5 Poor	Comments:
Appearance Overall appearance of applied area.	Excellent (1) 2 3 4 5 Poor	Comments:
Fire Control	Please describe any fire event that may have occurred and the impact of the ADC cover and equipment, if any. NONE	

Additional Comments

ACM PERFORMANCE EVALUATION FORM

ACM MATERIAL Tarp

DATE: 6/2/08	WEATHER CONDITIONS	
	WIND DIRECTION: E-SE	GENERAL DESCRIPTION:
LANDFILL FOREMAN: R. Chastain	WIND SPEED: 1-4 mph	
LANDFILL SUPERINTENDENT:	TEMPERATURE: 82°	
	PRECIPITATION: 0	

Circle the numeric value that best describes the ADC performance compared to soil cover.

Vector Control Ability to resist vectors.	Excellent 1 (2) 3 4 5 Poor	Comments:
Odor Control Odor from ADC covered surface.	None (1) 2 3 4 5 Strong	Comments:
Litter Control Ability to minimize litter.	Excellent (1) 2 3 4 5 Poor	Comments:
Scavenging Control Ability to prevent scavenging.	Excellent (1) 2 3 4 5 Poor	Comments:
Erosion Control Ability to control erosion.	Excellent (1) 2 3 4 5 Poor	Comments:
Appearance Overall appearance of applied area.	Excellent (1) 2 3 4 5 Poor	Comments:
Fire Control	Please describe any fire event that may have occurred and the impact of the ADC cover and equipment, if any. NONE	

Additional Comments

ACM PERFORMANCE EVALUATION FORM

ACM MATERIAL Tarp

DATE: 5/31/08	WEATHER CONDITIONS	
LANDFILL FOREMAN: R. Chastain	WIND DIRECTION: S-SW	GENERAL DESCRIPTION:
LANDFILL SUPERINTENDENT:	WIND SPEED: 10-17 mph	
	TEMPERATURE: 75°	
	PRECIPITATION: .06"	

Circle the numeric value that best describes the ADC performance compared to soil cover.

Vector Control Ability to resist vectors.	Excellent 1 (2) 3 4 5 Poor	Comments:
Odor Control Odor from ADC covered surface.	None 1 (2) 3 4 5 Strong	Comments:
Litter Control Ability to minimize litter.	Excellent 1 (2) 3 4 5 Poor	Comments:
Scavenging Control Ability to prevent scavenging.	Excellent (1) 2 3 4 5 Poor	Comments:
Erosion Control Ability to control erosion.	Excellent (1) 2 3 4 5 Poor	Comments:
Appearance Overall appearance of applied area.	Excellent (1) 2 3 4 5 Poor	Comments:
Fire Control	Please describe any fire event that may have occurred and the impact of the ADC cover and equipment, if any. NONE	

Additional Comments

ACM PERFORMANCE EVALUATION FORM

ACM MATERIAL Tarp

DATE: 5/30/08	WEATHER CONDITIONS	
LANDFILL FOREMAN: R. Chastain	WIND DIRECTION: S-SW	GENERAL DESCRIPTION:
LANDFILL SUPERINTENDENT:	WIND SPEED: 7-11 mph	
	TEMPERATURE: 66°	
	PRECIPITATION: 0	

Circle the numeric value that best describes the ADC performance compared to soil cover.

Vector Control Ability to resist vectors.	Excellent 1 (2) 3 4 5 Poor	Comments:
Odor Control Odor from ADC covered surface.	None 1 (2) 3 4 5 Strong	Comments:
Litter Control Ability to minimize litter.	Excellent 1 (2) 3 4 5 Poor	Comments:
Scavenging Control Ability to prevent scavenging.	Excellent (1) 2 3 4 5 Poor	Comments:
Erosion Control Ability to control erosion.	Excellent (1) 2 3 4 5 Poor	Comments:
Appearance Overall appearance of applied area.	Excellent (1) 2 3 4 5 Poor	Comments:
Fire Control	Please describe any fire event that may have occurred and the impact of the ADC cover and equipment, if any. NONE	

Additional Comments

Tarp straps ripped. Steel beam bent. New steel beam and straps replaced & put back into place.

ACM PERFORMANCE EVALUATION FORM

ACM MATERIAL Tarp

DATE: 5/29/08	WEATHER CONDITIONS	
LANDFILL FOREMAN: R. Chastain	WIND DIRECTION: S-SW	GENERAL DESCRIPTION:
LANDFILL SUPERINTENDENT:	WIND SPEED: 8-15 mph	
	TEMPERATURE: 72°	
	PRECIPITATION: .64"	

Circle the numeric value that best describes the ADC performance compared to soil cover.

Vector Control Ability to resist vectors.	Excellent (1) 2 3 4 5 Poor	Comments:
Odor Control Odor from ADC covered surface.	None (1) 2 3 4 5 Strong	Comments:
Litter Control Ability to minimize litter.	Excellent (1) 2 3 4 5 Poor	Comments:
Scavenging Control Ability to prevent scavenging.	Excellent (1) 2 3 4 5 Poor	Comments:
Erosion Control Ability to control erosion.	Excellent (1) 2 3 4 5 Poor	Comments:
Appearance Overall appearance of applied area.	Excellent (1) 2 3 4 5 Poor	Comments:
Fire Control	Please describe any fire event that may have occurred and the impact of the ADC cover and equipment, if any. NONE	

Additional Comments

ACM PERFORMANCE EVALUATION FORM

ACM MATERIAL Tarp

DATE: 5/28/08	WEATHER CONDITIONS	
LANDFILL FOREMAN: R. Chastain	WIND DIRECTION: N-NW	GENERAL DESCRIPTION:
LANDFILL SUPERINTENDENT:	WIND SPEED: 7-9 mph	
	TEMPERATURE: 72°	
	PRECIPITATION: 0	

Circle the numeric value that best describes the ADC performance compared to soil cover.

Vector Control Ability to resist vectors.	Excellent (1) 2 3 4 5 Poor	Comments:
Odor Control Odor from ADC covered surface.	None (1) 2 3 4 5 Strong	Comments:
Litter Control Ability to minimize litter.	Excellent (1) 2 3 4 5 Poor	Comments:
Scavenging Control Ability to prevent scavenging.	Excellent (1) 2 3 4 5 Poor	Comments:
Erosion Control Ability to control erosion.	Excellent (1) 2 3 4 5 Poor	Comments:
Appearance Overall appearance of applied area.	Excellent (1) 2 3 4 5 Poor	Comments:
Fire Control	Please describe any fire event that may have occurred and the impact of the ADC cover and equipment, if any. NONE	

Additional Comments

ACM PERFORMANCE EVALUATION FORM

ACM MATERIAL Tarp

DATE: 5/27/08	WEATHER CONDITIONS	
LANDFILL FOREMAN: R. Chastain	WIND DIRECTION: N-NW	GENERAL DESCRIPTION:
LANDFILL SUPERINTENDENT:	WIND SPEED: 2-5 mph	
	TEMPERATURE: 66°	
	PRECIPITATION: 0	

Circle the numeric value that best describes the ADC performance compared to soil cover.

Vector Control Ability to resist vectors.	Excellent 1 (2) 3 4 5 Poor	Comments:
Odor Control Odor from ADC covered surface.	None 1 (2) 3 4 5 Strong	Comments:
Litter Control Ability to minimize litter.	Excellent (1) 2 3 4 5 Poor	Comments:
Scavenging Control Ability to prevent scavenging.	Excellent (1) 2 3 4 5 Poor	Comments:
Erosion Control Ability to control erosion.	Excellent (1) 2 3 4 5 Poor	Comments:
Appearance Overall appearance of applied area.	Excellent (1) 2 3 4 5 Poor	Comments:
Fire Control	Please describe any fire event that may have occurred and the impact of the ADC cover and equipment, if any. NONE	

Additional Comments

ACM PERFORMANCE EVALUATION FORM

ACM MATERIAL Tarp

DATE: 5/24/08	WEATHER CONDITIONS	
LANDFILL FOREMAN: R. Chastain	WIND DIRECTION: N-NW	GENERAL DESCRIPTION:
LANDFILL SUPERINTENDENT:	WIND SPEED: 5-12 mph	
	TEMPERATURE: 78°	
	PRECIPITATION: 0	

Circle the numeric value that best describes the ADC performance compared to soil cover.

Vector Control Ability to resist vectors.	Excellent 1 (2) 3 4 5 Poor	Comments:
Odor Control Odor from ADC covered surface.	None 1 (2) 3 4 5 Strong	Comments:
Litter Control Ability to minimize litter.	Excellent 1 (2) 3 4 5 Poor	Comments:
Scavenging Control Ability to prevent scavenging.	Excellent (1) 2 3 4 5 Poor	Comments:
Erosion Control Ability to control erosion.	Excellent (1) 2 3 4 5 Poor	Comments:
Appearance Overall appearance of applied area.	Excellent (1) 2 3 4 5 Poor	Comments:
Fire Control	Please describe any fire event that may have occurred and the impact of the ADC cover and equipment, if any. NONE	

Additional Comments

ACM PERFORMANCE EVALUATION FORM

ACM MATERIAL Tarp

DATE: 5/23/08	WEATHER CONDITIONS	
LANDFILL FOREMAN: Roger Chastain	WIND DIRECTION: S-SW	GENERAL DESCRIPTION:
LANDFILL SUPERINTENDENT:	WIND SPEED: 7mph	
	TEMPERATURE: 76°	
	PRECIPITATION: 0	

Circle the numeric value that best describes the ADC performance compared to soil cover.

Vector Control Ability to resist vectors.	Excellent 1 (2) 3 4 5 Poor	Comments:
Odor Control Odor from ADC covered surface.	None 1 (2) 3 4 5 Strong	Comments:
Litter Control Ability to minimize litter.	Excellent (1) 2 3 4 5 Poor	Comments:
Scavenging Control Ability to prevent scavenging.	Excellent (1) 2 3 4 5 Poor	Comments:
Erosion Control Ability to control erosion.	Excellent (1) 2 3 4 5 Poor	Comments:
Appearance Overall appearance of applied area.	Excellent (1) 2 3 4 5 Poor	Comments:
Fire Control	Please describe any fire event that may have occurred and the impact of the ADC cover and equipment, if any. NONE	

Additional Comments

ACM PERFORMANCE EVALUATION FORM

ACM MATERIAL Tarp

DATE: 5/22/08	WEATHER CONDITIONS	
LANDFILL FOREMAN: Roger Chastain	WIND DIRECTION: S-SW	GENERAL DESCRIPTION:
LANDFILL SUPERINTENDENT:	WIND SPEED: 5-8mph	
	TEMPERATURE: 78°	
	PRECIPITATION: 0	

Circle the numeric value that best describes the ADC performance compared to soil cover.

Vector Control Ability to resist vectors.	Excellent 1 (2) 3 4 5 Poor	Comments:
Odor Control Odor from ADC covered surface.	None 1 (2) 3 4 5 Strong	Comments:
Litter Control Ability to minimize litter.	Excellent (1) 2 3 4 5 Poor	Comments:
Scavenging Control Ability to prevent scavenging.	Excellent (1) 2 3 4 5 Poor	Comments:
Erosion Control Ability to control erosion.	Excellent (1) 2 3 4 5 Poor	Comments:
Appearance Overall appearance of applied area.	Excellent 1 (2) 3 4 5 Poor	Comments:
Fire Control	Please describe any fire event that may have occurred and the impact of the ADC cover and equipment, if any. NONE	

Additional Comments

ACM PERFORMANCE EVALUATION FORM

ACM MATERIAL Tarp

DATE: 5/21/08	WEATHER CONDITIONS	
LANDFILL FOREMAN: Roger Chastain	WIND DIRECTION: S-SE	GENERAL DESCRIPTION:
LANDFILL SUPERINTENDENT:	WIND SPEED: 2-7 mph	
	TEMPERATURE: 73°	
	PRECIPITATION: .08"	

Circle the numeric value that best describes the ADC performance compared to soil cover.

Vector Control Ability to resist vectors.	Excellent (1) 2 3 4 5 Poor	Comments:
Odor Control Odor from ADC covered surface.	None (1) 2 3 4 5 Strong	Comments:
Litter Control Ability to minimize litter.	Excellent (1) 2 3 4 5 Poor	Comments:
Scavenging Control Ability to prevent scavenging.	Excellent (1) 2 3 4 5 Poor	Comments:
Erosion Control Ability to control erosion.	Excellent (1) 2 3 4 5 Poor	Comments:
Appearance Overall appearance of applied area.	Excellent (1) 2 3 4 5 Poor	Comments:
Fire Control	Please describe any fire event that may have occurred and the impact of the ADC cover and equipment, if any. NONE	

Additional Comments

ACM PERFORMANCE EVALUATION FORM

ACM MATERIAL Tarp

DATE: 5/20/08	WEATHER CONDITIONS	
LANDFILL FOREMAN: R. Chastain	WIND DIRECTION: N-NW	GENERAL DESCRIPTION:
LANDFILL SUPERINTENDENT:	WIND SPEED: 3-7 mph	
	TEMPERATURE: 73°	
	PRECIPITATION: 0	

Circle the numeric value that best describes the ADC performance compared to soil cover.

Vector Control Ability to resist vectors.	Excellent 1 (2) 3 4 5 Poor	Comments:
Odor Control Odor from ADC covered surface.	None 1 (2) 3 4 5 Strong	Comments:
Litter Control Ability to minimize litter.	Excellent (1) 2 3 4 5 Poor	Comments:
Scavenging Control Ability to prevent scavenging.	Excellent (1) 2 3 4 5 Poor	Comments:
Erosion Control Ability to control erosion.	Excellent (1) 2 3 4 5 Poor	Comments:
Appearance Overall appearance of applied area.	Excellent 1 (2) 3 4 5 Poor	Comments:
Fire Control	Please describe any fire event that may have occurred and the impact of the ADC cover and equipment, if any. NONE	

Additional Comments

ACM PERFORMANCE EVALUATION FORM

ACM MATERIAL Tarp

DATE: 5/19/08	WEATHER CONDITIONS	
LANDFILL FOREMAN: R. Chastain	WIND DIRECTION: S-SW	GENERAL DESCRIPTION: —
LANDFILL SUPERINTENDENT:	WIND SPEED: 25 mph	
	TEMPERATURE: 74°	
	PRECIPITATION: 0	

Circle the numeric value that best describes the ADC performance compared to soil cover.

Vector Control Ability to resist vectors.	Excellent 1 (2) 3 4 5 Poor	Comments:
Odor Control Odor from ADC covered surface.	None (1) 2 3 4 5 Strong	Comments:
Litter Control Ability to minimize litter.	Excellent 1 (2) 3 4 5 Poor	Comments:
Scavenging Control Ability to prevent scavenging.	Excellent (1) 2 3 4 5 Poor	Comments:
Erosion Control Ability to control erosion.	Excellent (1) 2 3 4 5 Poor	Comments:
Appearance Overall appearance of applied area.	Excellent 1 (2) 3 4 5 Poor	Comments:
Fire Control	Please describe any fire event that may have occurred and the impact of the ADC cover and equipment, if any. —	

Additional Comments

ACM PERFORMANCE EVALUATION FORM

ACM MATERIAL Tarp

DATE: 5/16/08	WEATHER CONDITIONS	
LANDFILL FOREMAN: R. Chastain	WIND DIRECTION: N-NW	GENERAL DESCRIPTION: /
LANDFILL SUPERINTENDENT:	WIND SPEED: 5-12 MPH	
	TEMPERATURE: 73°	
	PRECIPITATION: 0	

Circle the numeric value that best describes the ADC performance compared to soil cover.

Vector Control Ability to resist vectors.	Excellent 1 (2) 3 4 5 Poor	Comments:
Odor Control Odor from ADC covered surface.	None (1) 2 3 4 5 Strong	Comments:
Litter Control Ability to minimize litter.	Excellent (1) 2 3 4 5 Poor	Comments:
Scavenging Control Ability to prevent scavenging.	Excellent (1) 2 3 4 5 Poor	Comments:
Erosion Control Ability to control erosion.	Excellent (1) 2 3 4 5 Poor	Comments:
Appearance Overall appearance of applied area.	Excellent (1) 2 3 4 5 Poor	Comments:
Fire Control	Please describe any fire event that may have occurred and the impact of the ADC cover and equipment, if any. /	

Additional Comments

ACM PERFORMANCE EVALUATION FORM

ACM MATERIAL Tarp

DATE: 5/15/08	WEATHER CONDITIONS	
LANDFILL FOREMAN: K.Smith/R.chastain	WIND DIRECTION: N-NW	GENERAL DESCRIPTION: rainy, windy day
LANDFILL SUPERINTENDENT:	WIND SPEED: 10mph	
	TEMPERATURE: 71°	
	PRECIPITATION: @ .06"	

Circle the numeric value that best describes the ADC performance compared to soil cover.

Vector Control Ability to resist vectors.	Excellent (1) 2 3 4 5 Poor	Comments:
Odor Control Odor from ADC covered surface.	None (1) 2 3 4 5 Strong	Comments:
Litter Control Ability to minimize litter.	Excellent (1) 2 3 4 5 Poor	Comments:
Scavenging Control Ability to prevent scavenging.	Excellent (1) 2 3 4 5 Poor	Comments:
Erosion Control Ability to control erosion.	Excellent (1) 2 3 4 5 Poor	Comments:
Appearance Overall appearance of applied area.	Excellent (1) 2 3 4 5 Poor	Comments:
Fire Control	Please describe any fire event that may have occurred and the impact of the ADC cover and equipment, if any.	

Additional Comments

ACM PERFORMANCE EVALUATION FORM

ACM MATERIAL Tarp

DATE: 5/14/08	WEATHER CONDITIONS	
LANDFILL FOREMAN: K.Smith/R.chastain	WIND DIRECTION: S-SW	GENERAL DESCRIPTION: Shrunk working face down nicely - tarp covered entirely
LANDFILL SUPERINTENDENT:	WIND SPEED: 8 mph	
	TEMPERATURE: 74°	
	PRECIPITATION: /	

Circle the numeric value that best describes the ADC performance compared to soil cover.

Vector Control Ability to resist vectors.	Excellent (1) 2 3 4 5 Poor	Comments:
Odor Control Odor from ADC covered surface.	None (1) 2 3 4 5 Strong	Comments:
Litter Control Ability to minimize litter.	Excellent (1) 2 3 4 5 Poor	Comments:
Scavenging Control Ability to prevent scavenging.	Excellent (1) 2 3 4 5 Poor	Comments:
Erosion Control Ability to control erosion.	Excellent (1) 2 3 4 5 Poor	Comments:
Appearance Overall appearance of applied area.	Excellent (1) 2 3 4 5 Poor	Comments:
Fire Control	Please describe any fire event that may have occurred and the impact of the ADC cover and equipment, if any. NONE	

Additional Comments

ACM PERFORMANCE EVALUATION FORM

ACM MATERIAL Tarp / Posi-shell

DATE: 5/13/08	WEATHER CONDITIONS	
LANDFILL FOREMAN: K. Smith / R. Chastain	WIND DIRECTION: N-NW	GENERAL DESCRIPTION:
LANDFILL SUPERINTENDENT: Jimmy	WIND SPEED: 5mph	
	TEMPERATURE: 76°	
	PRECIPITATION: /	

Circle the numeric value that best describes the ADC performance compared to soil cover.

Vector Control Ability to resist vectors.	Excellent (1) 2 3 4 5 Poor	Comments:
Odor Control Odor from ADC covered surface.	None 1 (2) 3 4 5 Strong	Comments:
Litter Control Ability to minimize litter.	Excellent (1) 2 3 4 5 Poor	Comments:
Scavenging Control Ability to prevent scavenging.	Excellent (1) 2 3 4 5 Poor	Comments:
Erosion Control Ability to control erosion.	Excellent (1) 2 3 4 5 Poor	Comments:
Appearance Overall appearance of applied area.	Excellent (1) 2 3 4 5 Poor	Comments:
Fire Control	Please describe any fire event that may have occurred and the impact of the ADC cover and equipment, if any. NONE	

Additional Comments

Photos taken

ACM PERFORMANCE EVALUATION FORM

ACM MATERIAL Tarp

DATE: 5/12/08	WEATHER CONDITIONS	
LANDFILL FOREMAN: K. Smith / R. Chastain	WIND DIRECTION: N-NW	GENERAL DESCRIPTION: Very windy
LANDFILL SUPERINTENDENT:	WIND SPEED: 15-20mph	
	TEMPERATURE: 64°	
	PRECIPITATION: 0	

Circle the numeric value that best describes the ADC performance compared to soil cover.

Vector Control Ability to resist vectors.	Excellent 1 2 (3) 4 5 Poor		Comments:
Odor Control Odor from ADC covered surface.	None 1 (2) 3 4 5 Strong		Comments:
Litter Control Ability to minimize litter.	Excellent (1) 2 3 4 5 Poor		Comments:
Scavenging Control Ability to prevent scavenging.	Excellent (1) 2 3 4 5 Poor		Comments:
Erosion Control Ability to control erosion.	Excellent (1) 2 3 4 5 Poor		Comments:
Appearance Overall appearance of applied area.	Excellent 1 2 (3) 4 5 Poor		Comments:
Fire Control	Please describe any fire event that may have occurred and the impact of the ADC cover and equipment, if any. None		

Additional Comments

Bill Wagner on-site observed tarp construction & placement of tarp in high wind situations.

ACM PERFORMANCE EVALUATION FORM

ACM MATERIAL ~~S~~ Tarp

DATE: 5/10/08	WEATHER CONDITIONS	
	WIND DIRECTION: NW	GENERAL DESCRIPTION:
LANDFILL FOREMAN: Roger Chastain	WIND SPEED: 4-8 mph	
LANDFILL SUPERINTENDENT:	TEMPERATURE: 81°	
	PRECIPITATION: —	

Circle the numeric value that best describes the ADC performance compared to soil cover.

Vector Control Ability to resist vectors.	Excellent 1 (2) 3 4 5 Poor	Comments:
Odor Control Odor from ADC covered surface.	None (1) 2 3 4 5 Strong	Comments:
Litter Control Ability to minimize litter.	Excellent (1) 2 3 4 5 Poor	Comments:
Scavenging Control Ability to prevent scavenging.	Excellent (1) 2 3 4 5 Poor	Comments:
Erosion Control Ability to control erosion.	Excellent (1) 2 3 4 5 Poor	Comments:
Appearance Overall appearance of applied area.	Excellent (1) 2 3 4 5 Poor	Comments:
Fire Control	Please describe any fire event that may have occurred and the impact of the ADC cover and equipment, if any. None	

Additional Comments

ACM PERFORMANCE EVALUATION FORM

ACM MATERIAL TARP

DATE: 5-9-08	WEATHER CONDITIONS	
	WIND DIRECTION: NW	GENERAL DESCRIPTION:
LANDFILL FOREMAN: J. MEARS	WIND SPEED: 6	
LANDFILL SUPERINTENDENT:	TEMPERATURE: 82.4	
	PRECIPITATION: .15.	

Circle the numeric value that best describes the ADC performance compared to soil cover.

Vector Control Ability to resist vectors.	Excellent 1 (2) 3 4 5 Poor	Comments:
Odor Control Odor from ADC covered surface.	None 1 (2) 3 4 5 Strong	Comments:
Litter Control Ability to minimize litter.	Excellent (1) 2 3 4 5 Poor	Comments:
Scavenging Control Ability to prevent scavenging.	Excellent (1) 2 3 4 5 Poor	Comments:
Erosion Control Ability to control erosion.	Excellent (1) 2 3 4 5 Poor	Comments:
Appearance Overall appearance of applied area.	Excellent (1) 2 3 4 5 Poor	Comments:
Fire Control	Please describe any fire event that may have occurred and the impact of the ADC cover and equipment, if any.	

Additional Comments

ACM PERFORMANCE EVALUATION FORM

ACM MATERIAL TARP

DATE: 5-8-08	WEATHER CONDITIONS	
	WIND DIRECTION: SW	GENERAL DESCRIPTION:
LANDFILL FOREMAN: J. MEARS	WIND SPEED: 0 mph	
LANDFILL SUPERINTENDENT:	TEMPERATURE: 7	
	PRECIPITATION:	

Circle the numeric value that best describes the ADC performance compared to soil cover.

Vector Control Ability to resist vectors.	Excellent 1 (2) 3 4 5 Poor	Comments:
Odor Control Odor from ADC covered surface.	None 1 (2) 3 4 5 Strong	Comments:
Litter Control Ability to minimize litter.	Excellent (1) 2 3 4 5 Poor	Comments:
Scavenging Control Ability to prevent scavenging.	Excellent (1) 2 3 4 5 Poor	Comments:
Erosion Control Ability to control erosion.	Excellent (1) 2 3 4 5 Poor	Comments:
Appearance Overall appearance of applied area.	Excellent (1) 2 3 4 5 Poor	Comments:
Fire Control	Please describe any fire event that may have occurred and the impact of the ADC cover and equipment, if any.	

Additional Comments

ACM PERFORMANCE EVALUATION FORM

ACM MATERIAL TARP

DATE: 5-7-08	WEATHER CONDITIONS	
	WIND DIRECTION: N	GENERAL DESCRIPTION:
LANDFILL FOREMAN: J. MEARS	WIND SPEED: 6mph	
LANDFILL SUPERINTENDENT:	TEMPERATURE: 78°	
	PRECIPITATION: 0	

Circle the numeric value that best describes the ADC performance compared to soil cover.

Vector Control Ability to resist vectors.	Excellent 1 (2) 3 4 5 Poor	Comments:
Odor Control Odor from ADC covered surface.	None 1 (2) 3 4 5 Strong	Comments:
Litter Control Ability to minimize litter.	Excellent (1) 2 3 4 5 Poor	Comments:
Scavenging Control Ability to prevent scavenging.	Excellent (1) 2 3 4 5 Poor	Comments:
Erosion Control Ability to control erosion.	Excellent (1) 2 3 4 5 Poor	Comments:
Appearance Overall appearance of applied area.	Excellent (1) 2 3 4 5 Poor	Comments:
Fire Control	Please describe any fire event that may have occurred and the impact of the ADC cover and equipment, if any.	

Additional Comments

ACM PERFORMANCE EVALUATION FORM

ACM MATERIAL Tarp

DATE: 5/6/08	WEATHER CONDITIONS	
LANDFILL FOREMAN: Kristy Smith	WIND DIRECTION: NW	GENERAL DESCRIPTION:
LANDFILL SUPERINTENDENT:	WIND SPEED: 3 mph	
	TEMPERATURE: 86°	
	PRECIPITATION: 0	

Circle the numeric value that best describes the ADC performance compared to soil cover.

Vector Control Ability to resist vectors.	Excellent 1 (2) 3 4 5 Poor	Comments:
Odor Control Odor from ADC covered surface.	None 1 (2) 3 4 5 Strong	Comments:
Litter Control Ability to minimize litter.	Excellent (1) 2 3 4 5 Poor	Comments:
Scavenging Control Ability to prevent scavenging.	Excellent (1) 2 3 4 5 Poor	Comments:
Erosion Control Ability to control erosion.	Excellent (1) 2 3 4 5 Poor	Comments:
Appearance Overall appearance of applied area.	Excellent (1) 2 3 4 5 Poor	Comments:
Fire Control	Please describe any fire event that may have occurred and the impact of the ADC cover and equipment, if any. None	

Additional Comments

ACM PERFORMANCE EVALUATION FORM

ACM MATERIAL Tarp

DATE: 5/5/08	WEATHER CONDITIONS	
	WIND DIRECTION: S	GENERAL DESCRIPTION:
LANDFILL FOREMAN: Kristy Smith	WIND SPEED: 25 mph	
LANDFILL SUPERINTENDENT:	TEMPERATURE: 72°	
	PRECIPITATION: 0	

Circle the numeric value that best describes the ADC performance compared to soil cover.

Vector Control Ability to resist vectors.	Excellent 1 (2) 3 4 5 Poor	Comments:
Odor Control Odor from ADC covered surface.	None 1 (2) 3 4 5 Strong	Comments:
Litter Control Ability to minimize litter.	Excellent (1) 2 3 4 5 Poor	Comments:
Scavenging Control Ability to prevent scavenging.	Excellent (1) 2 3 4 5 Poor	Comments:
Erosion Control Ability to control erosion.	Excellent (1) 2 3 4 5 Poor	Comments:
Appearance Overall appearance of applied area.	Excellent (1) 2 3 4 5 Poor	Comments:
Fire Control	Please describe any fire event that may have occurred and the impact of the ADC cover and equipment, if any. None	

Additional Comments

ACM PERFORMANCE EVALUATION FORM

ACM MATERIAL Tarp

DATE: 5/3/08	WEATHER CONDITIONS	
LANDFILL FOREMAN: Roger Chastain	WIND DIRECTION: S-SE	GENERAL DESCRIPTION:
LANDFILL SUPERINTENDENT:	WIND SPEED: 2-5 mph	
	TEMPERATURE: 73°	
	PRECIPITATION: 0"	

Circle the numeric value that best describes the ADC performance compared to soil cover.

Vector Control Ability to resist vectors.	Excellent 1 (2) 3 4 5 Poor	Comments:
Odor Control Odor from ADC covered surface.	None 1 (2) 3 4 5 Strong	Comments:
Litter Control Ability to minimize litter.	Excellent (1) 2 3 4 5 Poor	Comments:
Scavenging Control Ability to prevent scavenging.	Excellent (1) 2 3 4 5 Poor	Comments:
Erosion Control Ability to control erosion.	Excellent (1) 2 3 4 5 Poor	Comments:
Appearance Overall appearance of applied area.	Excellent (1) 2 3 4 5 Poor	Comments:
Fire Control	Please describe any fire event that may have occurred and the impact of the ADC cover and equipment, if any. None	

Additional Comments

ACM PERFORMANCE EVALUATION FORM

ACM MATERIAL Tarp

DATE: 5/2/08	WEATHER CONDITIONS	
	WIND DIRECTION: S	GENERAL DESCRIPTION:
LANDFILL FOREMAN: Kristy Smith / Roger Chastain	WIND SPEED: 5-10mph	
LANDFILL SUPERINTENDENT:	TEMPERATURE: 75°	
	PRECIPITATION: 0	

Circle the numeric value that best describes the ADC performance compared to soil cover.

Vector Control Ability to resist vectors.	Excellent 1 (2) 3 4 5 Poor		Comments:
Odor Control Odor from ADC covered surface.	None 1 (2) 3 4 5 Strong		Comments:
Litter Control Ability to minimize litter.	Excellent (1) 2 3 4 5 Poor		Comments:
Scavenging Control Ability to prevent scavenging.	Excellent 1 (2) 3 4 5 Poor		Comments:
Erosion Control Ability to control erosion.	Excellent (1) 2 3 4 5 Poor		Comments:
Appearance Overall appearance of applied area.	Excellent (1) 2 3 4 5 Poor		Comments:
Fire Control	Please describe any fire event that may have occurred and the impact of the ADC cover and equipment, if any. None		

Additional Comments

ACM PERFORMANCE EVALUATION FORM

ACM MATERIAL Tarp

DATE: 5/1/08	WEATHER CONDITIONS	
	WIND DIRECTION: S	GENERAL DESCRIPTION:
LANDFILL FOREMAN: Jerry Mears	WIND SPEED: 10-15	
LANDFILL SUPERINTENDENT: K. Smith, Roger Chastain	TEMPERATURE: 74°	
	PRECIPITATION: 0	

Circle the numeric value that best describes the ADC performance compared to soil cover.

Vector Control Ability to resist vectors.	Excellent 1 (2) 3 4 5 Poor		Comments:
Odor Control Odor from ADC covered surface.	None 1 (2) 3 4 5 Strong		Comments:
Litter Control Ability to minimize litter.	Excellent (1) 2 3 4 5 Poor		Comments:
Scavenging Control Ability to prevent scavenging.	Excellent (1) 2 3 4 5 Poor		Comments:
Erosion Control Ability to control erosion.	Excellent (1) (2) 3 4 5 Poor		Comments:
Appearance Overall appearance of applied area.	Excellent (1) 2 3 4 5 Poor		Comments:
Fire Control	Please describe any fire event that may have occurred and the impact of the ADC cover and equipment, if any. None		

Additional Comments

ACM PERFORMANCE EVALUATION FORM

ACM MATERIAL ~~#5~~ Tarp

DATE: 4/30/08	WEATHER CONDITIONS	
LANDFILL FOREMAN: Jerry Mears, Roger, Kristy	WIND DIRECTION: N	GENERAL DESCRIPTION: Tarp 50' wide by 100' long.
LANDFILL SUPERINTENDENT:	WIND SPEED: 2 Mph	
	TEMPERATURE: 68°	
	PRECIPITATION: 0"	

Circle the numeric value that best describes the ADC performance compared to soil cover.

Vector Control Ability to resist vectors.	Excellent 1 (2) 3 4 5 Poor		Comments:
Odor Control Odor from ADC covered surface.	None (1) 2 3 4 5 Strong		Comments:
Litter Control Ability to minimize litter.	Excellent (1) 2 3 4 5 Poor		Comments:
Scavenging Control Ability to prevent scavenging.	Excellent 1 (2) 3 4 5 Poor		Comments:
Erosion Control Ability to control erosion.	Excellent (1) 2 3 4 5 Poor		Comments:
Appearance Overall appearance of applied area.	Excellent (1) 2 3 4 5 Poor		Comments:
Fire Control	Please describe any fire event that may have occurred and the impact of the ADC cover and equipment, if any. None		

Additional Comments

ACM PERFORMANCE EVALUATION FORM

ACM MATERIAL Posi-Shell

DATE: 4/18/08	WEATHER CONDITIONS	
	WIND DIRECTION: S-SE	GENERAL DESCRIPTION: clear, calm, warm
LANDFILL FOREMAN: Jimmy	WIND SPEED: 2-5 mph	
LANDFILL SUPERINTENDENT:	TEMPERATURE: 75°	
	PRECIPITATION: 0	

Circle the numeric value that best describes the ADC performance compared to soil cover.

Vector Control Ability to resist vectors.	Excellent (1) 2 3 4 5 Poor	Comments:
Odor Control Odor from ADC covered surface.	None 1 (2) 3 4 5 Strong	Comments:
Litter Control Ability to minimize litter.	Excellent (1) 2 3 4 5 Poor	Comments:
Scavenging Control Ability to prevent scavenging.	Excellent (1) 2 3 4 5 Poor	Comments:
Erosion Control Ability to control erosion.	Excellent 1 (2) 3 4 5 Poor	Comments:
Appearance Overall appearance of applied area.	Excellent (1) 2 3 4 5 Poor	Comments:
Fire Control	Please describe any fire event that may have occurred and the impact of the ADC cover and equipment, if any. None	

Additional Comments

Bill Wagner with NCDENR-SWS -on site @ 4:00 pm to witness posi-shell application @ end of the day

ACM PERFORMANCE EVALUATION FORM

ACM MATERIAL Posi - Shell

DATE: 4/9/08	WEATHER CONDITIONS	
LANDFILL FOREMAN: Roger Chastain	WIND DIRECTION: N	GENERAL DESCRIPTION: clear, calm, warm
LANDFILL SUPERINTENDENT:	WIND SPEED: 6 mph	
	TEMPERATURE: 66°	
	PRECIPITATION: 0	

Circle the numeric value that best describes the ADC performance compared to soil cover.

Vector Control Ability to resist vectors.	Excellent (1) 2 3 4 5 Poor	Comments:
Odor Control Odor from ADC covered surface.	None 1 (2) 3 4 5 Strong	Comments:
Litter Control Ability to minimize litter.	Excellent (1) 2 3 4 5 Poor	Comments:
Scavenging Control Ability to prevent scavenging.	Excellent (1) 2 3 4 5 Poor	Comments:
Erosion Control Ability to control erosion.	Excellent 1 (2) 3 4 5 Poor	Comments:
Appearance Overall appearance of applied area.	Excellent 1 (2) 3 4 5 Poor	Comments:
Fire Control	Please describe any fire event that may have occurred and the impact of the ADC cover and equipment, if any. None	

Additional Comments

ACM PERFORMANCE EVALUATION FORM

ACM MATERIAL Posi - Shell

DATE: 4/3/08	WEATHER CONDITIONS	
	WIND DIRECTION: N-NW	GENERAL DESCRIPTION:
LANDFILL FOREMAN: Roger Chastain	WIND SPEED: 5 mph	Partly cloudy, calm, warm
LANDFILL SUPERINTENDENT:	TEMPERATURE: 60°	
	PRECIPITATION: None	

Circle the numeric value that best describes the ADC performance compared to soil cover.

Vector Control Ability to resist vectors.	Excellent (1) 2 3 4 5 Poor	Comments:
Odor Control Odor from ADC covered surface.	None 1 (2) 3 4 5 Strong	Comments:
Litter Control Ability to minimize litter.	Excellent (1) 2 3 4 5 Poor	Comments:
Scavenging Control Ability to prevent scavenging.	Excellent (1) 2 3 4 5 Poor	Comments:
Erosion Control Ability to control erosion.	Excellent 1 (2) 3 4 5 Poor	Comments:
Appearance Overall appearance of applied area.	Excellent 1 (2) 3 4 5 Poor	Comments:
Fire Control	Please describe any fire event that may have occurred and the impact of the ADC cover and equipment, if any. None	

Additional Comments

ACM PERFORMANCE EVALUATION FORM

ACM MATERIAL Posi-Shell

DATE: 4/2/08	WEATHER CONDITIONS	
	WIND DIRECTION: N-NW	GENERAL DESCRIPTION: cloudy, slight breeze
LANDFILL FOREMAN: Roger Chastain	WIND SPEED: 4 mph	
LANDFILL SUPERINTENDENT:	TEMPERATURE: 75°	
	PRECIPITATION: None	

Circle the numeric value that best describes the ADC performance compared to soil cover.

Vector Control Ability to resist vectors.	Excellent 1 2 3 4 5 Poor		Comments:
Odor Control Odor from ADC covered surface.	None 1 2 3 4 5 Strong		Comments:
Litter Control Ability to minimize litter.	Excellent 1 2 3 4 5 Poor		Comments:
Scavenging Control Ability to prevent scavenging.	Excellent 1 2 3 4 5 Poor		Comments:
Erosion Control Ability to control erosion.	Excellent 1 2 3 4 5 Poor		Comments:
Appearance Overall appearance of applied area.	Excellent 1 2 3 4 5 Poor		Comments:
Fire Control	Please describe any fire event that may have occurred and the impact of the ADC cover and equipment, if any. None		

Additional Comments

ACM PERFORMANCE EVALUATION FORM

ACM MATERIAL ~~4[illegible]~~ Posi-shell

DATE: 4/1/08	WEATHER CONDITIONS	
	WIND DIRECTION: N-NW	GENERAL DESCRIPTION: Warm, clear, calm
LANDFILL FOREMAN: Roger Chastain	WIND SPEED: 10 mph	
LANDFILL SUPERINTENDENT:	TEMPERATURE: 73°	
	PRECIPITATION: None	

Circle the numeric value that best describes the ADC performance compared to soil cover.

Vector Control Ability to resist vectors.	Excellent 1 (2) 3 4 5 Poor		Comments:
Odor Control Odor from ADC covered surface.	None 1 2 (3) 4 5 Strong		Comments:
Litter Control Ability to minimize litter.	Excellent (1) 2 3 4 5 Poor		Comments:
Scavenging Control Ability to prevent scavenging.	Excellent (1) 2 3 4 5 Poor		Comments:
Erosion Control Ability to control erosion.	Excellent 1 (2) 3 4 5 Poor		Comments:
Appearance Overall appearance of applied area.	Excellent (1) 2 3 4 5 Poor		Comments:
Fire Control	Please describe any fire event that may have occurred and the impact of the ADC cover and equipment, if any. None		

Additional Comments

ACM PERFORMANCE EVALUATION FORM

ACM MATERIAL Posi-shell

DATE: 3/27/08	WEATHER CONDITIONS	
LANDFILL FOREMAN: Roger Chastain	WIND DIRECTION: S-SW	GENERAL DESCRIPTION: —
LANDFILL SUPERINTENDENT: Danny Biddix	WIND SPEED: 4 mph	
	TEMPERATURE: 68°	
	PRECIPITATION: 0	

Circle the numeric value that best describes the ADC performance compared to soil cover.

Vector Control Ability to resist vectors.	Excellent 1 (2) 3 4 5 Poor		Comments:
Odor Control Odor from ADC covered surface.	None 1 2 (3) 4 5 Strong		Comments:
Litter Control Ability to minimize litter.	Excellent (1) 2 3 4 5 Poor		Comments:
Scavenging Control Ability to prevent scavenging.	Excellent (1) 2 3 4 5 Poor		Comments:
Erosion Control Ability to control erosion.	Excellent 1 (2) 3 4 5 Poor		Comments:
Appearance Overall appearance of applied area.	Excellent 1 (2) 3 4 5 Poor		Comments:
Fire Control	Please describe any fire event that may have occurred and the impact of the ADC cover and equipment, if any. None		

Additional Comments

ACM PERFORMANCE EVALUATION FORM

ACM MATERIAL Posi-shell

DATE: 3/26/08	WEATHER CONDITIONS	
LANDFILL FOREMAN: Roger Chastain	WIND DIRECTION: S-SW	GENERAL DESCRIPTION: clear, calm, slight breeze, warm
LANDFILL SUPERINTENDENT: Jimmy	WIND SPEED: 5 mph	
	TEMPERATURE: 55-60°	
	PRECIPITATION: none	

Circle the numeric value that best describes the ADC performance compared to soil cover.

Vector Control Ability to resist vectors.	Excellent 1 (2) 3 4 5 Poor		Comments:
Odor Control Odor from ADC covered surface.	None 1 2 (3) 4 5 Strong		Comments:
Litter Control Ability to minimize litter.	Excellent (1) 2 3 4 5 Poor		Comments:
Scavenging Control Ability to prevent scavenging.	Excellent (1) 2 3 4 5 Poor		Comments:
Erosion Control Ability to control erosion.	Excellent 1 (2) 3 4 5 Poor		Comments:
Appearance Overall appearance of applied area.	Excellent (1) 2 3 4 5 Poor		Comments:
Fire Control	Please describe any fire event that may have occurred and the impact of the ADC cover and equipment, if any. None		

Additional Comments

ACM PERFORMANCE EVALUATION FORM

ACM MATERIAL Posi-shell

DATE: 3/24/08	WEATHER CONDITIONS	
	WIND DIRECTION: NW	GENERAL DESCRIPTION: Cold, slightly windy, snow flurries
LANDFILL FOREMAN: Roger Chastain	WIND SPEED: 15 mph	
	TEMPERATURE: 35°	
LANDFILL SUPERINTENDENT: Jimmy & Stephen	PRECIPITATION: 0	

Circle the numeric value that best describes the ADC performance compared to soil cover.

Vector Control Ability to resist vectors.	Excellent 1 (2) 3 4 5 Poor		Comments:
Odor Control Odor from ADC covered surface.	None 1 (2) 3 4 5 Strong		Comments:
Litter Control Ability to minimize litter.	Excellent (1) 2 3 4 5 Poor		Comments:
Scavenging Control Ability to prevent scavenging.	Excellent (1) 2 3 4 5 Poor		Comments:
Erosion Control Ability to control erosion.	Excellent 1 (2) 3 4 5 Poor		Comments:
Appearance Overall appearance of applied area.	Excellent (1) 2 3 4 5 Poor		Comments:
Fire Control	Please describe any fire event that may have occurred and the impact of the ADC cover and equipment, if any. None		

Additional Comments

Bill Wagner & Allen Gaither w/ State-Solid Waste Section were on site to observe posi-shell application w/ Jerry & Kristy.

ACM PERFORMANCE EVALUATION FORM

ACM MATERIAL Posi-Shell

DATE: 3/19/08	WEATHER CONDITIONS	
	WIND DIRECTION: SW-S	GENERAL DESCRIPTION:
LANDFILL FOREMAN: Roger Chastain	WIND SPEED: 15-18 mph	
LANDFILL SUPERINTENDENT: Nick	TEMPERATURE: 62.5°	
	PRECIPITATION: None	

Circle the numeric value that best describes the ADC performance compared to soil cover.

Vector Control Ability to resist vectors.	Excellent 1 (2) 3 4 5 Poor		Comments:
Odor Control Odor from ADC covered surface.	None 1 2 (3) 4 5 Strong		Comments:
Litter Control Ability to minimize litter.	Excellent 1 (2) 3 4 5 Poor		Comments:
Scavenging Control Ability to prevent scavenging.	Excellent (1) 2 3 4 5 Poor		Comments:
Erosion Control Ability to control erosion.	Excellent 1 (2) 3 4 5 Poor		Comments:
Appearance Overall appearance of applied area.	Excellent 1 (2) 3 4 5 Poor		Comments:
Fire Control	Please describe any fire event that may have occurred and the impact of the ADC cover and equipment, if any. None		

Additional Comments

ACM PERFORMANCE EVALUATION FORM

ACM MATERIAL Posi-shell

DATE: 3/14/08	WEATHER CONDITIONS	
LANDFILL FOREMAN: Roger Chastain	WIND DIRECTION:	GENERAL DESCRIPTION:
LANDFILL SUPERINTENDENT:	WIND SPEED:	
	TEMPERATURE:	
	PRECIPITATION:	

Circle the numeric value that best describes the ADC performance compared to soil cover.

Vector Control Ability to resist vectors.	Excellent 1 (2) 3 4 5 Poor	Comments:
Odor Control Odor from ADC covered surface.	None 1 (2) 3 4 5 Strong	Comments:
Litter Control Ability to minimize litter.	Excellent (1) 2 3 4 5 Poor	Comments:
Scavenging Control Ability to prevent scavenging.	Excellent (1) 2 3 4 5 Poor	Comments:
Erosion Control Ability to control erosion.	Excellent 1 (2) 3 4 5 Poor	Comments:
Appearance Overall appearance of applied area.	Excellent (1) 2 3 4 5 Poor	Comments:
Fire Control	Please describe any fire event that may have occurred and the impact of the ADC cover and equipment, if any. None	

Additional Comments

ACM PERFORMANCE EVALUATION FORM

ACM MATERIAL Posi - shell

DATE: 3/12/08	WEATHER CONDITIONS	
LANDFILL FOREMAN: Roger Chastain	WIND DIRECTION: NW	GENERAL DESCRIPTION:
LANDFILL SUPERINTENDENT: Jimmy	WIND SPEED: 5 mph	
	TEMPERATURE: warmer, calm 50°	
	PRECIPITATION:	

Circle the numeric value that best describes the ADC performance compared to soil cover.

Vector Control Ability to resist vectors.	Excellent 1 (2) 3 4 5 Poor		Comments:
Odor Control Odor from ADC covered surface.	None 1 (2) 3 4 5 Strong		Comments:
Litter Control Ability to minimize litter.	Excellent (1) 2 3 4 5 Poor		Comments:
Scavenging Control Ability to prevent scavenging.	Excellent (1) 2 3 4 5 Poor		Comments:
Erosion Control Ability to control erosion.	Excellent 1 (2) 3 4 5 Poor		Comments:
Appearance Overall appearance of applied area.	Excellent (1) 2 3 4 5 Poor		Comments:
Fire Control	Please describe any fire event that may have occurred and the impact of the ADC cover and equipment, if any. None		

Additional Comments

24 March → Pace-here-sampling

ACM PERFORMANCE EVALUATION FORM

ACM MATERIAL Posi-shell

DATE: 3/11/08	WEATHER CONDITIONS	
LANDFILL FOREMAN: Roger Chastain	WIND DIRECTION: NW	GENERAL DESCRIPTION:
LANDFILL SUPERINTENDENT: Jimmy	WIND SPEED: 12 mph	
	TEMPERATURE: cool, windy 40's	
	PRECIPITATION:	

Circle the numeric value that best describes the ADC performance compared to soil cover.

Vector Control Ability to resist vectors.	Excellent 1 (2) 3 4 5 Poor		Comments:
Odor Control Odor from ADC covered surface.	None 1 (2) 3 4 5 Strong		Comments:
Litter Control Ability to minimize litter.	Excellent (1) 2 3 4 5 Poor		Comments:
Scavenging Control Ability to prevent scavenging.	Excellent (1) 2 3 4 5 Poor		Comments:
Erosion Control Ability to control erosion.	Excellent 1 (2) 3 4 5 Poor		Comments:
Appearance Overall appearance of applied area.	Excellent (1) 2 3 4 5 Poor		Comments:
Fire Control	Please describe any fire event that may have occurred and the impact of the ADC cover and equipment, if any. None		

Additional Comments

ACM PERFORMANCE EVALUATION FORM

ACM MATERIAL Posi-shell

DATE: 3-3-08	WEATHER CONDITIONS	
LANDFILL FOREMAN: Kristy Smith	WIND DIRECTION: S-SE	GENERAL DESCRIPTION: Windy, sunny, p.cloudy
	WIND SPEED: 12	
LANDFILL SUPERINTENDENT:	TEMPERATURE: 68°	
	PRECIPITATION: 0"	

Circle the numeric value that best describes the ADC performance compared to soil cover.

Vector Control Ability to resist vectors.	Excellent 1 (2) 3 4 5 Poor		Comments:
Odor Control Odor from ADC covered surface.	None 1 (2) 3 4 5 Strong		Comments:
Litter Control Ability to minimize litter.	Excellent 1 (2) 3 4 5 Poor		Comments:
Scavenging Control Ability to prevent scavenging.	Excellent 1 (2) 3 4 5 Poor		Comments:
Erosion Control Ability to control erosion.	Excellent 1 (2) 3 4 5 Poor		Comments:
Appearance Overall appearance of applied area.	Excellent 1 (2) 3 4 5 Poor		Comments:
Fire Control	Please describe any fire event that may have occurred and the impact of the ADC cover and equipment, if any.		

Additional Comments

ACM PERFORMANCE EVALUATION FORM

New Formula Used
Posi-shell training occurred today.

ACM MATERIAL Posi-shell - Kristy

DATE: 2/27/08	WEATHER CONDITIONS	
	WIND DIRECTION: NW	GENERAL DESCRIPTION: Snowing
LANDFILL FOREMAN:	WIND SPEED: 20mph	
	TEMPERATURE: 31°	
LANDFILL SUPERINTENDENT:	PRECIPITATION:	

Circle the numeric value that best describes the ADC performance compared to soil cover.

Vector Control Ability to resist vectors.	Excellent 1 (2) 3 4 5 Poor		Comments:
Odor Control Odor from ADC covered surface.	None 1 2 (3) 4 5 Strong		Comments:
Litter Control Ability to minimize litter.	Excellent 1 (2) 3 4 5 Poor		Comments:
Scavenging Control Ability to prevent scavenging.	Excellent 1 (2) 3 4 5 Poor		Comments:
Erosion Control Ability to control erosion.	Excellent 1 (2) 3 4 5 Poor		Comments:
Appearance Overall appearance of applied area.	Excellent 1 (2) 3 4 5 Poor		Comments:
Fire Control	Please describe any fire event that may have occurred and the impact of the ADC cover and equipment, if any. None		

Additional Comments

ACM PERFORMANCE EVALUATION FORM

ACM MATERIAL Posi-shell Start @ garage 2:00 pM

DATE: 2/20/08 - Kristy Smith LANDFILL FOREMAN: LANDFILL SUPERINTENDENT:	WEATHER CONDITIONS WIND DIRECTION: South - East WIND SPEED: 15 MPH TEMPERATURE: PRECIPITATION: none today	GENERAL DESCRIPTION: Cloudy, going to rain tonight, slight breeze

Circle the numeric value that best describes the ADC performance compared to soil cover.

Vector Control Ability to resist vectors.	Excellent 1 2 (3) 4 5 Poor	Comments:
Odor Control Odor from ADC covered surface.	None 1 2 3 (4) 5 Strong	Comments:
Litter Control Ability to minimize litter.	Excellent (1) 2 3 4 5 Poor	Comments:
Scavenging Control Ability to prevent scavenging.	Excellent 1 2 3 (4) 5 Poor	Comments:
Erosion Control Ability to control erosion.	Excellent 1 (2) 3 4 5 Poor	Comments:
Appearance Overall appearance of applied area.	Excellent 1 (2) 3 4 5 Poor	Comments:
Fire Control	Please describe any fire event that may have occurred and the impact of the ADC cover and equipment, if any. No fire event	

Additional Comments Start 2:00 pm, 2:40 @ water well, fill w/ H_2O, 2:45 to leachate pond, filled posi-shell w/ amount of leachate, 2:55 to mixer, 3:55 to working face, 4:36 - cleaned out posi-shell machine @ working face.

Appendix B
ACM Photographs

Buncombe County Solid Waste Management Facility
ACM Demonstration Project
Engineer: CDM
Date: February 20, 2008

Posi-shell Application

Buncombe County Solid Waste Management Facility
ACM Demonstration Project
Engineer: CDM
Date: February 27, 2008

Posi-shell Application

Buncombe County Solid Waste Management Facility
ACM Demonstration Project
Engineer: CDM
Date: March 3, 2008

Posi-shell Application

Buncombe County Solid Waste Management Facility
ACM Demonstration Project
Engineer: CDM
Date: April 30, 2008

Tarps Application

Buncombe County Solid Waste Management Facility
ACM Demonstration Project
Engineer: CDM
Date: May 1, 2008

Tarps Application

Buncombe County Solid Waste Management Facility
ACM Demonstration Project
Engineer: CDM
Date: May 1, 2008

Tarps Application

Buncombe County Solid Waste Management Facility
ACM Demonstration Project
Engineer: CDM
Date: May 1, 2008

Tarps Application

Buncombe County Solid Waste Management Facility
ACM Demonstration Project
Engineer: CDM
Date: May 13, 2008

Tarps Application

Buncombe County Solid Waste Management Facility
ACM Demonstration Project
Engineer: CDM
Date: May 23, 2008

Tarps Application

Appendix C
Operation Plan

Section 6
Cover Material Requirements

6.1 Daily Cover

In accordance with 15A NCAC 13B .1626 (2), the operator of MSWLF units must cover disposed solid waste with six inches of earthen material (or alternative daily cover (ADC) approved by the Solid Waste Section (SWS)) at the end of each operating day, or at more frequent intervals if necessary, to control disease vectors, fires, odors, blowing litter, and scavenging. The daily cover must:

- be capable of covering solid waste after it is placed without change in its properties and without regard to weather;
- be capable of allowing loaded vehicles to successfully maneuver over it after placement;
- be noncombustible; and,
- not include rock fragments that are greater than six inches in diameter.

6.2 Intermediate Cover

In accordance with 15A NCAC 13B .1626 (2), the owner or operator of all MSWLF units must place 12-inches of intermediate cover on all areas which will not have additional waste placed on them for 12 months or more, but where final termination of disposal operations has not occurred. The composition standards of intermediate cover shall be the same as for daily cover in addition to being capable of supporting the germination and propagation of vegetative cover.

6.3 Alternative Daily Cover

Two ADC methods are described in this section; Posi-Shell and tarps. Each ADC shall provide control for disease vectors, fires, odor, blowing litter, and scavenging. Through a SWS required demonstration period completed on June 5, 2008, each ADC has been determined to provide equal or better element control as soil.

6.3.1 Posi-Shell

The Posi-Shell Cover System is proposed as an ADC (see Appendix C for Manufacturer's Usage Guide) on waste disposed at the Subtitle D landfill. Posi-Shell provides a thin cover that hardens over the covered waste surface.

6.3.1.1 Properties of Posi-Shell

The properties of each component of Posi-Shell are presented in the Manufacturer's Usage Guide in Appendix C.

6.3.1.2 Cover System Description

As described in the Manufacturer's Usage Guide, the application rate for short-term coverage (overnight cover for daily cover operations) is approximately 8 to 10 square feet per gallon. Assuming the working face is less than one acre (100 feet wide and 400 feet long), the desired load size would be approximately 4,000 gallons. At a minimum, the Posi-Shell material quantities for daily use would be the following:

- 3,200 gallons of liquid (water or leachate),
- 8 bags (15 lbs each) of Posi-Pak,
- 40 bags (50 lbs each) of PSM-200 setting agent, and
- 80 bags (94 lb each) of optional Portland cement.

Posi-Pak is a specially designed plastic fiber with a proprietary finish that provides the reinforcement matrix for the finished cover. PSM-200 setting agent is a blend of clay, polymers, and adhesives that provides thickening, lubrication, and adhesion. Portland cement can be used as a binder component which will help neutralize odors and enhances the durability of the cover system.

6.3.1.3 Cover System Application Procedures

Application Procedure

Application of the Posi-shell will generally follow the manufacturer's recommendation and will employ the following minimum procedures:

- The Posi-shell will be applied in two different directions to avoid spray shadow or wind dispersion;
- The Posi-shell will be applied at the end of each working day;
- The Posi-shell surface will be visually inspected on a daily basis for exposed waste and/or inadequate coverage.

Areas of exposed waste and/or inadequate coverage will receive an additional application prior to operations ending for that day.

Maximum Daily Area Coverage

Based on the May 2007 Airspace Analysis Report:

- Annual 2007 waste disposal rate (MSW only) = 125,000 tons
- Operating days per year = 312 days
- Approximate daily waste disposal rate = 400 tons

- In-place density = 0.50 tons of MSW per cubic yard
- Daily cubic yards disposed = daily waste disposal rate / in-place density = 800 yd^3 or 21,600 ft^3

The working face will be restricted to the smallest area feasible. The working lift is typically 4 feet high. Based on a working lift thickness of 4 feet, the working face area is 5,400 square feet (daily cubic yards disposed / working lift thickness), which is equal to the daily coverage area.

Daily Depth and Quantity to be Applied

N/A

Average Monthly Volume of Daily Cover

N/A

List of Equipment

Equipment required for the Posi-Shell consists of a standard hydroseeding unit and a towing unit.

Material and Equipment Storage

The material components of Posi-Shell will be housed in the machine shop to minimize the risk of hydration. The spraying equipment will be parked in a County designated area which will not impeded daily operations.

Wet Weather Operation

The application of Posi-shell during heavy rain events will be minimized. If Posi-shell is applied during periods of heavy rain, the surface will be visually inspected following the rain event for exposed waste or inadequate coverage.

Contingency Plans

If, for any reason, the County cannot use Posi-Shell as ADC material, soil, a soil/mulch mixture, or tarps will be used.

Screening Criteria

N/A

6.2.3 Tarps

Tarps are proposed as another ADC. The tarps will be placed either manually or by using an automatic tarping machine which uses a spreader bar to lay and roll up the tarps.

6.2.3.1 Properties of Tarps

N/A

6.2.3.2 Cover System Application Procedures

Application Procedure for Manual Placement

Application of the tarp will employ the following minimum procedures:

- Visually inspect working face to ensure that no sharp objects are protruding from the compacted waste which may tear the tarp;
- If necessary, run compacter over any protruding objections;
- Manually roll out tarp and place over working face, the side cables within the tarp and the metal bars on the short ends shall be heavy enough to weigh down the tarp; and
- Place additional tarps as needed to adequately cover working face.

The tarps will be visually inspected following placement to ensure that uplift will not occur. Additional metals bars will be placed if necessary. Soil will be placed over any areas of exposed waste and/or inadequate coverage.

Application Procedure for Equipment Placement

Application of the tarp will employ the following minimum manufacturer's recommended procedures:

- Visually inspect working face to ensure that no sharp objects are protruding from the compacted waste which may tear the tarp;
- If necessary, run compacter over any protruding objections;
- Using an automatic tarping machine, install tarp directly on working face, the side cables within the tarp and the metal bars on the short ends shall be heavy enough to weigh down the tarp; and
- Lay additional tarps as needed to adequately cover working face.

The tarps will be visually inspected following placement to ensure that uplift will not occur. Additional metals bars will be placed if necessary. Soil will be placed over any areas of exposed waste and/or inadequate coverage.

Maximum Daily Area Coverage

See Section 6.3.1.2.

Daily Depth and Quantity to be Applied

N/A

Average Monthly Volume of Daily Cover

N/A

List of Equipment

An automatic tarping machine and dozer will be the equipment used for the tarp installation.

Material and Equipment Storage

The automatic tarping machine and tarp will be stored in a County designated area that will not conflict with daily haul and disposal operations.

Wet Weather Operation

The tarping wet weather operation will be similar to operation the County currently follows when using soil as daily cover during wet weather.

Contingency Plans

If, for any reason, the County cannot use tarps as ADC material, soil, Posi-shell, or a soil/mulch mixture will be used.

Screening Criteria

N/A

Operation Plan

Appendix C
Posi-Shell Cover System
Advanced Formulation Usage Guide

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ADVANCED FORMULATION USAGE GUIDE

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This guide gives you specific, easy to follow instructions for the safe and efficient usage of Landfill Service Corporation's Posi-Shell® Cover System Advanced Formulation. For best results and to ensure safety, please follow the instructions carefully.

1.0 Definition of Posi-Shell Cover System Advanced Formulation

The Posi-Shell Cover System is a low-cost alternative to the conventional six inches of soil used as daily cover at most landfills. Posi-Shell Advanced Formulation is a noncombustible blend of materials providing a thin cover (approximately one-quarter inch) that hardens over the surface of the material to be covered, such as the working face of the landfill. Non-toxic, the stucco-like coating performs all functions of landfill daily and intermediate cover. Applied with a standard hydroseeding unit, this system provides increased landfill capacity while providing a more environmentally effective cover system for the landfill.

1.1 Background and Concept

Landfilled solid waste must be covered each day to control vectors, fires, odors, blowing litter, and scavenging. Cover material is generally defined as a six inch soil layer or other suitable material, or a combination of same, that is used to cover compacted solid waste in a landfill.

The Posi-Shell Cover System Advanced Formulation is an alternative to traditional landfill daily cover materials. The coating is a spray-on slurry composed of water, Posi-Pak Type P-100, PSM-200 Setting Agent, and optional Portland cement that forms an approximately one-quarter-inch coating for various types of landfill cover. The Posi-Shell Cover System Advanced Formulation is designed for use by a landfill operator at the close of each operating day for compliance with cover regulations. The material meets and exceeds regulatory requirements for the control of landfill vectors, fires, odors, blowing litter, and scavenging.

Posi-Shell Advanced Formulation (AF) provides cover ranging from 4 to 10 square feet per gallon of slurry. The coverage area is dependent upon the desired thickness and the actual texture of the covered surface. Application of the Posi-Shell AF is a one-man operation.

1.2 Environmental and Economic Benefits

The Posi-Shell Cover System conserves natural resources. Additionally, use of the Posi-Shell Cover System conserves energy and improves air quality by eliminating the use of heavy earth-moving equipment for the transporting, laying, and reworking of daily soil cover. Traffic congestion to and from the landfill site, vehicle exhaust, and fugitive dust emissions are also reduced proportionately to the reduction of landfill soil hauling for daily cover.

Soil, a valuable natural resource, is conserved by the Posi-Shell Cover System AF. In many areas, soil is an expensive natural resource that is in short supply. Use of the Posi-Shell Cover System AF can eliminate the waste of this precious commodity.

The major benefit of the use of the Posi-Shell Cover System AF is the conservation of extremely valuable landfill capacity, commonly known as "air space". Landfill air space is a valuable asset and the need to conserve capacity is paramount to achieve environmental and economic objectives for both landfill operators and regulatory agencies. Efficient use of air space today can directly translate into longer landfill life, decreased operating costs, and increased revenue generation. An increase in air space efficiency can delay or even eliminate the need for the siting and construction of new facilities that ultimately may have severe environmental and economic impacts.

For comparison purposes using daily cover for a working face area of 5,000 square feet for a period of one year with Posi-Shell AF as opposed to six inches of top soil will realize an air space savings of about 24,000 cubic yards. Use of Posi-Shell AF as opposed to soil will result in a direct increase in the amount of airspace available in a landfill.

1.3 Equipment

The equipment used for the Posi-Shell Cover System AF consists of a standard hydroseeding unit, a towing unit, and a water source. The towing unit is used for moving the hydroseeding unit around the landfill site. If a nearby hydrant or other water source is not available, then a water trailer or truck is required.

1.4 Personnel

One operator is required for the Posi-Shell Cover System AF. This operator must be capable of operating heavy equipment and be familiar with the mechanics of all equipment used. The operator will be trained by Landfill Service Corporation in the use of Posi-Shell AF. If preferred, a two man operation may be used to expedite coverage time.

1.5 Materials

1.5.1 Water

Potable water, non-potable water and landfill leachate can be used as the liquid portion of the Posi-Shell Cover System AF. Use of leachate requires a site-specific regulatory approval to assure proper health and safety practices are implemented.

Approximately 1,600 gallons of water is used for each 2000 gallon load of Posi-Shell AF. The water can either be supplied by a hydrant, pumped from a nearby pond, or brought to and stored adjacent to the hydroseeding unit by water truck or trailer. The sizing of the specific water supply method should be adequate to ensure that the filling of the hydroseeding unit occurs within a few minutes' time.

As stated, leachate can be used as a water source if specific regulatory approval is obtained. It is not recommended that a high-strength leachate be used due to odor concerns and the added safety precautions required to assure worker safety. However, use of relatively dilute leachate is an effective method for reducing a portion of a landfill's total leachate production. The inherent odor-neutralizing properties of Posi-Shell AF mitigate the potential odor problems of leachate when it is used as a water source.

1.5.2 Posi-Paks

Posi-Paks are an important constituent of Posi-Shell AF and give the cover its fiber reinforced rigidity and weather resistance. Posi-Paks are lightweight, easy to handle, and ready to use. Posi-Pak is a specially designed plastic fiber with a proprietary finish that provides the reinforcement matrix for the finished cover. Four Posi-Paks are used for each 2000 gallon load. See the back of this manual for a material safety data sheet for this material.

1.5.3 Dye

Optional dyes can be added to the Posi-Shell AF mixture to create a soil-like brown coloring or a grass-like green coloring.

1.5.4 PSM 200 Setting Agent

A proprietary blend of natural bentonite clay, synthetic polymers, and adhesives provide thickening, lubrication, and adhesion in the Posi-Shell AF mixture. See the back of this manual for a Material Safety Data Sheet for this material.

1.5.5 Portland Cement

Optional Portland cement can be used as the cementitious mineral binder component of Posi-Shell AF. On average, approximately 4,000 lbs. of this material is used for each 2000 gallon Posi-Shell AF load. The Portland Cement further helps neutralize odors and contaminants found in leachate and enhances the durability of the Posi-Shell.

2.0 Safety

Posi-Shell AF is nonhazardous and is composed of nonhazardous materials. Certain safety measures are recommended during different aspects of Posi-Shell AF use. **Follow safety procedures specific to your hydroseeding unit, towing unit, or other equipment used.**

3.0 Operator Attire

The operator should, at all times, wear appropriate protective clothing. Jewelry and loose fitting clothing should be avoided. Recommended protective clothing includes the following:

- Safety glasses with side shields
- Leather gloves
- Industrial grade work coveralls
- Leather steel-toed shoes
- Dust particulate mask

If leachate is being used as the liquid portion of the Posi-Shell AF mixture, protective clothing in accordance with site regulations should be worn.

4.0 Towing Units

See table on page 11 for Posi-Shell AF total material weights. To determine the total load weight, add the Posi-Shell AF total material weight to the weight of your hydroseeding unit. Ensure that the towing unit and hitch arrangement are capable of handling the total of these weights.

5.0 Loading and Mixing Procedure

It is important to add the Posi-Shell Advanced Formulation materials in the order specified.

5.1 Liquid Addition (Step 1)

Before placing any dry material in the mixing tank, the tank must be filled with the appropriate amount of liquid (water or leachate). See chart on page 11. If your hydroseeding unit has a reserve water tank, fill at this time with clean water. It is not recommended to use leachate as the clean out water.

All bags of material (Posi-Pak Type P-100, PSM-200 Setting Agent, Portland cement) can be loaded through the side rails of hydroseeding unit onto mixing deck from the ground. Ensure that they do not obstruct the ladder area. Never attempt to carry up or down ladders. To avoid back injuries, always use proper lifting practices when handling bags. Wet or frozen materials should not be used.

5.2 Posi-Pak Addition (Step 2)

With mixer paddles of hydroseeding unit turning slowly open the Posi-Pak, Type P-100 bag and dump contents into inlet hopper (discard bag). Posi-Paks are designed such that the plastic covering may be torn away with the bare hands. If a knife is used take care not to drop into mixing tank. See chart on page 11 for Posi-Pak, Type P-100 quantities.

5.3 Optional Dye (Step 3)

Various dyes are available for Posi-Shell Advanced Formulation to alter the color of the finished product to best suit the application. Most commonly used are brown and green. Brown and green dye is available in powder form and comes in dissolvable "Mix Ready" bags which can be placed directly in the mixing tank. Green is also available in liquid form that can be poured in the tank.

Powdered Dye

Liquid Dye

5.4 PSM-200 Setting Agent (Step 4)

When handling PSM-200 Setting Agent or Portland cement a dust mask is recommended to prevent inhalation, and coveralls and gloves to prevent skin contact. Safety glasses should be worn to keep dust from entering the eyes. Should eyes or skin come in physical contact any Posi-Shell AF ingredients thoroughly rinse with water.

With mixer paddles running at medium speed add PSM-200 Setting Agent material by cutting open bag and dumping contents into the mixing tank (discard bag). See chart on page 14 for quantities. Allow PSM-200 Setting Agent and Posi-Pak to mix at medium speed for about 5 minutes until a gravy-like consistency is achieved and no clumps are visible (see photo below at left).

5.5 Optional Portland Cement Addition (Step 5)

With mixer paddles still running at medium speed add Type I Portland cement material **(regular Portland cement, NOT concrete.)** by cutting open bag and dumping contents into the mixing tank (discard bag). See chart on page 11 for quantities. Posi-Shell AF material is now ready to be applied (see photo below at right).

After Adding PSM-200 Setting Agent

After Adding Portland Cement

6.0 Transporting

Close inlet hopper lid prior to transportation and leave mixer paddles turning at medium speed.

6.1 Cold Weather Transport

To prevent freezing during extremely cold weather (below 20°F), with discharge gun attached to recirculation fitting, run pump in low-speed forward to circulate slurry from mixing tank, through pumping and discharge system, and back to mixing tank.

6.2 Traversing Slopes

The proper procedure for traversing slopes is to approach the slope with machine parallel with fall line of slope. Machine should always be backed down the slope and towed up. Following this procedure eliminates any possibility of the machine "jack-knifing" around the towing unit.

7.0 Application of Posi-Shell AF

Conventional end-of-day waste surface preparation and grooming are normally adequate prior to Posi-Shell AF application. A smoother surface will require less slurry due to reduced surface area. Also, the functional performance of the coating is enhanced by a smoother receiving surface. Therefore, it may be desirable to spread available materials such as sludge, ash, or processed wastes at the end of the day to function as surface leveling agents to economize on Posi-Shell AF slurry consumption. Each gallon of slurry will coat approximately 4 to 10 square feet depending on surface roughness and application thickness.

Methods of application and the desired appearance of daily coatings are shown on the photographs which follow. In general, the operator should position the Applicator upwind, and should select the spray nozzle appropriate to the distance from the waste pile. A uniform coating of approximately one-quarter-inch thickness will normally accomplish the daily cover functional criteria. In some cases, it will be necessary to spray a given area from two directions to compensate for "spray shadow" effects or wind dispersion.

The most effective method of coverage will vary with each site, but generally, spraying the working face from the bottom of the waste slope, toward the top, is most effective. A minimal amount of "shadowing" occurs if applied in this manner.

Application of Posi-Shell AF cover is not typically affected by weather conditions. Normal operations can be performed during windy, rainy, or cold weather conditions. During cold weather periods, the hydroseeding unit tank and pump must be drained at the end of the day to avoid freezing. It is desirable, but not necessary, to bring the machinery into a building for overnight storage. The application process is typically not affected by severe cold weather.

When high winds are encountered, it may be necessary to position the hydroseeding unit in an upwind position. Since the hydroseeding unit pumps emit a high pressure stream of slurry, it is not generally affected by light winds; however, wind direction should always be considered with respect to airborne dispersion of overspray.

During light rains, Posi-Shell AF will not wash away and will retain its stucco consistency. However, during extremely heavy rains, some washing of the material may occur prior to its curing. During extremely cold weather, Posi-Shell AF will freeze before curing. After a thaw the material will cure. Cured Posi-Shell AF material typically can retain integrity up to one year or longer depending upon its initial application thickness.

Application of Posi-Shell AF via
Deck -Mounted Discharge Wand

Application of Posi-Shell AF via
Extension Hose

Daily and Intermediate Cover

Close-Up View of Cured Posi-Shell AF Coating

7.1 Odor Control

The Posi-Shell AF formulation has an inherent capability to suppress odors. By applying the material as a daily cover, typical landfill odors will be reduced by the thick layer of Posi-Shell that is applied. Additionally, if Portland Cement is used the calcium oxide (lime) applied to putrid waste further suppresses odors by sealing the outer face of the waste with an alkaline surface layer.

Posi-Shell AF allows an opportunity for the optional addition of approved odor-masking agents where excessive odors warrant such action.

7.2 Vector Control

Application of Posi-Shell AF to the working face of waste piles is an extremely effective vector deterrent. Shortly after the Posi-Shell AF coating is applied, temperatures within the waste pile will increase due to initial aerobic and subsequent anaerobic decomposition. The Posi-Shell AF layer forms a seal that inhibits flies from laying additional larvae.

Other vectors such as rodents and birds are discouraged by the Posi-Shell AF seal. Posi-Shell AF cover has proven effective in inhibiting the attraction of vectors to waste piles.

7.3 Scavenging

General animal scavenging is reduced since the Posi-Shell Cover System AF seals in odors and hides the visible food source beneath the covering shell. Scavenging by humans is inhibited by the complete visual coverage of the waste pile and by the viscid coating of slurry applied upon all available surface objects.

7.4 Litter Control

Posi-Shell AF cover is highly effective for litter control. Due to the sticky consistency of the material, a shell is formed over the garbage which prevents litter from being blown away by high winds. A thin layer of Posi-Shell AF cover is recommended for preventing litter generation.

In extremely windy situations, Posi-Shell AF coating can be applied to waste as it is being unloaded from garbage trucks. This technique has been proven highly effective.

7.5 Fire Control

Posi-Shell AF cover is an extremely effective fire control material. Independent laboratory testing of Posi-Shell AF by D-4982 method has certified that Posi-Shell AF is non-fuel contributing, non-smoke producing, and non-combustible. When an acetylene torch is applied directly to the Posi-Shell AF cover, ignition of the Posi-Shell AF cover or underlying waste does not occur.

In addition to the non-flammable characteristic of Posi-Shell AF cover, your hydroseeding unit can be used to fight landfill fires. Direct application of Posi-Shell AF material to an open flame will smother it. If a subterranean landfill fire occurs, Posi-Shell AF coating can be applied to the waste pile's surface and will form a fire smothering seal.

7.6 Additional Applications

Posi-Shell AF cover fulfills the relevant performance criteria for various additional applications including erosion control, ditch lining, coating of sludge piles, contaminated soil piles, compost piles and temporary waste piles and excavations of various types. If has been successfully applied to coal piles, salt piles, cement clinker piles and used at remediation sites to suppress volatile emissions. Posi-Shell AF may also be used as the tackifier in hydroseeding mixtures.

Ditch Lining

Finished Appearance of Posi-Shell AF Intermediate and Daily Cover at a Major Municipal Landfill

Erosion Control

Odor Control

Posi-Shell Cover System AF
Application Minimum Requirements

	SHORT TERM COVER OVERNIGHT COVER	MEDIUM TERM COVER INTERMEDIATE COVER, EROSION CONTROL, ODOR CONTROL, ETC.	LONG TERM COVER EROSION CONTROL, COMPOST COVER, STOCKPILE COVER, ETC.
SLURRY MIXTURE	See chart below.	See chart below. Additional Portland cement may be necessary.	See chart below. Additional Portland cement may be necessary.
APPLICATION RATE	Approx. 8-10 sq.ft./gal.	Approx. 6-8 sq.ft./gal.	Approx. 4-6 sq.ft./gal.
COVERAGE METHOD	Apply from two directions to eliminate spray shadow.	Apply from two directions to eliminate spray shadow.	Apply from two directions to eliminate spray shadow. For slope coverage extend cover 3-4 feet beyond crest of slope.
COVERAGE THICKNESS	Finished cover should be 1/8-3/16 inch.	Finished cover should be 3/16-1/4 inch.	Finished cover should be 1/4-5/16 inch.
COVERAGE APPEARANCE	No waste/soil visible from any angle.	No waste/soil visible from any angle. Cover should have a "stucco-like" texture.	No waste/soil visible from any angle. Cover should have a "stucco-like" texture.
COVERAGE MAINTENANCE	None. Waste is placed over cover next working day.	Cover should be inspected daily and touched up if waste/soil becomes visible.	Cover should be inspected daily and touched up if waste/soil becomes visible.

Posi-Shell Cover System AF Material Quantities

Materials	***Desired Load Size***			
	500 GAL	1000 GAL	1500 GAL	2000 GAL
Water or Leachate	400 gals	800 gals	1200 gals	1600 gals
Posi-Pak, Type P-100 (15 lb bags)	1 bag	2 bags	3 bags	4 bags
Optional Brown Dye (5 lb bags)	2 bags	4 bags	6 bags	8 bags
Optional Green Dye (1 qt bottles)	.5 bottle	1 bottle	1.5 bottle	2 bottles
PSM-200 Setting Agent (50 lb bags)	5 bags	10 bags	15 bags	20 bags
Optional Portland cement (94 lb bags)	10 bags	20 bags	30 bags	40 bags
Total Material Weight	5,355 lbs	10,710 lbs	16,065 lbs	21,420 lbs

7.7 Discharge Nozzle Selection

While other nozzles may be used, Landfill Service Corporation offers three types of discharge nozzles providing the capability of effectively spraying Posi-Shell AF at a variety of ranges. Experience and operator discretion will determine which nozzle to use in each situation.

Long Range
for Distances of 75ft -150ft

Medium Range
for Distances of 25ft -75ft

Short Range
for Distances of 5ft -25ft

7.8 Handling the Discharge Spray Boom

Care must be taken to use the proper discharge nozzle in order to attain the desired spray range, as being too close to the surface will cause the Posi-Shell AF stream to overturn waste on contact. At long range distances the Posi-Shell AF stream will break up, causing the desired spray effect. At ranges under 75 ft. the medium or short nozzle should be used and are designed to spray in a wide ribbon pattern.

Blockages may occur in nozzles due to foreign objects in the raw materials. Refer to Section 11.1 for procedure on removing foreign object from discharge nozzle.

With the desired nozzle securely in place, firmly grasp discharge spray handle in one hand and point discharge nozzle in desired direction of spray. With the other hand move pump control lever to full speed forward and begin covering area. For desired spray effect operator may adjust pump/throttle speed.

Never disconnect nozzles when pump is running. Never engage pump with discharge spray boom left unattended. Never put hands in front of discharge nozzles.

Do not spray at or near other persons. Spray exits nozzle at a high velocity and could cause injury.

Do not spray toward power lines, transformers or other high voltage conductors. Avoid spraying into wind. When unavoidable, be sure to keep direction of spray near to ground. Safety glasses should be worn during spraying operation.

7.9 Coverage of Large Area

Coverage of a large area will require moving the hydroseeding unit to several spray locations. Inspect the area from several perspectives to ensure that the spray has covered all areas.

7.10 Thicker Coats

Thicker coats may be applied by letting the first coat partially dry before recoating the area. Several thin applications provide a more durable shell than a single very thick application.

8.0 Cleaning

It is recommended that you clean the hydroseeding unit after each load. Due to the variety of hydroseeding units on the market a generic procedure for cleaning follows. Some steps may need to be altered to apply to your hydroseeding unit.

1. When all Posi-Shell AF is removed from mixing tank, immediately bring pump and mixer control levers to neutral position. Engine should remain at full throttle.
2. Open all inlet lids on hydroseeding unit.
3. Firmly grasp clean-off hose in one hand and turn on water.
4. With both hands on hose perform initial rinse down of all inlets and any residue visible in mixing tank. This process should take approximately one minute and use about 50-100 gallons of water depending on the size of the mixing tank.
5. Turn water off.
6. With a spray nozzle in place (to retain cam and groove gasket) run pump control lever full speed forward for 5 seconds. Return to neutral when complete. Repeat with all nozzles used during application.
7. Close all inlet lids and bring mixer control lever to full speed reverse and allow to run for at least one minute.
8. Return mixer control lever to neutral then to full speed forward for at least one minute.
9. With mixer control lever in full speed forward, climb down ladder and remove drain cap and allow initial rinse water to completely drain.
10. Replace pump drain cap.
11. Return to deck of unit and move mixer control lever to neutral and repeat steps 2-9. During this secondary rinse make sure all external surfaces are thoroughly rinsed.

A properly cleaned hydroseeding unit will remain free of any built-up product internally and externally, and all decals and labels remain clearly readable.

9.0 Winter Care

In extreme cold it is imperative that engines and hydraulic systems are thoroughly warmed before introducing a load. Refer to the operations manual for your hydroseeding unit for proper winter usage and care.

9.1 Posi-Shell AF Winterizing Procedure

1. After cleanout, drain the mixing tank thoroughly. DO NOT REPLACE DRAIN CAP.
2. If your hydroseeding unit is equipped with a reserve water tank and/or pump, drain thoroughly. DO NOT REPLACE DRAIN CAPS.
3. Pour approximately one half gallon of anti-freeze into pump or tank and slowly run through pump and lines to prevent freezing.

10.0 Materials Storage

All materials are inert, and can be stored on, or off, the boundaries of lined landfill cells.

10.1 Posi-Shell Material Storage

10.1.1 Posi-Paks

Posi-Paks should be kept dry, particularly when freezing is possible. The Gaylord boxes are water-resistant, but not waterproof. Boxes can be easily covered with a tarp or plastic to keep the Posi-Paks dry.

10.1.2 PSM-200 Setting Agent

PSM-200 Setting Agent should be kept dry. Stretch wrapped pallets can be easily covered with a tarp or plastic.

10.1.3 Optional Portland Cement & Dye

Portland Cement & dye should be kept dry. Stretch wrapped pallets can be easily covered with a tarp or plastic.

11.0 Troubleshooting (may not apply to all hydroseeding units)

11.1 Removing Foreign Object from Discharge Nozzle

1. Immediately move pump control lever to neutral position.
2. Move pump control lever to *slow speed reverse.*
3. Run pump in reverse for 5 seconds to relieve pressure in discharge line.
4. Return pump control lever to neutral position.
5. Remove nozzle and clear obstruction.
6. Reconnect nozzle and continue spraying.

11.2 Removing Foreign Object from Mixing Tank

1. Move throttle, mixer, pump, control levers to slow/neutral position.
2. Shut engine off.
3. Move hydroseeding unit to area appropriate for dumping load.
4. Remove pump cleanout plug and allow load to drain.
5. Visually inspect pump for foreign object. Remove if found, replace plug and return to operations.
6. If object is not found in pump, remove exit pipe cleanout cap.
7. Inspect this section of pump for object. Remove if found, replace cap and pump cleanout plug and return to operations.
8. If object is not found in this section, remove two pipe couplers and removable section of tank exit pipe.
9. Visually inspect flange section of pump and mixing tank (flashlight may be necessary). Remove object if found, replace removable pipe and cleanout cap, pump cleanout plug, and return to operations.
10. If object is in mixing tank use appropriate length grapple through tank exit pipe.

11.3 Clearing Clogged Mixing Tank

1. If Posi-Shell AF slurry has thickened in the mixing tank to the point that the mixer paddles will not turn, move mixer control lever to neutral. Trying to force mixer shaft back and forth at this point will only result in possible damage to the mixer shaft components. If the pump was not running, immediately connect the recirculation hose and move the pump control lever to slow speed forward (slightly above neutral). Slowly running the pump will prevent the Posi-Shell AF from setting up in the pump. If Posi-Shell AF is so thick that it is not flowing freely to pump, then the slurry must be liquefied at the mixing tank outlet to the pump in order to establish pump flow.
2. A reserve of 300-500 gallons of water should be available while mixing loads of Posi-Shell AF. In the event of a clogged mixing tank, water should immediately be introduced through the liquid inlets to the Posi-Shell AF mixture to thin the slurry and establish pump flow. By injecting water through a 2-3" diameter hose and directing the flow at the surface of the slurry it may be possible to loosen the product enough to free the mixing shaft. While trying to free the mixing shaft, gently move the mixer control lever from slow speed forward to slow speed reverse. Abrupt movements to full speed forward and full speed reverse could cause damage.
3. **Use a slurry pump and water pick hose to loosen stiffened mixture.** This can be attached on the spray tower in the same manner as a spray nozzle and used as a high-pressure, high-volume water pick which will cut the slurry away from the mixing shaft and liquefy it as it goes through the pump system. This spraying should be performed through the inlet hoppers. Excess slurry can be discharged out of the tank and new water introduced as required. Continue cutting away and liquefying with the water pick hose until mixer is free. Care should be taken as the water exits this hose at a high rate of speed. Also safety goggles and rain gear should be worn as splashing will occur. Immediately rinse any slurry off skin.
4. If the slurry will not flow through the pump, then water may be injected directly into pump drain and moved through the hydroseeding unit's pumping system and sprayed back into the mixing tank. To prevent cavitation of the pump, water must be injected at a rate equal or greater than the discharge rate. Once pump flow is established, then proceed with Step 3 above.
5. If the mixture is so hardened that the water pick will not cut it, move mixer and pump control levers to neutral and the throttle control lever to low, and shut off engine. Remove key from ignition and lock out control panel enclosure. Remove deck plates starting with right rear section. After removing all sections, thickened slurry will need to be removed from around mixing shaft using shovels and hoes. Rubber boots, goggles, gloves, and coveralls should be worn if entry into the tank is necessary. It may not be necessary to remove all of the slurry from the tank. First, simply free the mixing shaft and if the Posi-Shell AF is still soft, add water and after replacing deck plates, mix rapidly in tank to loosen and drain out the cleanout. Never allow mixed Posi-Shell AF to set in tank more than one hour.

11.4 Clearing Clogged Discharge Pipe/Hose

1. Immediately move pump control lever to neutral position. Move pump control lever to *slow speed reverse.*
2. Run pump in reverse for 10 seconds to relieve pressure in discharge line.
3. Return pump control lever to neutral position.
4. Disconnect discharge hose quick-connect from discharge elbow and allow discharge pipe and hose to drain.
5. To ensure that obstruction is not in pump and exit piping, move throttle and pump control levers to very slow speed forward for 5 seconds. If product is discharging at top of discharge elbow, obstruction is not in pump.
6. If pump and exit piping are clear, disconnect discharge hose from discharge pipe and visually inspect discharge hose for obstruction. Clear if found, reconnect hose and return to operations.
7. If discharge hose is clear, it will be necessary to snake out discharge piping.
8. When obstruction is found and cleared, reconnect discharge hose and return to operations.

11.5 Clearing Obstruction from Pump

1. Immediately move pump and throttle control levers to neutral position.
2. Shut engine off.
3. Move hydroseeding unit to area appropriate for dumping load.
4. Remove pump cleanout plug and allow load to drain.
5. Visually inspect pump for foreign object. Remove if found, replace plug and return to operations.
6. If object cannot be removed via pump cleanout, disassembly of stator will be required. See hydroseeding unit operations manual for procedure.

12.0 Contingency Soil Supply

In the event that you are unable to apply Posi-Shell AF, the landfill operator should have a three-day supply of soil for daily cover material available on-site.

MATERIAL SAFETY DATA SHEET

MATERIAL: **OSHA 29CFR 1910.1200**

POSI-PAK® TYPE P-100 **DATE OF PREPARATION:** **SEPTEMBER 2004**

SECTION I -- IDENTITY

Distributor's Name and Address:	Landfill Service Corporation 2183 Pennsylvania Avenue Apalachin, NY 13732
Emergency Telephone:	(607) 625-3050
Chemical Name and Synonyms:	
Generic Name:	Polyester Staple
Trade Name:	Posi-Pak® Type P-100

SECTION II -- HAZARDOUS INGREDIENTS

Ingredient:	Polyethylene terephthalate polymer and one or more surface finishes (organic lubricants).
CAS No.:	25038-59-9
Hazard:	No known physical or health hazards associated with this product.
Note:	Polyester Staple is a family of fiber products having similar hazard and physical property characteristics. The polymer immobilizes the constituents of the polymer system (delusterants, catalyst residues, etc.) which, therefore, present no likelihood of exposure under normal conditions of processing and handling. However, exposure to chemical substances may occur as a result of processing these fibers. Processing may release and aerosolize the residual moisture and surface finishes. Heating the fibers may volatilize the finishes or produce a chemical change. Landfill Service Corporation recommends a 3 mg/m³ 8-hour TWA exposure limit on finish mists.

SECTION III -- PHYSICAL DATA

Melting Point:	Approx. 500º F (260º C)

SECTION IV -- CHEMICAL DATA

Polyethylene terephthalate is chemically stable and resistant to attack by oils, solvents, weak acids, and weak alkalis.

SECTION V -- FIRE AND EXPLOSION HAZARD DATA

Polyester Staple will burn if exposed to flame. Decomposition products generated from molten polymer may be subject to autoignition. Combustion products will be comprised of carbon, hydrogen, and oxygen. The exact composition will depend on the conditions of combustion.

SECTION VI -- HEALTH HAZARD DATA

This product has not been fully evaluated for toxicological properties. Preliminary evaluation of chemical components used in the finish and toxicological testing of the polymer have given no indication that health problems would occur in normal handling and use.

Similar products have given no indication that health problems would occur in normal handling and use.

SECTION VII -- REACTIVITY DATA

N/A

SECTION VIII -- SPILL PROCEDURES

N/A

SECTION IX -- EXPOSURES OF CONCERN

Inhalation of finish mist above the recommended 3 mg/m³ 8-hour TWA would be an exposure of concern.

SECTION X -- HANDLING AND USE PRECAUTIONS

Personal hygiene measures, such as washing hands and face immediately after working with the fibers and before eating, smoking, or using lavatory facilities, are recommended.

SECTION XI -- INDUSTRIAL HYGIENE CONTROL MEASURES

Adequate ventilation is recommended to maintain finish mist levels below 3 mg/m³ 8-hour TWA and minimize exposure.

Fire fighters should protect themselves from decomposition and combustion products that may include carbon monoxide and other toxic gases.

SECTION XII -- SPECIAL PRECAUTIONS

N/A

SECTION XIII -- DISPOSAL AND SHIPPING INFORMATION

These products are not classified as hazardous wastes under the Resource Conservation and Recovery Act, and unless prohibited by state or local regulation, can be disposed of in a municipal landfill or incinerated. Any finish oils contained in plant wastewater should be biodegradable in conventional biological wastewater treatment systems.

These fibers are not classified by the Department of Transportation as a hazardous material.

N/A = Not Applicable. **N/D = Not Determined

All information presented herein is believed to be accurate; however, it is the user's responsibility to determine in advance of need that the information is current and suitable for their circumstances.
No warranty or guarantee, expressed or implied, is made by Landfill Service Corporation as to this information or as to the safety, toxicity, or effect of the use of this product.

MATERIAL SAFETY DATA SHEET

MATERIAL:		**OSHA 29CFR 1910.1200**
EARTHTONE DYE	**DATE OF PREPARATION:**	**SEPTEMBER 1997**

SECTION I -- IDENTITY

Distributor's Name and Address:	Landfill Service Corporation 2183 Pennsylvania Avenue Apalachin, NY 13732
Emergency Telephone:	(607) 625-3050
Chemical Name and Synonyms:	Brown ferrous oxide
Generic Name:	Earthtone Coloring Agent
Trade Name:	Earthtone Dye

SECTION II -- HAZARDOUS INGREDIENTS

N/A

SECTION III -- PHYSICAL DATA

Boiling Point (ºF):	N/A
Vapor Pressure (mm. Hg):	N/A
Vapor Density (Air=1):	N/A
Solubility in Water:	Slight (0.1 - 1.0%)

Specific Gravity (H2O=1):	4.4 - 4.8
Evaporation Rate:	N/A
Appearance and Odor:	Brown, odorless dry powder

SECTION IV -- CHEMICAL DATA

Chemical Family:	Metal oxide
Formula:	Fe2O3; Balance MnO2 and silicates
Product Class:	CAS# 1317-61-9, 51274-00-1, 1309-37-1
Bulk Density:	0.5 - 0.8 g/ml

SECTION V -- FIRE AND EXPLOSION HAZARD DATA

Nonexplosive; Nonflammable

SECTION VI -- HEALTH HAZARD DATA

Threshold Limit Value:	N/D
Effects of Overexposure:	None observed.
Emergency and First Aid Procedures:	Irrigate eyes with water, consult eye physician. Wash exposed skin areas with soap and water.

SECTION VII -- REACTIVITY DATA

Stability:	Product is stable.
Hazardous Polymerization:	Will not occur.
Incompatibility:	None known.
Hazardous Decomposition Products:	None known.

SECTION VIII -- SPILL PROCEDURES

Steps to be Taken if Material is Released or Spilled:	Handle as normal solid waste. Minimum fugitive dust release.

SECTION IX -- EXPOSURES OF CONCERN

N/A

SECTION X -- HANDLING AND USE PRECAUTIONS

Store dry at ambient temperature away from food and drink.

SECTION XI -- INDUSTRIAL HYGIENE CONTROL MEASURES

Ventilation Requirements:	Local exhaust may be used.
Respiratory Protection:	A NIOSH approved respirator is recommended during mixing procedure.
Eye Protection:	Use of safety glasses is recommended.
Skin Protection:	Wear leather, plastic, or cloth gloves.

SECTION XII -- SPECIAL PRECAUTIONS

N/A

SECTION XIII -- DISPOSAL AND SHIPPING INFORMATION

Shipping Name:	Earthtone Dye is not hazardous under US Dept. of Transportation (DOT) regulations.
Hazardous Substance:	N/A
Hazard Class:	N/A
Caution Labeling:	N/A

Identification Number:	N/A
Disposal Method:	Dispose at approved facility.

N/A = Not Applicable. **N/D = Not Determined

All information presented herein is believed to be accurate; however, it is the user's responsibility to determine in advance of need that the information is current and suitable for their circumstances.

No warranty or guarantee, expressed or implied, is made by Landfill Service Corporation as to this information or as to the safety, toxicity, or effect of the use of this product.

MATERIAL SAFETY DATA SHEET

MATERIAL:

GREEN DYE **DATE OF PREPARATION: JUNE 2002**

SECTION I -- IDENTITY

Distributor's Name and Address:	Landfill Service Corporation 2183 Pennsylvania Avenue Apalachin, NY 13732
Emergency Telephone:	(607) 625-3050
Chemical Name and Synonyms:	Organic Colorants
Generic Name:	Color Additive
Trade Name:	Blue Vail

SECTION II -- HAZARDOUS INGREDIENTS

N/A

SECTION III -- PHYSICAL DATA

Boiling Point (ºF):	212°F
Vapor Pressure (mm. Hg):	20
Vapor Density (Air=1):	ND
Solubility in Water:	Soluble

Specific Gravity (H2O=1):	1.2
Evaporation Rate:	<1
Appearance and Odor:	Dark blue colored solution with bland odor.

SECTION IV -- FIRE AND EXPLOSION HAZARD DATA

Nonexplosive; Nonflammable

SECTION V -- HEALTH HAZARD DATA

Permissable concentrations (air):	N/A
Effects of Overexposure:	ND
Emergency and First Aid Procedures:	Irrigate eyes with water, consult eye physician. Wash exposed skin areas with soap and water.

SECTION VI -- REACTIVITY DATA

Stability:	Under normal storage and handling conditions; this is a stable material when kept in a closed container.
Hazardous Polymerization:	Will not occur.
Incompatibility:	None known.
Hazardous Decomposition Products:	None known.

SECTION VII -- SPILL PROCEDURES

Steps to be Taken if Material is Released or Spilled:	If dry, shovel vacuum or sweep color up for disposal. Wet surfaces may become slippery or sticky. Mop, sweep, or absorb, and hold for disposal. Spills should be thoroughly flushed with soapy water until all apparent color is removed.

SECTION IX -- EXPOSURES OF CONCERN

N/A

SECTION X -- HANDLING AND USE PRECAUTIONS

Keep away from children. Store in tightly stored container.

SECTION XI -- INDUSTRIAL HYGIENE CONTROL MEASURES

Respiratory Protection:	No respiratory protection required, but dust masks are suggested.
Eye Protection:	Use of safety glasses is recommended.
Skin Protection:	Non required. To minimize clean-up, wear gloves when handling materil. Some dyes may temporarily stain skin.

N/A = Not Applicable. **N/D = Not Determined

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MATERIAL SAFETY DATA SHEET

MATERIAL: **OSHA 29CFR 1910.1200**

PSM 200 SETTING AGENT **DATE OF PREPARATION:** **JUNE 2005**

SECTION I -- IDENTITY

Distributor's Name and Address:	Landfill Service Corporation 2183 Pennsylvania Avenue Apalachin, NY 13732
Emergency Telephone:	(607) 625-3050
Chemical Name and Synonyms:	Sodium Montmorillonite Clay (SMC) (CAS No. 1318-93-0)
Generic Name:	SMC with proprietary additives (CAS No. 1318-93-0)
Trade Name:	Posi-Shell® PSM 200 Setting Agent

SECTION II -- HAZARDOUS INGREDIENTS

Ingredient:	Crystalline Silica (SiOz) as Quartz
CAS No.:	14808-60-7
Hazard:	Low concentrations of crystalline silica in the form of quartz may be present in airborne SMC dust. See Section VI for discussion of health hazard.
Note:	Although the typical quartz content of western SMC is in the range of 2 to 6% most of the quartz particles are larger than the 10µ respirable threshold size. The actual respirable quartz concentration in airborne SMC dust will depend upon SMC source, fineness of product, moisture content of product, local humidity and wind condition at point of use and other use specific factors.

SECTION III -- PHYSICAL DATA

Boiling Point (ºF):	N/A
Vapor Pressure (mm. Hg):	N/A
Vapor Density (Air=1):	N/A
Solubility in Water:	Insoluble, forms colloidal suspension
Density (at 20º C):	55 lbs/cu ft as product
Specific Gravity (H2O=1):	2.45-2.55
Melting Point:	Approx. 1450º C
Evaporation Rate (Butyl Acetate=1):	N/A
pH:	8-10 (5% aqueous suspension)

SECTION IV -- CHEMICAL DATA

N/A

SECTION V -- FIRE AND EXPLOSION HAZARD DATA

Flash Point:	N/A
Special Fire Fighting Procedures:	N/A
Unusual Fire and Explosion Hazards:	None. Product will not support combustion.
Extinguishing Media:	None for product. Any media can be used for the packaging. Product becomes slippery when wet.
Flammable Limits:	LEL: N/A UEL: N/A

SECTION VI -- HEALTH HAZARD DATA

Routes of Exposure and Effects:

Skin:	Possible drying resulting in dermatitis.
Eyes:	Mechanical irritant.
Inhalation:	*Acute (short term) exposure to dust levels exceeding the PEL may cause irritation of respiratory tract resulting in a dry cough.* *Chronic (long term) exposure to airborne SMC dust containing respirable size (=10µ) quartz particles, where respirable quartz particle levels are higher than TLVs, may lead to development of silicosis or other respiratory prolems. Persistent dry cough and labored breathing upon exertion may be symptomatic.*
Ingestion:	No adverse effects.

Permissible Exposure Limits:
(for air contaminants)

	OSHA PEL (8 HR. TWA)	ACGIH TLV
SMC as "Particulates not otherwise regulated" (formerly nuisance dust)		
Total dust	15mg/m³	N/D
Respirable dust	5mg/m³	N/D
Crystalline Quartz (respirable)	0.1mg/m³	0.1mg/m³

Carcinogenicity: SMC is not listed by ACGIH, IARC, NTP, or OSHA. IARC, 1997, concludes that there is sufficient evidence in humans for the carcinogenicity of inhaled crystalline silica from occupational sources (IARC Class 1), that carcinogenicity was not detected in all industrial circumstances studied and that carcinogenicity may depend on characteristics of the crystalline silica or on external factors affecting its biological activity. NTP classifies respirable crystalline silica as "known to be a human carcinogen" (NTP 9th Report on Carcinogens - 2000). ACGIH classifies crystalline silica quartz as a suspected human carcinogen (A2).

Acute Oral LD50:	N/D
Acute Dermal LD50:	N/D
Aquatic Toxicology LC50:	N/D

Emergency and First Aid Procedures:

Skin:	Wash with soap and water until clean.
Eyes:	Flush with water until irritation ceases.
Inhalation:	Move to area free from dust. If symptoms of irritation persist, contact physician. Inhalation may aggravate existing respiratory illness.

SECTION VII -- REACTIVITY DATA

Stability:	Stable
Hazardous Polymerization:	None
Incompatibility:	None
Hazardous Decomposition Products:	None

SECTION VIII -- SPILL PROCEDURES

Steps to be Taken if Material is Released or Spilled:	Avoid breathing dust; wear respirator approved for silica bearing dust. Vacuum up to avoid generating airborne dust. Avoid using water. Product slippery when wetted.

SECTION IX -- EXPOSURES OF CONCERN

N/A

SECTION X -- HANDLING AND USE PRECAUTIONS

Waste Disposal Methods:	Product should be disposed of in acordance with applicable local, state, and federal regulations.
Handling and Storage Precautions:	Use NIOSH/MSHA respirators approved for silica bearing dust when free silica containing airborne SMC dust levels exceed PEL/TLVs. Clean up spills promptly to avoid making dust. Storage area floors may become slippery if wetted.

SECTION XI -- INDUSTRIAL HYGIENE CONTROL MEASURES

Ventilation Requirements:	Mechanical, general room ventilation. Use local ventilation to maintain PELs/TLVs.
Respirator:	Use respirators approved by NIOSH/MSHA for silica bearing dust.
Eye Protection:	Generally not necessary. Personal preference.
Gloves:	Generally not necessary. Personal preference.
Other Protective Clothing or Equipment:	None.

ECTION XII -- SPECIAL PRECAUTIONS

Avoid prolonged inhalation of airborne dust.

SECTION XIII -- DISPOSAL AND SHIPPING INFORMATION

Shipping Name:	N/A (Not Regulated)
Hazardous Substance:	N/A
Hazard Class:	N/A
Caution Labeling:	N/A

N/A = Not Applicable. **N/D = Not Determined

All information presented herein is believed to be accurate; however, it is the user's responsibility to determine in advance of need that the information is current and suitable for their circumstances.
No warranty or guarantee, expressed or implied, is made by Landfill Service Corporation as to this information or as to the safety, toxicity, or effect of the use of this product.

MATERIAL SAFETY DATA SHEET

MATERIAL: **OSHA 29CFR 1910.1200**

PORTLAND CEMENT **DATE OF PREPARATION:** **MARCH 2006**

SECTION I -- IDENTITY

Distributor's Name and Address:	Landfill Service Corporation 2183 Pennsylvania Avenue Apalachin, NY 13732
Emergency Telephone:	(607) 625-3050
Chemical Name and Synonyms:	Portland Cement
Generic Name:	Also known as hydraulic cement
Trade Name:	Portland Cement Type I, IA, II III, V

SECTION II -- HAZARDOUS INGREDIENTS

Component (percentage)	CAS No.	OSHA PEL (8-hour TWA)	ACGIH TLV-TWA (2002)
Tri-calcium silicate (20-70)	12168-85-3	see Nuisance Dust PEL	see Nuisance Dust TLV
Di-calcium silicate (10-60)	10034-77-2	see Nuisance Dust PEL	see Nuisance Dust TLV
Tetra-calcium-alumino-ferrite (5-15)	12068-35-8	see Nuisance Dust PEL	see Nuisance Dust TLV
Calcium sulfate (2-10)	N/D	see Nuisance Dust PEL	see Nuisance Dust TLV
Tri-calcium Aluminate (1-15)	12042-78-3	see Nuisance Dust PEL	see Nuisance Dust TLV
Magnesium oxide (0-4)	1309-48-4	see Nuisance Dust PEL	see Nuisance Dust TLV
Nuisance Dusts	N/D	15 mg/m³ (total dust) 5 mg/m³ (respirable dust)	10 mg/m³ (total dust) 3 mg/m³ (respirable dust)
Crystalline Silica (Quartz)* (0-1)	14808-60-7	10mg/m³ /percent silica + 2 (respirable dust) 30 mg total dust/m³/percent silica + 2 (total dust)	0.10 mg/m³
Hexavalent Chromium (measured as chromic acid and chromates)	18540-29-9	(100 mg/m³)	N/D

***Trace Constituents:** Portland cement has a variable composition depending upon the cementitious products produced in the cement kiln. Small amounts of naturally occurring, but potentially harmful, chemical compounds might be detected during chemical analysis. These trace compounds might include free crystalline silica, potassium, and sodium compounds; heavy metals, including cadmium, chromium, nickel, and lead; and organic compounds. Other trace constituents may include calcium oxide (also known as free lime or quick lime).*

SECTION III -- PHYSICAL DATA

Boiling Point (ºF) (Aqueous Portion):	N/A
Vapor Pressure (mm. Hg):	N/A
Vapor Density (Air=1):	N/A
Solubility in Water:	Slight (0.1-1.0%)
pH (in water):	12-13
Specific Gravity (H2O=1):	2.9-3.15
Evaporation Rate:	N/A
Appearance and Odor:	Gray or white powder, no distinct odor

SECTION IV -- CHEMICAL DATA

N/A

SECTION V -- FIRE AND EXPLOSION HAZARD DATA

Portland cement is non-combustible and not explosive.
Special firefighting procedures are not applicable. (Although Portland cement poses no fire-related hazards, a self-contained breathing apparatus is recommended to limit exposure to combustion products when fighting any fire.)

SECTION VI -- HEALTH HAZARD DATA

Threshold Limit Value: N/A

Effects of Overexposure:

Acute: Wet cement on unprotected skin, whether direct or through saturated clothing, can cause severe, third-degree caustic burns.
NOTE: Portland cement burns skin with little warning; discomfort or pain cannot be relied upon to alert a person to a hazardous skin exposure. The severity of the burn may not be detected until several hours after the damage begins.
Dry Portland cement can produce mild irritation to severe burns of the eye; it can irritate the upper respiratory system.

Chronic: Dry Portland cement can cause inflammation of the lining of the nose and the cornea. Repeated exposure to Portland cement may result in drying of the skin and may lead to thickening, cracking, or fissuring, of the skin. Hypersensitive individuals may develop an allergic dermatitis (possibly due to trace amounts of hexavalent chromium at less than 0.005%). This reaction may appear in several forms including a mild rash to severe skin ulcers. Persons already sensitized may react to their first contact with the product. Other persons may experience this effect after years of exposure to Portland cement products.
While Portland cement typically has less than 0.2% crystalline silica, other additives to Portland cement and those components (e.g. aggregates) added to produce Portland cement concrete may significantly increase the amount of crystalline silica that is present. Exposure to respirable crystalline silica without the use of a respirator can cause silicosis and may aggravate other lung conditions.

Signs and Symptoms of Exposure: Burning sensation around moist tissue areas (i.e., eyes, nose, upper respiratory system); painful burning on exposed skin that can develop with little warning. *Exposure of sufficient duration to wet Portland cement can cause serious, potentially irreversible tissue (skin or eye) destruction in the form of chemical (caustic) burns, including third-degree burns. The same kind of destruction can occur if wet or moist areas of the body are exposed for sufficient duration to dry Portland cement.*
Do not allow wet Portland cement to get inside boots, shoes, or gloves, and do not allow wet, saturated clothing to remain against the skin.

Emergency and First Aid Procedures:	● Irrigate eyes immediately and repeatedly with large amount of clean water for at least 15 minutes and get prompt medical attention. ● Wash exposed skin areas with pH-neutral soap and clean water. ● Apply sterile dressings; seek medical treatment in all cases of prolonged exposure to wet Portland cement, Portland cement mixtures, liquids from fresh Portland cement products, or prolonged wet skin exposure to dry Portland cement. ● If ingested, consult a physician immediately. ● Do not induce vomiting. If conscious, have the victim drink plenty of water and call a physician immediately. ● In the event of inhalation, remove to fresh air. ● Seek medical attention if coughing and other symptoms do not subside. ● Inhalation of gross amounts of Portland cement requires immediate medical attention.

SECTION VII -- REACTIVITY DATA

Stability:	Product is stable. Keep dry until used.
Hazardous Polymerization:	Will not occur.
Incompatibility:	Aluminum powder and other alkali and alkaline earth elements will react in wet mortar or concrete, liberating hydrogen gas. Portland cement is highly alkaline and will react with acids to produce a violent, heat-generating reaction. Toxic gases or vapors may be given off, depending on the acid involved.
Hazardous Decomposition Products:	None known.

SECTION VIII -- SPILL PROCEDURES

Steps to be Taken if Material is Released or Spilled:	Use dry cleanup methods that do not disperse the dust into the air. Avoid breathing the dust. Emergency procedures are not required.

SECTION IX -- EXPOSURES OF CONCERN

Medical Conditions Generally Aggravated by Exposure:	Pre-existing skin conditions may be worsened. Silicosis may aggravate other chronic pulmonary conditions and may increase the risk of pulmonary tuberculosis infection.

Chemical Listed as Carcinogenic or Potential Carcinogen:	Portland cements are not considered carcinogenic. However, the International Agency for Research on Cancer (IARC) has determined, primarily through animal studies, that silica is a known human carcinogen. The National Toxicology Program (NTP) has characterized respirable quartz silica as reasonably anticipated to be a carcinogen. OSHA does not regulate silica as a carcinogen.

SECTION X -- HANDLING AND USE PRECAUTIONS

Portland cement should only be used by knowledgeable persons. While the information provided in the material safety data sheet is believed to provide a useful summary of the hazards of Portland cement, as it is commonly used, the sheet cannot anticipate and provide all of the information that might be needed in every situation. Inexperienced product users should obtain proper training before using this product.

A key to using the product safely requires the user to recognize that Portland cement chemically reacts with water, and that some of the intermediate products of this reaction (that is, those present while a Portland cement product is "setting") pose a more severe hazard than does Portland cement itself. These hazards include potential injuries to eyes and skin.

The data furnished in this sheet do not address hazards that may be posed by other materials mixed with Portland cement to produce Portland cement products. Users should review other relevant material safety data sheets before working with this Portland cement or with Portland cement products, including, for example, Portland cement concrete.

SECTION XI -- INDUSTRIAL HYGIENE CONTROL MEASURES

Ventilation Requirements:	Local exhaust can be used to control airborne dust levels.
Respiratory Protection:	Avoid actions that cause dust to become airborne. Use local or general ventilation to control exposures below applicable exposure limits. Use NIOSH/MSHA-approved (under 30 CFR 11) or NIOSH-approved (under 42 CFR 84) respirators in poorly ventilated areas, or if an applicable exposure limit is exceeded, or when dust causes discomfort or irritation. *(Advisory: Respirators and filters purchased after July 10, 1998, must be certified under 42 CFR 84.)*
Eye Protection:	When engaged in activities where Portland cement dust or wet Portland cement or concrete could contact the eye, wear goggles or safety glasses with side shields. In extremely dusty environments and unpredictable environments, wear unvented or indirectly vented goggles to avoid eye irritation or injury. Contact lenses should not be worn when working with Portland cement or wet Portland cement products.

Skin Protection:	Prevention is essential to avoiding potentially severe skin injury. Avoid contact with unhardened (wet) Portland cement products. If contact occurs, promptly wash affected area with soap and water. *Do Not Allow Wet Portland Cement to Get Inside Boots, Shoes, or Gloves; and Do Not Allow Wet, Saturated Clothing to Remain Against the Skin.* *Do not rely on barrier creams. Barrier creams should not be used in place of gloves. Use impervious, abrasion- and alkali-resistant gloves, boots, and protective clothing to protect the skin from prolonged contact with wet Portland cement in plastic concrete, mortar, or slurries.*

SECTION XII -- SPECIAL PRECAUTIONS

Work/Hygienic Practices:	● Periodically wash areas contacted by dry Portland cement, or by wet Portland cement, or concrete fluids with a pH neutral soap and clean, uncontaminated water. ● Wash again at the end of the work. ● If irritation occurs, immediately wash the affected area and seek treatment. ● If clothing becomes saturated with wet Portland cement or concrete, it should be removed and replaced with clean, dry clothing. ● Follow listed precautions as appropriate, during repair or maintenance work on contaminated equipment.

SECTION XIII -- DISPOSAL AND SHIPPING INFORMATION

Shipping Name:	Portland cement is not hazardous under US Dept. of Transportation (DOT) regulations.
Hazardous Substance:	N/A
Hazard Class:	N/A
Caution Labeling:	N/A
Identification Number:	N/A
Disposal Method:	Small amounts of material can be returned to the container for later use if it is not contaminated. Dispose of waste material in accordance with Federal, State, and Local requirements. Portland cement is not a hazardous waste as defined by the Resource Conservation and Recovery Act (40 CFR 261).

SECTION XIV -- OTHER REGULATORY INFORMATION

Status under USDOL--OSHA Hazard Communication Standard (29 CFR 1910.1200):

Portland cement is considered a "hazardous chemical" under this regulation and should be a part of any Hazard Communication Program.

Status under CERCLA / Superfund (40 CFR 117 and 302):

Not listed.

Status under SARA (Title III, Sections 311 and 312):

Portland cement qualifies as a "hazardous substance" with delayed health effects.

Status under SARA (Title III, Section 313):

This product may contain constituents listed under SARA (Title III, Section 313,) but not in amounts requiring supplier notification under 40 CFR Part 372 Subpart C.

Status under TSCA (as of May 1997):

Portland cement and some of the substances in Portland cement are on the TSCA inventory list.

Status under the Federal Hazardous Substances Act:

Portland cement is a "hazardous substance" subject to statutes promulgated under the subject act.

Status under California Proposition 65:

Portland cement contains chemicals (trace metals) including silica and hexavalent chromium, known to the State of California to cause cancer, birth defects or other reproductive harm. California law requires the manufacturer to give the above warning in the absence of definitive testing to prove that the defined risks do not exist.

Status under the Canadian Environmental Protection Act:

Not listed.

Workplace Hazardous Material Information System (Canada):

Portland cment is considered to be a hazardous material under the Hazardous Product Act as defined by the Controlled Products Regulations (Class E - Corrosive Material), and is therefore, subject to the labeling and MSDS requirements of the Workplace Hazardous Materials Information System (WHMIS).

N/A = Not Applicable. **N/D = Not Determined

All information presented herein is believed to be accurate; however, it is the user's responsibility to determine in advance of need that the information is current and suitable for their circumstances.

No warranty or guarantee, expressed or implied, is made by Landfill Service Corporation as to this information or as to the safety, toxicity, or effect of the use of this product.

MATERIAL SAFETY DATA SHEET

MATERIAL:		**OSHA 29CFR 1910.1200**
POSI-SHELL® SYNTHETIC COVER ADVANCED FORMULATION	**DATE OF PREPARATION:**	**APRIL 2006**

SECTION I -- IDENTITY

Distributor's Name and Address:	Landfill Service Corporation 2183 Pennsylvania Avenue Apalachin, NY 13732
Emergency Telephone:	(607) 625-3050
Chemical Name and Synonyms:	Aqueous alkaline slurry
Generic Name:	N/A
Trade Name:	Posi-Shell® Synthetic Cover Advanced Formulation

SECTION II -- HAZARDOUS INGREDIENTS

N/A

SECTION III -- PHYSICAL DATA

Boiling Point (ºF) (Aqueous Portion):	212
Vapor Pressure (mm. Hg):	N/A
Vapor Density (Air=1):	N/A

Solubility in Water:	N/A
Percent Volatile by Volume (%):	N/A
Specific Gravity (H2O=1):	1.21
Evaporation Rate:	N/A
Appearance and Odor:	Brown viscid liquid slurry with a smell similar to wet Portland cement and liquid clay.

SECTION IV -- CHEMICAL DATA

Chemical family:	N/A
Formula:	The major constituents are water, Portland cement, and PSM-200 Setting Agent, a blend of sodium montmorillinite clay with synthetic polymers and a processed starch. The slurry also contains P.E.T. fibers, water (or landfill leachate), and optional iron oxide coloring agent.
Hazardous mixtures of other liquids, solids, or gases:	N/A

SECTION V -- FIRE AND EXPLOSION HAZARD DATA

Non-explosive, Non-flammable

SECTION VI -- HEALTH HAZARD DATA

Threshold Limit Value: N/A

Effects of Overexposure:

Acute:	Can dry skin and cause alkali burns. May cause eye and skin irritation to those with sensitive skin.
Chronic:	Non-observed, if properly handled. If cured material is pulverized and dispersed, fugitive dust can cause inflammation of the lining tissue of the interior of the nose and inflammation of the cornea. Hypersensitive individuals may develop an allergic dermatitis.

Emergency and First Aid Procedures: Irrigate eyes with water. Wash exposed skin areas with soap and water.

SECTION VII -- REACTIVITY DATA

Stability:	Product is stable.
Hazardous Polymerization:	Will not occur.
Incompatibility:	None known.
Hazardous Decomposition Products:	None known.

SECTION VIII -- SPILL PROCEDURES

Steps to be Taken if Material is Released or Spilled:	Handle as normal non-hazardous solid waste.

SECTION IX -- EXPOSURES OF CONCERN

N/A

SECTION X -- HANDLING AND USE PRECAUTIONS

Waste Disposal Methods:	Material can be disposed of as common waste in approved landfill.

SECTION XI -- INDUSTRIAL HYGIENE CONTROL MEASURES

Ventilation Requirements:	Local exhaust may be used.
Respiratory Protection:	A dust mask is recommended during mixing procedures.
Eye Protection:	Use of tight-fitting goggles is recommended.
Skin Protection:	Avoid skin contact with wet slurry. Wear rubber or plastic gloves.
Other Protective Clothing or Equipment:	Use barrier creams; wear coveralls; shower with soap and water.

SECTION XII -- SPECIAL PRECAUTIONS

No special precautions need to be taken in handling and storing.

SECTION XIII -- DISPOSAL AND SHIPPING INFORMATION

Shipping Name:	N/A (Not Regulated)
Hazardous Substance:	N/A
Hazard Class:	N/A
Caution Labeling:	N/A

N/A = Not Applicable. **N/D = Not Determined

All information presented herein is believed to be accurate; however, it is the user's responsibility to determine in advance of need that the information is current and suitable for their circumstances.
No warranty or guarantee, expressed or implied, is made by Landfill Service Corporation as to this information or as to the safety, toxicity, or effect of the use of this product.

FLI FRIEND LABORATORY INC

32 ITHACA STREET
TELEPHONE (607) 565-3500

WAVERLY, NY 14892 - 1532
FAX (607) 565 - 4083

NY 10252 NJ 73168
PA 68180 EPA NY00033

Certificate of Analysis

Landfill Service Corp.
2183 Pennsylvania Ave
Apalachin, NY 13732
Attn: Nancy Crane

Order Number: 0607-01218
Date Reported: 7/26/2006
Date Received: 7/25/2006
Invoice Number: 32761
Customer Number: L083
Customer PO:
Certification Date: 7/26/2006

Subject:
Flamabilitiy

SMP	Analysis Performed	Result	Units	Detection Limit	Method	Analysis Information
001	**Posi-Shell Advanced Formulation**	**7/11/2006 13:00**	**Client**			
	Flamability Potential	negative			ASTM D 4982	7/25/06, 14:22, JHR

RECEIVED JUL 31 2006

Approved By: Richard Hammer, Managing Director

Key: E = estimated value
ND or U = analyte not detected
B = analyte was detected in the method or trip blank
< = less than the indicated value
ug/L = micrograms per liter (equivalent to parts per billion)
mg/L = milligrams per liter (equivalent to parts per million)
mg/Kg = milligrams per kilogram (equivalent to parts per million)

The information in this report is accurate to the best of our knowledge and ability. In no event shall our liability exceed the cost of these services. Your sample will be discarded after 14 days unless we are advised otherwise.

Adirondack Environmental Services, Inc.
Experience is the solution
314 North Pearl Street ♦ Albany, New York 12207
(800) 848-4983 ♦ (518) 434-4546 ♦ Fax (518) 434-0891

RECEIVED JUL 17 2006

July 13, 2006

Joel E. Lanz
Landfill Service Corporation
2183 Pennsylvania Avenue
Apalachin, NY 13732

Work Order No: 060630045

TEL: (607) 625-3050
FAX: (607) 625-2689

RE: Product testing

Dear Joel E. Lanz:

Adirondack Environmental Services, Inc received 3 samples on 6/30/2006 for the analyses presented in the following report.

There were no problems with the analyses and all associated QC met EPA or laboratory specifications, except if noted.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

ELAP#: 10709
AIHA#: 100307

Tara Daniels
Laboratory Manager

Qualifiers:		
	ND - Not Detected at the Reporting Limit	S - Spike Recovery outside accepted recovery limits
	J - Analyte detected below quanititation limits	R - RPD outside accepted recovery limits
	B - Analyte detected in the associated Method Blank	T - Tentitively Identified Compound-Estimated Conc.
	X - Value exceeds Maximum Contaminant Level	E - Value above quantitation range

Adirondack Environmental Services, Inc

Date: *13-Jul-06*

CLIENT: Landfill Service Corporation
Work Order: 060630045
Project: Product testing
PO#:

Client Sample ID: Posi-AF Petri#2
Collection Date:
Lab Sample ID: 060630045-002
Matrix: SOLID

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
TCLP ICP METALS SW6010B/1311 (Prep: SW1311 - 7/5/2006)						Analyst: **SM**
Aluminum-TCLP	< 1.0	1.0		mg/L	1	7/13/2006 1:18:00 PM
Antimony-TCLP	< 0.60	0.60		mg/L	1	7/13/2006 1:18:00 PM
Arsenic-TCLP	< 0.050	0.050		mg/L	1	7/13/2006 1:18:00 PM
Barium-TCLP	1.3	0.10		mg/L	1	7/13/2006 1:18:00 PM
Beryllium-TCLP	< 0.050	0.050		mg/L	1	7/13/2006 1:18:00 PM
Boron-TCLP	< 0.50	0.50		mg/L	1	7/13/2006 1:18:00 PM
Cadmium-TCLP	< 0.050	0.050		mg/L	1	7/13/2006 1:18:00 PM
Chromium-TCLP	0.16	0.050		mg/L	1	7/13/2006 1:18:00 PM
Cobalt-TCLP	< 0.50	0.50		mg/L	1	7/13/2006 1:18:00 PM
Copper-TCLP	< 0.050	0.050		mg/L	1	7/13/2006 1:18:00 PM
Iron-TCLP	< 0.50	0.50		mg/L	1	7/13/2006 1:18:00 PM
Lead-TCLP	< 0.050	0.050		mg/L	1	7/13/2006 1:18:00 PM
Magnesium-TCLP	< 0.50	0.50		mg/L	1	7/13/2006 1:18:00 PM
Manganese-TCLP	< 0.20	0.20		mg/L	1	7/13/2006 1:18:00 PM
Molybdenum-TCLP	< 0.10	0.10		mg/L	1	7/13/2006 1:18:00 PM
Nickel-TCLP	< 0.20	0.20		mg/L	1	7/13/2006 1:18:00 PM
Selenium-TCLP	< 0.050	0.050		mg/L	1	7/13/2006 1:18:00 PM
Silver-TCLP	< 0.10	0.10		mg/L	1	7/13/2006 1:18:00 PM
Thallium-TCLP	< 0.10	0.10		mg/L	1	7/13/2006 1:18:00 PM
Titanium-TCLP	< 0.10	0.10		mg/L	1	7/13/2006 1:18:00 PM
Vanadium-TCLP	< 0.20	0.20		mg/L	1	7/13/2006 1:18:00 PM
Zinc-TCLP	< 0.10	0.10		mg/L	1	7/13/2006 1:18:00 PM
Zirconium-TCLP	< 0.50	0.50		mg/L	1	7/13/2006 1:18:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
X - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
T - Tentitively Identified Compound-Estimated Conc.
E - Value above quantitation range