BP CHEMICALS, INC.
MIXED WASTE POND CLOSURE PROJECT

FIELD CHANGE REQUEST FORM

Field Change Number: 013 **Date:** 11/1/96

Subject: Revise Specification 13200, Geosynthetic Membranes

Description: Add Section 2.5 to require Peel Test of seams at time seaming operations are started.

Justification: Section was inadvertently removed during document revision. Revision is needed to make specification consistent with QA/QC Plan for project.

Attachments: ECN No. BUF-006, Spec. 13200, pages i, 11,12, and 13

Requested by: R. R. Blickwedehl Dames & Moore 11/1/96
Signature Company Date

BPCI Project Approvals

Dames & Moore Certifying Engineer	Robert R Blickwedehl per	(Yes) No	
	Signature	Approval	Date
BPCI Radiation Safety Officer	NOT APPLICABLE	Yes No	—
	Signature	Approval	Date
BPCI HSE Manager	NOT APPLICABLE	Yes No	—
	Signature	Approval	Date
BPCI Project Manager	[signature]	(Yes) No	11/1/96
	Signature	Approval	Date

Regulatory Agency Concurrence

Ohio EPA Concurrence		Yes No	
	Signature	Concur	Date
NRC Concurrence		Yes No	
	Signature	Concur	Date

Engineering Change Notice

DAMES & MOORE
A DAMES & MOORE GROUP COMPANY

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716 675 7137 Fax

Job No: **22007-011-120** ECN No: **BUF-006** Date: **October 11, 1996**

	Drawing Number	Rev. No.	Date	Detail
Affected Drawings:				

	Section	Date	Section	Date
Affected Specifications:	13200	3/15/96		

Description of changes (attach additional sheets, drawings and sketches as required):
Add section 3.5.2 to require peel test of seam each time seaming operations are started.

Reason for change (attach additional sheets if required).
Section was inadvertently removed during a document revision. Revision will make specification consistent with QA/QC plan for project.

Estimated cost of change: ____ **(Attach estimate details)**

Change initiated by: [signature] 10/11/96
Signature Date

Change approved by:
Signature, Client/Owner Date
[signature] 10/11/96
Signature, Engineer of Record Date

DRAFTING ROOM ACTION:

Incorporate change: X **Immediately** ☐ **Next Drawing Revision** ☐ **As Builts**

Documents Revised by: N/A
Signature, Drafter Date

Revisions approved by: Robert R. Buckwedel [signature] 10/11/96
Engineer of Record Signature Date

Attachments: Sh. 13200-i and 13200-10 through 13200-13 of Specifications dated 10/11/96 with revisions marked

GEOSYNTHETIC MEMBRANES

SECTION 13200

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3.5.2 Start-Up Testing

a. A test strip per welding machine will be made at the start of each welding period. A welding period is defined as, at a minimum, a four hour period of welding operations. This typically corresponds to the morning and afternoon. The test strip will be 4 feet in length by 2 feet in width with the seam centered lengthwise. The test strip will be cut in half with regards to length. One half will be given to the client and the other half will be tested in peel. The sample will have three 6-inch by 1-inch coupons cut from it. Test description is as follows:

1. Peel Test

The overlapped portion of the coupon will be pulled 180 degrees from the top portion of the coupon. The coupon will be pulled using a tensiometer. A pass is defined as film tearing bond (i.e. sheet material tears with no damage to the weld). A failure is defined as the seam peeling.

3.6 Defects and Repairs

3.6.1 Identification

a. All seams and non-seam areas of the geomembrane shall be examined by the Contractor for identification of defects, holes, blisters, undispersed raw materials and any sign of contamination by foreign matter.

3.6.2 Evaluation

a. Each suspect location, both in seam and non-seam areas, shall be non-destructively tested using the methods described in Section 3.4 as appropriate. Each location which fails the non-destructive testing shall be marked by the Contractor and repaired. Work shall not proceed with any materials which will cover locations which have been repaired until laboratory test results with passing values are available.

3.6.3 Repair Procedures

a. Any portion of the geomembrane exhibiting a flaw or failing an destructive or nondestructive test shall be repaired. Several procedures exist for the repair of these areas. The final decision as to the appropriate repair procedure shall be agreed upon between the Owner or his designated representative and the Contractor. The procedures available include:

1. Patching--used to repair large holes, tears, and contamination by foreign matter;

2. Buffing and re-welding--used to repair small sections of extruded seams;

3. Spot welding or seaming--used to repair small tears, pinholes, or other minor localized flaws;

4. Capping--used to repair large lengths of failed seams;

5. Topping--used to repair areas of inadequate seams which have an exposed edge;

6. In addition, the following provisions shall be satisfied:

   - Surfaces of the geomembrane which are to be repaired shall be buffed no more than one hour prior to the repair;

   - All surfaces must be clean and dry at the time of the repair;

   - All seaming equipment used in repairing procedures must be approved;

   - The repair procedures, materials, and techniques shall be approved in advance of the specific repair by the Owner or his designated representative and the Contractor.

   - Patches or caps shall extend at least 6 in. beyond the edge of the defect, and all corners of patches shall be rounded with a radius of at least 3 inches.

3.6.4 Verification of Repairs

a. Each major repair requiring a patch or cap shall be identified on the as-built drawing. Each repair shall be non-destructively tested using the methods described in 3.4 of this Section as appropriate. Repairs which pass the non-destructive test shall be taken as an indication of an adequate repair. Failed tests indicate that the repair shall be re-done and re-tested until a passing test results.

3.7 Factory Seams

Factory seams shall meet the same requirements as those specified for field seaming.

3.8 Backfilling of Anchor Trench

3.8.1 The anchor trench, if any, shall be adequately drained to prevent ponding or otherwise softening of the adjacent soils while the trench is open. The anchor trench shall be backfilled as outlined in those specifications and drawings.

3.8.2 Since backfilling the anchor trench can affect material bridging at toe of slope, consideration should be given to backfill the liner at its most contracted state; preferably during the cool of the morning or extended period of over-cast skies. Care shall be taken when backfilling the trenches to prevent any damage to the geosynthetics.

3.8.3 Anchor Trench: The anchor trench will be excavated to the lines and grades shown in the design drawings. Excavation will not exceed the amount to be lined in two (2) days. The anchor trench will be compacted as per the technical specification.

4.0 LINING SYSTEM ACCEPTANCE

4.1 General

4.1.1 The geosynthetic lining system shall be accepted when:

a. The installation or portion for backfilling is finished;

b. Verification of the adequacy of all seams and repairs including associated testing is complete;

c. All documentation for installation is completed.

d. Requirements of the project Quality Assurance/Quality Control Plan provided in Appendix B are met.

5.0 SOIL/EARTH COVER ON TOP OF GEOMEMBRANE

5.1 General

5.1.1 Placement of soils, sand or other types of earth cover on top of the liner shall not be performed until all destructive and non-destructive testing has been performed and accepted by the Owner.

5.1.2 Placement should be performed to minimize wrinkles. Equipment operators should be briefed on method of placement and affects of thermal expansion and contraction of the liner.

5.1.3 Material placed on top of the liner should be stock piled and displaced off the stockpile to create a cascading effect of the cover material on top of the liner.

5.1.4 If a wrinkle forms, every effort should be made to walk the wrinkle out.

5.1.5 Minor folding over the wrinkles is acceptable providing an even transition occurs at the tail of the wrinkle. If excessive stress points are created at the tail of the wrinkle, the wrinkle should be cut out and repaired per Paragraph 3.6 of this Section.

--END OF SECTION--