

BP CHEMICALS, INC.
MIXED WASTE POND CLOSURE PROJECT

FIELD CHANGE REQUEST FORM

Field Change Number: 024 Date: 12/17/96

Subject: Cell #1 Winterization

Description: Protect bottom of cell by filling with water; provide engineered controls compatible with water fill for protection of top rim of cell.

Justification: The V-1 Cell will not be used over the winter so protective measures have to be taken to prevent the underlying clay from damage caused by freezing and thawing.

Attachments: D & M letter dated 12/17/96 with two attached sketches

Requested by: Will M. Bz BPCI 12/17/96
Signature Company Date

BPCI Project Approvals

Dames & Moore Robert R. Blickwedehl not Yes No 12/17/96
Certifying Engineer Signature Approval Date

BPCI Radiation NOT APPLICABLE Yes No —
Safety Officer Signature Approval Date

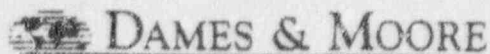
BPCI HSE NOT APPLICABLE Yes No —
Manager Signature Approval Date

BPCI Project Will M. Bz Yes No 12/17/96
Manager Signature Approval Date

Regulatory Agency Concurrence

Ohio EPA — Yes No
Concurrence Signature Concur Date

NRC — Yes No
Concurrence Signature Concur Date



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(716) 675-7130 FAX: (716) 675-7136 (716) 675-7137

December 17, 1996

BP Chemicals, Inc.
Ft. Amanda Road
Lima, OH 45803-0628

Attn: Mr. William M. Rupert, P.E.
Technical Specialist, Environmental

Re: Winterization Plan
Mixed Waste Pond Closure Project
BP Chemicals, Inc.
Lima, Ohio

Dear Bill:

Enclosed is a sketch (2 sheets) with our recommendations for winterization of the V-1 cell. This sketch is based on discussions between representatives of BP Chemicals, Severson and Dames & Moore and is based on filling the ponds with water to a nominal elevation of 855.0, which will provide one foot of freeboard at the lowest perimeter point of the cell.

To provide protection against freezing and ice thrust, a layer of foam insulation, two inches thick is placed around the cell perimeter. The length of the foam insulation below the perimeter of the cell varies between four and thirteen feet as a function of the top of slope elevation. The additional length can be provided by installing the panels with the 8 ft dimension vertically and attaching additional pieces with tape. If this is done, it is important to cut the foam insulation panels so that the bottom of the panel is at elevation 854.2. This will keep the buoyant force, which must be resisted by the sandbags to a minimum.

The sandbag ballasting should be attached to the HDPE with batten strips held together with carriage bolts. This will utilize friction rather than tearout to transfer the ballast load to the geomembrane and result in a much greater carrying capacity. It is important to tighten the bolts so that the round end of the carriage bolt is pulled into the wood. After the bolts are tightened, the lower surface of the batten strip should be carefully inspected and any splinters which might snag the woven geotextile should be removed by rough sanding. The sandbags should be attached to the batten strips with ropes tied to chain links which are attached to the carriage bolts with double hex nuts and washers. For the one foot attachment spacing shown, the sand bags should weigh at least 100 lbs. to resist flotation of the foam insulation with the sandbags submerged.

The HDPE is, based on GSE's published values, 22.5 ft wide. This should permit the installation with the roll direction horizontal over most of the cell. On the east side and a portion of the south and north sides, it will be necessary to have the roll direction vertical. For joints between panels, a six inch overlap will be sufficient. There should be a tail of at least 10 inches extending beyond the batten strip. The tail can be much longer, however, and the sandbags can be placed on the tail.



BP Chemicals, Inc.

12/17/96

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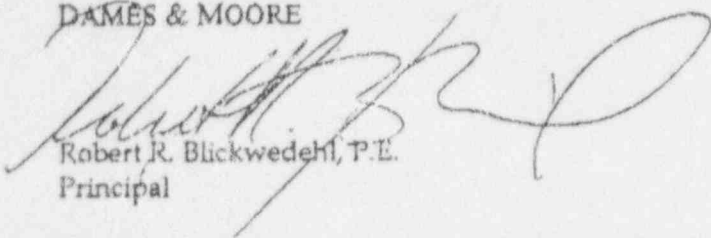
The drainage channel at the top of the fill is to prevent run-on from entering the pond. Lateral drains to the back side of the pile should be placed at intervals of 200 ft or less. These should flow to existing swales, storm drains, etc.

To minimize the amount of submerged foam insulation, we have only provided one foot of freeboard. This should be able to accommodate a reasonable 24 hour rainfall and snowmelt combined event together with wind induced waves. To prevent the water level from overtopping the HDPE, it is important that the pond level be monitored and any water above the 855 level be pumped out prior to leaving the site unattended or prior to a predicted major precipitation event. To lift or break up ice, the water level can be raised to elevation 855.8 without causing flotation of the foam insulation. However, the water level should be lowered again to 855 prior to leaving the site unattended.

Please contact me if you have any questions regarding this submittal.

Sincerely,

DAMES & MOORE



Robert R. Blickwedehl, P.E.
Principal

cc: Mr. Z. Zaharewicz
Mr. F. Erdmann

-- Dames & Moore (w/prints)
-- Dames & Moore (w/prints)

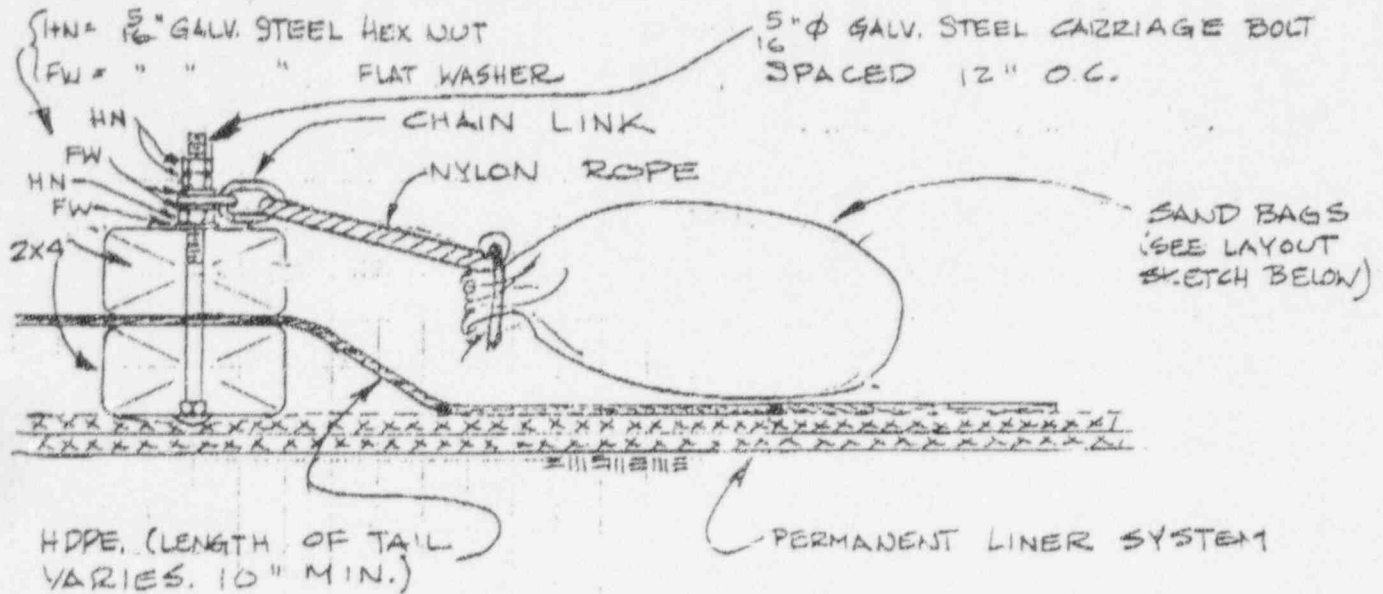
enclosures

Sheet No. 2 OF 2

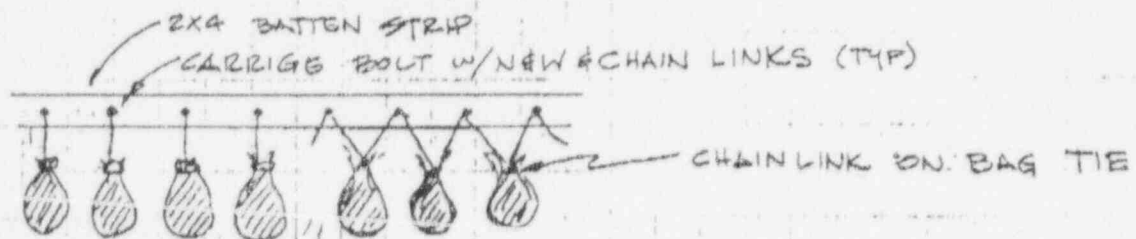
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Rev. No. 0.01Job No. 22007-013-121/5054 Job MIXED WASTE POND CLOSUREBy RZB Date 12/17/96Client BP CHEMICALSSubject WINTERIZATION PLAN

Chk'd. _____ Date _____



BATTEN STRIP ATTACHMENT DETAIL



ALTERNATE 1 ALTERNATE 2 SAND BAG LAYOUT

NOTES

1. ALL FOAM INSULATION PANELS SHALL CONFORM TO ASTM C578, TYPE AS SHOWN. COMP. STRENGTH OF TYPE IV TO BE 25 PSI (MIN.) AND TYPE VI 40 PSI MIN.
2. FURNISH STYROFOAM IN 4' X 8' SHEETS. ORIENT AND JOIN SHEETS SO BOTTOM OF SHEETS IS AT ELEV. 854.2. THIS WILL REQUIRE A TOTAL LENGTH BETWEEN 4 FT AND 13 FT.
3. PUMP POND AS REQ'D. TO MAINTAIN NOMINAL ELEV. OF 855.0 PRIOR TO POTENTIAL PRECIPITATION EVENTS.



Sheet No. 1 of 2

Calc No.

Rev. No. 0.01

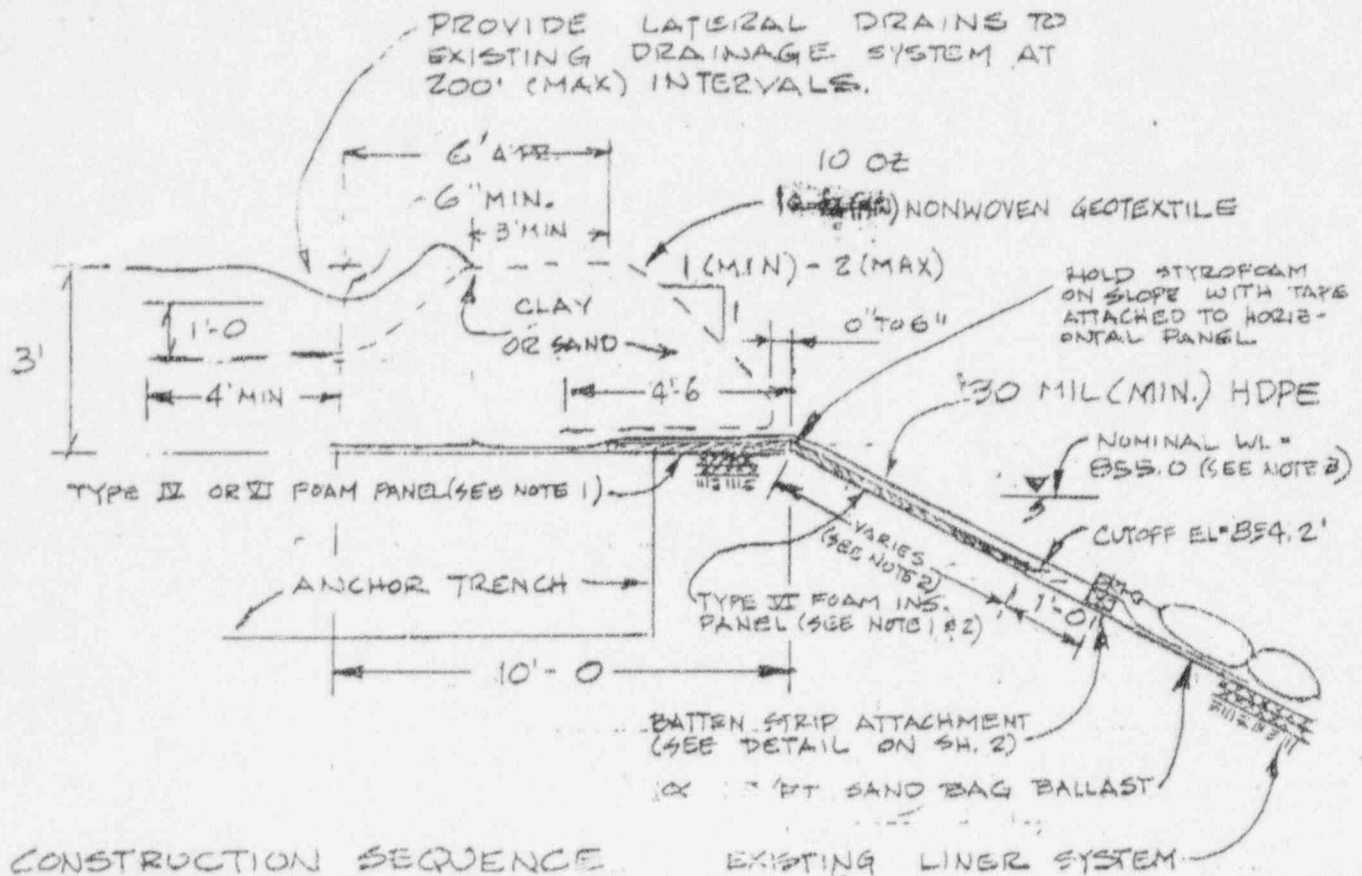
Job No. 22007-013-121/5054 JOB MIXED WASTE POND CLOSURE PR.

By 122B Date 12/17/96

Client BP CHEMICALS

Subject WINTERIZATION PLAN

Chk'd. Date

CONSTRUCTION SEQUENCE

EXISTING LINER SYSTEM

1. PLACE FOAM INSULATION PANELS. HOLD IN PLACE W/ SANBAGS & TAPE.
2. PLACE 30 MIL. HDPE AND COVER WITH SAND OR CLAY EXCEPT FOR AREA 5' BACK FROM TOP OF SLOPE
3. PLACE NONWOVEN GEOTEXTILE AND SAND AS SHOWN ON SKETCH. ROUTE DITCH TO EXISTING STORM DRAINAGE IN FIELD.
4. ATTACH BATTEN STRIP TO GEOMEMBRANE.
5. ATTACH SANBAGS TO BATTEN STRIPS, TENSION ROPES.
6. FILL POND WITH WATER TO SPECIFIED DEPTH (SEE NOTE 3)