Westinghouse
Savannah River Company
Aiken, SC 29808

April 30, 2003

CBU-ENG-2003-00103

Ms. Jenny Mowbray, Environmental Engineer
Solid Waste Facility Engineering Section
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201-1708

Dear Ms. Mowbray:

Saltstone Vault Sheet Drain Installation (U)

Ref: Industrial Solid Waste Landfill (ISWLF) Permit #025500-1603

As discussed with you at a meeting on March 25, 2003, the Westinghouse Savannah River Company (WSRC) plans to install a geo-textile wall sheet drain system (synthetic barrier) in the Saltstone Facility vaults. The purpose of the sheet drain is to collect free water that accumulates in the narrow gap between the vault wall and the saltstone waste form. This small amount of water results in a significant hydrostatic head on the vault walls. The sheet drain also acts as a barrier to keep water away from the wall. The collected water will be drained from the vaults thereby preventing cracking of the vault walls due to hydrostatic pressure. The installation does not affect the vault structure in any way. The enhancement meets the intent of the synthetic barrier approved for installation in the existing permit, therefore, a permit modification is not required.

This package is being submitted to maintain clear communications with you regarding Saltstone Facility activities and to address questions from our meeting on March 25, 2003.

Bleed water from the waste form and the process flush water accumulates in the narrow gap between the wall and the waste form. This water exerts a hydrostatic head on the vault wall and contributes to cracking of the vaults. The current practice is to drain the excess liquid using a drain line and valve installed per the repair plan for Saltstone Vault #4 that was previously approved by the Department (Haney to Schnabel, 4/12/98). The drained liquid is returned to the process for treatment and disposal. This same approach was used to repair Saltstone Vault #1.

The vault sheet drain installation is shown on Attachments #1 through #4. Attachment #5 is a specification table, which identifies the materials to be used. A vertical sheet drain will be installed on the vault walls, which will connect to PVC piping on the vault floor. The piping will

be connected to a drain and valve assembly. The design creates a controlled flow path in each cell for excess water to be removed.

The drain and valve assemblies that were previously installed in accordance with the vault repair plan will remain in place (Haney to Schnabel, 4/12/98). Due to the fact that the currently installed drain and valve is higher up on the vault wall than is required, a new valve and drain assembly will be installed to accommodate the sheet drain system. The currently installed drain and valve assemblies will remain in place until facility closure. A hole will be bored into the vault wall and a drain and valve assembly will be installed. The drain and valve assembly will be located to avoid the reinforcing steel in the vault wall and as such will not reduce the structural capacity of the wall. Therefore, there are no seismic concerns with the installation of the drain and valve. The valve and drain assemblies will be used during the operational life of the facility. Upon facility closure all of the installed drain and valve assemblies will be removed and the holes plugged.

Water will be drained from the vaults using the drain and valve assembly into portable storage containers. Appropriate Best Management Practices (BMP) will be used during draining operations to minimize spill potential to the environment. Adequate secondary containment will be located directly under the drain and valve assembly to minimize spills to the environment. Based on historical data from previous draining operations the water being drained is not characteristically hazardous. Since the water is not hazardous it will be stored using appropriate BMPs and will be reintroduced into the Saltstone wastewater treatment process as quantities become sufficient.

WSRC considers this an enhancement to the synthetic barrier that was approved for installation in the original vault design and subsequent vault repair plans (Haney to Schnabel, 12/6/95, 4/12/98) and as such a permit modification is not required. A Professional Engineer has reviewed this submittal and has stamped below. WSRC plans on implementing the above changes beginning May 27, 2003.

Sincerely,

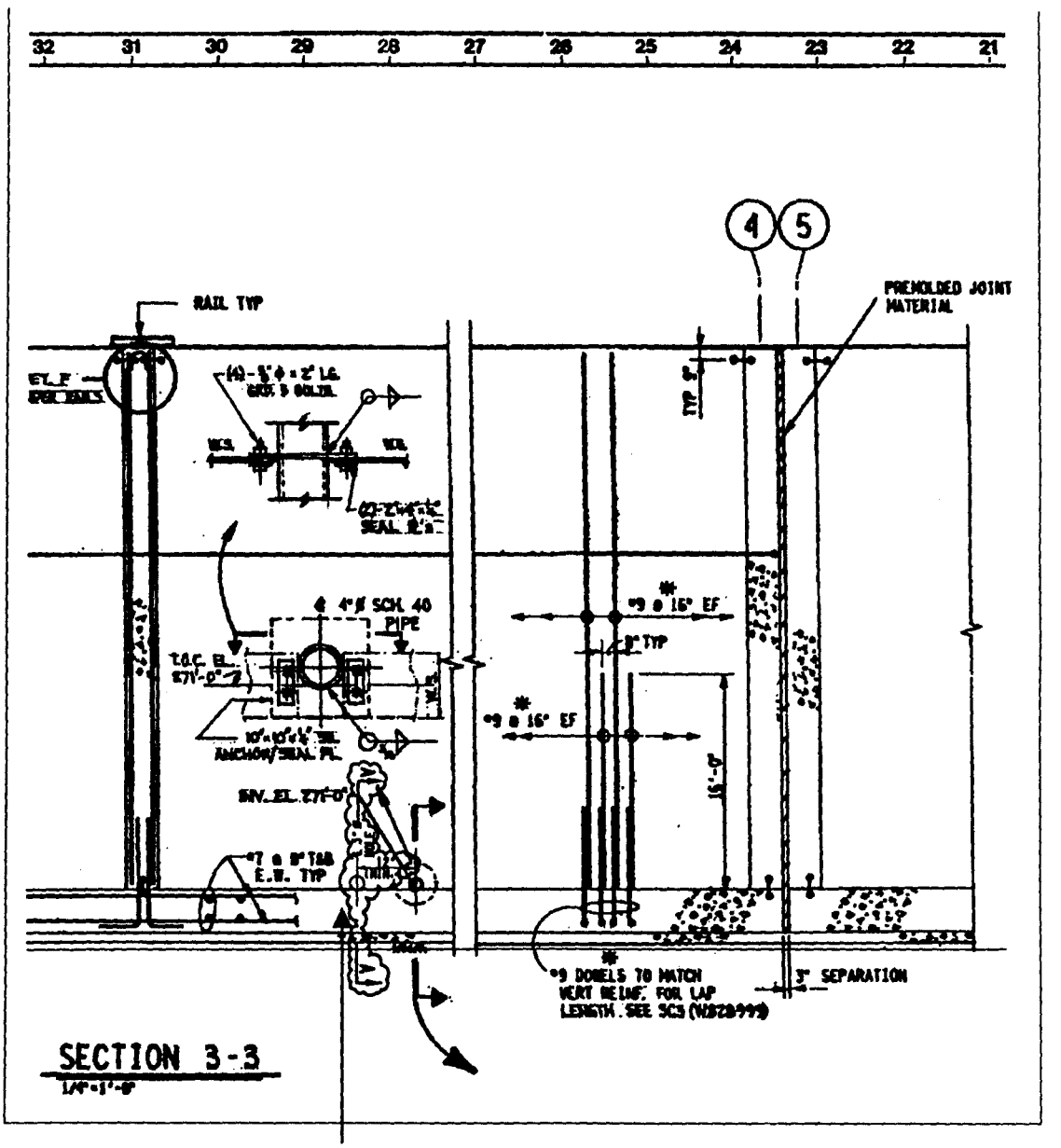
Keith Liner
Environmental Engineer
Closure Business Unit
Regulatory Management

KRL/krl

SOUTH CAROLINA
REGISTERED PROFESSIONAL ENGINEER
No. 20412
WILLIAM N. KENNEDY

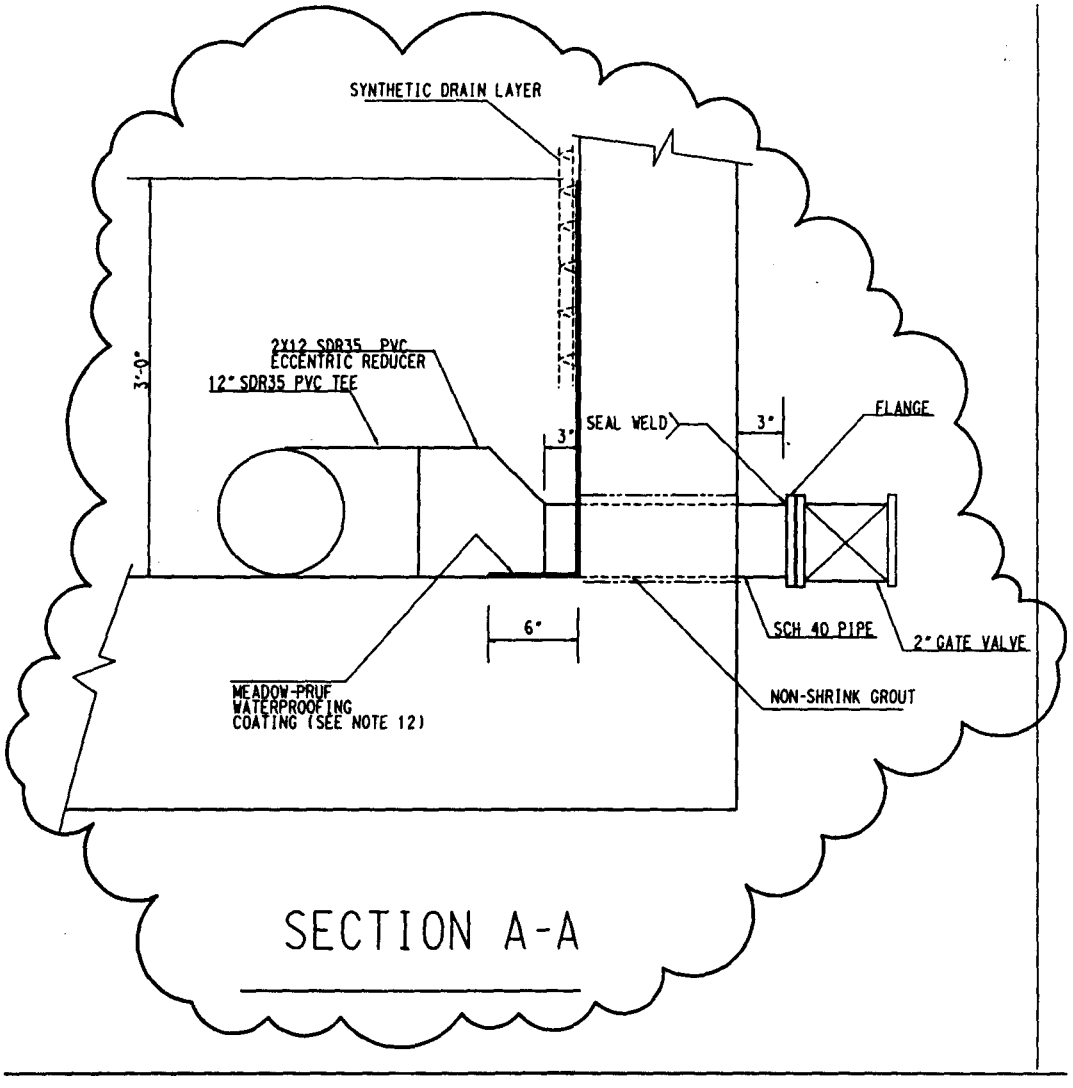
William N. Kennedy
5/6/03

Attachment #1
Vault Drainage Overview

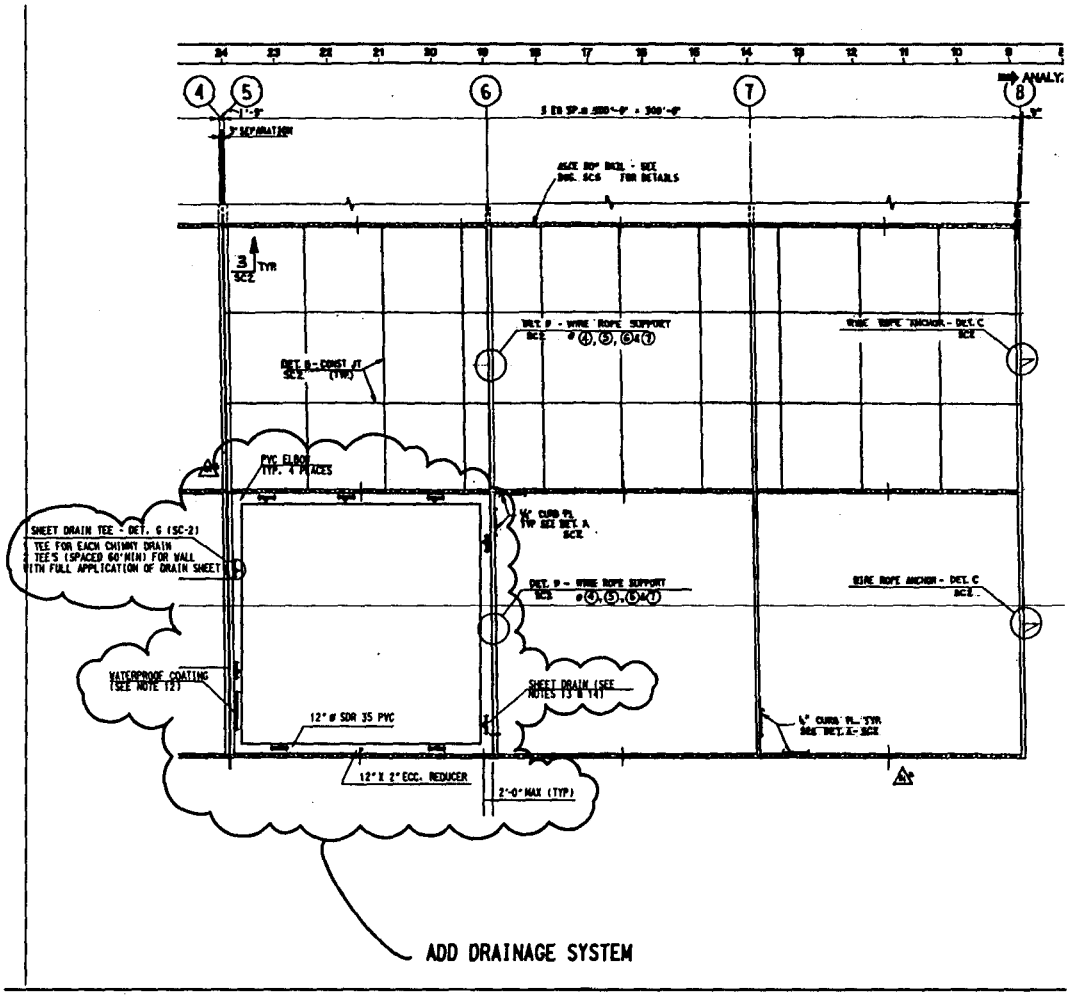


Drain and valve assembly

Attachment #2
Drain and Valve Assembly Side View



Attachment #3
Vault Drainage Overview



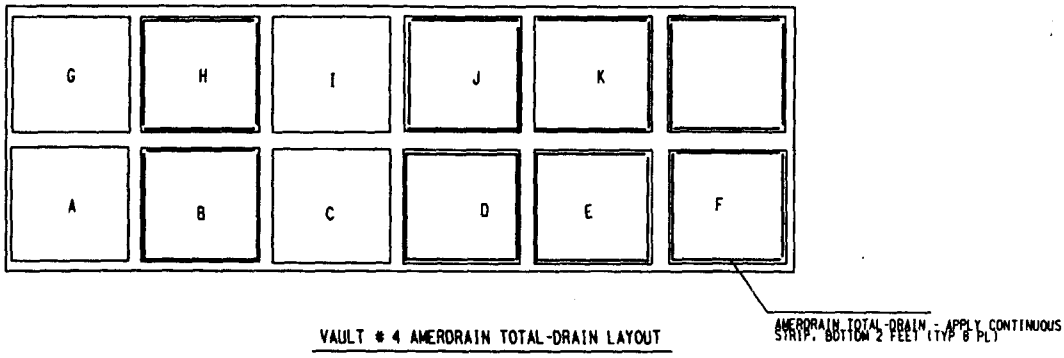
Notes:

12. INSTALL MEADOW-PRUF SEAMLESS COATING WITH TOTAL THICKNESS OF 60 MILS (WET) TO INTERIOR SURFACE OF EXTERIOR CELL WALL (3'-0" UP FROM BASE - CELLS B, D, E, F, H, J, K, &L) AND TO THE WALL JOINT BETWEEN THE SIX PACKS. APPLY MEADOW-PRUF SEAMLESS PRIMER OR EQUAL AS NEEDED. INSTALL PER MANUFACTURERS INSTRUCTIONS.

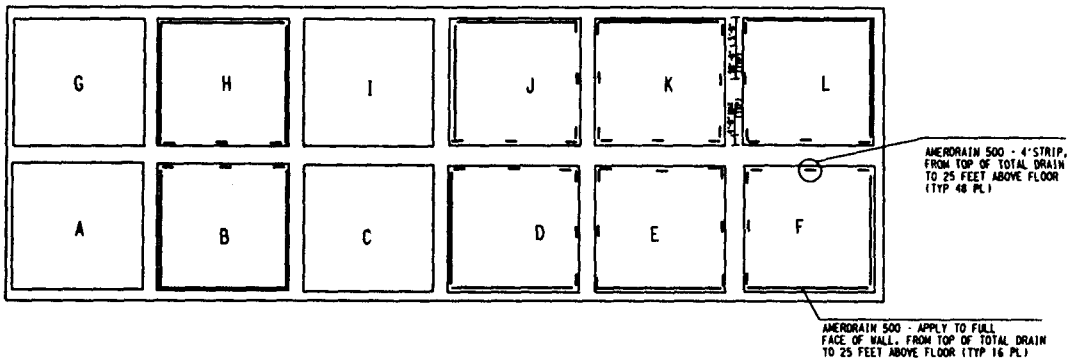
13. INSTALL AMERDRAIN TOTAL-DRAIN/AMERDRAIN 500 PREFABRICATED SOIL DRAIN (OR ENGINEERING APPROVED EQUAL) SHEETS ON THE BOTTOM SIX FEET OF THE WALL (CELLS B, D, E, F, H, J, K, & L). INSTALL PER MANUFACTURERS INSTRUCTIONS.

14. INSTALL AMERDRAIN 500 SHEET (OR ENGINEERING APPROVED EQUAL) DRAIN TO INTERIOR SURFACE OF EXTERIOR CELL WALLS (FROM TOP OF PERIMETER DRAIN SHEET TO 25' ABOVE BOTTOM OF CELL (APPROXIMATELY 19' -CELLS B, D, E, F, H, J, K, & L). INSTALL PER MANUFACTURERS INSTRUCTIONS.

Attachment #4
Vault Drainage Overview



VAULT # 4 AMERDRAIN TOTAL-DRAIN LAYOUT



VAULT # 4 AMERDRAIN 500 LAYOUT

Attachment #5
Material Specification List

Item	Description	Manufacturer	Model	Product Data	Qty.	Proc. Resp.
	CSA					
1	Waterproofing Membrane	WR Meadows Inc	Meadow-PRUF Seamless	NA	4,200 sq. ft	CN
2	Drain sheet	American Wick Drain	Amerdrain Total-Drain	2 ft x 50 ft rolls	3,200 lin. ft	CN
3	Drain Sheet	American Wick Drain	Amerdrain 500	4 ft x 104 ft rolls	50,000 sq. ft	CN
4	Drain Sheet Tees	American Wick Drain	NA	NA	80 ea.	CN
	Piping					
4	12" ϕ PVC Pipe	NA	SDR-35	ASTM D3034	3200 ft.	CN
5	12X2 PVC Reducer	NA	SDR-35	ASTM D3034	8 ea.	CN
6	12" PVC Elbows	NA	SDR-35	ASTM D3034	32 ea.	CN
7	12" PVC Tees	NA	SDR-35	ASTM D3034	8 ea.	CN
8	2" Stainless Steel SCH. 40 Pipe	NA	Grade B,	ASTM A312 TP316L	16 ft.	CN
9	Flange for 2" Austenitic Steel Pipe	NA	WLD, TP304	ASTM A182	8 ea.	CN
10	2" Stainless Steel Flanged Gate Valve	CRANE	Part 117	ASTM A304	8 ea.	CN
11	12X4 PVC Reducer	NA	SDR-35	ASTM D3034	80 ea.	CN
12	PVC to Stainless Adapter	NA	NA	NA	8 ea.	CN

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