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CADWALLADER TECHNICAL SERVICES

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Attn: Mr Jonathan Paetz

c/o Cascade-Earth Sciences

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For: Leonard Water Services

Abilene, Texas

Re: Inspection, Testing and Repairs of Geomembrane Construction at Braumley Dairy Raceway Basin, Hico, TX 4/25/07 and 4/26/07

April 26, 2007

Dear Sirs:

The raceway basin was visually inspected, seams and connections were probe tested for gaps, seams and suspect locations were vacuum box tested where possible, and the liner was water pressure tested where water underneath the liner made that possible.

Thirty three suspect locations were marked with paint. These and previously marked locations which had been repaired were vacuum tested. Eleven holes/leaks in the liner were located. All but two of these were repaired. Two larger leaks could not be repaired due to delays with pumping of rainwater, power outage in the generator, and need for better equipment to construct a proper patch for a large hole needing to be cut to eliminate water underneath the liner interfering with heat seaming.

Other locations, such as deep scoring of the liner where potential leaks could develop were also welded with a bead of molten polyethylene. And a two part epoxy resin and hardener was used to seal a gap found in the batten stripping as well as to seal between concrete and Poly-Lock in the aeration pump portion of the basin, where free of debris and muck (concrete slope).

Gaps in connections around pipes were found. Where possible to extrusion weld pipe boot to HDPE this should be done. Completion of repairs on leakages discovered was requested and agreed upon for Monday April 30, 2007. While nothing "huge" was uncovered, many smaller holes and leakages were found, including seeps in concrete-to-plastic connections.

The following is a photographic survey of some of the inspection, testing, and repair work.



Probe testing for gaps in seams.



Vacuum box testing



Middle low section of south side of raceway being water tested for leaks. Two holes found.



Repairing hole on south side-slope.



Seep at previously repaired Poly-Lock joint attachment at concrete slope in aeration pump section.



Vacuum testing patch along west wall of aeration pump section where 3 leaks were found with v.box testing.



Welding the leaking epoxy glued patch.



Seepage showing along concrete/Poly-Lock interface from back-water pressure.



Prepping concrete/Poly-Lock interface with abrasion before sealing with two part epoxy. Note remainder of concrete pad too covered with sludge to inspect well enough.



Two holes discovered in liner at aeration pump section properly repaired to be leak free by v.box testing. Water behind liner revealing leaks was pumped out in advance of heat seam repair.



Probe testing steel band attachment of PE skirting to PVC pipe.