

Pullen, Steve, NMENV

To: Dale Gandy (dgandy@gandycorporation.com); Mike Marley (mikemarley@starband.net); Dale Gandy (GMI@dfn.com)
Cc: Lorraine Hollingsworth (LHollingsworth@domicilaw.com); Mark Miller (mmiller@dbstephens.com); Kieling, John, NMENV
Subject: Triassic Park Permit Application

Dear Messrs. Gandy and Marley,

Regarding the Triassic Park Hazardous Waste Permit renewal application, it is important that the application and resultant permit be complete and up to date, addressing all new and relevant scientific studies and landfill design criteria. The Department will rely heavily on your application for this new information and suggests you consider at a minimum a portion of the studies and design associated with the Waste Control Specialist (WCS) facility in Andrews County, Texas, and the various landfills at Sandia National Laboratories in Albuquerque.

Some of the specific scientific studies the Department considers possibly relevant to Triassic Park include:

1. Bradley, R.G., and S. Kalaswad, 2003, The Groundwater Resources of the Dockum Aquifer in Texas: Texas Water Development Board Report 359 #
2. Sanford, A.R., K. Lin, I. Tsai, and L.H. Jaksha, 2002, Earthquake Catalogues for New Mexico and Bordering Areas: 1869-1998: New Mexico Bureau of Geology and Mineral Resources #
3. Golder Associates, 1999, Neotectonic Input to TNRCC LLRW Application for the WCS LLRW Facility in Western Andrews County, Texas: Letter Report to Dr. Mark Turnbough, January 5 1999 #
4. Jones, I.C., 2001, Cenozoic Pecos Alluvium Aquifer, *in* Aquifers of West Texas: Texas Water Development Board Report 356, ed. R.E. Mace, W.F. Mullican III, and E.S. Angle #
5. BEG, 2007b. University of Texas. Bureau of Economic Geology, Review of Matric Potentials and Moisture Contents, Upper Cooper Canyon Formation (Attachment 6-2). Letter Report to TCEQ *
6. Bonaparte, R., Daniel, D.E., and Koerner, R.M. (2002). "Assessment and Recommendations for Optimal Performance of Waste Containment Systems," U.S. Environmental Protection Agency, National Risk Management Research Laboratory, Cincinnati, OH, EPA/600/R-02/099 *
7. Bowders, J.J., Daniel, D.E., Wellington, J., and Houssidas, V. (1997). "Managing Desiccation Cracking in Compacted Clay Liners Beneath Geomembranes," *Geosynthetics 1997 Conference Proceedings*, IFAI, Vol. 7, pp.527-540 *
8. Reedy et al., 2003. Reedy, R. C.; Scanlon, B. R. Soil water content monitoring using electromagnetic induction, *J. Geotech. Geoenvironmental Engineering* 2003, Nov 2003; 10.1061/ASCE1090-02412003129:111028, 1028-1039 *
9. Scanlon et al., 2005. Scanlon, B. R., R. C. Reedy, K. E. Keese, and S. F. Dwyer, 2005, Evaluation of evapotranspirative covers for waste containment in arid and semiarid regions in the southwestern USA: *Vadose Zone Journal*, v. 4, p. 55-71 *

- See WCS LLRW License Application, Geology Report revised May 2007, Appendix 2.6.1 or Volume 9, at <http://www.urs-slc.com/wcs/Docs/Volume09/Appendix2.6.1.pdf>

* - See Texas Commission on Environmental Quality Draft Environmental and Safety Analysis of a Proposed Low-Level Radioactive Waste Disposal Facility in Andrews County, Texas, dated August 2008 at http://www.tceq.state.tx.us/permitting/radmat/licensing/wcs_license_app.html

Some of the specific engineered monitoring devices the Department considers possibly relevant to Triassic Park include:

1. Electric impedance wire system
2. Moisture sensors (Geokon 4500)
3. Matric potential measurements
4. Time domain reflectometry

These vadose zone monitoring devices are described at Section 2.9 of the Texas Commission on Environmental Quality Draft Environmental and Safety Analysis of a Proposed Low-Level Radioactive Waste Disposal Facility in Andrews County, Texas, dated August 2008. (See http://www.tceq.state.tx.us/permitting/radmat/licensing/wcs_license_app.html)

Vadose zone monitoring devices utilized at Sandia National Laboratories include time domain reflectometry and soil gas sorbent tubes. References to these devices can be found at the Hazardous Waste Bureau's web site, link to SNL and documents associated with the Mixed Waste Landfill, the Chemical Waste Landfill, and the Corrective Action Management Unit.

A July 13th e-mail from Lorraine Hollingsworth explained that Mark Miller of DB Stephens has some design questions and I believe he wanted to receive the information included in this e-mail. Therefore I've copied him.

I understand we have a meeting scheduled for July 27th to discuss the application. I look forward to seeing you then.

Regards,

Steve Pullen

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