

**From:** "Susan Jablonski" <SJABLONS@tceq.state.tx.us>  
**To:** <ROWEN@gw.odh.state.oh.us>, <DMG5@nrc.gov>, <PFG@nrc.gov>, <PMH@nrc.gov>, <RXT@nrc.gov>, <SNS@nrc.gov>  
**Date:** Thu, Apr 17, 2003 3:54 PM  
**Subject:** One more generator response

FYI - Attached is another Texas generator response to the questionnaire. To give a little perspective, the University of Texas System includes the following individual facilities throughout Texas:

9 general academic universities  
6 health institutions

Within these institutions, there are:

>4 medical schools  
>2 dental schools  
>9 nursing schools

**CC:** <CEA2@nrc.gov>, <JEK1@nrc.gov>, <PKH@nrc.gov>

## Survey of Generators of Low-Level Radioactive Waste for Interest in an Assured Isolation Facility

The Nuclear Regulatory Commission directed the NRC staff to proceed with a rulemaking plan that explores interest in the assured isolation concept for the storage of low-level radioactive waste (LLW) and provides a foundation for a Commission decision on whether to develop a rule. The rulemaking plan should include Agreement State interaction and participation (SRM-SECY-02-0127, 9/5/02, ML022480322). This decision was made in conjunction with the Commission's approval of the staff's proposed response to a letter from the State of Ohio requesting NRC's views on a proposed Ohio regulation for licensing an assured isolation facility. (See 9/12/02 letter to Robert Owen, ML022560082.) Accordingly, the U.S. Nuclear Regulatory Commission staff and the Conference of Radiation Control Program Directors, Suggested State Regulations Committee on Part L, chaired by Robert Owen, State of Ohio, are jointly developing basic information on the projected need for disposal or storage of LLW and projected disposal capacity.

As an important aspect of this basic information, we are interested in knowing the extent of need for and interest in an assured isolation facility that would provide long-term, centralized storage of low-level radioactive waste, including material regulated under the Atomic Energy Act, naturally-occurring material, accelerator-produced material and technologically-enhanced material (discrete sources only for this last). The facility would be open to multiple generators. We exclude mixed radioactive and chemical waste from this inquiry. We realize that not all this information is readily available even for past activities and that any projections for the period of ten years are very uncertain, so we would appreciate rough estimates or ranges, with any qualifications you think appropriate. For purposes of this survey, we do not define an assured isolation facility other than to describe it as an engineered facility that would provide long-term, centralized storage of LLW to multiple generators. The facility could be designated as: 1. Exclusively for storage, with no option for disposal at the AIF; 2. For storage, with the expectation of disposal of the waste at the AIF; or 3. For storage, with the option of disposing of waste at the AIF. The tables below are our preferred format for information but if it is more convenient to use another format, please feel free to provide the information in the most complete form you can. There are no formulas in the tables.

Company: The University of Texas System

For ten years, beginning in 2003:

1. How many cubic feet and how many curies of low-level waste material in Classes A, B and C and non-Atomic Energy Act radioactive waste (ARM, NORM, TENORM) that your company generates do you expect to require disposal? If you don't have a breakdown by category, please provide a cumulative figure.

See Tables Below – These tables are for our dry waste only, and excludes the following waste streams: liquid wastes shipped for incineration (i.e. liquid scintillation wastes); wastes falling under the 300-day half-life exemption that is afforded waste generators in Texas; and the animal carcass waste stream. These tables include data from all but one component of the University of Texas System with RAM. One system component's contributions were estimated using projections provided for the year 2000 from a study conducted by the Texas Commission on Environmental Quality. Since these projections were given only until 2008, we just extended the projections three years, from 2009 to 2012.

2. How much disposal capacity do you expect to be available to your company for the various categories of waste?

See table below – The University of Texas System is currently contracting with a broker for continued access to the Barnwell, S.C. facility until 2008.

3. Are there any other options for storage, disposal, or processing, not presently in use, that you expect to be available to reduce the quantities of low-level waste without a designated disposition (e.g., extended storage, segregation of wastes, volume reduction)?

The University of Texas System (UTS) owns and operates The UTS Interim Storage Facility (UTSISF) at Fort Stockton in West Texas. This facility is licensed for UTS-only temporary dry solid RAM waste storage. If necessary, the UTSISF would probably store most, if not all, UT system dry waste for the projected period. The University of Texas System, however, wants the optimum solution for waste disposal as long as that option is available. Shipping material to an outside authority for permanent disposal at the best price is the most desirable option and other options have to be considered as needed.

The University of Texas System is also currently utilizing segregation of waste along the lines of radionuclide half-life. Since Texas generators can dispose of 300-day half-life waste in a municipal solid waste landfill, this waste is segregated from other longer-lived wastes at the point of generation.

### Estimated Generation of LLW by Category (thousands of cubic feet)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
Class A	0.27385	0.322	0.336525	0.33613625	0.351145563	0.352265341	0.367808608	0.367571038	0.38227119	0.382587939	3.472160928
Class B	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.04
Class C	0.00067	0.00067	0.00067	0.00067	0.00067	0.00134	0.00134	0.00134	0.00134	0.00134	0.01005
NARM	0.00167	0.00167	0.00167	0.00167	0.00167	0.00217	0.00217	0.00217	0.00217	0.00217	0.0192
Total	0.28019	0.32834	0.342865	0.34247625	0.357485563	0.359775341	0.375318608	0.375081038	0.38978119	0.390097939	3.541410928

### Estimated Generation of LLW by Category (curies)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
Class A	0.9552	0.9352	1.21545	1.2009625	1.481750625	1.462828156	1.744209564	1.728897342	1.762296474	1.746047382	14.23284204
Class B	4.5	4.5	4.5	5	5	5	5	5.374	5.5104	5.6468	50.0312
Class C	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.4
NARM	0.01201	0.01201	0.012008	0.012008	0.012008	0.012016	0.012016	0.012016	0.012016	0.012016	0.12012
Total	5.50721	5.48721	5.767458	6.2529705	6.533758625	6.514844156	6.796225564	7.154913342	7.324712474	7.444863382	64.78416204

### Estimated Disposal Capacity of LLW by Category (thousands of cubic feet)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total	Net*
Class A	0.1875	0.192	0.196725	0.20168625	0.206895563	0.212365341	0.218108608	0.224139038	0.23047099	0.237119539	2.107010328	1.3651506
Class B	0	0	0	0	0	0	0	0	0	0	0	0.04
Class C	0.00067	0.00067	0.00067	0.00067	0.00067	0.00134	0.00134	0.00134	0.00134	0.00134	0.01005	0
NARM	0.00167	0.00167	0.00167	0.00167	0.00167	0.00217	0.00217	0.00217	0.00217	0.00217	0.0192	0
Total	0.18984	0.19434	0.199065	0.20402625	0.209235563	0.215875341	0.221618608	0.227649038	0.23398099	0.240629539	2.136260328	1.4051506

\* Net is the amount generated minus disposal capacity

### Estimated Disposal Capacity of LLW by Category (Curies)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total	Net*
Class A	0.59	0.595	0.60025	0.6057625	0.611550625	0.617628156	0.624009564	0.630710042	0.637745544	0.645132822	6.157789254	8.075052
Class B	0	0	0	0	0	0	0	0	0	0	0	50.03
Class C	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.4	
NARM	0.01201	0.01201	0.012008	0.012008	0.012008	0.012016	0.012016	0.012016	0.012016	0.012016	0.12012	
Total	0.64201	0.64701	0.652258	0.6577705	0.663558625	0.669644156	0.676025564	0.682726042	0.689761544	0.697148822	6.677909254	58.106252

• Net is the amount generated minus disposal capacity

**Estimated Total Generation and Disposal of LLW and NARM (thousands of cubic feet)\***

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
Total Generated	0.28019	0.32834	0.342865	0.34247625	0.357485563	0.359775341	0.375318608	0.375081038	0.38978119	0.390097939	3.541410928
Disposal Capacity	0.18984	0.19434	0.199065	0.20402625	0.209235563	0.215875341	0.221618608	0.227649038	0.23398099	0.240629539	2.136260328
Disposal/ Storage Needed (net)	0.09035	0.134	0.1438	0.13845	0.14825	0.1439	0.1537	0.147432	0.1558002	0.1494684	1.4051506

**Estimated Total Generation and Disposal of LLW and NARM (curies)\***

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
Total Generated	5.50721	5.48721	5.767458	6.2529705	6.533758625	6.514844156	6.796225564	7.154913342	7.324712474	7.444863382	64.78416204
Disposal Capacity	0.64201	0.64701	0.652258	0.6577705	0.663558625	0.669644156	0.676025564	0.682726042	0.689761544	0.697148822	6.677909254
Disposal/ Storage Needed (net)	4.8652	4.8402	5.1152	5.5952	5.8702	5.8452	6.1202	6.4721873	6.63495093	6.74771456	58.10625279

**STATE OF OHIO**  
**Ohio Department of Health**  
**Bureau of Radiation of Protection**  
**Dr. J. Nick Baird, M.D., Director of Health**

Date: 3/28/03	From: Robert Owen
To: Paul Shipley	Agency/Company: OOH
Company: NRC	Phone Number: 614-644-2727
Fax Number: 301-415-5369	No. of Pages (Including this Cover):
Phone Number:	6

COMMENTS: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_