
**HOUSE COMMITTEE ON ENVIRONMENTAL REGULATION
TEXAS HOUSE OF REPRESENTATIVES
INTERIM REPORT 2002**

**A REPORT TO THE
HOUSE OF REPRESENTATIVES
78TH TEXAS LEGISLATURE**

**REPRESENTATIVE WARREN CHISUM
CHAIRMAN**

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Committee On
Environmental Regulation

November 23, 2002

Warren Chisum
Chairman

P.O. Box 2910
Austin, Texas 78768-2910

The Honorable James E. "Pete" Laney
Speaker, Texas House of Representatives
Members of the Texas House of Representatives
Texas State Capitol, Rm. 2W.13
Austin, Texas 78701

Dear Mr. Speaker and Fellow Members:

The Committee on Environmental Regulation of the Seventy-Seventh Legislature hereby submits its interim report including recommendations and drafted legislation for consideration by the Seventy-Eighth Legislature.

Respectfully submitted,

Warren Chisum, Chairman

Dennis Bonnen, Vice Chairman

Fred Bosse

Dawna Dukes

Charlie Geren

Charlie Howard

Edmund Kuempel

D.R. "Tom" Uher

Zeb Zbranek

Dennis Bonnen
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INTRODUCTION

At the beginning of the 77th Legislature, the Honorable James E. “Pete” Laney, Speaker of the Texas House of Representatives, appointed nine members to the House Committee on Environmental Regulation: Warren Chisum, Chair; Dennis Bonnen, Vice Chair; Fred Bosse, Dawwna Dukes, Charlie Geren, Charlie Howard, Edmund Kuempel; D.R. “Tom” Uher, and Zeb Zbranek.

During the interim, the Speaker assigned charges to the committee. The Committee on Environmental Regulation has completed its hearings and investigations, and has adopted the following report.

The committee wishes to express appreciation to the following people for their invaluable assistance:

Dr. Dale Klein, Assistant Secretary of Defense for Nuclear and Chemical and Biological Defense Programs

Edward Selig, Director, Center for Responsible Environmental Strategies

The Paso del Norte Joint Advisory Committee

From the Bureau of Radiation Control, Texas Department of Health:

Richard Ratliff, Bureau Chief

Ruth McBurney, Director, Division of Licensing and Registration and Standards

Art Tate, Director of Compliance and Inspection

Bob Free, Deputy Director for Emergency Response and Investigation

From the Texas Natural Resource Conservation Commission:

Susan Jablonski, Low-Level Radioactive Waste Specialist

Victor Hugo Valenzuela, Planner III, Region 6, El Paso

We also offer special appreciation to Ambrose Gonzales, Information Specialist, Texas Legislative Council, for his unending good humor and patience in dealing with Committee computer issues.

Finally, the Committee wishes to express appreciation to the citizens and local government officials who participated in our hearings for their time and efforts on behalf of the Committee.

HOUSE COMMITTEE ON ENVIRONMENTAL REGULATION

INTERIM STUDY CHARGES

- 1. Examine problems related to lost and stolen radioactive material, including sources abandoned downhole in drilling operations.**
- 2. Study the production, transportation, use and disposal of hazardous and radioactive materials that could be used in terrorist actions. Review the management and security of public drinking water systems. Review government regulations and business practices to determine whether legislation is needed to protect life and property and to detect, interdict and respond to acts of terrorism.**
- 3. Identify and prioritize environmental issues on the Texas-Mexico border, including air quality and solid waste.**
- 4. Examine the progress of programs related to vehicle inspection and maintenance and low-income repair assistance.**
- 5. Actively monitor agencies and programs under the committee's oversight jurisdiction, including specifically, implementation of H.B. 2912, the Texas Natural Resource Conservation Commission Sunset Legislation, and S.B. 5, 77th Legislature, to ensure compliance with federal Clean Air Act standards and deadlines.**

LOST AND STOLEN RADIOACTIVE MATERIAL

SPEAKER'S CHARGE TO THE COMMITTEE

On November 5, 2001, Texas House Speaker James E. "Pete" Laney issued five (5) charges to the House Committee on Environmental Regulation, including instructions to:

1. Examine problems related to lost and stolen radioactive material, including sources abandoned downhole in drilling operations; and
2. Study the production, transportation, use and disposal of hazardous and radioactive materials that could be used in terrorist actions. Review the management and security of public drinking water systems. Review government regulations and business practices to determine whether legislation is needed to protect life and property and to detect, interdict and respond to acts of terrorism.

LOST AND STOLEN SOURCES

Radioactive sources are radiation sources that "contain radioactive materials, namely substances formed by radioactive elements emitting radiation themselves."¹ Radioactive sources are typically small pellet-like capsules with a double layer of stainless steel containing the radioactive material. There are approximately 2 million radioactive sources licensed for possession in the United States by the Nuclear Regulatory Commission (NRC) and its Agreement States.² During the period beginning January 1, 1997 and ending December 31, 2001, a total of 1742 sources were reported lost, stolen or abandoned.³ There is no evidence that any of these sources were stolen or otherwise diverted for use in a terrorist attack.⁴

In Texas radioactive sources are used for a wide variety of beneficial uses including medical (diagnostic and therapeutic), industrial, agricultural and research applications. Examples of these applications include the following:

- Medical:** Radiotherapy (irradiation of tumors and brachytherapy) and teletherapy
- Industrial:** Irradiation (sterilizing medical and personal products, preserving food); industrial gauges; industrial radiography (for non-destructive testing); well logging; antistatic devices during manufacturing; and gauges to measure and control the liquid flow in petrochemical plants and ensure the right fill level for packages of food and beverages
- Agricultural:** Food preservation through irradiation; irradiation of plants, specifically grains, to improve virus resistance; moisture density gauges to measure soil water content; and sterilization of certain insect populations (used for the fruit-fly and screwworm)
- Research:** Medical research; composition elemental analyses (such as lead analysis in paint); and archaeology (carbon 14 dating)

There are currently 1,826 radioactive material licensees in Texas with 2,558 different locations where the radioactive material is licensed for use.⁵ During the time period between January 1, 1997 and December 31, 2001 the following radioactive source losses were reported in Texas:⁶

Missing Sources Reported as Stolen: 44 Recovered: 14

Detail:

- 37 Gauges; 10 recovered**
- 4 Industrial Radiography Cameras; 3 recovered**
- 2 Instruments; 1 recovered**
- 1 shipment of 12 Tritium exit signs; not recovered**

Missing Sources Identified as Lost: 43 Recovered: 16

Detail:

- 7 industrial radiography cameras; all recovered**
- 19 gauges; 9 recovered**
- 4 low activity calibration/check sources; none recovered**
- 13 instrument sources; none recovered**

Sources Found (but not reported as lost or stolen):

- 27 instances of medical waste found at landfills**
- 25 hits at scrap metal yards and steel mills**
 - miscellaneous sources including a warehouse of old aircraft uranium dials in Dallas, jewelry beads containing uranium (exempt), and 2 discarded radium sources found in a ditch by the highway department southwest of Dallas**

The majority of lost and stolen radiation sources are contained in portable gauges that are the responsibility of the licensee who is charged with prevention of loss and damage. These portable gauges are small enough to be transported to and from licensed source use locations in a standard pick-up truck. According to the NRC,⁷ most of the thefts occurred from vehicles parked at locations other than the licensees' facilities or job sites. In most of the cases the gauges had been locked and secured to the vehicle, but were visible to passers by.

The rate of recovery for lost and stolen sources in Texas is about equal to the national average and comparable to that experienced by the Nuclear Regulatory Commission.⁸ Most sources are small, of little hazard to the public and are most likely entombed in a landfill or otherwise out of the accessible environment.

There were 26 radiation sources abandoned in oil and gas wells in Texas during the time period between January 1, 1997 and December 31, 2001. In the case of these abandoned sources, each well is plugged with 200 feet of red concrete, a whipstock is placed above the concrete and a permanent marker is erected at the wellhead. In addition the site is deed restricted against future entry and inappropriate use with records of abandonment maintained by the Railroad Commission of Texas (RRC) and the Texas Department of Health (TDH).

TERRORIST ACTIONS

The Committee believes it would be imprudent to publish lengthy and specific details concerning State plans for homeland security. Therefore this report summarizes the issues and gives general comments on how they are being addressed.

Dirty Bombs

Also known as a radiological dispersal device (RDD), a "dirty bomb" is a radioactive source shrouded by a conventional explosive.⁹ Such a device is not capable of creating a stereotypical nuclear explosion, but would scatter radioactive material over a small area.

Related human injury would be more likely to come from flying bits of bomb debris rather than serious radiation exposure. Most experts agree that the most significant danger of a dirty bomb is the spread of fear and terror fueled by media hype and public misunderstanding.¹⁰ Dr. Dale Klein, Assistant to the Secretary of Defense, commented that “the terrorists picked up the idea of a dirty bomb from the United States press. The terrorists have stated that they would not have considered this type of action until they heard so much in the United States press. We should be careful about pointing out our concerns and possible vulnerabilities in the press.”¹¹

Transportation

Radioactive waste has been shipped in the United States for about 50 years. The first shipments of radioactive waste were transported to Idaho from the Rocky Flats Plant near Denver, Colorado.¹² These early waste shipments contained low-level radioactive waste and mixed hazardous and transuranic radioactive waste. At the time, the Rocky Flats Plant manufactured plutonium, enriched and depleted uranium, and steel nuclear weapons components for the U.S. nuclear weapons arsenal.

Low-level radioactive waste is currently generated by public utilities, industries, universities, and hospitals throughout the United States. The waste is shipped to licensed low-level radioactive waste disposal sites, primarily by truck in containers designed for transportation of low-level waste. An excellent summary of regulations for transporting low-level radioactive waste is available online at http://www.ag.ohio-state.edu/~rer/rerhtml/rer_41.html.

Waste containing transuranic elements such as plutonium is also transported across north Texas on its way to the Waste Isolation Pilot Plant. The waste is transported in containers called “TRUPACTs” that are specially designed for the transportation of this material. These shipments are carefully monitored by satellite tracking systems. The location of each shipment is known to the nearest few kilometers. Successfully hijacking a shipment is considered unlikely due to the real-time monitoring of the shipments and the likely rapid response of federal and state law enforcement to any such threat.

High-level radioactive waste, including spent nuclear fuel, is also transported throughout the United States. Since the 1960s, over 1.6 million miles have been traveled by more than 2,700 spent nuclear fuel shipments without any harmful release of radioactive material.¹³ With the process of licensing a national repository for spent nuclear fuel at Yucca Mountain moving forward, the safety of transporting spent fuel shipments has been openly debated. However, the U.S. Department of Energy (DOE) succinctly states their experience to date, “2,700 shipments; 1.6 million miles; 30 years; no harmful release of radiation.” Misperceptions abound, but the facts are that spent nuclear fuel is not liquid or a gas, therefore it cannot pour or evaporate during transportation. It is not flammable, and therefore cannot burn. It is not explosive and therefore is not a bomb of any sort.¹⁴ For further information, including how transportation casks for nuclear fuel are tested, see “Spent Nuclear Fuel Transportation” published by the DOE, Office of Public Affairs.

Hazardous Materials

Facilities which make, store, or use the most hazardous chemicals are required to report their inventories of those chemicals annually to Local Emergency Planning Committees in each county, the local fire departments and to the Texas Department of Health. For the last three years the Texas Department of Public Safety has developed and implemented an Integrated Terrorism Training and Exercise Program for local governments, accomplished with the support of the Texas Engineering Extension Service. During the most recent fiscal

year ten Terrorism Training and Exercise Programs were conducted, and for the first time the focus was outside the boundaries of the local governments to include many of the major airports and ports.

Public Drinking Water Systems

TCEQ has been very active in communicating with water systems about water system security. These activities have occurred through contact with individual water systems and through the development of two guidance documents which were mailed to public water systems in Texas. The most recent mailout, January 2002, included a security checklist and was part of TCEQ's security initiatives developed in response to the terrorist attacks on September 11. It not only provided a security checklist to determine plant vulnerability, it also included security guidelines and suggestions. TCEQ is monitoring compliance with security requirements and recommendations when inspecting drinking water systems. TCEQ participated in a satellite conference on water system security presented to water system owners and operators at various locations in Texas, and to locations in Louisiana, Arkansas, and Oklahoma. In addition, TCEQ has taken the opportunity to stress the importance of water system security in presentations at various conferences, seminars and training events and these efforts will continue.

NEED FOR LOW-LEVEL RADIOACTIVE WASTE MANAGEMENT FACILITY

The Experts Agree

With almost 39,000 cubic feet of low-level radioactive waste being stored in Texas in 63 locations,¹⁵ building and opening one secure low-level radioactive waste management facility would best serve the health and safety of Texans. While some believe that a facility is not needed,¹⁶ professionals who are trained in the health and safety of humans as related to radiation issues are united and outspoken in their support of a facility. In the past six months the following organizations have adopted resolutions to support the need for a safe, centralized facility in Texas:

Texas Medical Association House of Delegates;¹⁷
Texas Radiological Society;¹⁸
Texas Society of Professional Engineers;¹⁹
North Texas Chapter of the Health Physics Society;²⁰
South Texas Chapter of the Health Physics Society;²¹ and
Texas Radiation Advisory Board.²²

As the resolution from the North Texas Chapter of the Health Physics Society points out,

[our] charge is to promote the safe use of sources of radiation, and to understand, evaluate, and control risks from radiation exposure relative to the benefits derived.²³

In other words, the professionals who are trained in radiation issues and know the issues best, encourage the Texas Legislature to pass legislation that will allow for the development of a facility for management of low-level radioactive waste in Texas.

While environmentalists in Texas are calling for low-level radioactive waste to be managed long-term at one of the nuclear power plants,²⁴ environmentalists in California are opposing a similar proposal.²⁵ Whether the suggestion is supported or not, the power plant sites in Texas were not licensed to take radioactive waste from others nor to store

their own waste for the long-term. The NRC licenses these power plants operate under actually would prohibit any such activity.²⁶

Other Options Rapidly Disappearing

Generators of low-level radioactive waste have traditionally shipped their waste to the disposal facility in Barnwell, South Carolina. The Barnwell facility will be closed to all states except South Carolina, New Jersey, and Connecticut (all members of the Atlantic Compact), no later than 2008. Texas could be shut out earlier due to the rapid ramp down of the annual amount of waste that Barnwell allows. Another facility, Envirocare of Utah, can accept Class A waste (the lowest class in radioactivity concentration), but not Class B or Class C.

Hospitals, universities, research facilities, industrial firms, and nuclear power plants must choose from few alternatives in terms of low-level radioactive waste: store waste on site; move to one of the states where future access to a disposal facility is assured; or curtail or cease the activities that generate the waste.

Storage of radioactive waste is not a long-term solution. On-site storage simply defers the problem, creates multiple storage sites, and keeps radioactive material scattered throughout the state, thereby making citizens more vulnerable to natural disasters and terrorists' threats.

Texas has an Obligation

The U.S. Congress ratified a Compact between Texas, Maine and Vermont for disposal of low-level radioactive waste in 1998. The Texas Low-Level Radioactive Waste Disposal Compact (Texas Compact) was established by the states pursuant to the Low-Level Radioactive Waste Policy Act, as amended by the Low-Level Radioactive Waste Policy Amendments Act of 1985.²⁷ By enacting this legislation, the U.S. Congress authorized and encouraged states to enter Compacts for the efficient management of low-level radioactive waste.

The Texas Compact provides that Texas, as host state, will “cause a facility to be developed in a timely manner and operated and maintained through the institutional control period.”²⁸ The Texas Compact stipulates that “shipments of low-level radioactive waste from all non-host party states shall not exceed 20 percent of the volume estimated to be disposed of by the host state during the fifty-year period.” Additionally, the maximum disposal space allowed to non-host states is 20,000 cubic feet.²⁹

Although Maine has decided to remove themselves from the Texas Compact, the move is not official until two years after the vote to withdraw. Even at that time Texas and Vermont will still be in the Texas Compact and the Texas obligation must still be met.

Texas has a Responsibility

The State should hold the license for any low-level radioactive waste facility built for the management of waste generated within the Texas Compact. Maintaining the statutory restriction on the State holding the license will allow control over the waste that is ultimately accepted at a management facility. However, the state could contract the building and management of the facility. Effective long-term management and monitoring of low-level radioactive waste requires a stable entity, without the potential for bankruptcy or abandonment. The State is the entity that will continue for decades and centuries to meet the obligations.

Long-term title to the managed low-level radioactive waste should be held by the State. Current Texas Statute requires that the person(s) licensed to dispose of low-level radioactive waste “formally acknowledge before termination of the license the conveyance to the state of the right, title, and interest in low-level radioactive waste located on the property conveyed.”³⁰

GOVERNMENT REGULATIONS

Radiation and Perpetual Care Fund

House Bill 1099 77 (R), provided that the TDH could collect an additional five percent of the appropriate annual fee from all their licenses that possess radioactive material, to be deposited to the credit of the Radiation and Perpetual Care Fund. These funds were intended to be used “to prevent adverse effects of abandonment of radioactive materials, default on a lawful obligation, insolvency, or other inability by the holder of a license issued by the department to meet the requirements of this chapter or department rules.”³¹ However, the Radiation and Perpetual Care Fund had been changed during the 74th Legislative Session to the Radiation and Perpetual Care Trust Fund, and was now being used for financial security only. This information was not brought forth until after the 77th Legislative Session had ended. Therefore, the additional funds could not be credited and used by TDH as intended by House Bill 1099.

The importance of having a Radiation and Perpetual Care Fund cannot be emphasized enough. With lost, stolen and abandoned sources it is incumbent upon the state to be able to respond to incidents immediately with whatever clean up, management and disposal is necessary to protect human health and safety.

COMMITTEE HEARING

The House Committee on Environmental Regulation held a public hearing on April 29, 2002 to consider the issues included in this report. Fourteen witnesses presented testimony. The summary of all testimony is in Appendix 1 A.

FINDINGS AND RECOMMENDATIONS

FINDING NO. 1: Options for management of low-level radioactive waste are rapidly disappearing. Texas has the obligation and responsibility to provide a safe, secure low-level radioactive waste management facility.

RECOMMENDATION NO. 1A: Legislation should be passed that would provide for the establishment and operation of an Assured Isolation Facility for the management of low-level radioactive waste as outlined in the Texas Compact.

RECOMMENDATION NO. 1B: The license for the Assured Isolation Facility should be held by the State.

RECOMMENDATION NO. 1C: The State should be directed to contract the building and management of the Assured Isolation Facility to a private company.

FINDING NO. 2: The nature of the Radiation and Perpetual Fund for the State of Texas changed in 1995 and needs to be recreated for its intended purpose: to prevent adverse effects of abandonment of radioactive materials.

RECOMMENDATION NO. 2: The State of Texas should recreate the Radiation and Perpetual Care Fund and add it to the Funds Consolidation bill for exemption. A specific rider should be included in the Appropriations bill for TDH to implement the provisions of Health and Safety Code §401.305 as amended by HB 1099 77(R). See Appendix 1 B for specific legislative language.

APPENDIX 1 A

**Summary of Testimony Given at Public Hearing
Texas House Committee on Environmental Regulation
April 29, 2002**

**Dr. Bernstein, retired Major General
Former Commissioner of Texas Board of Health**

- I believe a crisis is looming
- Modern medical practice, research and industry would suffer enormously if the use of radioisotopes were lost
- We must have a good, safe and reasonable system of disposal
 - A disposal facility would furnish a vital and permanent piece of that system
- A potentially tragic situation could develop if we do not establish a low-level disposal facility
 - Using improper storage containers, having unknown storage sites, and worst - the possibility of waste being poured down the drain
- Transportation: to date no serious leakage from transportation
- Currently 42,000 cubic feet of waste being stored at approximately 50 facilities
- On-site storage by generators defers the problem, creates multiples storage sites and keeps by-product material scattered throughout the state
 - Makes citizens more vulnerable to terrorist threats or actions, and also natural disasters
- Dirty bomb
 - Combines radioactive materials and conventional explosives
 - Would not create a nuclear explosion, but could spread radiation widely and could lead to great panic
 - The panic could lead to all sorts of problems
- Store on-site, move to a state in a Compact where access to a disposal facility is assured or curtail the generation of this waste

Recommendations:

- Generators must let people in the area know what's there and must have direct communication with emergency authorities
- Needs to be training
- Much of this is already going on

**Arthur Tate, Director of Compliance Inspection
Texas Department of Health, Bureau of Radiation Control
On the status of lost, stolen and abandoned radioactive sources in Texas:**

- TRAB advisory in packet
- Currently, about 1,800 licensees in Texas in about 2500 different locations
- During the five year period starting January 1, 1997, BRC received notification from licensees that 44 radioactive sources were stolen
 - 14 of these have been recovered
 - Types of items stolen: gauges, radiography cameras, industrial devices, radiation check sources, exit signs containing tritium
- Also of concern: radioactive sources that are lost or found in the environment
 - Some were reported as missing and some were not
 - Found at: landfills, metal scrap yards and steel mills
 - 44 reported lost; 16 were found
 - Types of items stolen: gauges, radiography devices, industrial instruments
 - At landfills: medical waste (relatively short lived, but the alarms go off, we're called out and we verify what it is)
 - Not reported lost, but were found

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- Mostly at steel mills, scrap yards and landfills
 - In a Dallas warehouse we found a number of aviation dials that contain radium
 - Southwest of Houston the Highway Department found two radium sources in a bar ditch
 - Over the last 5 years there were 25 instances where medical waste was found at landfills and there were 25 “hits” at scrap yards and steel mills
 - Some of them were NORM, but many were not
 - Sources lost downhole at oil & gas wells
 - Over the last five years there were 26 oil & gas sources abandoned downhole
 - When this occurs, a 200 foot cap of red concrete is placed over it, then it is covered by a whipstock to prevent others from being able to drill down into it, then a permanent marker is placed on it
 - A deed restriction is filed to prevent any future reuse of that area that would be inappropriate
 - Work very closely with the RRC anytime a source is abandoned downhole
 - Over the past five years, NRC reports 348 sources per year lost in the U.S.
 - 45% of recovered nationally
 - In Texas the annual average of lost sources is 37
 - 48% recovered in Texas
 - Lost sources found 12% nationally
 - 16% in Texas
 - 98% of the sources found nationally were at scrap metal recycling facilities
 - 96% in Texas found at scrap metal recycling facilities
 - 36% radiography cameras found nationally
 - 36% in Texas

Dirty bombs

- It is possible to construct a “dirty bomb” from stolen radiation sources
 - would deny citizens to a particular area until it is decontaminated
 - would cause inconvenience and personal doubts about public safety
- Realistically, the amount of radiation received by a person exposed to the remnants of an explosive device containing discreet quantities of radioactive material or low-level radioactive waste would not be life threatening
- There is a greater chance of injury from the explosive device than from the radioactive material

Bob Emery, University of Texas Health Science Center in Houston

Executive Director Environmental Health & Safety

Associate Professor, School of Public Health

- Looking at using violation data for the purposes of education and prevention
- Regulatory agencies exist to promulgate regulations and verify compliance, but oftentimes the data is not collected in such a way that it can be useful for folks to see where the common violations might be
- Developed a data collection mechanism that is serving as a model for other states
 - The data can be used to discover common occurrences (source most likely to be lost downhole, source most likely to be stolen, etc.)
 - Information derived then can be used to make informed decisions, make comparisons and identify trends, and develop targeted training activities

Joe Mayorga, Assistant Director of Field Operations

Railroad Commission, Oil & Gas Division

- Two primary sources of radiation in logging tools used by industry, primarily to log wells:

-
- Cesium (up to 2 curies of beta and gamma radiation)
 - Americium & Beryllium (up to 18.5 curies of alpha and gamma radiation)
 - Over the last ten years 18 radioactive sources lost and abandoned in wells across the state; a total of 208 since 1959
 - Commission establishes procedure for dealing with these lost radioactive sources in Commission rule 35:
 - Operator must notify the commission immediately after losing a radioactive source in a well
 - Abandonment procedures may not be initiated by the operator until all reasonable effort has been expended to retrieve the tool
 - A permanent surface marker must contain stipulated information
 - Red dye cement
 - Commission is not aware of any stolen sources from any logging companies

Buck Henderson, Manager, Public Drinking Water Section

Texas Natural Resource Conservation Commission

- In Texas, we have had basic security enhancements for public drinking water systems in place for many years due to our rules and regulations that require:
 - sourcewater protection zones
 - all treatment and storage facilities to be equipped with intruder resistant fences, locked doors, gates and hatches
 - that all water systems must have disinfection treatment
- After 9/11, TNRCC's Water Supply Division formed a critical facilities team to address the public drinking water system's security issues
 - Security evaluation plan guidance for water systems as an enhancement tool for preventive and deterrent security measures
 - laid out basic security steps for water systems including heightened awareness and customer involvement
- Knowing that not all security breeches can be prevented, when preventive security systems fail water systems must be able to know how to respond to and mitigate an incident or emergency (Emergency Response Plan)
- 6,600 public drinking water systems in Texas
- Critical facilities team conducted a risk assessment of the largest water systems in Texas

Tom Milwee, State Coordinator of Emergency Management

Texas Department of Public Safety

- Hazardous materials, including radioactive materials are highly regulated by both federal and state agencies, from their production through storage, transportation, use and disposal
- Hundreds of materials pose a threat to life and could be used as weapons by terrorists, including the more than 350 extremely hazardous substances covered by Section 302 of the Federal Emergency Planning and Community Right-to-Know Act (EPCRA) and more than 700 hazardous substances covered by the Comprehensive Environmental Response Compensation and Liability Act (CERCLA)
- Hundreds of toxic substances and more than 500,000 products have hazardous components

Preparedness activities designed to enhance capabilities of local responders to deal with incidents involving hazardous materials whether accidental or deliberate acts:

- Facilities which make, store, or use the most hazardous chemicals are required to report their inventories of those chemicals annually to Local Emergency Planning Committees in each county, the local fire departments and to the Texas Department of Health
- Local Emergency Planning Committees (LEPCs) are quasi-governmental bodies mandated by EPCRA

-
- LEPCs consist of: local officials and representatives of industry, health and medical facilities, fire services, law enforcement, the media and environmental groups
 - LEPCs provide information to the public on chemicals present in the local community, assist local government in emergency planning for hazardous materials, and provide educational materials and protective measures for chemical emergencies
 - Transportation of hazardous materials
 - No similar reports required
 - RRC can provide maps of many pipelines to assist in planning for transportation arteries
 - Some local governments perform commodity flow studies on local highways to identify what is actually being transported through their community
 - Planning Grants
 - Division manages a small U.S. Department of Transportation Planning Grant program to assist local governments in carrying out some of those commodity flow studies
 - Pursuant to the Texas Disaster Act, the division also publishes standards for local government emergency management plans and also provides them with planning guidance in planning those. Plan Annexes include:
 - Annex Q: Hazardous material and oil spill response
 - Annex D: Radiological protection
 - Annex B: Deliberate releases of hazardous materials (includes terrorism)
 - All materials available on our web site
 - 57% of the communities (counties and cities) in Texas are currently covered by an emergency management plan - this corresponds to a little over 83% of the population
 - Using grant funding from the U.S. Department of Transportation, we contract to make a wide variety of training available to local and state responders at no cost to them.
 - We provide about 30,000 student hours a year
 - Courses available include: Hazmat Awareness for First Responders, First Responder Hazmat Operations, the Hazmat Technician Course and a variety of specialized courses such as The Chemistry of Hazardous Materials
 - Division also offers an eight hour Radiological Monitoring Course and a week-long Radiological Response Team Course, both taught by the Texas Department of Health Bureau of Radiation Control
 - For the last three years we've developed and implemented an Integrated Terrorism Training and Exercise Program for local governments, accomplished with the support of the Texas Engineering Extension Service
 - This fiscal year 10 will be conducted, and for the first time the focus will be outside the boundaries of the local governments to include many of the major airports and ports
 - We conduct three emergency planning courses each year and three to four terrorism awareness courses each year
 - Encourage all local governments to exercise annually to test their emergency plans and training
 - A rigorous emergency preparedness program is required by federal law for the state's two nuclear power plants: Comanche Peak and South Texas
 - Local governments, the Department of Public Safety, the Texas Department of Health and other state and federal agencies participate in this extensive planning, training and exercise activity
 - Pursuant to an agreement between the state and the U.S. Department of Energy, DPS and TDH, a number of other state agencies and local governments also participate in an extensive emergency planning effort for the Department of Energy's Pantex plant in Carson County
 - A grant from DOE through the Southern State's Energy Board supports a preparedness program for shipments of low-level transuranic waste which is a by-product of the

nation's nuclear weapons program

- These shipments move through Texas on I 20 and US 287 to the Waste Isolation Pilot Plant near Carlsbad, New Mexico
- The TDH and DPS conduct training for local officials and emergency responders along the shipment route and provide planning assistance
- DPS monitors these shipments electronically from our State Emergency Operating Center in Austin
- From our discussion with industry and local government we've concluded that those officials feel major hazmat production facilities are typically relatively well protected by security forces or systems which would make it difficult for terrorists to obtain hazardous materials from these facilities
 - However, facilities may still be vulnerable to sabotage
 - When terrorists encounter well-secured facilities, they are apt to seek other, more vulnerable targets
 - Concern about theft of hazardous materials from distribution centers, warehouses, transportation centers, carriers and other user facilities
 - Concern about legal purchases of such chemicals as well

Radiological Materials:

- Major area of concern is potential theft of radiological materials that are used outside of established facilities such as logging sources and portable x-ray equipment
- Emphasize the need to more timely report theft and suspicious purchases of extremely hazardous chemicals, or the theft or loss of radiological materials to state regulators and local law enforcement officials - would aid in timely identification of any potential threat

Drinking Water Safety

- Surface water supply is a difficult target for terrorist attacks because of the large amount of agent that would be required, coupled with the necessary knowledge and access to critical locations within the network
- Water treatment plants and storage tanks of treated water might be a more attractive terrorist target
- Security actions that have been taken include:
 - improving site fencing and access control
 - removing shrubbery and increasing lighting at facilities to increase visibility
 - improving locks and installing alarms
 - instructing employees to make timely reports of apparent unauthorized access
- Many water systems have increased security through stationing law enforcement personnel on site and including drive-bys as part of their review of the water facilities
- Permits for public water systems require that they be secure and the Public Drinking Water Section of TNRCC is already inspecting such systems to ensure they operate safely

Wade Wheatley, Director, Waste Permits Division

Texas Natural Resource Conservation Commission

Hazardous waste management activities

- Generators are responsible for hazardous waste generated by them from the time of generation until its final disposition be that through treatment until it is non-hazardous or until it is disposed of in a landfill
 - Required to maintain records on the quantity, characteristics, and disposal of the waste they generated
 - Any waste that leaves their possession has to be manifested
 - Manifest given to transporter who verifies accuracy
 - Transporter must take it to an authorized facility, who then verify the manifest to ensure that what they are receiving is what the generator claims to have sent
 - Any discrepancies must be resolved

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- 36.9 million tons of hazardous waste generated or managed in the state in 2001, there were only 74 manifest discrepancies that were unresolved; most of those were fairly minor and not of a significant nature
 - These activities do not have a large risk associated with terrorist attacks due to the impure and variable characteristics of hazardous waste
 - The waste is hazardous due to potential chronic effects and not to any immediate threat to health and human safety

Paula McKinney, Chief of Hazard Communication Branch

Texas Department of Health

Hazardous Chemical Reporting

- Serve as a state repository for Hazardous Chemical Inventory Reports (Tier II reports)
 - Filed annually to meet both state and federal requirements by facilities that store hazardous chemicals by certain thresholds
 - Report includes facility name, location, industry classification, operator and emergency contact information, specific chemicals and chemical products in inventory, storage container types, storage conditions, detailed storage locations within the facility, and optional maps, site plans and descriptions of any special safeguard measures
 - 356 extremely hazardous substances listed by EPA and these have low thresholds of risk (500 pounds or less depending on risk of chemical)
 - Whatever is declared hazardous by the Occupational Safety and Health Administration, reporting begins at 10,000 pounds
 - Copies of report filed with TDH, the local LEPC (273 in Texas) and with local fire departments
 - LEPCs and fire departments are using reports in their planning and their emergency response
 - 7,500 operators representing 40,000 facility locations reporting
 - State law requires retaining reports for 30 years

Homeland Security

- The E Plan: working with EPA to provide chemical information in a searchable database on a secure EPA website that will be password accessible for key emergency responders
 - Key is collecting this information in an electronic format to allow for a searchable database

Shawn McCabe, President

Waste Control Specialists

Current Activity and Plans for the Future

- We do what we do everyday over the last several years
 - We continue to provide storage and treatment in a safe, secure, isolated facility
- WCS is staffed by trained individuals with expertise in handling and packaging of radioactive materials
- Oversight of our facility is through the TNRCC, TDH, and DOE via our contracts with DOE, NRC and EPA
- That's our activity to date, and plans for the future are kind of wide open.
- New management team has been in place since January, 2002
 - LLRW disposal is under evaluation, but a decision hasn't been made
- We will continue with what we're doing whether we add disposal to our activities or not
 - We're focusing on core competencies:
 - The RCRA landfill disposal of exempt material predominantly
 - Treatment of mixed waste and repackaging for off-site disposal
- Only three waste processors service DOE in our area:

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- WCS
 - Permafix
 - ATG in Hanford; went bankrupt (Chapter 11)

Michael Ford, Vice Chair

Texas Radiation Advisory Board

- It is not necessary to create a “dirty bomb” to kill people with radioactive materials; not using a bomb is a far more insidious way of injuring people with radioactive materials
 - If you want attention, you do it with a dirty bomb
 - If you want to create terror, you do it differently; it would not be appropriate in a public forum like this to explain other methods that could be used
- NORM in drinking water
 - EPA is promulgating a new rule that will create more waste from our drinking water systems
 - If the rule is adopted, we will have no place to dispose of that additional waste in the state of Texas
 - Money for out-of-state disposal will have to come from other sources, possibly money currently being used to address security issues
- Staffing for the Bureau of Radiation Control
 - We are concerned about the future ability of the BRC to be able to respond to incidents as they come up
 - We have a good staff of high quality people currently
- Waste Issue
 - Assured Isolation provides a lot of benefits and it provides enhanced monitoring capabilities
 - While not specifically written into their framework of regulations, the NRC has said this would be something they would be willing to contemplate
 - Increasingly difficult to find waste disposal outside of Texas
 - TRAB would like to see the legislature continue to pursue Assured Isolation

Erin Rogers

Lone Star Sierra Club

- Lost, stolen, abandoned materials
 - NRC is working on a rule to tighten up regulatory oversight of the generally licensed devices by proposing
 - that licensees pay a fee for future disposal
 - require permanent labeling
 - impose civil penalties that are higher than the disposal cost
 - do more stringent inspections
 - We should look at ways to decrease the use of these materials and find alternative sources

***Mountain or Molehill?* Report:**

- Five recommendations for Non-utility waste, page 17
 - 1) BRC explore computer data matching possibilities with federal bankruptcy courts to identify BRC licensees who may have abandoned radioactive sources
 - 2) Require bankruptcy attorneys to identify licensees and notify the BRC
 - 3) Set up a system to identify deceased doctors who may have BRC radioactive materials licenses, and follow up with families or inheritors
 - 4) Manage only non-utility waste, preferably at existing power plants
 - 5) Apply to participate in the Conference of Radiation Control Program Directors program, National Orphan Radioactive Materials Disposal Program
 - They supply technical and financial support
- Non-utility waste is only 4% of the radioactive waste generated

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- Concerned about terrorist attacks at nuclear power plants

Transportation

- Waste shipment expected at WCS lost for one month
- Nuclear power plants should be considered for service as disposal sites for all waste
- We should phase out nuclear power and in favor of clean wind power

Doris Bryant

Radiation Technology, Inc.

- HB 1099, last session: Stringent regulations which will be financially punitive to a number of companies, particularly small businesses
 - Some of those regulations are not being applied equally to large business, medium and small businesses
 - Should apply to generally licensed users as well as specifically licensed users of radioactive sources
- Need for burial site in Texas of utmost importance
 - Barnwell: cost of burial is almost prohibitive
 - one package (7.5 cubic feet), appropriately stabilized costs \$20,610 to dispose of, not counting materials, labor or transportation to the waste site
- By not establishing a disposal facility, we are creating the orphan source problem and making it worse
- We need a waste disposal site in Texas and we need it in less than 20 years

Dianne D'Arrigo, Director, Radioactive Waste Project

Nuclear Information & Resource Service (a nonprofit in Washington, D.C.)

- Reactors not adequately protected from the kind of attack we saw on 9/11
- Transporting nuclear waste and central storage are also terrorist threats
- Enrichment phase of uranium production produces more CFCs than all the rest of the CFC production in the country
- Regarding nuclear materials that are used in daily practices: the public would prefer non-radioactive alternatives
- Completely unfair that we have to equip ourselves to try to detect a needle in a haystack of all this stuff coming in, when our regulatory agencies give so many general licenses
- Dispersal of radioactive materials into commerce should be prevented; they can be deliberately sold for reuse and recycling or to go to landfills
- Most authorities agree that the sole, airtight solution is to control the materials at their source

Tom "Smitty" Smith

- There are some serious concerns about the safety of the reactors
 - Since the safety of plant designs were tested, larger planes have been created and may be able to damage reactors
 - Safety and security of nuclear fuel storage pools is questionable
 - There are very good perimeter systems in place, but many of them have not been tested successfully in the years past. They should be tested again
 - Overall, we still have the problem of inbound planes hitting those fuel storage pools
 - If we're going to create some sort of shielding component for those fuel storage units, we should use it as an opportunity to design a facility that will allow us to shield the fuel storage pools, but also give us an opportunity to do some of the isolation we've been talking about
- Concerns about transportation of waste
 - 4,000 trucks over the next thirty years, only about half originating in Texas
 - Each will have a payload the size of what we dropped on Hiroshima in terms of

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- activity
- **Studies indicate that they are vulnerable for a number of reasons:**
 - **The casks have been designed to withstand a thirty-five mile an hour impact**
 - **We haven't looked at what happens if these things are hit with the kinds of weaponry that might potentially be used (like a high energy explosive device) which could have a significant impact in terms of the health of the people in the communities**

APPENDIX 1 B

Proposed Rider for the Radiation and Perpetual Care Fund:

Contingency Appropriation for Radiation and Perpetual Care Fund. Contingent upon the creation of a Radiation and Perpetual Care Fund for fees collected under Section 401.301 Health and Safety Code, Subsections (d) and (e) and penalties collected under Section 401.384-401.390, Health and Safety Code, relating to regulation of radioactive materials and other sources of radiation, the Texas Department of Health is appropriated all revenues deposited into this account for fiscal year 2004 and fiscal year 2005 for the purposes set out in Section 401.305, Health and Safety Code, Subsection (e).

The fund would be authorized as follows:

401.301. License and Registration Fees Collected by Department

(d) The department may require that each person who holds a specific license issued by the department annually pay to the department an additional five percent of the appropriate annual fee set under Subsection (b). Fees collected under this subsection shall be deposited to the credit of the radiation and perpetual care fund. The fees are not refundable.

(e) The department shall suspend assessment of a fee imposed under Subsection (d) if the amount of fees collected under that subsection reaches \$500,000. If the balance of fees collected subsequently is reduced to \$350,000 or less, the department shall reinstitute assessment of the fee until the balance reaches \$500,000.

ENDNOTES

1. **Abel J. Gonzalez, "Security of Radioactive Sources, the Evolving New International Dimensions," IAEA Bulletin. 43/4/2001.**
2. **Sam Pettijohn, "Nuclear Materials Safety and Safeguards quarterly Newsletter," No. 01-4 (p. 5).**
3. **Id.**
4. **Id.**
5. **Texas Department of Health, Bureau of Radiation Control, "Lost, Stolen, and Abandoned Radioactive Source Fact Sheet," April 23, 2002.**
6. **Id.**
7. **NRC Information Notice 2001-11, July 13, 2001.**
8. **U.S. Nuclear Regulatory Commission, "Review of Lost, Stolen, or Abandoned Radioactive Source Data Reported to NMED," *NMSS Licensee Newsletter*, No. 01-4, (p. 5).**
9. **Abel J. Gonzalez, "Security of Radioactive Sources, the Evolving New International Dimensions," IAEA Bulletin, 43/4/2001, p. 39.**
10. **Id.**
Note: Others who have verbally agreed with this statement include Dr. Robert Emery, The University of Texas Health Science Center at Houston during "An Overview of Plausible Terrorist Events Involving Radioactive Materials," (February 26, 2002) and Dr. Dale Klein, Assistant to the Secretary of Defense for Nuclear, Chemical, and Biological Weapons.
11. **E-mail from Dr. Klein to Annette Glass dated October 13, 2002.**
12. **"On the Road to the WIPP, Transuranic Waste at the INEEL," downloaded from <<http://www.inel.gov/publicdocuments/pdfs/road-to-wipp.pdf>>, October 10, 2002.**
13. **"Spent Nuclear Fuel Transportation," U.S. Department of Energy, Office of Public Affairs.**
14. **Id.**
15. **"Texas Low Level Radioactive Waste Status," August 16, 2002.**
16. **Sierra Club, Lone Star Chapter, *Mountain or Molehill? Low Level Radioactive Waste in Texas*, May 2002. Available online at <www.texas.sierraclub.org/rad_waste/texasnuclearwastereport>.**
17. **Texas Medical Association House of Delegates, Approved Resolution 21, approved at the TMA Summit held September 20-21, 2002.**

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18. **Texas Radiological Society, Resolution passed and approved April 13, 2002.**
 19. **Texas Society of Professional Engineers, Resolution passed and approved June 12, 2002.**
 20. **North Texas Chapter of the Health Physics Society, Resolution passed and approved April 25, 2002.**
 21. **South Texas Chapter of the Health Physics Society, Resolution passed and approved April 26, 2002.**
 22. **Texas Radiation Advisory Board, Resolution passed and adopted July 20, 2002.**
 23. **North Texas Chapter of the Health Physics Society, *Supra* note 18.**
 24. **Sierra Club, Lone Star Chapter, *Mountain or Molehill? Low Level Radioactive Waste in Texas*, May 2002 (p. 4). Available online at <www.texas.sierraclub.org/rad_waste/texasnuclearwastereport>.**
 25. **“Big Trouble at San O?” *Surfer Magazine*, August, 2002 (p. 82).**
 26. **Telephone conversation with Richard Ratliff, October 10, 2002.**
 27. **42 U.S.C. §2021b - 2021j**
 28. **TEX. HEALTH & Safety Code Ann. §403.006 (West, 2001)**
 29. **Id.**
 30. **TEX. HEALTH & Safety Code Ann. §401.205(3) (West, 2001)**
 31. **TEX. HEALTH & Safety Code Ann. §403.305 (West Supp. 2002)**