URENCO USA EMERGENCY PREPAREDNESS STATUS/UPDATE MEETING WITH THE STATE OF TEXAS 2018
Introduction

- URENCO USA –
  - Who we are and what we have accomplished over the past year
- URENCO USA Emergency Preparedness Program
  - Regulations, hazards, events, organizations, notifications, communications, training, drills/exercises
- Offsite Interface –
  - Emergency planning
  - MOUs
- www.urencocom/coutom/459/virtualtourn/default.aspx
URENCO USA

- Located in southeast New Mexico
- 1st new nuclear facility in the US in more than 30 years
- Nuclear Regulatory Commission license issued in 2006
- Operation commenced in 2010
- Only uranium enrichment plant in North America
Project History - 2006
URENCO USA Today

- Current Capacity – 5 Million SWU
- Current Employees – 230
- Provides one third of the U.S. demand for enrichment services
The Enrichment Process

• Uranium hexafluoride (UF6) contains two different uranium-isotopes: U-238 and U-235.

• To fuel commercial nuclear power plants, enriched uranium is required.

• URENCO USA uses centrifuges to spin UF6 gas at high speed to separate U-235 from the heavier U-238 isotopes.

• This process creates low enriched uranium with an increase of U-235 from 0.7 percent to commercial grades of 3-5 percent.
Centrifuge Technology

- Proven to be the world’s most advanced, energy efficient, and cost effective technology for enriching uranium.
- Successfully used for over 30 years in Europe.
Uranium Enrichment Process

A closer look at the enrichment process

- Heating (UF6 transport container)
- UF6 (Pressure reduction)
- Compressor
- Separation (in centrifuge cascades)
- Enriched UF6

Cooling box (with transport container with enriched UF6)

- Cooling box (with transport container with depleted UF6)
SBM-UF6 Handling Area
SBM-UF6 Handling Area
Domestic Enrichment

- Only 9% of domestically used enriched uranium was produced in U.S. leaving foreign countries to fill demand

- URENCO USA at full capacity will produce 5.7 million Separative Work Units (SWU) of enriched uranium, approximately 50% of current U.S. demand for enrichment services

- URENCO USA will prove to be a strong contender within the U.S. market for uranium enrichment services; reducing reliance on the global nuclear fuel marketplace
  - URENCO USA is now the only operating uranium enrichment plant in North America
URENCO USA Project History

- **2003:** License Application
- **2006, June:** Construction and Operating license issued by NRC
- **2006, August:** Ground Breaking
- **2007, July:** First concrete placement for the Central Utilities Building.
- **2009, February:** First UF6 arrived on site for testing in the Centrifuge Assembly Building.
- **2009, September:** First machine installation in the Separation Building Module.
- **2010, June:** NRC authorized URENCO USA to operate – Commercial Operations Commence - 1st Cascade online
  - Ground breaking for SBM 1003
- **2012, August:** 1st Cascade in SBM 1003 online
- **2012, August:** SBM 1005 – Phase 3 initiated
- **2013, June:** SBM-1004 first cascade online
- **2015, January:** 1st Cascade in SBM 1005 online
- **2018, May:** 63 Cascades in production
- **2018, July (tentative):** 64 Cascades in production
Aerial View of Site – 2015
Additional Facts

- URENCO USA sits on one section of land (640 acres or 1 square mile).
- There is no oil or gas production on our site.
- SBM-1001 Building is built to withstand an F5 tornado, a one in 10,000 year earthquake and back to back 100 year floods.
- The Cylinder Receipt and Dispatch Building (CRDB) is the largest seismic steel structure in the United States (798’by 162’ = 129,276 square feet).
- 63 2,000 square foot homes would fit in the building
- Two football fields (with end-zones) would fit in this building, end to end.
- The building contains 6.5 million cubic feet of space; you could almost fit 32 Goodyear Blimps (202,000 cubic feet each) in the building.
- The building is 50 feet tall, the same as a five-story building.
- URENCO USA received its first shipment of UF$_6$ on June 13, 2010.
- The Uranium By-product Cylinder (UBC) Pad is 15 inches thick concrete and rebar. It is 160’ by 700’ plus the loading area is 50’ by 160’ and can store 1,032 cylinders single stack (3,072 triple stacked).
- URENCO USA was the largest construction project in the state of New Mexico (even surpassing Intel).
- URENCO USA is the first new nuclear project in almost 30 years.
- URENCO USA was the first construction project to use the NRC’s Construct-Operate License (COL).
Feed Receipt
Feed Cylinder

- **48Y Cylinder (UF6 Feed and Tails)** -
  - **Dimensions:** 48” Diameter X 12-1/2’ Long
  - Filled Cylinder Weight (Qty 1 Max.): 32,760 Lbs.
  - Tractor Weight (Approx.): 20,000 Lbs.
  - Trailer Weight (Approx.): 10,000 Lbs.
  - **Total Shipment Weight (Approx.): 62,760 Lbs.*

  - *Maximum allowable US highway limit is 80,000 Lbs.
Uranium By-Product (UBC) Pad
Physical Details of Shipment – 30B

- **30B Cylinder (Enriched Product Only)** -
- **Dimensions:** 30” Diameter X 6’ 9-1/2’ Long
- Filled Cylinder Weight (Qty 5, 6420 Lbs. Ea. Max.): 32,100 Lbs.
- Overpack Weight (Qty 5, 1940 Lbs. Ea. Max.): 9,700 Lbs.
- Tractor Weight (Approx.): 20,000 Lbs.
- Trailer Weight (Approx.): 10,000 Lbs.
- **Total Shipment Weight (Approx.):** 71,800 Lbs.*

- *Maximum allowable US highway limit is 80,000 Lbs.*
Protective Shipping Package

UX-30 Overpack – Dimensions: 44” Diameter X 8’ Long
Product Shipment
Emergency Preparedness

- U.S. Nuclear Regulatory Commission (NRC)
  - our regulator
- 10 CFR 70.22
  - requires an Emergency Plan as part of our license to operate
- Regulatory Guide 3.67
  - Emergency Plan and implementing procedures
  - Types of emergencies and hazards associated
  - Notifications and communications
  - Emergency facilities & equipment
  - Emergency response organizations, including mutual aid
- Training, drills, and exercises
  - 2017 NRC Evaluated Exercise – October 18
Facility Hazards

At the Urenco USA Facility, the primary consideration with regard to human health and safety is **CHEMICAL** not radiological.
Uranium Hexafluoride (UF₆)

- Uranium Hexafluoride (UF₆) is present at the URENCO USA Facility as a feed stock for the enrichment process, product material, and as process tails.
- When exposed to the atmosphere, gaseous UF₆ hydrolyzes with atmospheric water vapor to form Hydrogen Fluoride (HF) and Uranyl Fluoride (UO₂F₂).
UF$_6$ Reaction

- HF being generated – on a Petri dish
Types of Accidents

- Radiation – Nuclear Criticality
- UF$_6$ releases
- Fires and/or explosions
- Industrial accidents
- Equipment failures
- Natural phenomena
  - tornadoes and earthquakes
- Security-related events
  - bomb threats, civil disturbances, extortions, and hostage takings
10 CFR 70.22 provides for two (2) emergency classification levels:

- **Alert**
  - An incident that has led or could lead to a release to the environment of radioactive or other hazardous material, but the release is *not expected to require a response by an offsite agency to protect people offsite*
  - Possible hazard to onsite workers

- **Site Area Emergency**
  - An incident that has led or could lead to a release to the environment of radioactive or other hazardous material, that *could require a response by an offsite agency to protect people offsite*
  - Events that could result in a Site Area Emergency are highly unlikely – *Over 30 years of operational experience in Europe has not produced one such event*
Emergency Action Levels (EALs)

• An EAL is a pre-determined, site-specific, observable threshold for a plant condition that places the plant in an emergency classification

• Shift Manager’s/Emergency Director’s tool for classifying an emergency

• Developed from URENCO USA Emergency Preparedness Hazards Assessment
Emergency Action Levels (EALs)

- Nuclear Criticality
  - Site Area Emergency – confirmed criticality event
- UF₆ Release
  - Alert and Site Area Emergency
- Fire Events
  - Alert and Site Area Emergency
- Explosion Event
  - Alert and Site Area Emergency
- Natural Phenomena Event
  - Alert
- Security Event
  - Alert and Site Area Emergency
Notification and Coordination

• Initial Emergency Notification of State and Local agencies **within 15 minutes**:  
  • Texas State Operations Center and Andrews County Sheriff’s Department included  
  • Utilize Everbridge automated/mass notification system

• Ongoing Emergency Notifications:  
  • Follow-up notifications at least every 60 minutes

• Within one hour - Nuclear Regulatory Commission (NRC)

• Four (4) neighboring companies – Site Area Emergency  
  • Waste Control Specialists (WCS) in Andrews County
URENCO USA Emergency Plan, Section 4.4.2 statement:

State of Texas Notifications

“The Texas Department of Public Safety, Division of Emergency Management, understands the limited potential of a chemical or radioactive release and agrees that the New Mexico Department of Homeland Security and Emergency Management is responsible for coordinating the emergency response in New Mexico. Andrews County, Texas, with the assistance of Texas State agencies (as requested), will coordinate and lead the response for the unincorporated areas of Andrews County. Because of the proximity of the facility to the Texas state border, Texas agencies are notified of a declared emergency.”
Offsite Protective Action Recommendations

Sheltering in place for the offsite public within 2.5 miles of the site

- Close all doors and windows and shutdown air conditioning and ventilation systems
- Recommend avoiding areas near the facility – recommend closing traffic on Highway 176

Andrews County and Texas DPS/DoT actions

- Road closure – traffic re-routing
- Lea County Sheriff interface w/ Andrews/Texas
- WCS – shelter-in-place
Emergency Response Organization

- **URENCO USA Emergency Response**
  - Control Room
    - Shift Manager/Interim Emergency Director
  - On-scene
    - Fire Brigade – Incident Commander
    - Security
    - Radiation Protection
    - Safety/EMTs
  - Emergency Operations Center (EOC)
    - Provides support to on-scene responders
  - Joint Information Center
    - Emergency Public Information
Emergency Operations Center (EOC)

- Activated at an ALERT and SITE AREA EMERGENCY
- Functions:
  - Continuous assessment of event conditions
  - Mobilize additional personnel as needed
  - *Emergency notifications and communications*
  - Support incident scene and facility operations through the Shift Manager
  - Implement onsite protective actions
  - *Offsite protective action recommendations*
  - *Off-scene field monitoring/plume modeling and dose assessment*
  - *Emergency public information assistance*
URENCO USA Emergency Plan, Section 5.2.3 statement:

5.2.3 Monitoring and Sampling

“Monitoring and sampling of areas off the UUSA facility will be coordinated with the New Mexico Environment Department - Radiation Control Bureau, and the Texas State Emergency Operations Center.”

5.2.5 Assessment of Releases

“Results of chemical and radiological exposure projections will be shared with the New Mexico Environment Department - Radiation Control Bureau, the New Mexico Emergency Operations Center, the Texas State Operations Center, and the Nuclear Regulatory Commission.”
Joint Information Center

- Located in Eunice, NM
- Provides the workspace and equipment for URENCO USA, local, and state governments, and other response organizations’ staff assigned to prepare and/or coordinate the release of information for outside agency use and for the public and media
- Location where press conferences/briefings will be conducted
- “JIC coordinates the development of news releases with other agencies”
- URENCO USA JIC will be notifying State of Texas PIO
  - State of Texas
    - Emergency Public Information Point of Contact?
      - during an emergency
      - prior to an emergency
URENCO USA Emergency Plan, Section 5.8 statement:

Public and Media Access to Information

“In Texas, the Texas state media representatives will be at the Texas State Operations Center and will coordinate with the New Mexico Emergency Operations Center and the Joint Information Center if one is established. The Texas Emergency Operations Center public information personnel may remain in the Texas State Operations Center or, depending on the severity of the situation, may relocate to the UUSA Joint Information Center.”
Memorandum of Understanding (MOUs) w/ the following organizations for emergency assistance:

- Fire and EMS
  - Eunice Fire & Rescue
- Hazmat
  - Hobbs Fire Department
- Hospital
  - Lea Regional Medical – primary
  - *Permian Regional Medical Center* – Andrews, TX
- Law Enforcement
  - Eunice Police, Lea Sheriff’s Dept, N.M. State Police
- TLDs issued to offsite responders coming onsite
**Termination of an Emergency**

- Emergency condition *no* longer exists *and* the plant is considered in a safe, stable condition with *no* possibility for conditions to degrade further

- Coordination with State agencies on relaxing/terminating any offsite protective actions in place
  - *Potential plume extending beyond the site boundary*
  - *Releasing traffic on Highway 176*
  - *Waste Control Specialists – shelter-in-place*

- URENCO USA Emergency Director, or designee will brief/discuss with appropriate State and local authorities on emergency termination criteria
  - Site Area Emergency – *concurrence obtained from appropriate agencies*
Emergency Planning and Preparedness

• URENCO USA Emergency Plan
  • Annual revisions – Revision 25
    – Revisions do not involve changes that impact offsite

• Distribution
  – Texas State Operations Center
  – Texas Department of Public Safety in Midland – Dude Speed

• Training
  • Onsite – fire brigade, HAZMAT, ICS, EOC, etc.
  • Offsite agencies/response organizations – annually
  • Site/Facility tours
Emergency Planning and Preparedness

• Drills and Exercises
  • Notification/Communication drills
  • Quarterly limited scope drills
  • One Site Wide Drill this year
    – October 10, 2018
    – Most all mutual aid organizations have indicated they will be participating
    – NRC Headquarters Operations Center participating
    – State of Texas – notifications?
  • NRC Evaluated Full Scale Exercise
    – Last year: October 18, 2017
    – Next year: October 2019
Emergency Planning and Preparedness

- Memorandum of Understanding (MOUs)
  - Annual reviews
  - Renew at least every 4 years
    - last year renewed – 2015
- Offsite Emergency Planning Meetings/Interface
  - Quarterly meetings with 1st responders
    - EF&R, Hobbs Hazmat, hospitals, Emergency Management, Lea County Sheriff
  - Annual meetings with State and local planners/authorities
Changes to EP Program

• Reduction of plant’s Fire Brigade response capabilities
Closing

Questions?