

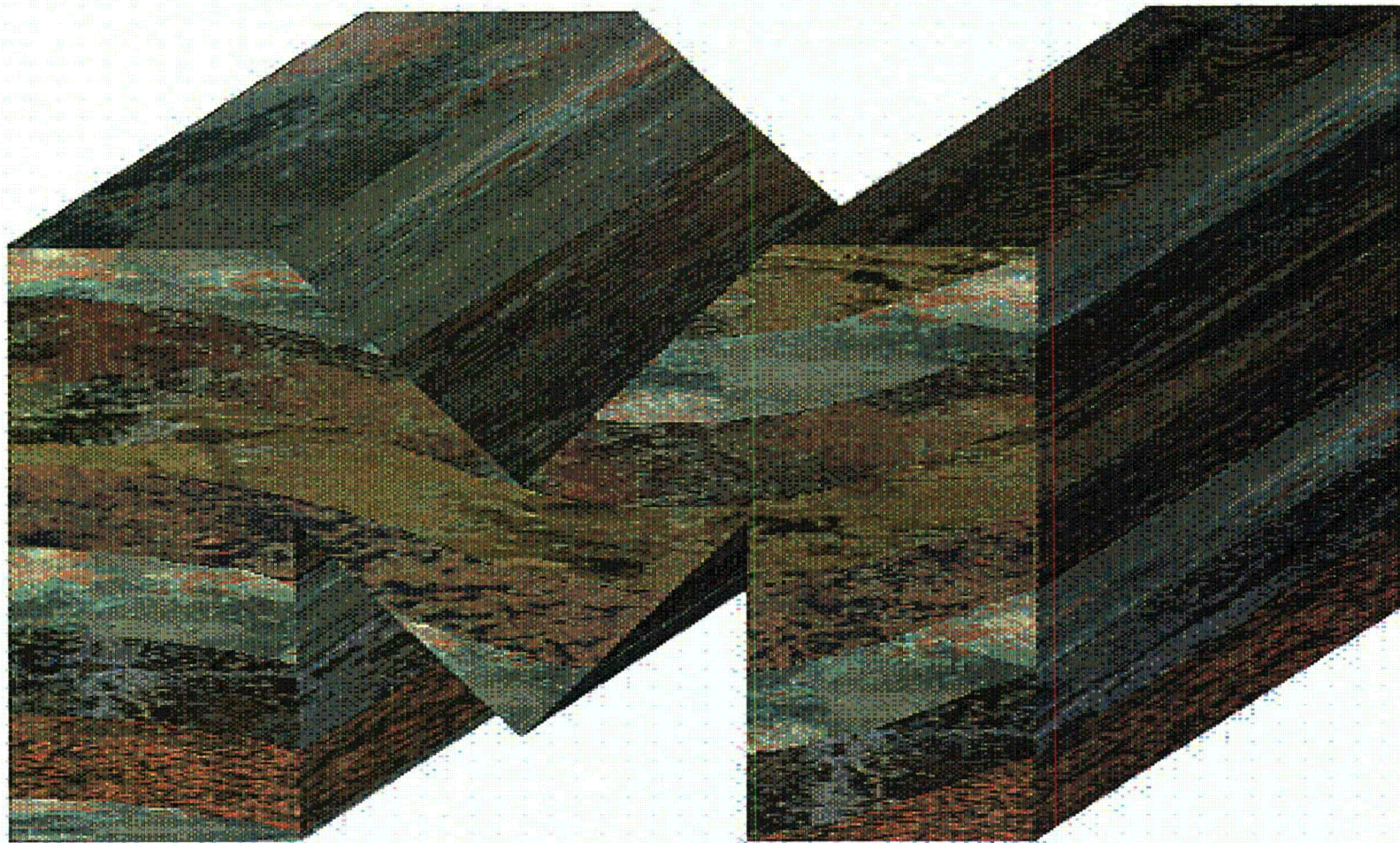
URANIUM BRIEFING

May 13, 1997

Rockville, Maryland

NMA/WMA/UPA

THE NATIONAL MINING ASSOCIATION (NMA)



THE NATIONAL MINING ASSOCIATION'S URANIUM POLICY COUNCIL

- History

- Membership

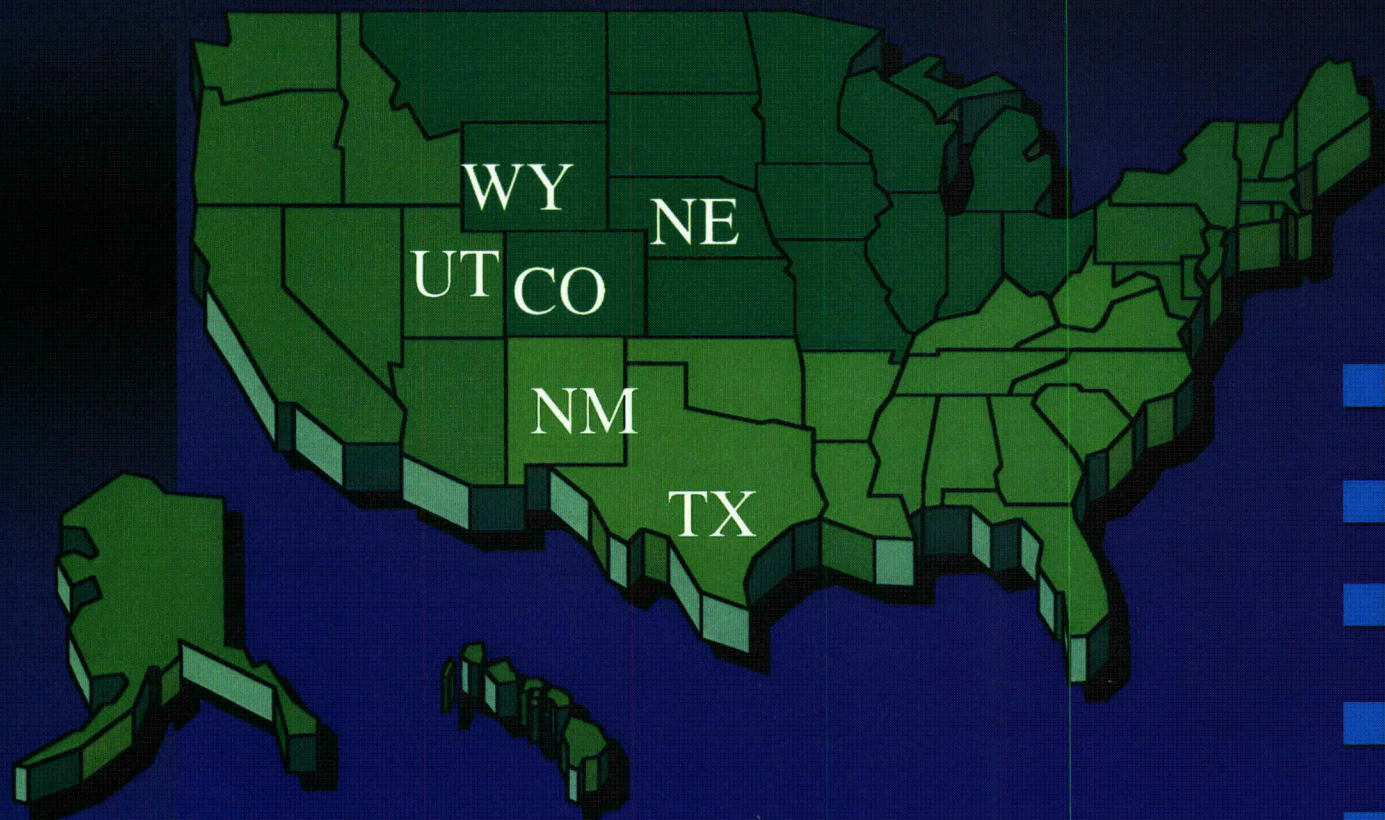
History of the Uranium Policy Council

- ESTABLISHED IN THE LATE 1970S
- REPRESENT NMA MEMBERS ON A FULL RANGE OF REGULATORY, LEGISLATIVE AND LITIGATION ISSUES AFFECTING ITS NRC LICENSEE MEMBERS.

MEMBERSHIP OF THE UPC

- Licensees that are no longer producing uranium but are in the process of reclamation and license termination
- Producers of uranium by conventional milling processes
- Producers of uranium by in-situ leaching
- Producers of uranium as a byproduct of other primary production activities (i.e., phosphate production)

LOCATION OF URANIUM RECOVERY LICENSEES



- WYOMING
- NEBRASKA
- COLORADO
- NEW MEXICO
- TEXAS
- UTAH

IN SITU LEACH FACILITIES

Key ISL Projects

ACTIVE

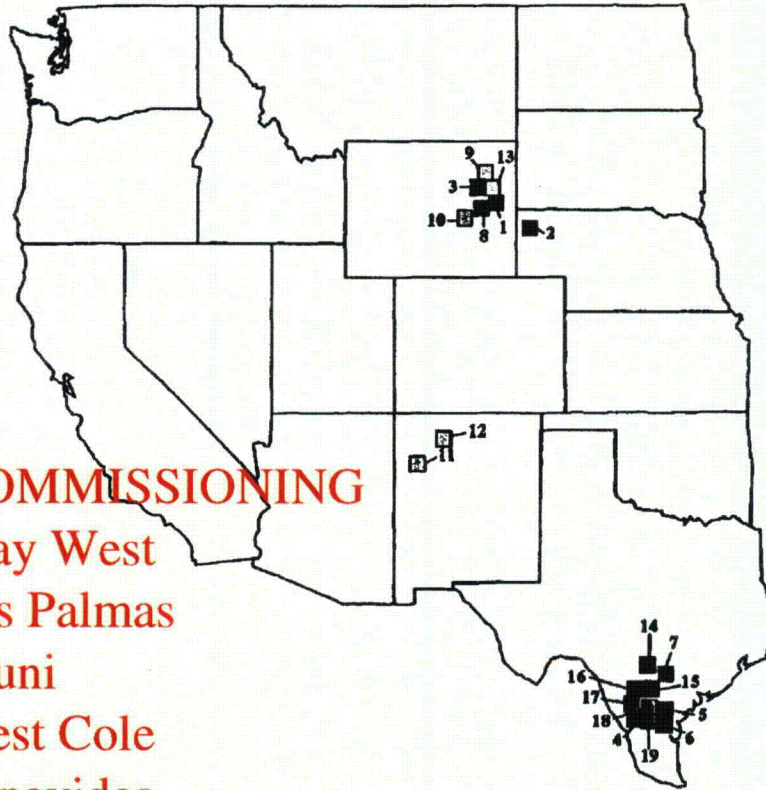
- 1 Highland (PRI)
- 2 Crow Butte
- 3 Irigary/Christensen
- 4 Holiday - El Mesquite
- 5 Rosita
- 6 Kingsville Dome
- 7 Hobson

DEVELOPMENT

- 8 Smith Ranch
- 9 North Butte
- 10 Gas Hills (PRI)
- 11 Churchrock (URI)
- 12 Crown Point
- 13 Reno Creek

DECOMMISSIONING

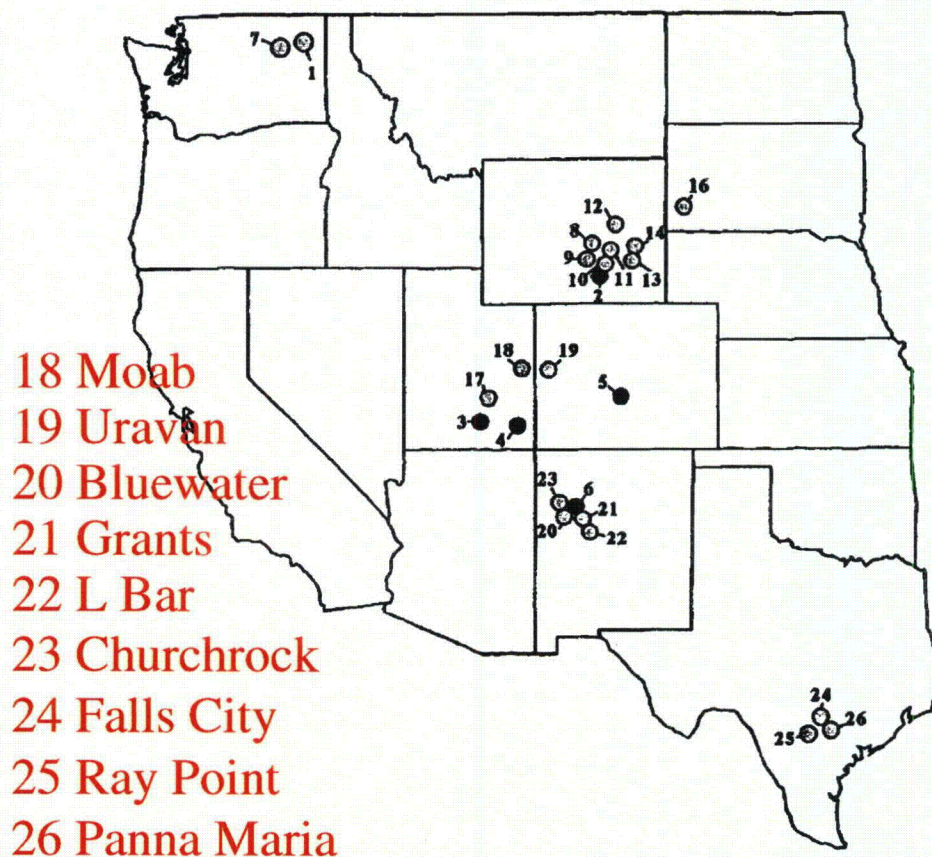
- 14 Clay West
- 15 Las Palmas
- 16 Bruni
- 17 West Cole
- 18 Benavides
- 19 Tex 1



CONVENTIONAL MINE/MILL FACILITIES

● STANDBY

● DECOMMISSIONING



- 1 Ford
- 2 Sweetwater
- 3 Shootering
- 4 White Mesa
- 5 Canyon City
- 6 Ambrosia Lake
- 7 Sherwood
- 8 Lucky Mc
- 9 Split Rock
- 10 Gas Hills (ANC)
- 11 Gas Hills (UMETCO)
- 12 Bear Creek
- 13 Shirley Basin
- 14 Petrotomics
- 15 Highland (Exxon)
- 16 Edgemont
- 17 Lisbon

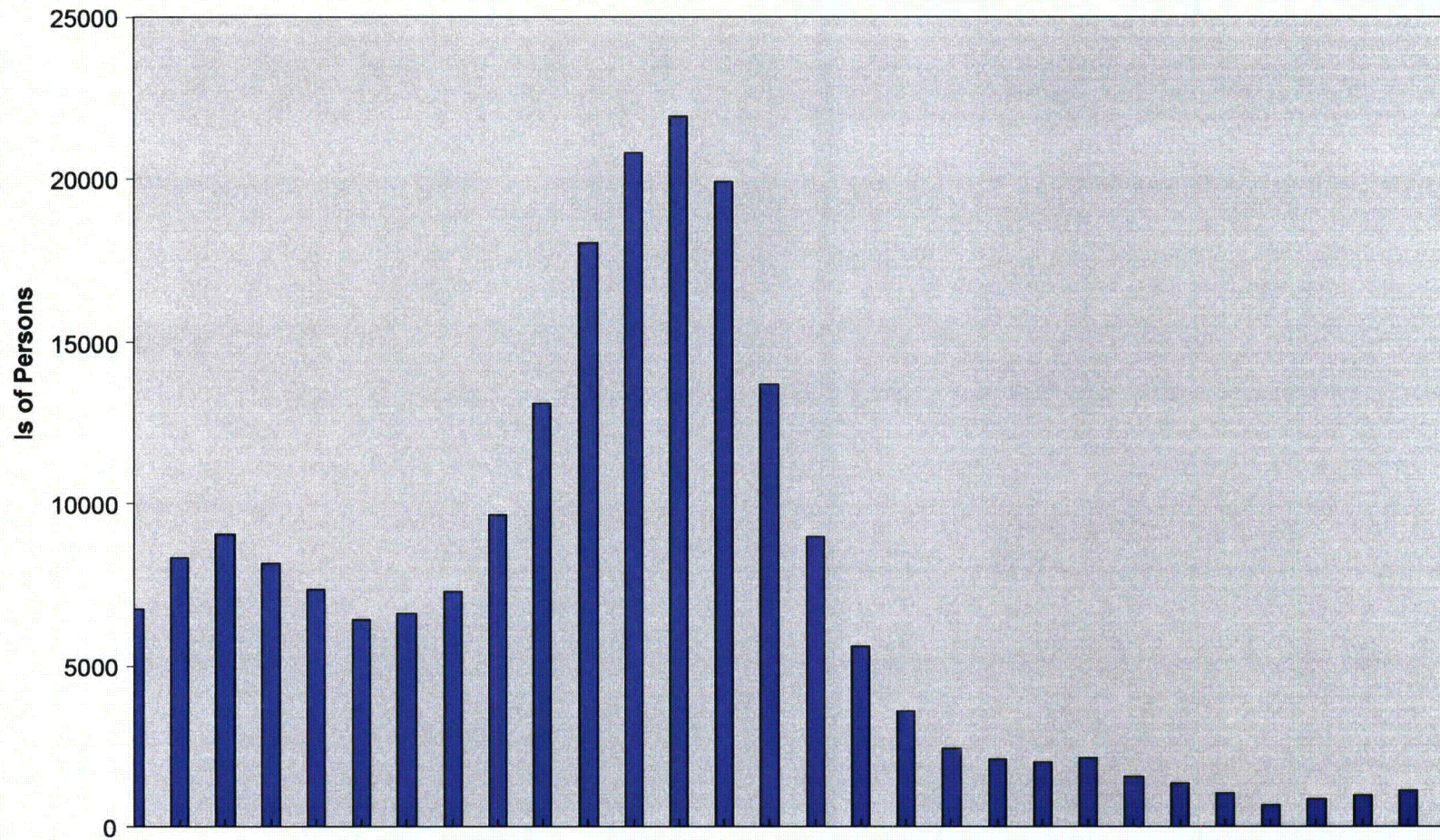
INDUSTRY RELATIONSHIP WITH NRC STAFF

- EXCELLENT WORKING RELATIONSHIP
- NOT ALWAYS AGREEMENT BUT ALWAYS WILLINGNESS TO LISTEN
- SOME POLICY ISSUES CANNOT BE RESOLVED AT STAFF LEVEL

URANIUM PRODUCERS OF AMERICA

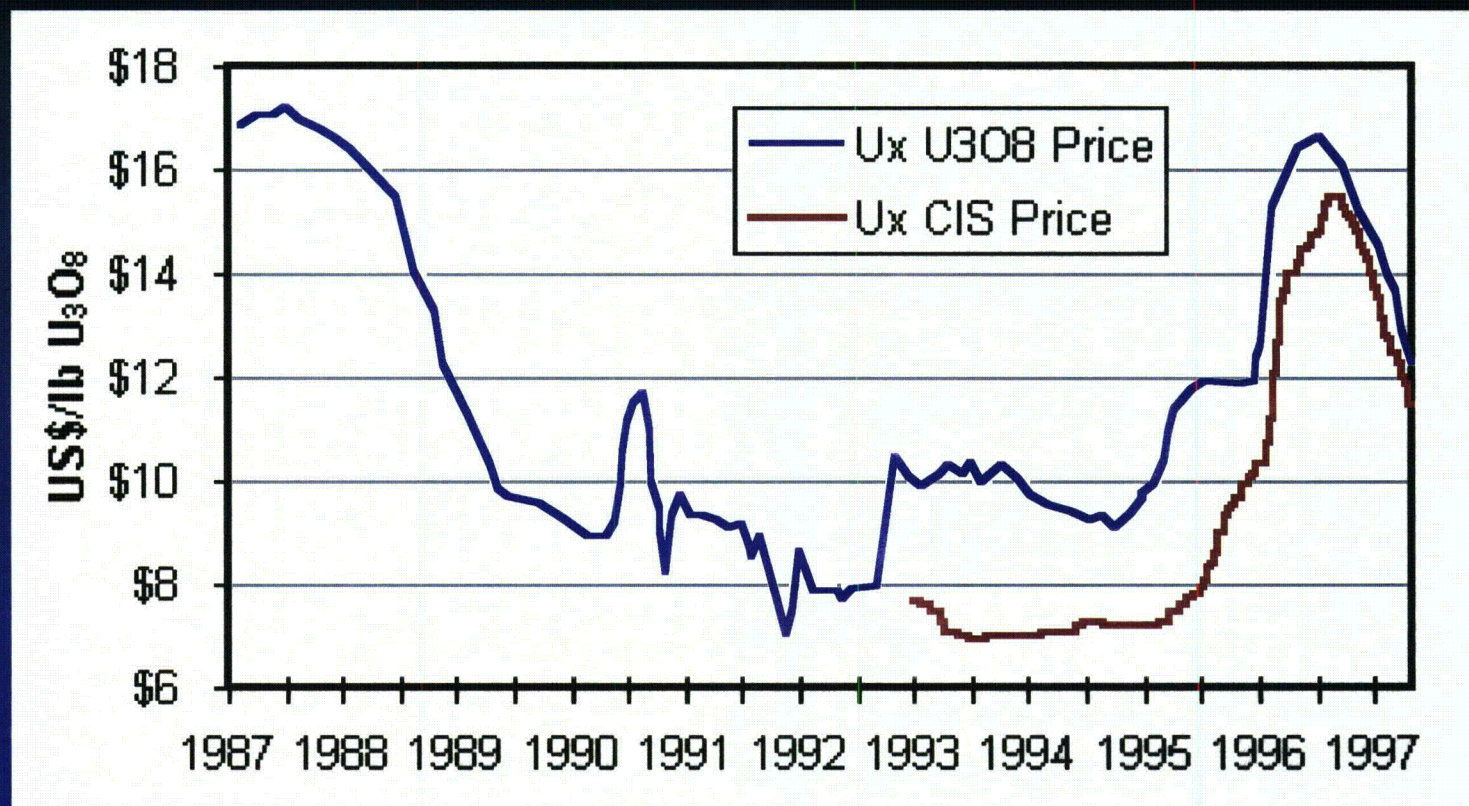
- INTRODUCTION
- ECONOMIC DATA
 - ◆ HISTORIC PRODUCTION
 - ◆ EMPLOYMENT
 - ◆ FUTURE PRODUCTION/ECONOMIC OUTLOOK

Employment in the Uranium Industry, 1967-1995



Compiled from DOE/EAI-0478 Annual Report

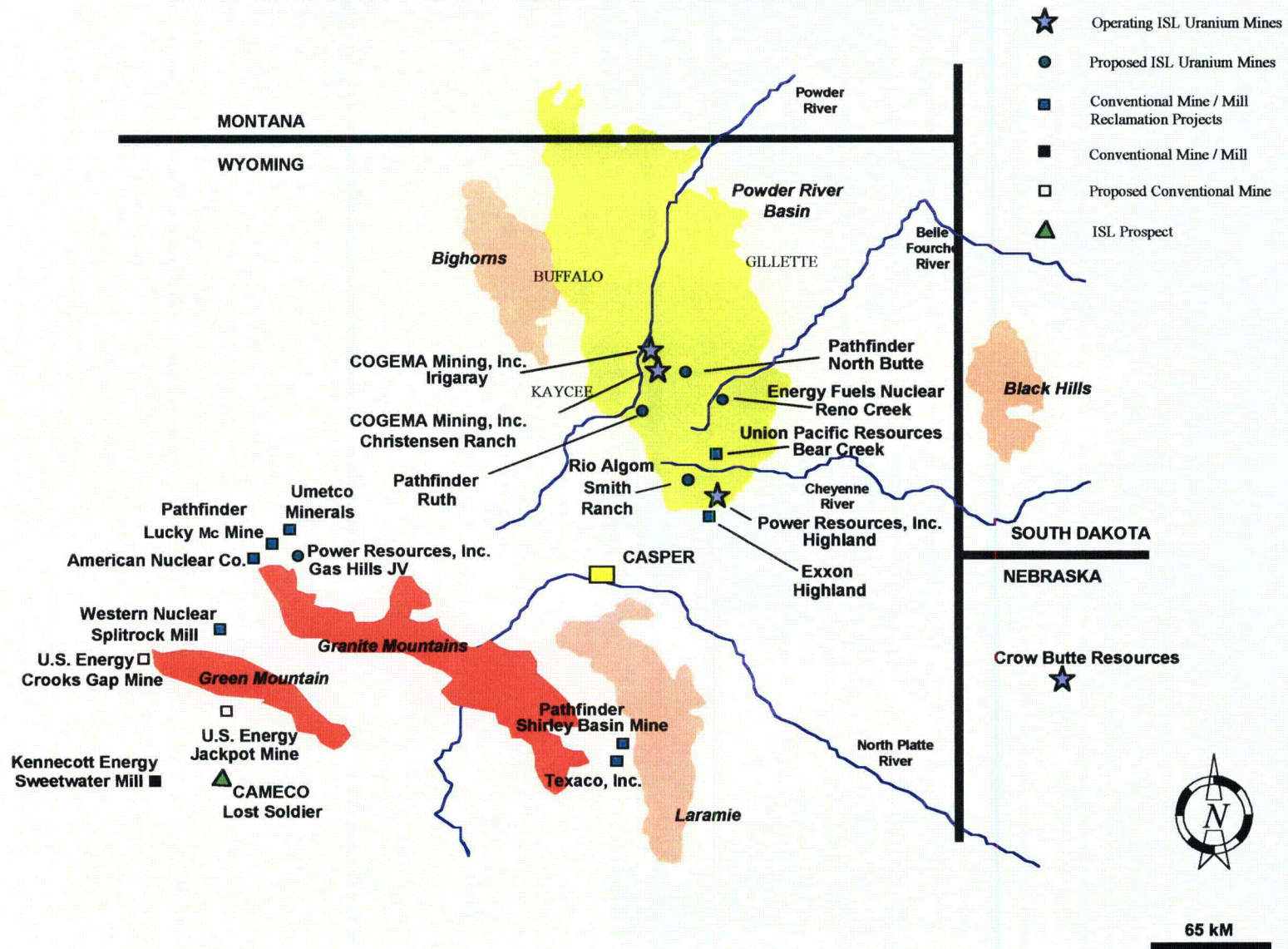
UX U3O8 vs. CIS Prices: 1987- 1997



WYOMING MINING ASSOCIATION

- INTRODUCTION
- DISCUSSION OF SITES

URANIUM PROJECTS IN WYOMING



TYPES OF URANIUM OPERATIONS

- IN SITU LEACHING
- URANIUM MILL TAILINGS
RECLAMATION
- CONVENTIONAL MILL (ON
STANDBY)

IN SITU LEACH OPERATIONS

- WELLFIELD INSTALLATION
- URANIUM PRODUCTION OPERATIONS
 - ◆ injection/recovery
 - ◆ ion exchange extraction and concentration
 - ◆ yellowcake precipitation and packaging
- OREBODY DEFINITION BY DRILLING
 - ◆ wastewater and byproduct material disposal
 - ◆ deep well injection
 - ◆ evaporation
 - ◆ land application
 - ◆ discharge under NPDES permit
- GROUNDWATER RESTORATION

IN SITU LEACHING GENERAL ARRANGEMENT

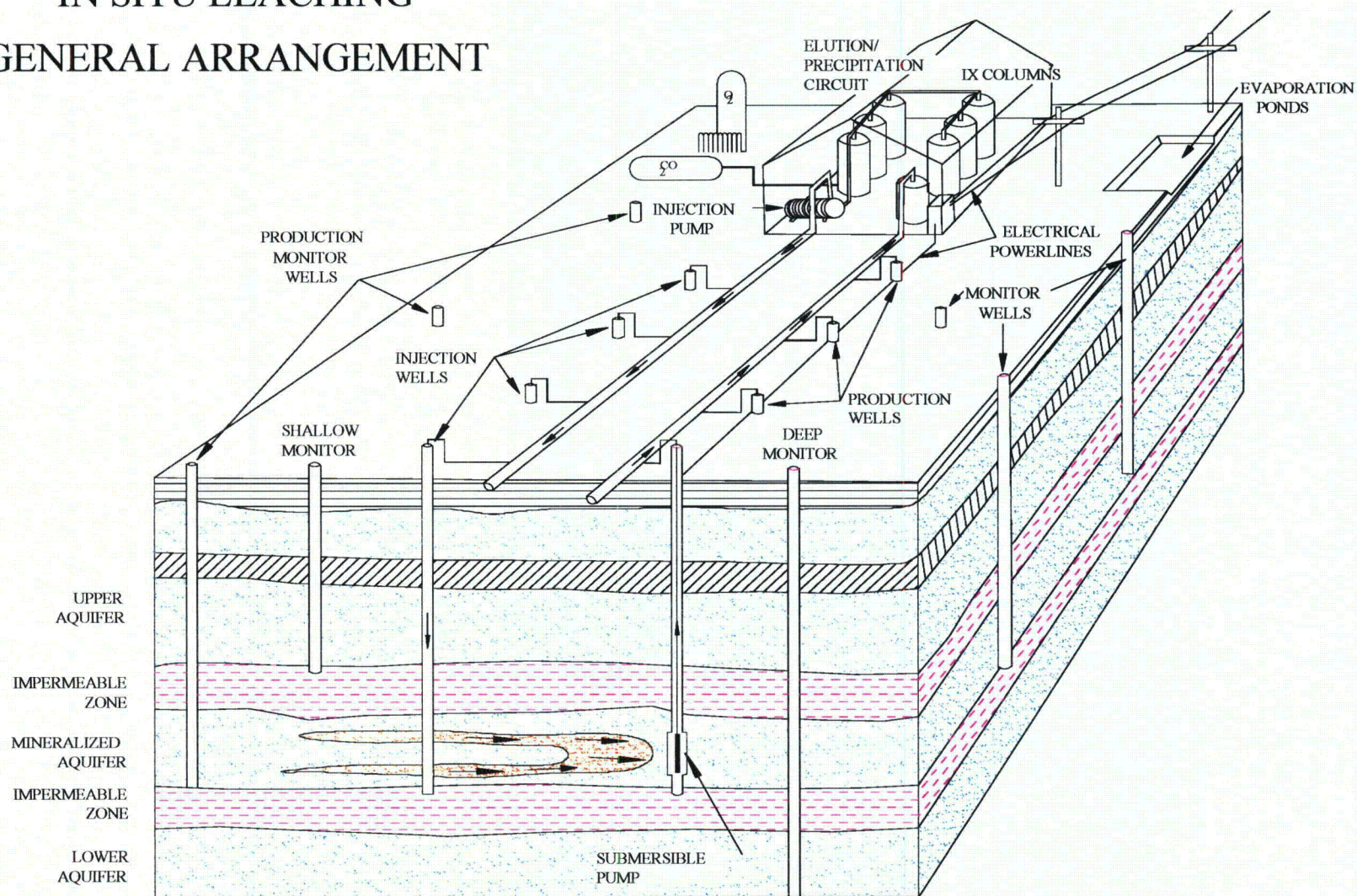
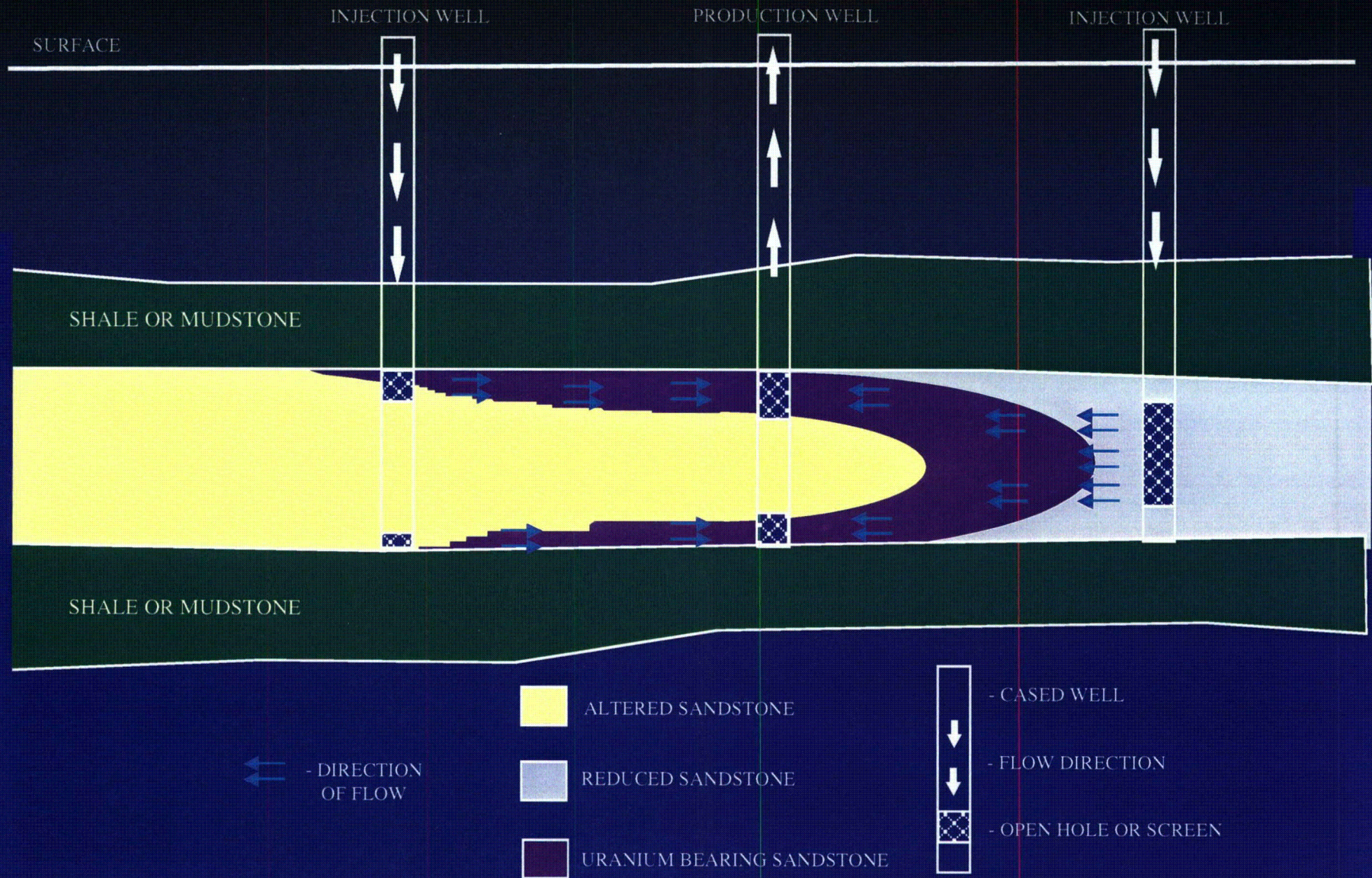


Figure 2

TYPICAL
INJECTION & RECOVERY
WELL COMPLETION INTERVALS



IN SITU LEACH (ISL) OPERATIONS

Wellfield Construction



Operating Wellfield



Land Application



Satellite Plant



Main Plant



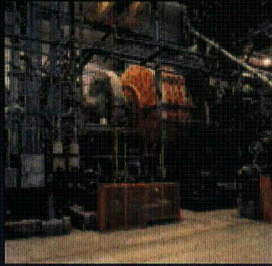
Yellowcake



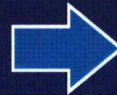
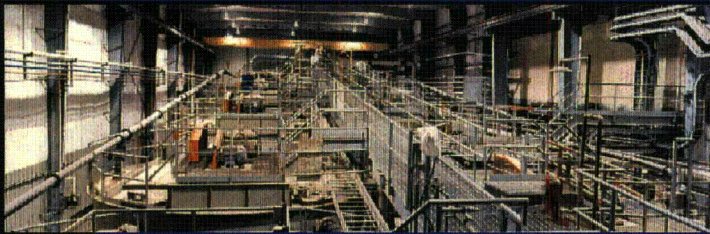
STEPS IN CONVENTIONAL MILLING



Grinding



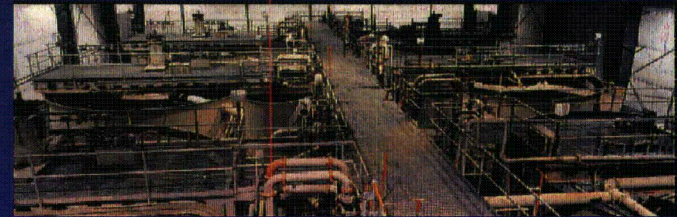
Leaching



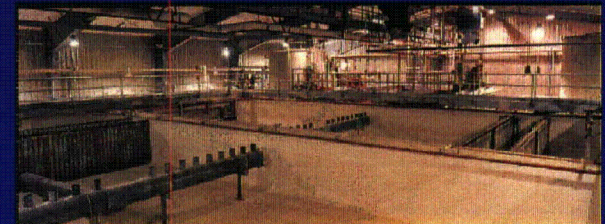
Tailings Impoundment



Thickening



Solvent Extraction



Precipitation



Yellowcake



TAILINGS RECLAMATION

MILL TAILINGS RECLAMATION OPERATIONS

■ RECLAMATION STEPS

- ◆ Dewatering
- ◆ Leveling
- ◆ Settlement
- ◆ Radon Barrier Construction
- ◆ Erosion Protection
- ◆ Final Groundwater Cleanup



- ◆ UMETCO
- ◆ Gas Hills Site
- ◆ 1995

REGULATORY ISSUES AFFECTING URANIUM RECOVERY FACILITIES

NRC's Strategic Assessment Rebaselining Initiative (SARI)

- Provoked NMA to consider request for strategic assessment of issues impacting uranium recovery licensees
- Over time NRC has addressed a variety of issues that affect uranium recovery licensees on an ad hoc basis as they arise, rather than as part of a coherent, strategic assessment
- Result is inconsistent and confusing regulatory applications that have both short and long term implications for licensees, NRC, DOE and Agreement States

URANIUM RECOVERY ISSUES IN NEED OF STRATEGIC ASSESSMENT

- ISL JURISDICTION
- EFFLUENT DISPOSAL GUIDANCE
- NON 11(e)2 DISPOSAL POLICY
- CONCURRENT JURISDICTION

ISL JURISDICTION

- NRC'S ASSERTION OF JURISDICTION OVER ISL WELLFIELDS HAS LED TO DUPLICATIVE REGULATORY OVERSIGHT BETWEEN AND AMONG NRC, EPA AND NON-AGREEMENT STATES
- URANIUM BEING REMOVED FROM THE WELLFIELD IS NOT LICENSABLE SOURCE MATERIAL UNTIL IT REACHES THE ION EXCHANGE TANK AND YET THE ORE BODY IS NOT 11E.(2) BYPRODUCT MATERIAL

STAFF GUIDANCE ON EFFLUENT DISPOSAL

- TREATS PROCESS WASTES AS 11.E(2) BYPRODUCT MATERIAL, BUT TREATS RESTORATION WASTES AS NON-11E.(2) MINE WASTES
- THE SURFACE WASTES GENERATED BY PROCESSING THE ORE BODY FOR ITS SOURCE MATERIAL CONTENT ARE 11.E(2) BYPRODUCT MATERIAL, BUT CONTAMINATION IN THE ORE BODY IS NOT

EFFLUENT GUIDANCE CON'T

- WASTE GENERATED BY RESTORING THE ORE BODY IS NOT 11.E(2) BYPRODUCT MATERIAL BECAUSE THE ORE BODY IS NOT BEING PROCESSED FOR ITS SOURCE MATERIAL CONTENT
- RADIUM/BARIUM SLUDGES IN THESE PONDS ARE A MIXTURE OF 11.E(2) AND NON-11.E(2) BYPRODUCT MATERIAL (I.E., NORM)
- THE LATTER IS NOT SUBJECT TO NRC JURISDICTION UNDER THE AEA/UMTRA

NON-11E(2) DISPOSAL POLICY

- ISL 11E.(2) WASTES ARE DISPOSED OF IN URANIUM MILL TAILINGS IMPOUNDMENTS
- NON 11E.(2) WASTES ARE NOT TO BE DISPOSED OF IN SUCH FACILITIES PURSUANT TO THE "FINAL REVISED GUIDANCE ON DISPOSAL OF NON-ATOMIC ENERGY ACT OF 1954, SECTION 11E.(2) BYPRODUCT MATERIAL IN TAILINGS IMPOUNDMENTS"

NON-11E(2) DISPOSAL POLICY CON'T

- NUMEROUS TITLE II URANIUM MILL TAILINGS IMPOUNDMENTS HAVE TAKEN SLUDGES FROM ISL FACILITIES WHICH INCLUDE NON-11.E(2) MATERIALS IN VIOLATION OF THE POLICY

CONCURRENT JURISDICTION

- NRC LEGAL GUIDANCE SUGGESTS THAT NON-AGREEMENT STATES HAVE CONCURRENT JURISDICTION WITH NRC OVER THE NON-RADIOLOGICAL COMPONENTS OF 11E.(2) BYPRODUCT MATERIAL
- NON-AGREEMENT STATES HAVE INSERTED THEMSELVES INTO THE GROUNDWATER CORRECTIVE ACTION PROCESS AT TITLE II URANIUM FACILITIES

CONCURRENT JURISDICTION CON'T

- ADDITIONALLY, STATES HAVE INSERTED THEMSELVES INTO THE REVIEW AND APPROVAL OF SURFACE STABILIZATION PLANS
- RESULT IS REMINISCENT OF THE MIXED WASTE DILEMMA

CONCURRENT JURISDICTION CON'T

- RAISES QUESTIONS ABOUT THE VALIDITY AND VIABILITY OF THE AGREEMENT STATE PROGRAM
- RAISES QUESTIONS ABOUT THE LONG TERM INTEGRITY OF NRC LICENSE TERMINATION DECISIONS UNDER UMTRCA
- INCREASES DIFFICULTY AND COST OF DISPOSING OF WASTES GENERATED EITHER BY CONVENTIONAL OR ISL ACTIVITIES

PROPOSED FINAL DECOMMISSIONING RULE

PROPOSED FINAL RULE RADIOLOGICAL
CRITERIA FOR DECOMMISSIONING
TREATS CLEANUP AT URANIUM
RECOVERY OPERATIONS IN A SENSIBLE
AND SCIENTIFICALLY SUPPORTABLE
MANNER AND IS IN KEEPING WITH THE
NRC'S MISSION TO PROTECT THE PUBLIC