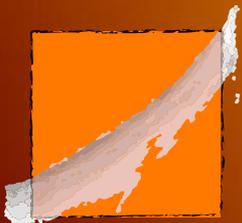


SOCIOECONOMIC STUDY OF THE IMPACT OF URANIUM MINING

**Virginia Commission on Coal and Energy
Uranium Mining Sub-Committee
December 8, 2010**



NATIONAL IMPACT

- Nuclear power is an energy source that is neutral to green house gas emissions (GHG)
- Safely mined uranium is needed to fuel the plants

STATE IMPACT

- \$Billions in uranium reside in Virginia that translate into tax revenues
- Regulatory and safety issues are paramount

REGIONAL IMPACT

- Boom: Take the ore to market
- Bust: Safety and environment is compromised

CHMURA TEAM

- Credible
- Diverse
- Objective
- Thorough

CHMURA TEAM

- Chmura Economics & Analytics
 - You know us
 - Economic, workforce, software solutions
- Issues Management Group



Rob Glenn

Utilities engineer; economic development; focus groups



Broaddus Fitzpatrick

Attorney, environmental/conservation experience in study area



• Lisa Catron Ison

Rural economic development, feasibility studies

- Glenn Pfennigwerth

- 30 years experience, uranium processing
- MS chemical engineering
- Employed at Y-12 National Security Complex, Oak Ridge TN



OVERALL APPROACH

- Initial meeting with key stakeholders to create final delivery plans
- Incorporate prior research/reduction of duplicated efforts
- Case studies
- Creation of oversight group

ASSUMPTIONS

- Case study approach assumes uranium mining and milling operation in Chatham would be benchmarked to similar technologies and management as other mines in the nation
- There is sufficient sustained market demand for uranium
- A Steering Committee will be formed that will
 - Be available for preliminary meeting to fine-tune scope of work
 - Approve regional labor market shed
 - Approve environmental impact region/watershed
 - Advise Chmura Team to discuss project with Virginia Uranium
 - Assist in establishing a collaborative connection between Chmura Team and National Academy of Sciences
 - Assist in making state staff available to Chmura Team

APPROACH: I. ECONOMIC DEVELOPMENT

- Economic impact – IMPLAN Pro, direct & indirect impact
 - Construction of the mine and milling plant
 - On-going operations
 - Cessation of active mining and milling operations
 - Revenue to local and state governments
- Property values
 - Case studies
- Occupational impact
 - Chmura's proprietary and patented JobsEQ

What-If Report for Colorado, NAICS 2122 - Metal Ore Mining, Firm Size of 100

Add this firm to LBP

Occ Code	Title	New Employer Demand	Current Empl	Regional Avg Wage	National Avg Wage
49-3042	Mobile Heavy Equipment Mechanics, Except Engines				
47-2073	Operating Engineers and Other Construction Equipment Operators	8	2,096	\$45,300	\$44,300
53-3032	Truck Drivers, Heavy and Tractor-Trailer	8	7,466	\$42,500	\$43,600
47-5041	Continuous Mining Machine Operators	6	22,312	\$40,200	\$38,700
47-5042	Mine Cutting and Channeling Machine Operators	6	302	\$48,800	\$45,600
47-2111	Electricians	5	219	\$45,800	\$41,500
49-9041	Industrial Machinery Mechanics	4	10,181	\$45,400	\$49,900
49-9042	Maintenance and Repair Workers, General	3	3,324	\$45,500	\$45,300
17-2151	Mining and Geological Engineers, Including Mining Safety Engineers	3	21,318	\$35,100	\$35,600
51-9021	Crushing, Grinding, and Polishing Machine Setters, Operators, and Tenders	3	187	\$99,900	\$79,900
47-1011	First-Line Supervisors/Managers of Construction Trades and Extraction Workers	2	508	\$35,400	\$31,400
47-5049	Mining Machine Operators, All Other	2	10,100	\$60,600	\$61,300
49-1011	Machinery Mechanics, Insulators, and Repairers	2	119	\$49,200	\$43,200
47-1011	First-Line Supervisors/Managers of Construction Trades and Extraction Workers	2	7,331	\$59,200	\$59,200
47-9012	Mining, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders	2	6,875	\$52,700	\$53,500
47-5031	Explosives Workers, Ordnance Handling Experts, and Blasters	2	622	\$33,300	\$38,000

WHAT-IF REPORT

- Metal Ore Mining (NAICS 2122)
- Colorado

APPROACH: II. GOVERNMENT SERVICE/ REGULATION

- Regulatory – Case study/research approach with primary, secondary, tertiary potential effects over time
 - Nuclear Regulatory Commission,
 - Federal Energy Regulatory Commission,
 - Environmental Protection Agency ,
 - U.S. Navy
- Local costs for infrastructure, schools, planning, potential funding – Case study/research approach
 - Virginia coal mines, such as Alpha Resources
 - States in U.S. where uranium is mined
 - » 2007 Colorado House Bill 1161 requires applicants for an *in situ* leach mine to demonstrate five successful mines under similar conditions before a mining permit is issued.*
 - » *Source: <http://www.pecva.org/anx/ass/library/335/c-e-commission-letter.pdf>

APPROACH: III. PUBLIC HEALTH / ENVIRONMENT

- Case study / research
 - Cost of health care and illness
 - Impact on natural landscapes, tourism, hunting, fishing, etc.
 - Environmental justice impacts and disaster costs
 - Post closure procedures and costs
 - Awareness of the watershed (Roanoke River watershed) and the need to be sensitive to North Carolina (flows to Albemarle Sound)
- Experience
 - Developed proactive health plan for western Virginia region
 - Wildlife to historic preservation
 - Involved with programs to improve the quality of life of economically disadvantaged citizens

APPROACH: IV. SOCIAL IMPACTS

- Effects of internal and external image of region
 - SWOT (strength, weakness, opportunities, threats) analysis
 - Region-specific and case studies such as Wyoming/Colorado
- Case studies/research
 - Public confidence in the company/government to control adverse effects – ‘life cycle’ view of best practices/ potential unforeseen threats
 - Impacts on private schools and local institutions
 - Perceived impact on enrollment of schools in area
 - Ability of training providers to train workers for skills needed at uranium mine and milling operations
 - Impact on aesthetics and overall quality of life
 - Measure impacts where uranium mining is occurring
 - Potential surveys/interviews

Questions?

