

# **Final Report for the Business Attitude Survey Regarding Uranium Mining in Pittsylvania County, VA**

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***Presented to:***

*Virginia Uranium Working Group*

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## **EXECUTIVE SUMMARY**

This paper presents the results from two business attitude surveys conducted in November and early December 2012. The surveys collected information from Virginia business leaders as well as regional and out-of-state business site location consultants regarding their knowledge and attitudes toward lifting the ban on uranium mining in Pittsylvania County, VA. The survey results are then placed in the context of the findings from reports and analyses previously provided to the Commonwealth.

### **Highlighted Results**

A total of 652 Virginia business leaders from across the Commonwealth were surveyed for this study. Statewide, approximately 60% of respondents are aware that Virginia has uranium deposits in Pittsylvania County and that the Commonwealth is currently evaluating whether or not to lift the ban on uranium mining and exploring the issues related to effectively accessing this resource.

Commonwealth business leaders have low to moderate trust in the information that has currently been researched on the topic of uranium mining. Further, understanding of the technology/process used to extract uranium was very low. Respondents reported that although they have concerns about uranium mining, those concerns would decrease if they were to learn more about the processes and protections that are associated with the mining of uranium. These results suggest that educating the public on uranium mining may reduce some of their fears, but that the source of the information must be perceived as trusted and unbiased.

Business leaders were asked specifically if they were concerned that uranium mining in Virginia may have a negative impact on various aspects of the community, such as the environment, children, residents, and housing. Respondents were most likely to be concerned that uranium mining might have a negative impact on children. They were also concerned that it might have a negative impact on the environment, on workers and residents, and on housing property values in Southside Virginia.

When asked a similar question about concerns for local businesses, business leaders had particular concern for two primary business sectors: public waterworks and agriculture. They had the least amount of concern for elementary and secondary education, and private schools. Private schools in the Chatham area perceived to be different from public schools, in that they draw many students from outside of the state and/or the country.

Another way that the survey assessed respondents' concerns about mining was to ask them how close, in terms of miles, they would consider it to be safe to locate a business near the uranium mining and milling operations. Respondents indicated that, on average, it was safe within nine miles of the mine, with a median response of 20 miles, suggesting that overall business leaders are not concerned that it is unsafe to locate businesses near the mining and milling operations.

When asked about potential business benefits to the community resulting from mining, business leaders were most likely to agree that uranium mining will encourage business growth in the area as a result of increased employment. However, when asked whether mining would have a negative or positive impact on several business facets such as revenue, expansion, and diversity, responses were more likely to perceive a negative rather than a positive impact. On average, respondents were more

likely to say that mining would have a negative impact on their own business revenue than a positive impact.

When asked specifically about their support for lifting the ban on uranium mining, half of the sample of business leaders (50.3%) does not support lifting the ban, 39% do support lifting the ban, and 10.7% indicated that they did not know.

Demographic factors such as business location or industry type were examined to evaluate their impact on this opinion. Additional socio-economic factors such as concern for the community and belief in business benefits were also examined regarding their impact on support for lifting the ban.

In general, socio-economic attitudes had a much stronger influence in whether or not a business leader was likely to support lifting the ban on uranium mining than did demographic factors. How business leaders felt about lifting the ban differed very little regardless of business size, distance from the mining site, or length of time in business. Industry type did have some impact, with those in the mining/milling industry or construction industry most likely to support lifting the ban and those in the education and healthcare/social service fields least likely to support lifting the ban.

The factors that had the greatest influence on business leaders' opinions about the ban were attitudes towards mining risks and business benefits. That is, those who most strongly believe that mining poses a risk to the community via a negative impact on the environment, residents, local businesses, local waterworks, etc., are the most likely to oppose lifting the ban. To the contrary, those who have confidence in regulations to monitor emissions and protect the community are most likely to support lifting the ban. Additionally, those who perceive business benefits to the lifting of the ban are more likely to support it than those who do not perceive any potential business benefits such as increased employment in the area.

The study also included a survey of regional and out-of-state business site location consultants. Responses from this group were difficult to secure, and only a very small sample of seven were obtained for this study. Overall, the consultants' awareness of the existence of uranium in Virginia and of the mining ban was very low.

When asked if the lifting of the ban on uranium mining in Virginia would affect their perceptions of Virginia as a place to recommend new business, six out of the seven consultants stated that it would have no impact on their perceptions of Virginia at all. Further, five out of six stated that it would have no impact on their clients' perceptions regarding Virginia as a place to relocate or start a business.

Consultants were specifically asked if they felt that their business clients would be concerned that uranium mining would have a negative impact on community factors such as the environment, residents, or children. Respondents reported that they did believe that residents would have moderate concerns, especially about housing property values and the environment. However, they also reported that any concerns business leaders may have would decrease if they were to learn about how uranium mining risks could be minimized to protect public health and the environment.

Finally, consultants were asked how important it was to business leaders that a local economic investment strategy be put in place as soon as the mine goes into operation in order to begin to

immediately diversify the Pittsylvania County and Danville area economies. Overall, respondents felt that this type of local investment strategy was important for the area and for attracting businesses to the area.

## **1. INTRODUCTION**

### **1.1 Purpose of the Report**

This report presents results from two business attitude surveys conducted in November and early December 2012. The surveys collected information from Virginia business leaders as well as regional and out-of-state business site location consultants regarding their knowledge and attitudes toward lifting the ban on uranium mining in Virginia. This report presents key findings from these two surveys. The survey results are then placed in the context of the findings from reports and analyses previously provided to the Commonwealth.

### **1.2 Background**

In January 2012, the Commonwealth of Virginia's Office of the Governor issued a directive requesting the formation of a Uranium Working Group (UWG) to "provide a scientific policy analysis to help the General Assembly assess whether the moratorium on uranium mining in the Commonwealth should be lifted, and if so, how best to do so." Since that time, the UWG has engaged in a series of tasks outlined in the Governor's directive. One of their tasks is to consider and seek public input on:

- "impacts on local and statewide economic development and measures that may be taken to prevent negative impacts, and capture potential opportunities for positive impact, and
- the protection of existing business, industries, individuals and property that may be impacted by a potential uranium mine/mill site and a process for the assessment of impact and appropriate response."

In addition to other research that has been reviewed, engagement with the community via public meetings, and feedback acquired through the UWG's website, the UWG also requested a specific study of the business community. This study was comprised of two components, a survey of Virginia Business Leaders (Owners and Managers) and a related survey of Site Location Consultants.

### **1.3 Research Objectives**

The purpose of this study is threefold:

1. To assess attitudes, perceptions, and concerns of current business owners/managers in the Commonwealth to determine how they view the impact of uranium mining on business growth.
2. To assess the attitudes, perceptions, and concerns of site location consultants who study potential new business locations and recommend business relocation, to determine how they view the impact of uranium mining on attracting new business to the Commonwealth.

3. To add to the current body of economic analysis by comparing the results of this survey to prior economic analyses to update and broaden their scope to include business community input.

This study provided an opportunity to directly query the Commonwealth business community regarding their attitudes about the potential impact of uranium mining on economic growth and development, and to integrate these results with the other surveys and socioeconomic studies performed to date. The results found in this research present stakeholders with a comprehensive overview of the economic, environmental, and public relations tradeoffs inherent in the project.

Both the Virginia business leaders and the site location consultants were queried as to their awareness, concerns, perception of benefits, and attitudes regarding regulation of uranium mining in Virginia. The following key research questions were investigated:

1. What is the *present knowledge and perception* of Virginia uranium mining and milling?
2. What are the *perceived concerns or benefits* held by the business community regarding uranium mining and milling in Virginia?
3. What is the *perceived economic impact* of lifting the uranium mining ban on various Commonwealth and Southside regional business sectors and interests?

## **1.4 Research Implementation**

Responses from each group were collected by telephone between November 15 and November 30, 2012. Virginia business leaders were eager to share their opinions about uranium mining and response rates for this group was high. However, this was not the case for the regional and out-of-state site location consultants. Consultants were less likely to be aware of the mining ban or mining issues in Virginia, and many felt they were not qualified to answer the survey. As a result, response rates for this second group were low. Response rates and data collection challenges are presented in more detail later in this report. Research methodology along with the key findings generated from each survey will be discussed separately, beginning with the business leader survey.

In addition to the primary research described above, the research studies conducted by VCU, RTI International, George Mason University and Chmura Economics and Analytics were reviewed. The information from these four studies was used in two stages: first to inform the development of the surveys and the project as a whole; and second to ascertain if there were comparable data points that aligned with the findings of the Business Attitude Survey and to see where consistent trends in data could be observed.

## **2. BUSINESS LEADER SURVEY**

### **2.1 Research Methods for Business Leader Survey**

#### **2.1.1 Sample**

The respondent list for this phase of the study was derived from a list of over 100,000 telephone numbers for Virginia businesses, obtained from Survey Sampling International's proprietary Offline Business to Business database. Survey Sampling International (SSI) is the leading provider of comprehensive solutions for survey research data collection.

Targeted respondents included business owners and managers of a representative sample of small, medium and large businesses across Virginia. Twenty percent of the interviews were conducted in Pittsylvania County and surrounding areas, including Campbell, Henry, and Halifax counties (including the city of South Boston), and the cities of Martinsville and Danville. The balance of the interviews was distributed throughout the Commonwealth.

Since the purpose of the survey was to elicit opinions from business owners and managers statewide, and the survey represented the first time any feedback had been requested from this group, no response targets or quotas for specific industries or other sub groups were set.

#### **2.1.2 Instrument**

In October 2012, ORI prepared an initial research plan focusing on research questions. This plan was prepared based on a review of the economic analyses conducted to date, the information available on the UWG website, including the public comments posted there, and conversations within the project team.

The research plan was distributed to representatives of Virginia's Uranium Working Group, the Virginia Economic Development Partnership, the Virginia Department of Health, the Virginia Department of Environmental Quality, the Department of Mines, Minerals and Energy, and Wright Environmental Services for review and comment.

After compilation of the feedback from the review team, ORI prepared a draft questionnaire which was reviewed by the different stakeholders and finalized on November 15, 2012.

#### **2.1.3 Procedures**

Between November 15 and November 27, 2012, ORI's partner, SSI, completed 652 telephone interviews with a statistically representative sample of Virginia businesses. The survey was implemented by SSI's highly trained interviewers via Computer Assisted Telephone Interview (CATI) using a Random Digit Dialing (RDD) protocol.



The average length of the interview was 21 minutes, and the margin of error for the overall sample is +/-3.84 at the 95% confidence interval.

The survey results were provided in an SPSS dataset and all results were reviewed for consistency. Descriptive statistics including counts, percentages, and means were calculated to enable the analysts to review basic response patterns and relationships between variables, and plan further analyses.

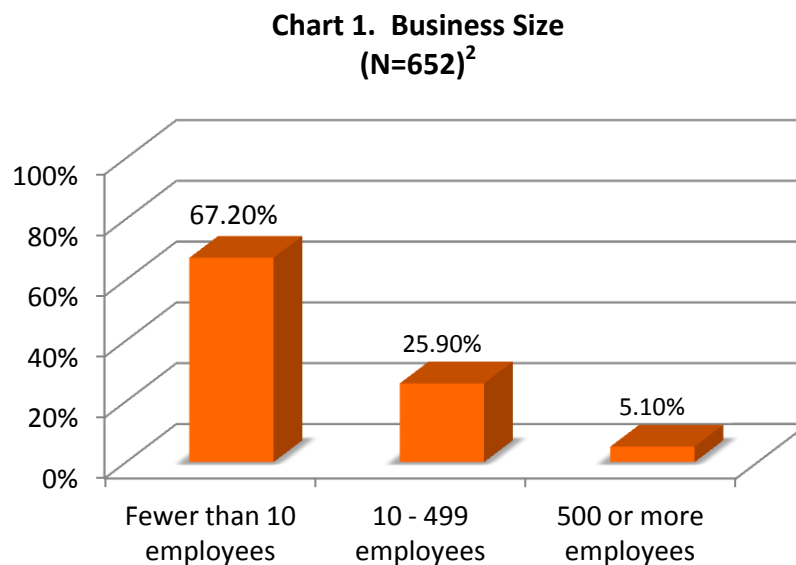
The verbatim responses to all open ended questions for the business attitude survey are included in a separate document. The comments were also aggregated into themes or groups, and discussed in relevant sections.

## **2.2 Results from the Business Leader Survey**

Note: Unless otherwise indicated, all results are based on the full sample of 652 responses.

### **2.2.1 Demographics**

Respondents across the Commonwealth were most likely to work in small businesses, with fewer than 10 employees (67.2%) (see Chart 1). About one-quarter of the respondents worked in businesses with 11 to 499 employees (25.9%), and a few respondents worked in businesses with over 500 employees (5.1%). This distribution is consistent with the small business profile of Virginia published by the U.S. Small Business Administration in February 2011.<sup>1</sup>



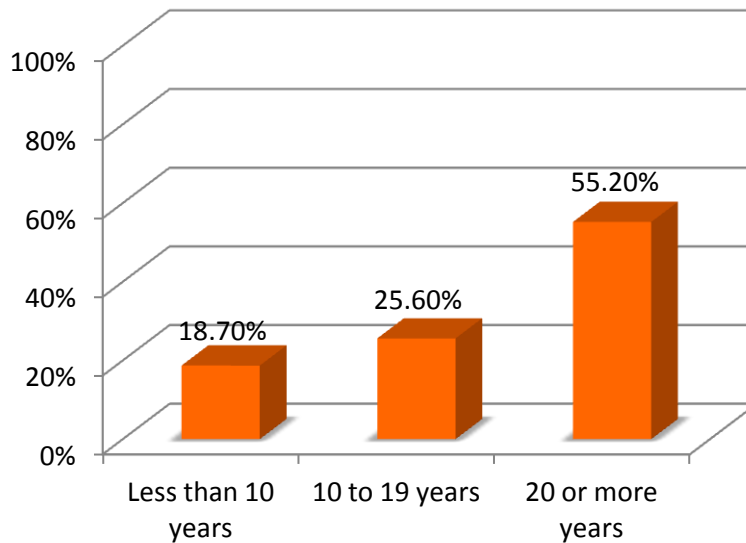
<sup>1</sup> U.S. Small Business Administration, Office of Advocacy, Small Business Profile, VA. February 2011.

[http://www.sba.gov/sites/default/files/va11\\_0.pdf](http://www.sba.gov/sites/default/files/va11_0.pdf)

<sup>2</sup> In cases where percentages do not add up to 100%, the remaining percentage points belong to missing cases where individuals did not answer the question. This applies to all charts in this report.

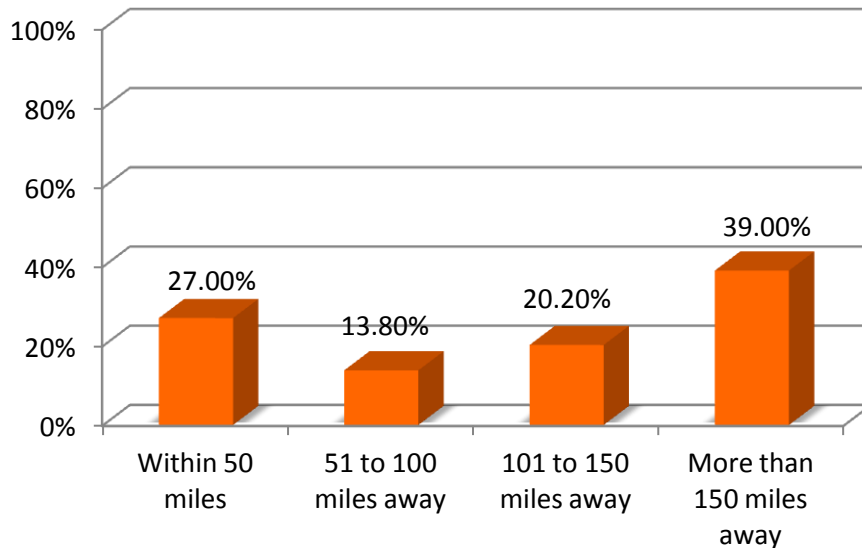
As shown in Chart 2, most of the businesses surveyed are 20 or more years old (55.2%), with 25.6% being in existence for 10 to 19 years, and 18.7% being in business for less than 10 years.

**Chart 2. Years in Business  
(N=652)**



The businesses surveyed are distributed across the Commonwealth, with 27% located within 50 miles of the potential uranium mining site at Coles Hill. Fewer are located between 51 to 100 miles (13.8%) or within 101 to 150 miles (20.2%) of the site, and 39% are located more than 150 miles away (see Chart 3).

**Chart 3. Distance from Mining Site**



The businesses surveyed represent a diversity of business types (see Table 1). Most of the participating businesses provide professional and technical services (23.8%) such as legal, engineering, or IT services. Businesses are also engaged in retail (16%) or construction (9.7%). The respondents were presented a list of standard business categories based on North American Industrial Classification (NAICS) groups. However, some categories were compiled to group miscellaneous responses from this business sample. “Nonprofessional services” encompass services such as lawn service, hairstyling, and handcrafting. “Information” encompasses local media and TV, and “entertainment” encompasses individuals who indicated they were in the movie/show industry.

**Table 1. Industry**

What industry are you in?		
	Number	Percent
<b>Professional and technical services</b>	155	23.8%
<b>Retail</b>	104	16.0%
<b>Construction</b>	63	9.7%
<b>Accommodation and food services</b>	47	7.2%
<b>Health care and social services</b>	46	7.1%
<b>Management and administrative services</b>	35	5.4%
<b>Finance and Insurance</b>	34	5.2%
<b>Educational services</b>	27	4.1%
<b>Nonprofit or association</b>	21	3.2%
<b>Nonprofessional services</b>	20	3.1%
<b>Miscellaneous</b>	19	2.9%
<b>Agriculture</b>	18	2.8%
<b>Automotive</b>	15	2.3%
<b>Manufacturing</b>	12	1.8%
<b>Transportation</b>	9	1.4%
<b>Mining, milling or other associated extractive services</b>	8	1.2%
<b>Housing/Real Estate</b>	8	1.2%
<b>Information</b>	7	1.1%
<b>Entertainment</b>	4	.6%
<b>Total</b>	<b>652</b>	<b>100.0%</b>

Respondents were most likely to be the owner of their business (34.2%). They were also commonly managers (19.2%) or the president of the business (15.5%). Table 2 below provides the wide range of job titles that emerged from the sample.

**Table 2. Job Title**

What is your job title?		
	Number	Percent
<b>Owner</b>	223	34.2%
<b>Manager</b>	125	19.2%
<b>President</b>	101	15.5%
<b>General Manager</b>	44	6.7%
<b>Co-Owner</b>	27	4.1%
<b>CEO</b>	23	3.5%
<b>Senior Director or Above</b>	21	3.2%
<b>VP</b>	20	3.1%
<b>Business Manager</b>	13	2.0%
<b>Department Manager</b>	10	1.5%
<b>Acting Director</b>	9	1.4%
<b>Co-Manager</b>	8	1.2%
<b>Acting Manager</b>	7	1.1%
<b>Division Manager</b>	4	.6%
<b>Senior Manager</b>	4	.6%
<b>Property Manager</b>	3	.5%
<b>Managing Member</b>	3	.5%
<b>Founder</b>	2	.3%
<b>Program Manager</b>	2	.3%
<b>CXO</b>	1	.2%
<b>Interim Manager</b>	1	.2%
<b>Senior Project Manager</b>	1	.2%
<b>Total</b>	<b>652</b>	<b>100.0%</b>

### **2.2.2 Mining Awareness and Understanding**

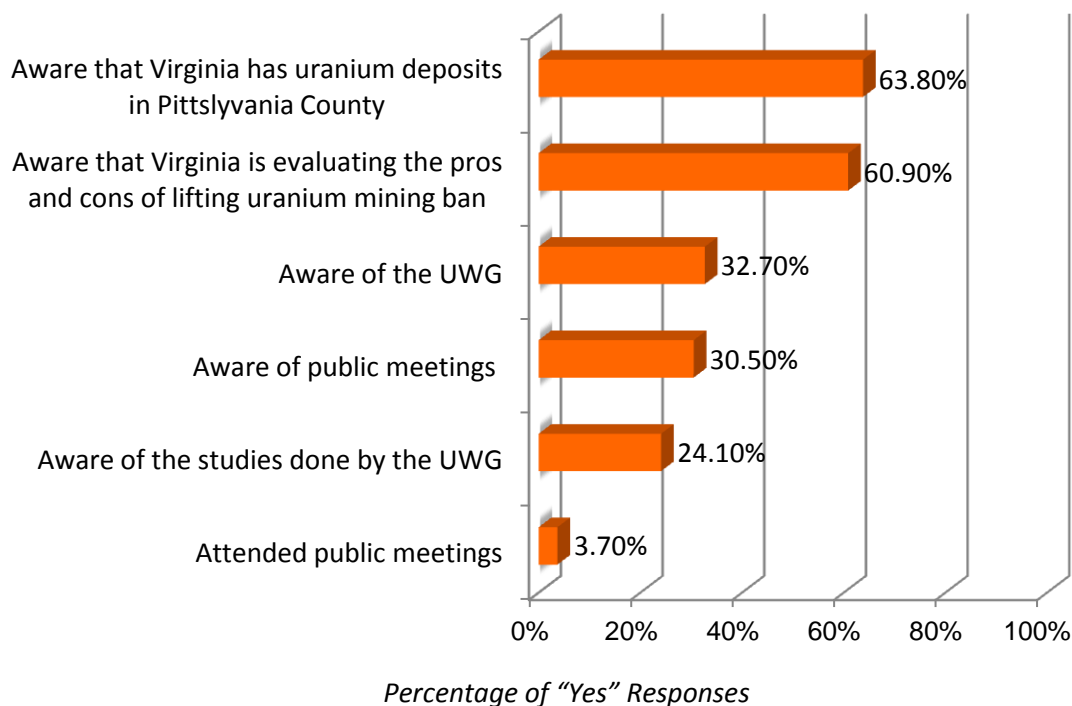
The survey opened with questions designed to measure respondents' awareness and understanding of uranium mining in Virginia. These questions captured respondents' awareness of uranium mining and the UWG, whether or not they had conducted any research or information gathering on their own to increase their understanding of uranium mining, how much they understand the technology used for uranium mining, and how much they trust research that has been conducted to date about mining and mining technology. Results from these items are presented in turn below.

### **Awareness of Uranium Mining and the Uranium Working Group**

The first set of survey questions focused on respondents' knowledge and awareness of uranium mining in Virginia. This section consisted of six yes/no questions. Chart 4 presents the percentage of people who answered yes to each question.

Approximately 60% of the respondents are aware that Virginia has uranium deposits in Pittsylvania County and that the Commonwealth is currently evaluating the pros and cons of lifting the ban on uranium mining. Only about half of those who are aware of the uranium deposits and the mining ban, were aware of the UWG and that the group has held public meetings (approximately 30% of the total sample). Fewer still are aware of the studies completed by the UWG (24.1%), and very few attended any of the working group's public meetings (3.7%).

**Chart 4. Awareness of Uranium Mining In Virginia  
(N=652)**



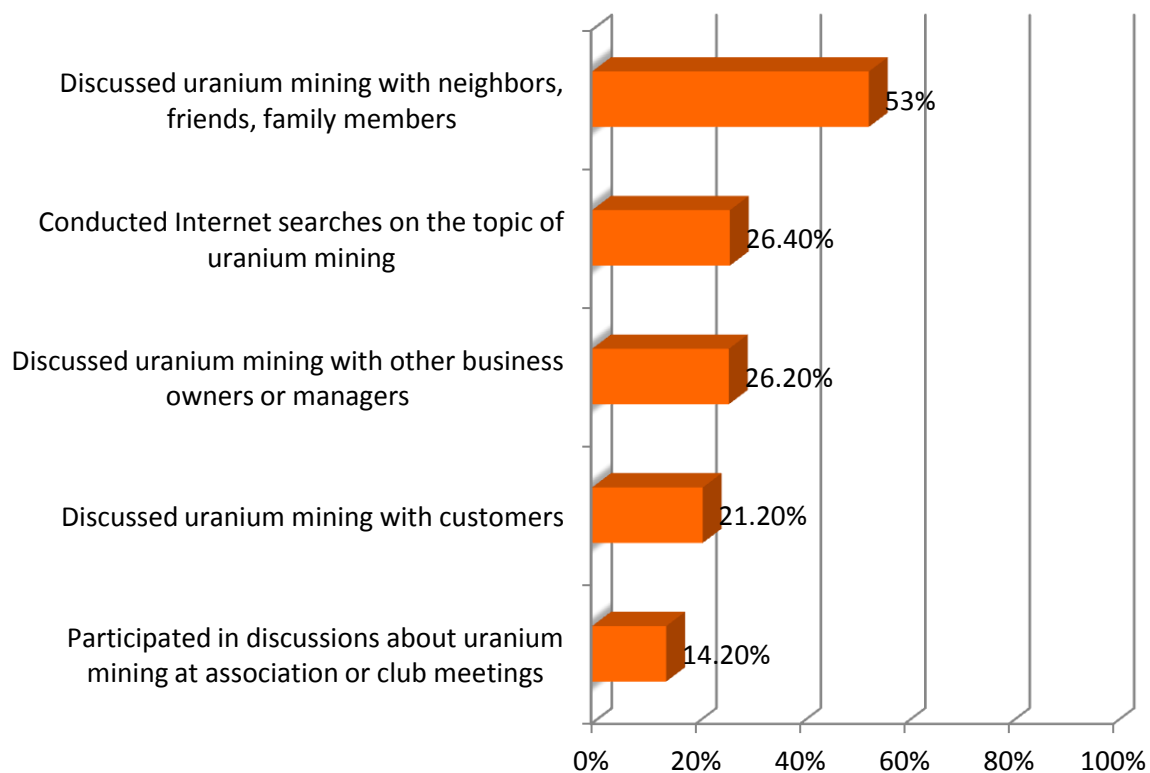
### **Research and Information Gathering**

Respondents who answered "yes" to any of the above awareness questions were asked a series of follow up questions about research and information gathering. Only individuals who were aware of the uranium issue were asked these questions. Therefore, for these items only, the total number of respondents is 443. These individuals were asked whether or not they have engaged in any information gathering from customers, other business leaders, friends or family members, or

conducted any research on uranium mining to gain additional information or understanding of the issues.

Again, they were asked to indicate yes or no in their response and Chart 5 shows the percentage of people who responded yes. Respondents were most likely to report that they had discussed uranium mining with neighbors, friends, or family members (53%). Fewer than 27% conducted Internet searches, discussed mining with other business leaders or customers, or discussed it at club or association meetings.

**Chart 5. Research/Information Gathering on Uranium Mining in Virginia  
(N=443)**



*Percentage of "Yes" Responses*

As a follow-up, respondents who gathered information from any of the sources presented in Chart 5 were asked to discuss what they discovered from their research. A total of 262 respondents reported on what they learned from the information gathered. All responses were reviewed and grouped into themes. By far, the most common theme provided by these respondents (43%) was concern that uranium mining would be dangerous, creating too much risk for the community. For example, some of the comments provided by these respondents were:

- There are a lot of concerns of the possible dangers of uranium contaminating in the river area.
- I am concerned that it would lead to water contamination. I am concerned about mining in general.
- There are a lot of pros and cons to it. The biggest concern is the profit and public safety.

Other themes were less common, but evident. The other most frequently observed themes discovered by respondents were:

- I am against lifting the ban was reported by 33 respondents (13%)
- It could be done safely was reported by 33 respondents (13%)
- It will bring in jobs to help the economy was reported by 26 respondents (10%)

### **Trust and Understanding**

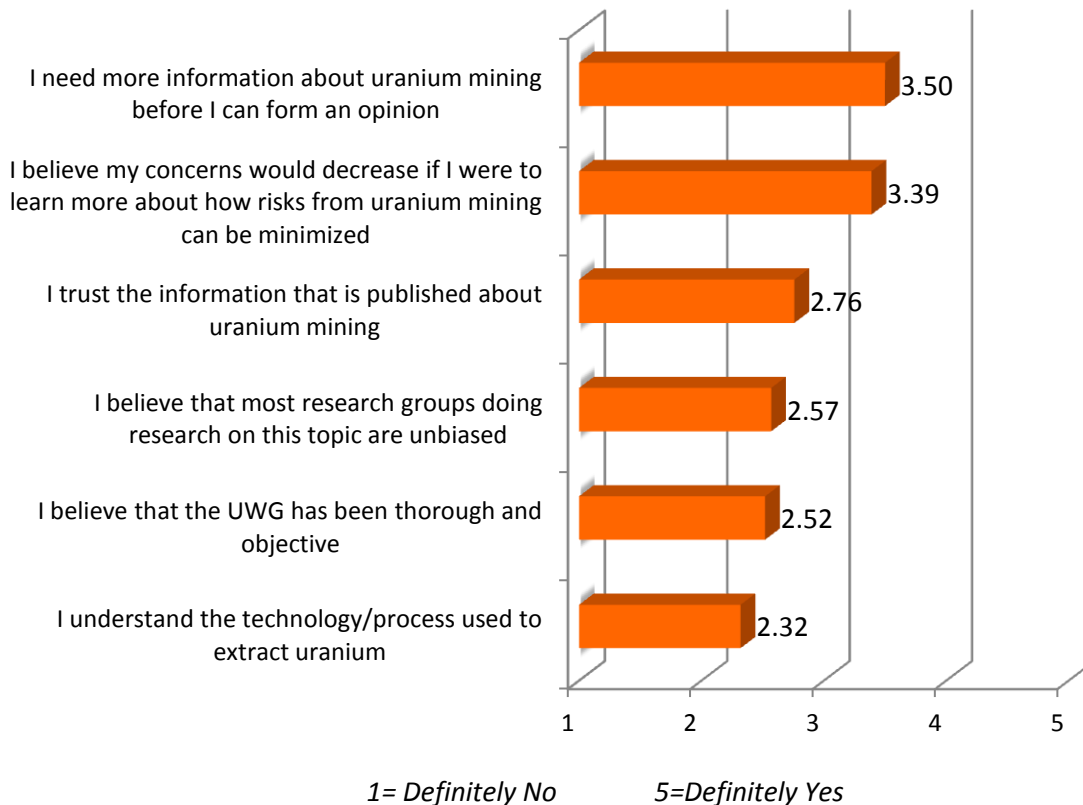
The final set of questions in this section asked respondents about their detailed knowledge of uranium mining processes and about their trust in public and academic research done to date on mining and its impacts. For these items, respondents were asked to answer using a five-point scale where 1=Definitely No and 5=Definitely Yes. Chart 6 displays the mean responses for each item.

Results show that on average, respondents need more information about uranium mining and that this information would help to decrease their concerns about mining. These were the only two responses falling over the 3.0 mark on the five-point scale used for these items. Mean responses to all other items fell below the 3.0 mark suggesting that respondents have low to moderate trust in the information that has currently been done on the topic of uranium mining. The item displaying the lowest mean score of 2.32 asked respondents whether they understand the technology/process used to extract uranium. These results suggest that educating the public on uranium mining will help to alleviate some of their fears about mining, but that the source of the information must be a trusted, unbiased source.

Respondents were also given the opportunity to write-in what they would need to reduce any concerns they might have related to uranium mining. One hundred forty-one respondents answered this question. Most commonly (41% of those who answered the question) reported that there was nothing that could reduce their concerns.

These one hundred forty-one respondents also indicated that their concerns were not likely to decrease. When asked to explain why, they most commonly reported (32%) that their concerns were not likely to decrease because they believed that uranium mining could not be managed or regulated safely

**Chart 6. Trust and Understanding of Uranium Research  
(N=652)**



### 2.2.3 Concerns about Uranium Mining in Virginia

The next set of questions focused on possible concerns that some people may have about uranium mining in Virginia. The questions could be divided into two categories: questions that ask about negative impacts that could occur in the community (concerns about children, residents, businesses, or housing in general) and questions that ask about negative impacts that could occur for specific business sectors (tourism, education, agriculture, etc.). Each of these are discussed below.

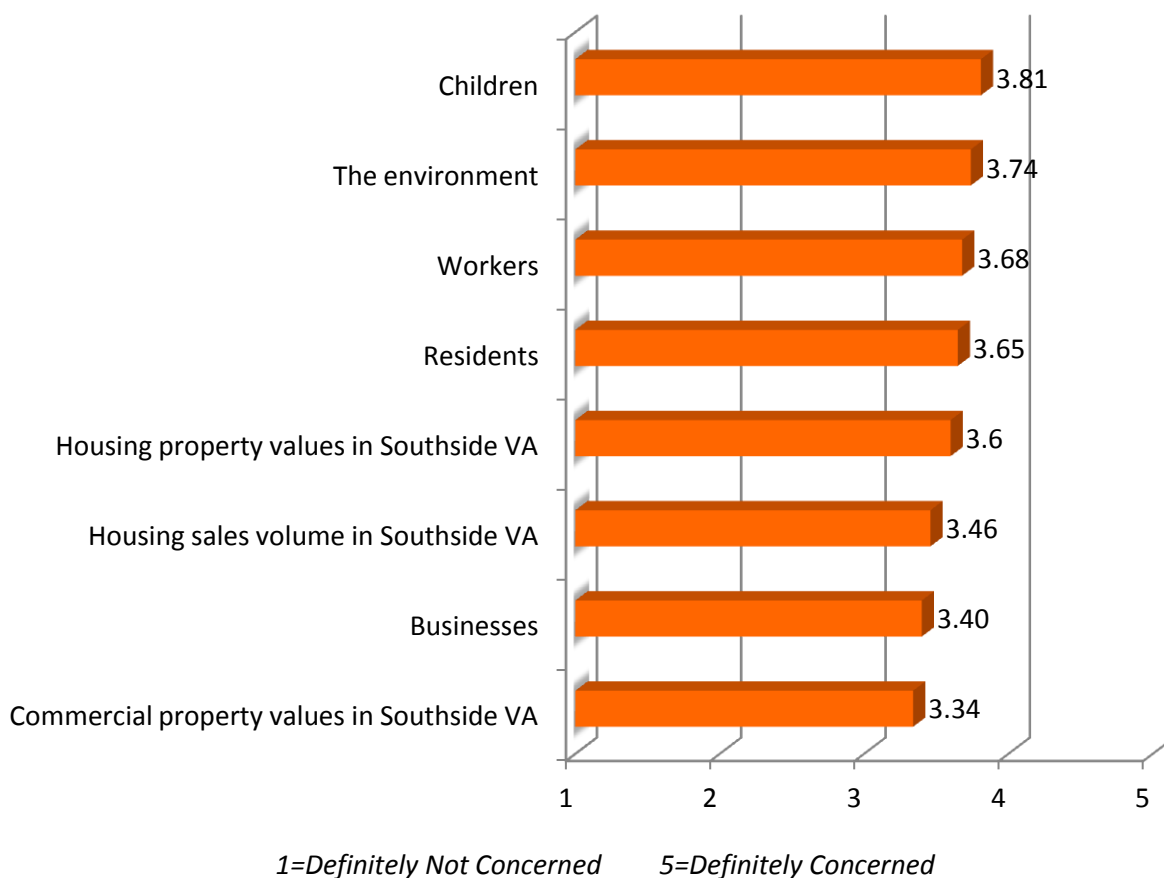
#### Concerns about the Community

For these items, respondents were asked if they were concerned that uranium mining in Virginia could have a negative impact on certain areas in the community. Their answers were collected using a five-point scale where 1=Definitely Not Concerned and 5=Definitely Concerned. Chart 7 presents the mean responses for each survey item.



Response means fell above the 3.5 mark for five of the eight items, suggesting that respondents had moderate to moderately high concerns in those areas. Respondents were most likely to be concerned that uranium mining might have a negative impact on children. They were also concerned that it might have a negative impact on the environment, workers and residents, and housing property values in Southside Virginia. They were slightly less concerned about housing sales volume in Southside Virginia, businesses, and commercial property values. However, it should be noted that the responses were very similar across all categories presented below, with all mean responses falling between 3.34 and 3.81 on the five-point scale.

**Chart 7. Concerns that Uranium Mining in Virginia May Have a Negative Impact on the Community (N=652)**



### Concerns about Business Sectors

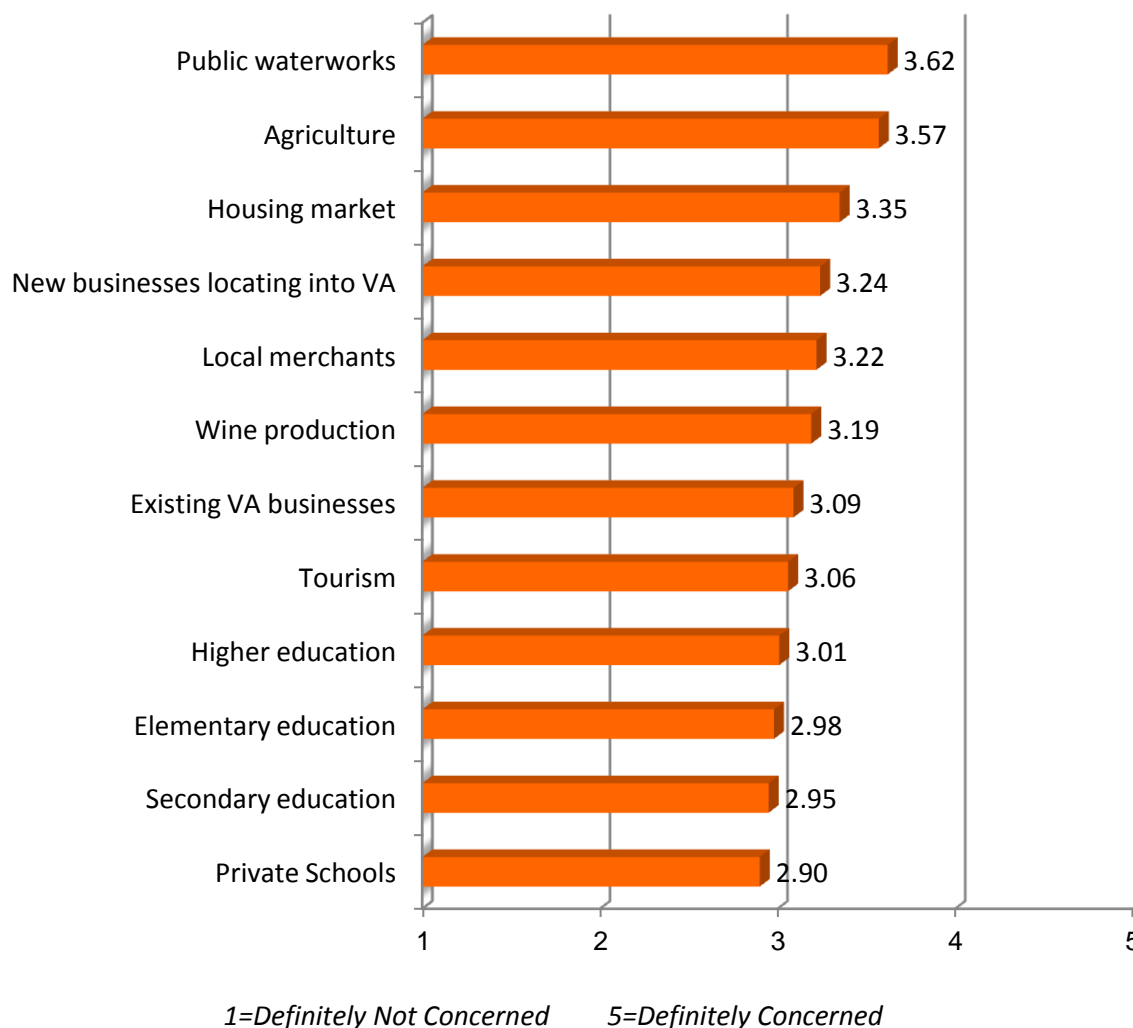
Respondents were then asked if they believed that uranium mining could have a negative impact on several different business sectors. Once again, responses were captured using a five-point scale where 1=Definitely Not Concerned and 5=Definitely Concerned. The mean responses are reported in Chart 8.

Among the business sectors presented to the respondents, only two items fell above the 3.5 mark, public waterworks at 3.62 and agriculture at 3.57, indicating that respondents had the most concern about negative impacts in these two areas. Most items fell in the 3.0 to 3.5 range indicating moderate

concern for most other areas such as the housing market, local merchants, tourism, and higher education.

The areas that respondents had the least amount of concern for were elementary and secondary education, and private schools. These final three areas fell below 3.0 on the five-point scale indicating moderate to low concern. It would appear that on average, business leaders believe that local schools would continue unaffected, regardless of the presence of uranium mining in the area. Interestingly, respondents on average believed that the impact on private schools would be as low as the impact on public schools, even though the private schools in the Chatham area draw many students from outside of the state and/or the country. Respondents were provided the option to indicate an “other” business sector as part of this series of questions. The responses they provided were minimal and therefore inconclusive.

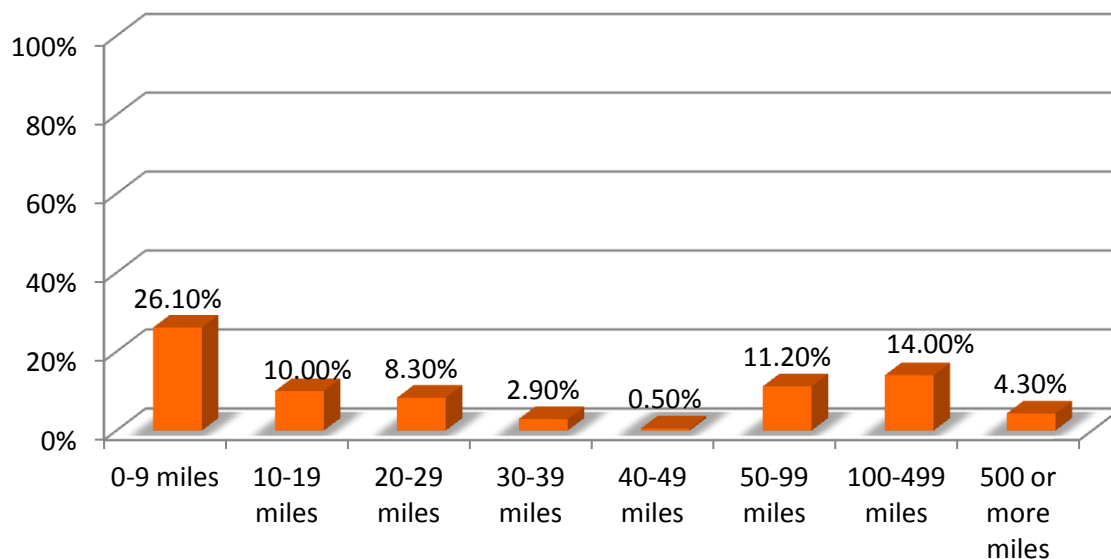
**Chart 8. Concerns that Uranium Mining in Virginia May Have a Negative Impact on  
Specific Business Sectors (N=652)**



### Locating a Business Safely

The survey also assessed respondents' concerns about uranium mining by asking them how close, in terms of miles, they would consider it to be safe to locate a business near the mining and milling operations. Respondents could write in any response they felt was appropriate, and all responses were given in whole numbers. Therefore, responses could be grouped into ten mile segments beginning with those who indicated zero to nine miles. Respondents across the Commonwealth most frequently (26.10%) indicated that it was safe to be within nine miles of the mine. The median response across all respondents was 20 miles, suggesting that overall the business leaders are not concerned about the safety of locating businesses near the mining and milling operations (see Chart 9).

**Chart 9. How Close is it Safe to Locate a Business  
(N=652)**

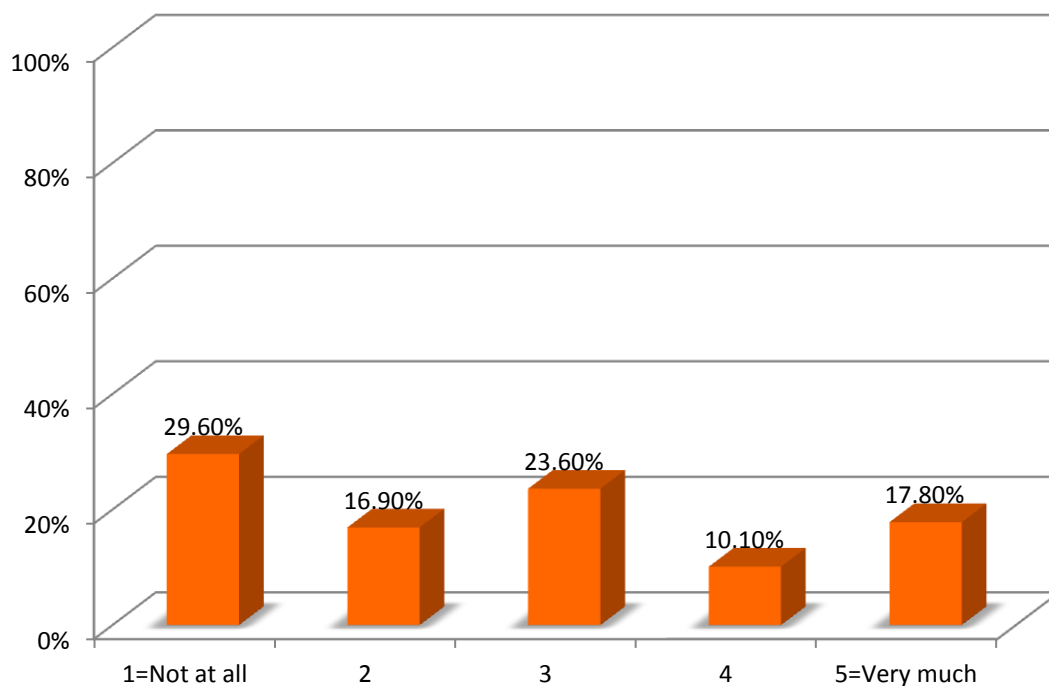


### Safety of Virginians Outside of Pittsylvania County

The survey also asked respondents to indicate whether or not they believed that Virginians living outside of the area would face any risks due to uranium mining in Pittsylvania County (see Chart 10). Responses were collected using a five-point scale where 1=Not at All and 5=Very much.

The mean response across all respondents statewide was 2.69, indicating that concern for those living outside of Pittsylvania County is moderate to low. Chart 10 shows that respondents most commonly selected the lowest response (1=Not at all) with 29.6% making this selection, and 23.6% selecting the mid-response of 3.

**Chart 10. Belief that Virginians Living Outside the Area Will Face Risks Due to Uranium Mining in Pittsylvania County (N=652)**



#### **2.2.4 Benefits of Mining in Virginia**

The next set of questions focused on what potential business benefits might occur as a result of uranium mining in Pittsylvania County. These questions asked about benefits to business growth, drawing in new business, and the perceptions of residents and business leaders about benefits.

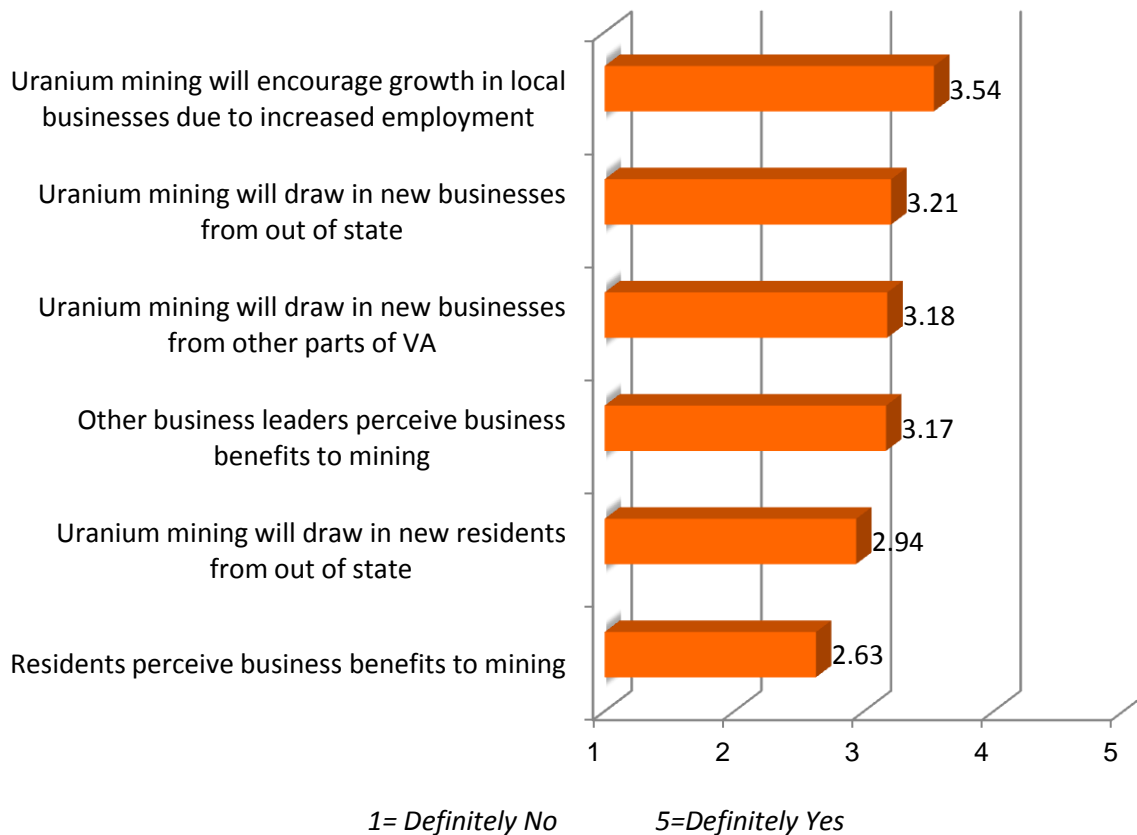
##### **Benefits of Uranium Mining**

The questions asked the respondents about potential benefits that some people believe may be associated with mining. Respondents were asked to answer each question using a five-point scale where 1=Definitely No and 5=Definitely Yes. Chart 11 shows the mean responses for each item.

Only one item received a score above 3.5, indicating moderate to moderately high agreement. The item stated, “Uranium mining will encourage growth in local businesses due to increased employment.” Mean scores for three other items fell above 3.0 suggesting moderate agreement. These items focused on how mining will draw in new businesses from out of state and other parts of Virginia, and how peers and other business leaders perceive benefits to mining. The means for two items fell below 3.0, suggesting somewhat lower agreement. These items focused on whether or not uranium mining would draw new residents in from out of state and whether or not residents perceive benefits to mining.

Respondents were provided the option to indicate an “other” potential benefit as part of this series of questions. As was seen when discussing business sectors, the responses they provided were minimal and therefore inconclusive.

**Chart 11. Potential Benefits of Uranium Mining  
(N=652)**



Following the questions about potential benefits, respondents were asked to describe in their own words what they thought the primary impact of uranium mining in Virginia was likely to be. All respondents answered this question and their responses most commonly fell into three categories:

- Three hundred five reported that it would create jobs and increase tax revenue in the local area (47%),
- One hundred ninety reported it would likely hurt the environment (29%), and
- One hundred twelve reported that they did not know (17%).

### **2.2.5 Perceived Impact of Mining on Economic Growth**

A series of questions were asked that focused on the potential impact of uranium mining on business revenue, expansion, diversity, and growth. These findings are discussed below, and quantified with the next three charts.

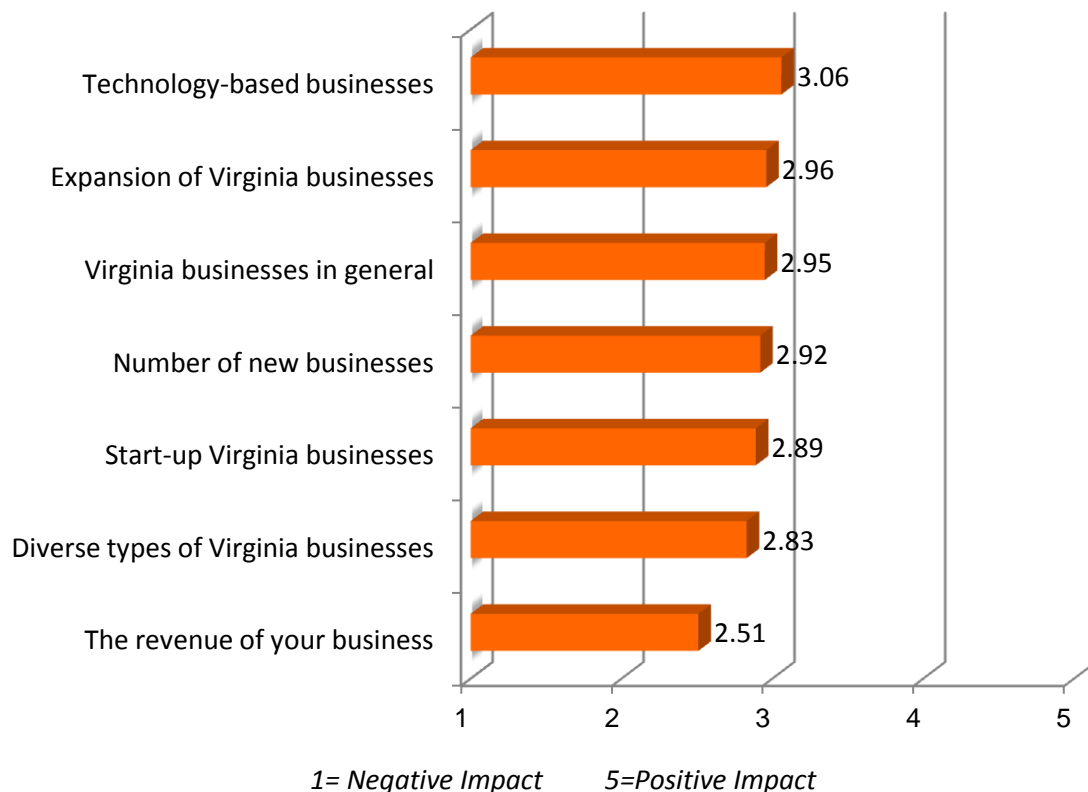
### **Business Revenue, Expansion, and Diversity**

Respondents were asked to rate the potential positive or negative impact of uranium mining on several business areas (such as revenue, expansion, and diversity). Responses were again collected using a five-point scale where 1=Negative Impact and 5=Positive impact. Results are presented in Chart 12.

Most of the responses fell in the moderate to negative range. The only item displaying a mean score above 3.0 was technology-based businesses. Mean scores for all other areas fell between 2.5 and 2.99, suggesting that respondents were more likely to perceive a negative than a positive impact for that business area. The item that asked respondents about the revenue of their business received the lowest mean score, reflecting perceptions that this area was most likely to feel a negative impact.

Respondents were again provided the option to indicate an “other” area of potential impact as part of this series of questions. As was seen in prior questions, the responses they provided were inconclusive.

**Chart 12. Impact on Business Revenue, Expansion, and Diversity  
(N=652)**



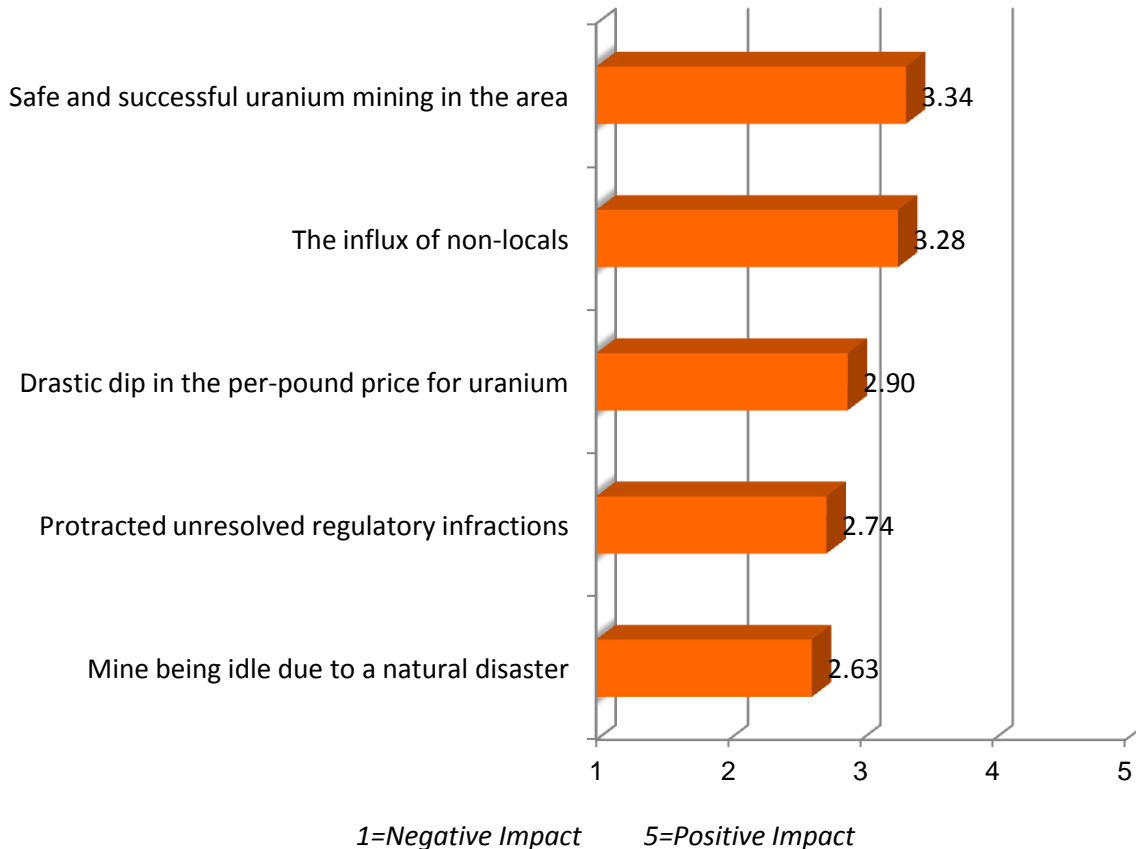
### Economic Growth

Another set of questions asked respondents to use the same scale (1=Negative Impact and 5=Positive Impact), regarding a series of events that could affect economic growth. They were asked whether or not each event would likely cause a negative or positive impact on economic growth in Pittsylvania County.

All of these mean scores fell between 2.5 and 3.5. Two of the items fell above 3.0, suggesting moderate to positive impact. These items related to safe and successful uranium mining in the area and the influx of non-locals.

The three remaining items focused on negative events such as a drastic dip in the per-pound price of uranium, protracted unresolved regulatory infractions, and the mine being idle due to a natural disaster. Unsurprisingly, all three were perceived as having a negative impact on economic growth. Interestingly, the means for these items fell above 2.5 suggesting that the perceived impact of these events, while negative, was not noticeably different than the perception of events with a positive impact such as safe and successful mining. This could suggest that many respondents do not fully understand the potential impact of these events, or it could suggest that individuals are still trying to make up their minds.

**Chart 13. Economic Growth  
(N=652)**

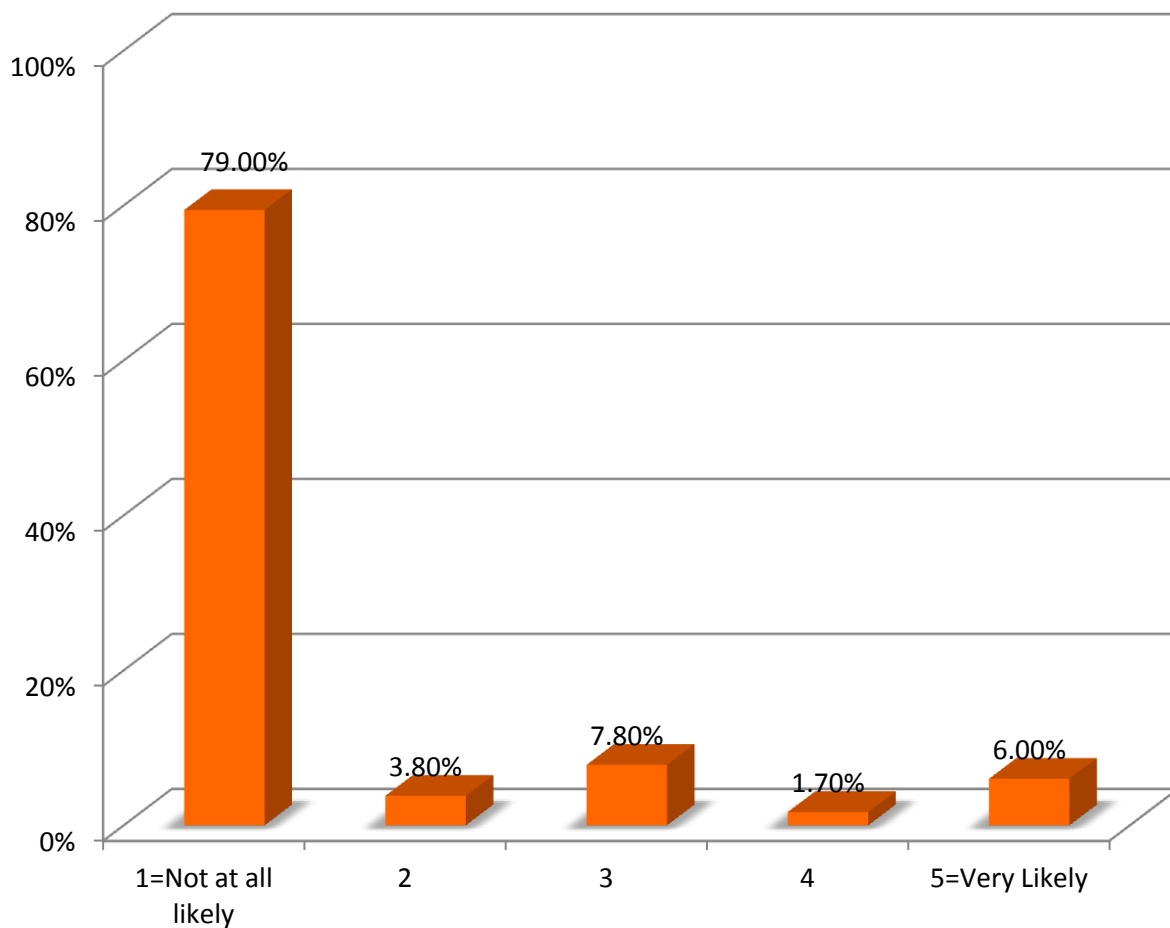


**Change in the Location of the Business**

Two additional questions on the survey asked respondents how likely it would be that their business would leave its current location in Virginia if uranium mining were to occur in Pittsylvania County, or how likely it would be that their business would leave the state.

They were asked to respond to this question using a five-point scale where 1=Not at all Likely and 5=Very Likely. The majority of respondents (79%) selected a 1, indicating that it was not very likely that their business would leave its current location.

**Chart 14. Likelihood that Business Would Leave its Current Location in Pittsylvania County  
(N=652)**

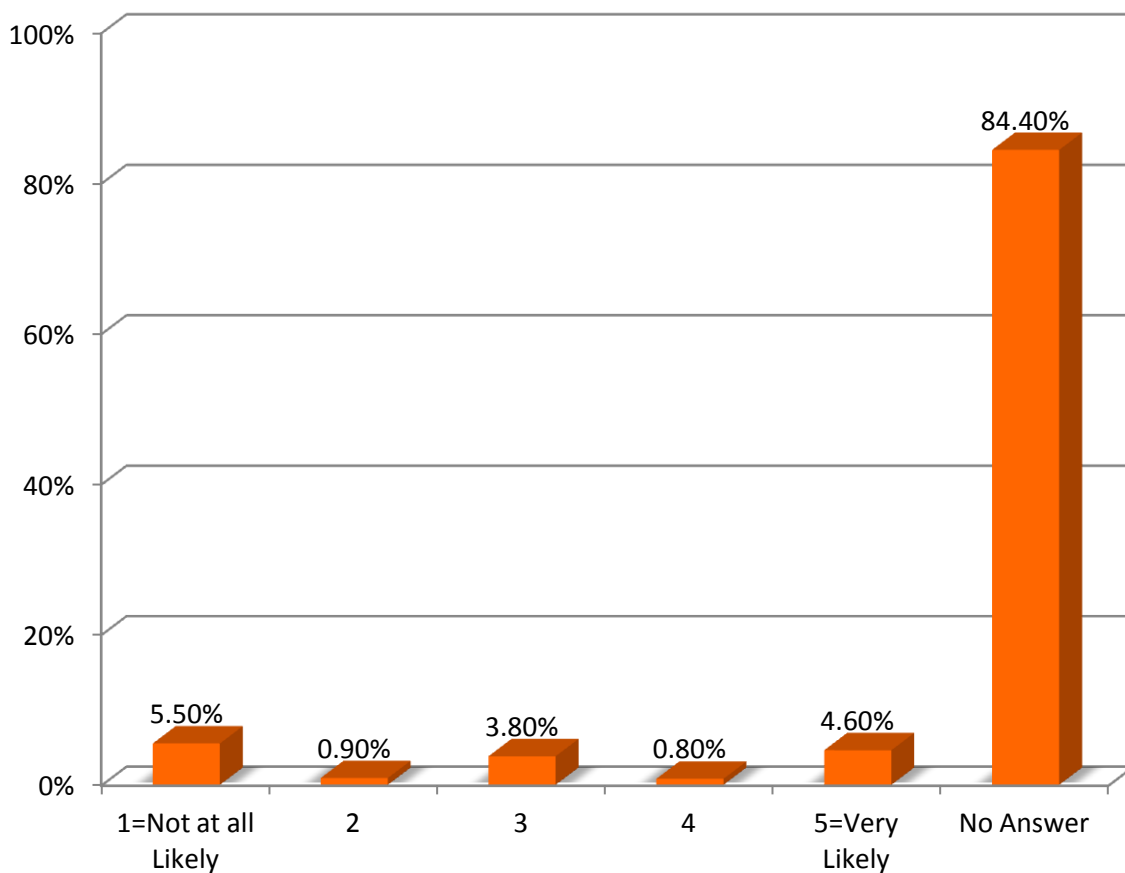




As a follow up, respondents were asked if, when leaving their current location, they would leave the Commonwealth of Virginia. As Chart 14 shows, the majority of respondents indicated that their business would not leave its current location; consequently, the majority of respondents did not answer the question about taking their business out of state.

**Chart 15. Likelihood that Business Would Leave the Commonwealth of Virginia**

**(N=652)**

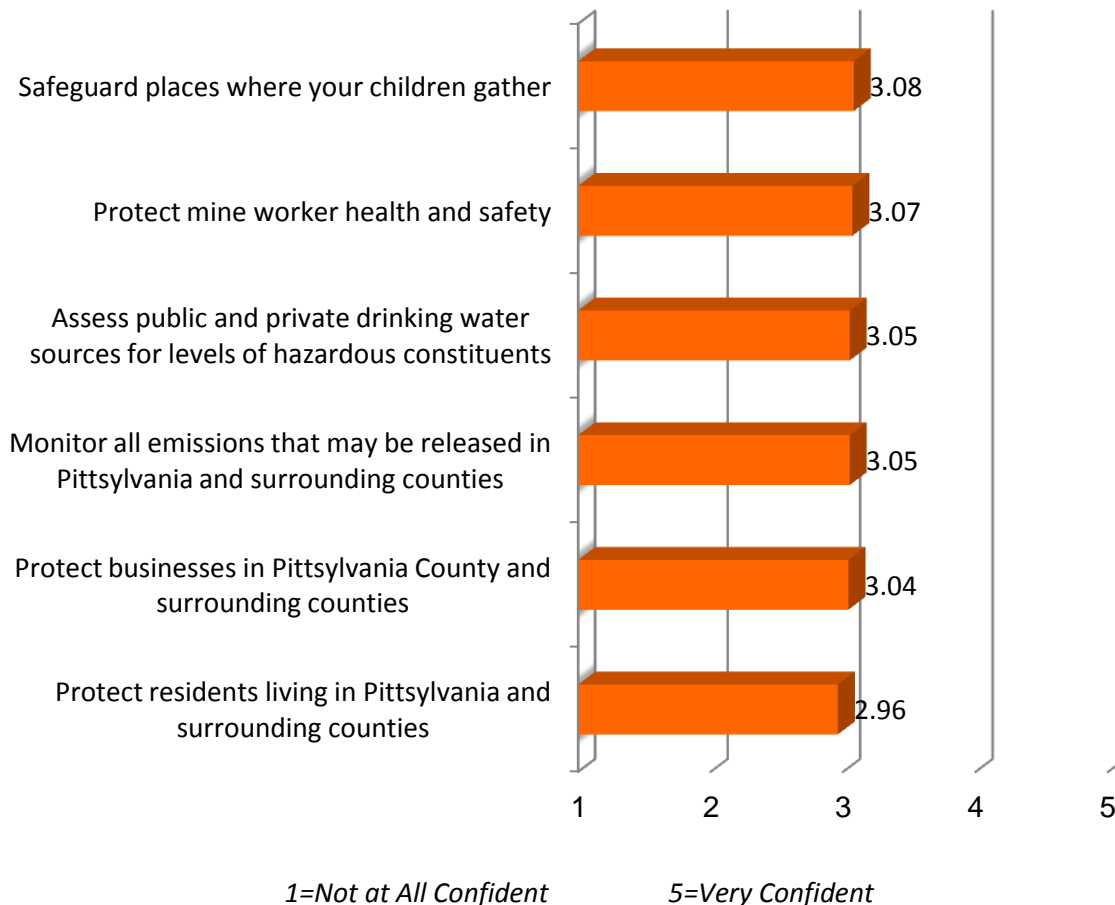


## **2.2.6 Confidence in Regulations**

The final full set of questions asked respondents to rate their confidence in uranium mining regulations and the ability of these regulations to monitor and protect the community. Respondents were asked to rate their confidence using a five-point scale where 1=Not At All Confident and 5=Very Confident.

The means of their responses are presented in Chart 16. Nearly every item received a mean score of just below or above 3.0, indicating that respondents either have very moderate confidence or are unsure about how well regulations will be able to monitor and protect each of the areas discussed.

**Chart 16. Confidence in Regulations  
(N=652)**



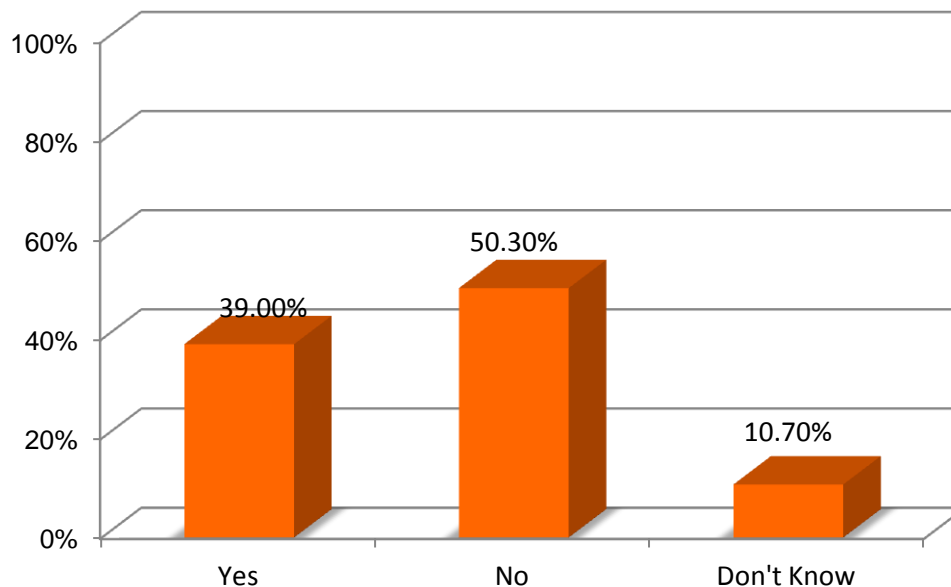
### 2.2.7 Support for Lifting the Ban on Uranium Mining

Finally, the survey asked respondents if they support lifting the ban on uranium mining in Virginia based on the information available to them today. Results show that half of the sample (50.3%) does not support lifting the ban, 39% supports lifting the ban, and 10.7% did not know (see Chart 17).

When asked to explain their opinion, 610 respondents provided an answer. The majority of responses fell into three primary categories:

- Two hundred twelve (35%) stated that they needed more information to truly explain their opinion,
- One hundred fifty-seven (26%) stated they support lifting the ban because the jobs are needed to help the economy, and
- One hundred thirty-nine (23%) stated they do not support lifting the ban because they don't believe that uranium mining is safe.

**Chart 17. Support for Lifting the Ban on Uranium Mining  
(N=652)**



When asked if they had any final thoughts to share about uranium mining at the end of the survey, 75% of respondents did not, and those remaining provided a variety of comments to wrap up their thoughts, but none could be categorized into counts higher than 5% each. This suggests that the survey gathered adequate feedback from business leaders about their attitudes toward uranium mining.

We will next explore the differing characteristics of those who do and do not support the ban, to gain a better understanding of what factors seem to influence this opinion.

## **2.3 Demographic Factors and Business Leaders' Support of Uranium Mining**

As noted above, business leaders across the Commonwealth were split regarding their support for lifting the ban on uranium mining with approximately 40% in favor of lifting the ban and 50% not in favor. This section of the report looks at how four demographic factors may relate to opinions about lifting the ban. The items to be explored in this section are:

- Business distance from the mining site,
- Business size,
- Amount of time the business has existed, and
- Industry type.

Each of these factors will be discussed below in turn and quantified in following charts.

### **2.3.1 Distance of Business from Mining Site**

The data set included the zip code of every business contacted in the survey. Because of this, the actual physical distance from the proposed Coles Hill site could be calculated for all respondents. For the purpose of this comparison, business distance was broken out into three groups: businesses within 50 miles of the site, businesses 51 to 150 miles away and those more than 150 miles from the site.

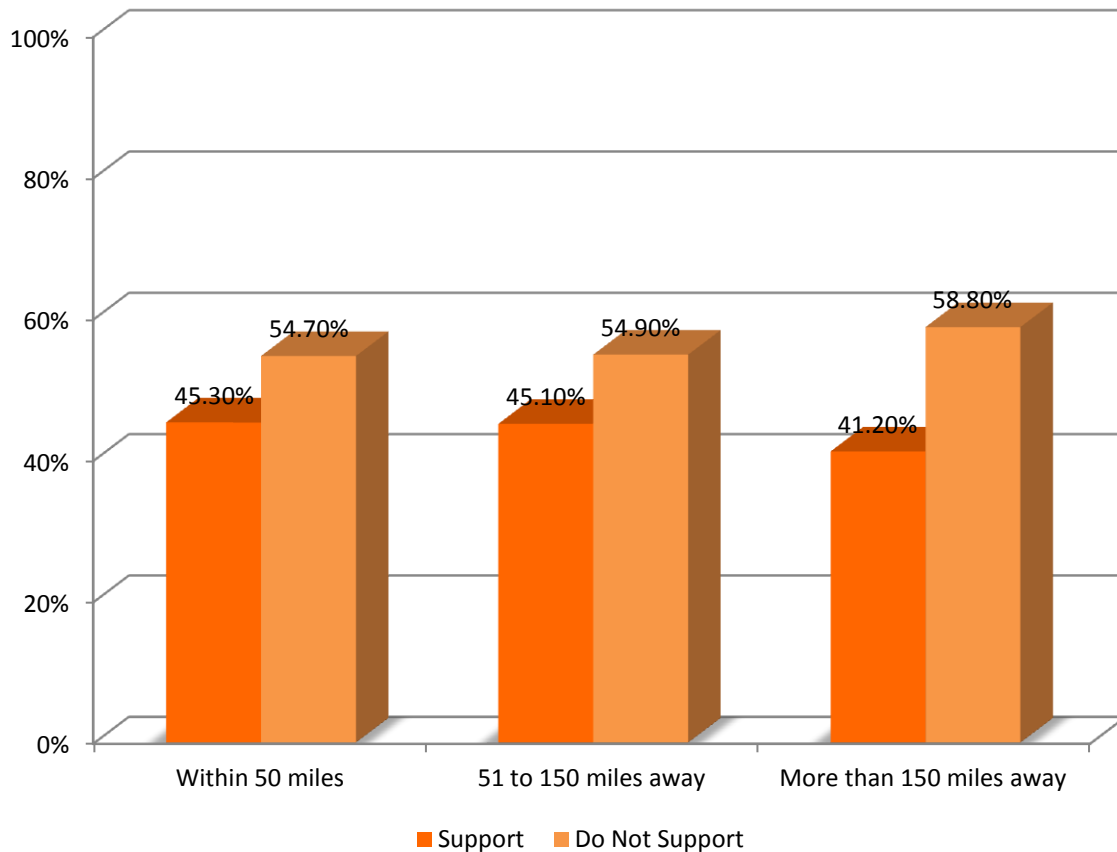
The distribution of responses for those who support lifting the ban and those who do not support lifting the ban is virtually the same for each of the three groups. That is, opinions about lifting the ban stay virtually the same, regardless of the physical distance of the business from the Coles Hill site. Those who are physically farthest away are slightly less likely to be in support of lifting the ban, but overall distance does not have a noticeable impact on opinions about the ban. To explore these findings further, statistical significance testing was conducted using chi-square analyses<sup>3</sup>. Chi-square analyses were not statistically significant indicating that business' opinions about lifting the ban on mining do not differ based on distance from the mine location.

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<sup>3</sup> Chi-square analysis tests to see if variables are independent of one another. If significance is found, then the variables are independent, suggesting that each group exhibits different qualities from the other. In this case, groups are not statistically different from one another.

**Chart 18. Distance of Business from Mining Site and Support for Lifting the Ban on Mining**

**(N=582)<sup>4</sup>**



### 2.3.2 Business Size

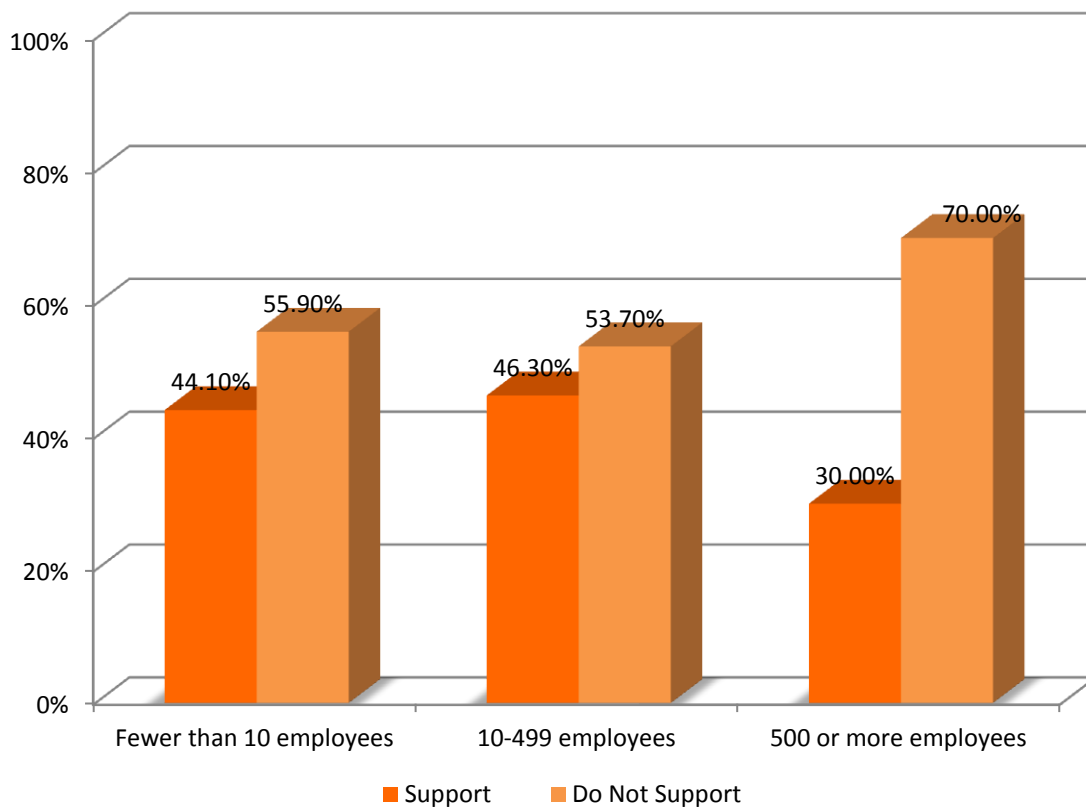
Businesses were divided into three groups based on size, those with fewer than 10 employees, those with 10-499 employees, and those with 500 or more employees. It is important to note that the majority of businesses responding had fewer than 10 employees (67.2%), and that only 5.1% had 500 or more employees, representing 33 out of the 652 businesses. The distribution of responses in the sample matches the profile of Virginia businesses as provided by the U.S. Small Business Administration.

When looking at the distribution of responses indicating support for the lifting of the ban, businesses with fewer than 10 employees and those with 10 to 499 employees gave similar responses and provide the greatest contribution to the response distribution for the survey overall (40% in support of lifting

<sup>4</sup> The total N will vary for charts that compare multiple survey items to one another. This is because only respondents that selected “yes” or “no” to “Support for Lifting the Ban on Mining” and have a recorded response to the second item (in this case, distance) can be included in the analyses. This applies to all subsequent charts. Total N for each chart will be noted in the heading of the chart.

the ban to 50% of not lifting the ban.) However, the largest businesses were less likely to be in support of lifting the ban when compared to the other two groups and to the sample as a whole. This may be the result of the differences in the sizes of the groups. Again, to explore these findings further, statistical significance testing was conducted using chi-square analyses. Chi-square analyses were not statistically significant indicating that business' opinions about lifting the ban on mining do not differ based on business size.

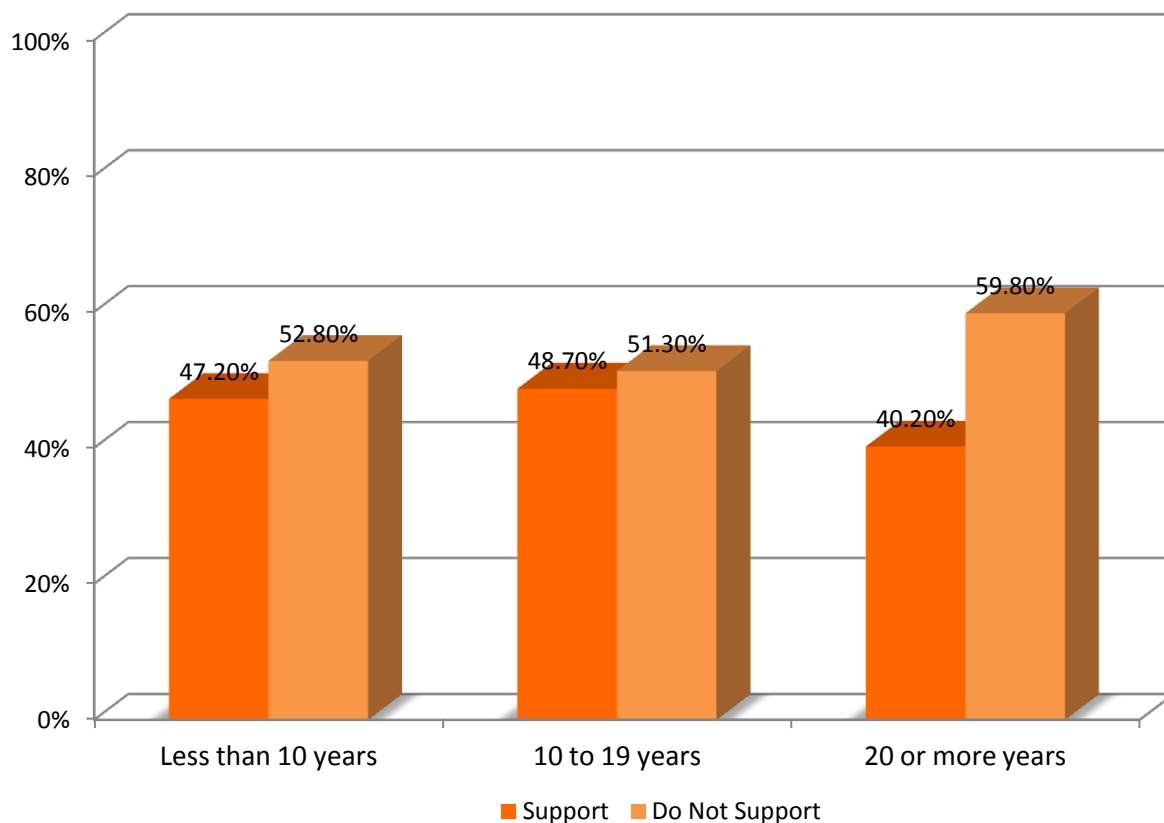
**Chart 19. Business Size and Support for Lifting the Ban on Mining  
(N=572)**



### 2.3.3 Years in Business

The number of years in business was also divided into three groups, those establishments in business for less than 10 years, those in business 10 to 19 years, and those in business 20 or more years. Differences between the groups were small, with those in business the longest being the least likely to support lifting the ban. Again, to explore these findings further, statistical significance testing was conducted using chi-square analyses. Chi-square analyses were not statistically significant indicating that business' opinions about lifting the ban on mining do not differ based on the number of years the business has been in operation.

**Chart 20. Years in Business and Support for Lifting the Ban on Mining  
(N=579)**



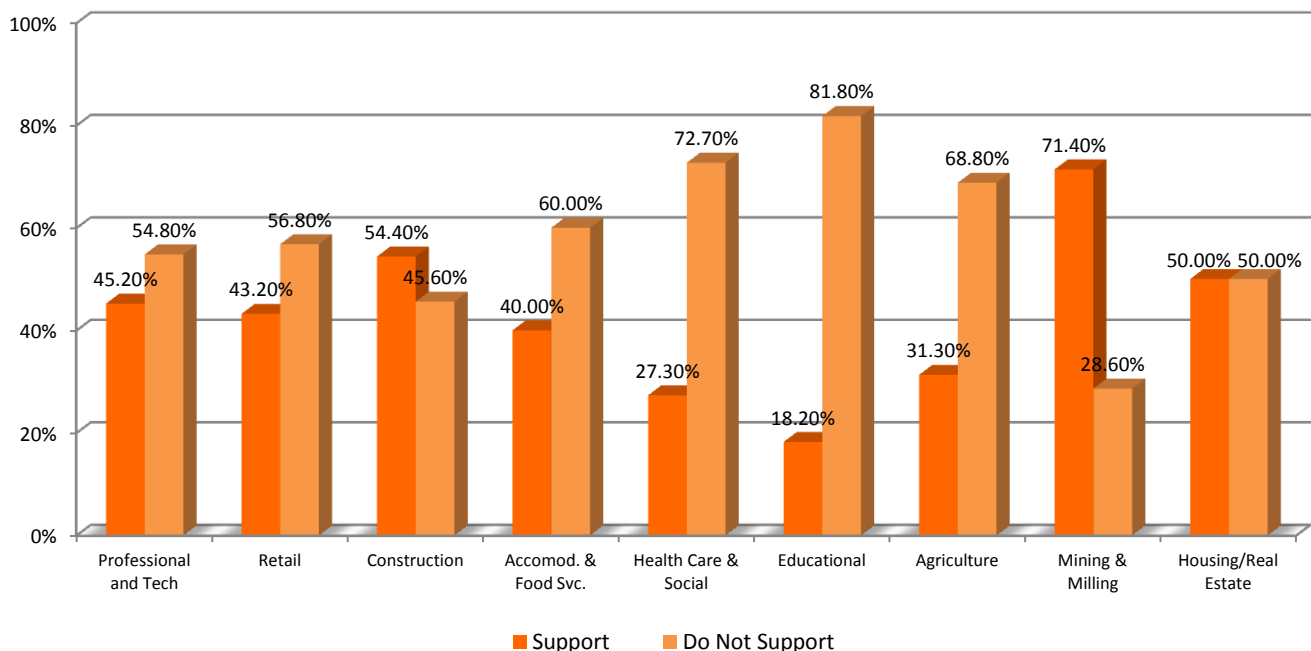
### 2.3.4 Industry Type

The final demographic factor investigated regarding its relationship to support for lifting the mining ban was industry type. Nine industry types were selected for this analysis. The first five industries in Chart 21 represent the industries with the largest response rate. Most respondents were either in professional and technical services, retail, construction, accommodation and food services, or health care and social services.

The remaining four industries were selected because of their particular relevance to this study. These industries are education, agriculture, mining and milling, and housing/real estate. It should be noted that the number of respondents for these final four industries is considerably fewer than for the first five. The last two categories in particular, (mining and milling and housing/real estate) only account for eight respondents each. Because all industries are not included in the chart, the total number of respondents represented is 428.

Chart 21 shows that responses from members of the first two industry groups are similar to one another, and to the sample as a whole, regarding their opinions about lifting the ban. The industries displaying the lowest levels of support for lifting the ban are educational services, health care and social services, and agriculture. Respondents most in favor of lifting the ban are those in the mining and milling industry and those in the construction industry. To explore these findings further, statistical significance testing was conducted using chi-square analyses. Chi-square analyses were statistically significant for industry type. This indicates with 95% certainty that the differences observed between industries regarding their support for lifting the mining ban are real and not due to chance.

**Chart 21. Industry and Support for Lifting the Ban on Mining  
(N=428)**





## **2.4 Socio-Economic Factors that Contribute to Business Leaders' Support of Uranium Mining**

In addition to looking at how demographic factors may affect support for the lifting of the ban on uranium mining, several socio-economic items were also considered. The survey was divided up into several sections that focused on both social attitudes (concern for the environment and the community) and economic attitudes (thoughts about economic growth or business revenue and expansion). This section of the report looks more closely at these factors and their impact on business leaders' support for lifting the ban on mining.

### **2.4.1 Socio-Economic Indices**

The body of the survey consisted of 53 items that were easily collated into eight content areas or indices. Each index covers a specific socio-economic area that could then be used to measure the given concept in the context of other variables or factors. The eight indices created for this study reflect the areas of discussion in Sections 2.2.2 through 2.2.6 and are as follows:

1. Awareness of Uranium Mining (*Six survey items comprise this index*)
2. Research and Information Gathering Related to Uranium Mining (*Five survey items comprise this index*)
3. Trust in Research (*Three survey items comprise this index*)
4. Community Concerns (*Eight survey items comprise this index*)
5. Business Concerns (*Twelve survey items comprise this index*)
6. Business Benefits (*Six survey items comprise this index*)
7. Business Revenue and Expansion (*Seven survey items comprise this index*)
8. Confidence in Regulations (*Six survey items comprise this index*)

### **Index Construction**

From these items, indices were constructed to measure each content area. Business leaders were asked to respond to each item by using either a two-point scale (1=No and 2=Yes) or a five-point scale where 1=No or the lowest response (definitely no, definitely not concerned, not at all) and 5= Yes or the highest response (definitely yes, definitely concerned, very much). Thus, a numeric score could be calculated for each index by adding together the numeric responses to each item in each index area. For example, the community concerns index consists of eight items. If an individual answered "definitely concerned" or "5" for all of these items, they would receive a summed score of 8x5 or 40.

Since some items were on a two-point scale and others were on a five-point scale, one additional step had to be taken to be able to interpret these scores more consistently. Percentage scores were calculated much the way they might be on a school exam. For the above example, we could say that the individual received a score of 40 out of a possible 40, thus received a final score of 100. This way, a perfect score for each scale is 100 much the way an exam score would be. If a respondent circled a "4" for all of the items on this scale, their summed score would be 8x4 or 32. Their final score would be equal to 32 out of 40 or 80. Scores reported here can be viewed then in proportions of 100. A score of 50 would suggest that on average the respondents were in 50% agreement with the content of the index. Scores below 50 are low scores and scores above 50 are high scores. Chart 22 shows the

average scores for each of the eight indices. The index displays the highest score for community concerns (score=71.83). This means that on the whole, respondents reported a fairly high level of concern that uranium mining would have a negative impact on residents, children, workers, and the environment. Respondents reported moderate concerns that mining would have a negative impact on various business sectors (63.6), such as agriculture, tourism, public waterworks, and local merchants.

Also in the moderate range were scores related to the likelihood that the potential mining operation would bring business benefits to the area (62.6), would be regulated well enough to keep the region safe (60.96), and would have a positive impact on business revenue and expansion (57.33).

The lowest scores related to the level of trust business leaders reported regarding research that is being done on uranium mining (52.33), their awareness of mining, the ban, and the UWG (35.94), and on whether or not respondents had conducted any of their own research on uranium mining (28.22). These low scores suggest that business leaders have done little research or information gathering and have low awareness regarding uranium mining, how it works, and its likely impacts. Business leaders are also relatively unsure about how much they can trust the research and the researchers.

**Chart 22. Survey Socio-Economic Indices<sup>5</sup>**



The remaining charts in this section investigate respondents' opinion about lifting the ban on uranium mining in light of these socio-economic indices. That is, the index scores for those who support lifting

<sup>5</sup> Ns vary slightly per score

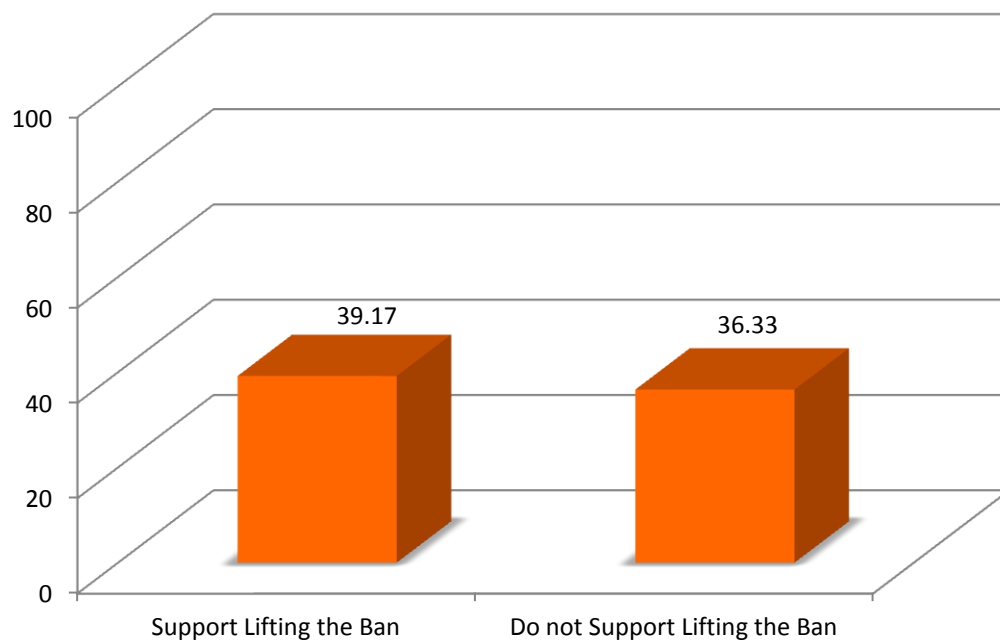
the ban on uranium mining were compared to the index scores of those who do not support lifting the ban. These tests show which socio-economic opinions are most likely aligned with opinions about lifting the ban. Each of the index scores is discussed below, beginning with the awareness, research and information gathering, and trust indices.

## **2.4.2 Awareness Level, Information Gathering and Trust in Research on Uranium Mining**

### **Awareness of Uranium Mining and the Uranium Working Group**

Independent samples t-tests<sup>6</sup> were conducted to investigate if those respondents who support the ban were different from those who do not support the ban regarding their awareness of information related to uranium mining in Virginia and the activities of the UWG. Statistical results revealed that the awareness index scores between the two groups did not differ significantly, suggesting that basic awareness about uranium mining and about the UWG does not have an impact on respondents' level of support for the lifting of the ban (see Chart 23).

**Chart 23. Awareness Index Scores and Support for Lifting the Ban on Mining  
(N=582)**



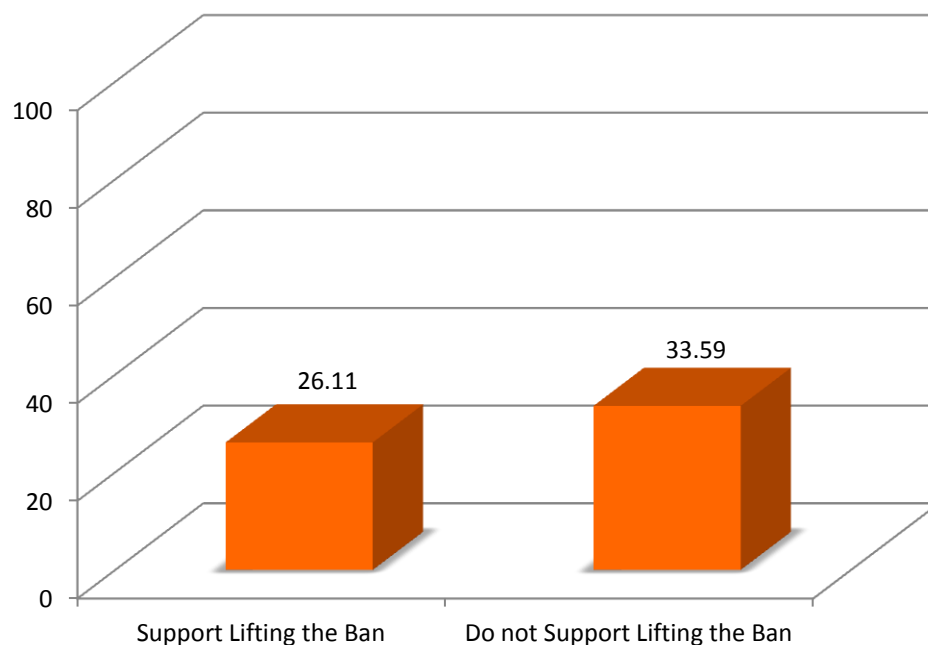
### **Research and Information Gathering**

The research and information gathering index measured how much respondents were likely to engage in activities such as talking to customers, other business leaders, family members, or neighbors about

<sup>6</sup> An independent samples t-test measures the differences between the means of two scores. If there is a statistically significant difference, we can assume with 95% accuracy that the difference is not due to chance, but due to a real difference between the two groups.

uranium mining. It also included whether or not they've conducted any Internet research on the topic. Only individuals who had indicated awareness of uranium mining were asked questions about research and information gathering, so the total number of respondents for this index is smaller than others (N=402). Statistical analyses were conducted using independent samples t-tests. The results (see Chart 24) show that individuals who have gathered more information from talking to others or going on the Internet are more likely to not support a lifting of the ban on mining.

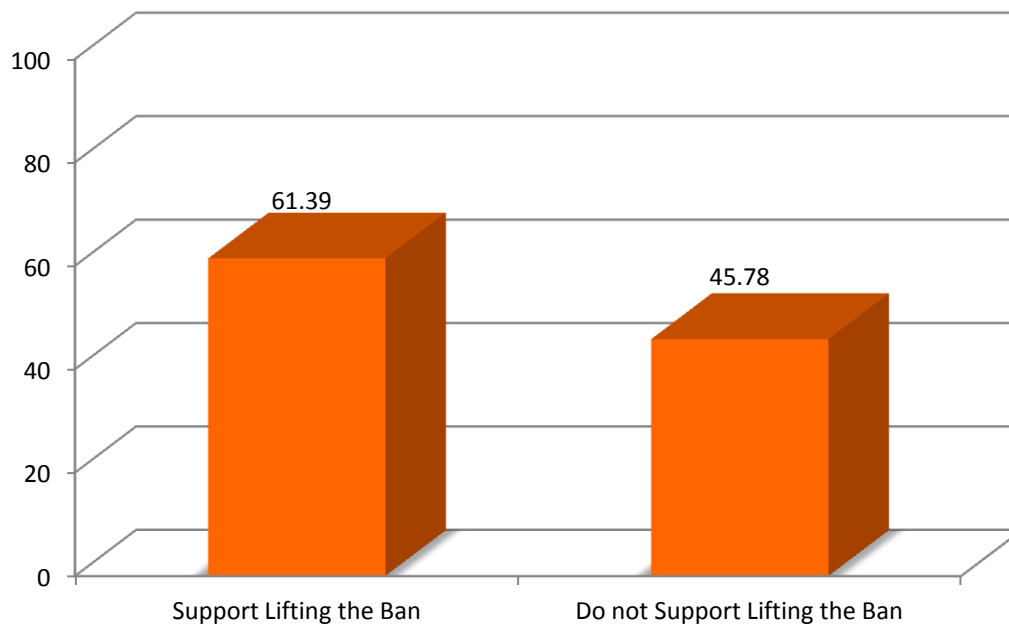
**Chart 24. Research and Information Gathering Index Scores and Support for  
Lifting the Ban on Mining  
(N=402)**



### **Trust in Research**

The trust index examined how much the respondents were likely to trust that research being done about uranium mining was thorough and unbiased. Statistical testing through independent samples t-tests demonstrated that those who support lifting the ban have significantly higher levels of trust in the research being conducted when compared to those who do not support lifting the ban (see Chart 25). The difference in index scores is quite large, with those respondents who support the lifting of the ban exhibiting an average trust index score of 61.39 and those who do not support the lifting of the ban exhibiting an average trust score of 45.78.

**Chart 25. Trust Index Scores in Research and Lifting the Ban on Mining  
(N=465<sup>7</sup>)**



### **2.4.3 Level of Concern for Negative Impacts Due to Mining**

The next set of analyses explored the respondents' concern for their community and for local business sectors. In both cases, independent sample t-tests were run to examine differences between those who support the ban versus and those who do not support the ban.

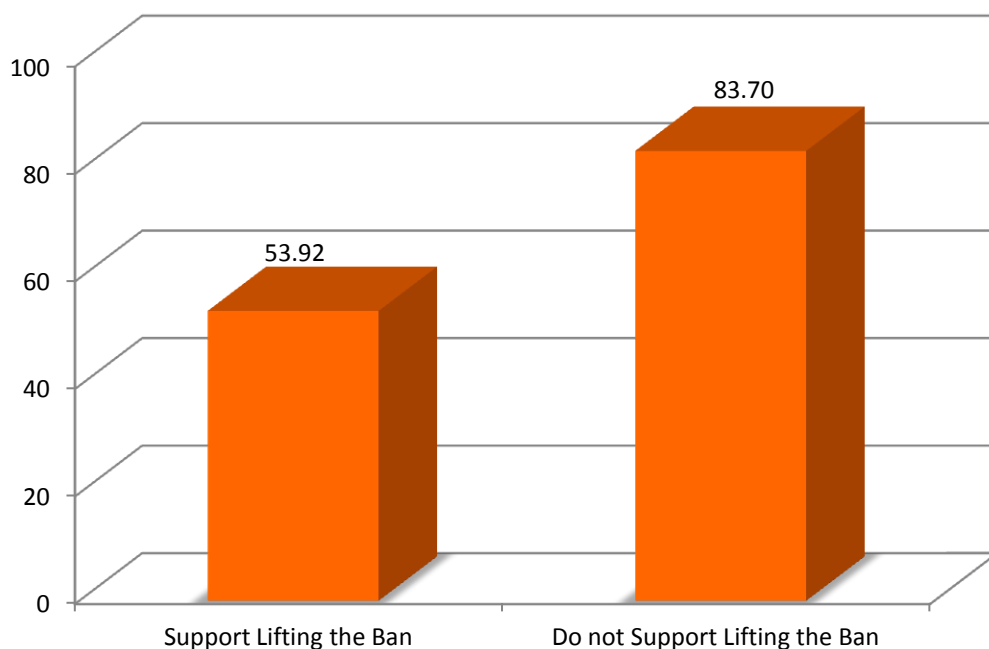
#### **Level of Concern that Mining will have a Negative Impact on the Community**

The concern for community index measured whether or not the respondent was concerned that uranium mining would have a negative impact on various aspects of the community such as children, workers, residents, and the environment. Results showed that those who do not support lifting the ban display significantly greater concern related to these factors than do those who support lifting the ban (statistical tests were significant). The difference in scores was quite large, covering a nearly 30-point difference (see Chart 26).

<sup>7</sup> It should be noted that the N is smaller for this group than others. This is due to a much higher number of respondents answering "don't know" to questions about trust. Respondents who answered "don't know" did not indicate high or low trust, so were treated as missing data for these analyses, and were not included in the statistical testing.

Respondents who support lifting the ban had a community concern index score of 53.92 whereas those who do not support lifting the ban have a community concern index score of 83.70. Concerns about the negative impact on the community represent the strongest factor predicting whether the respondent supports or does not support the lifting of the ban on uranium mining. This item has a stronger impact on the respondents' opinions about the ban than business location, industry type, or any other social or economic factor.

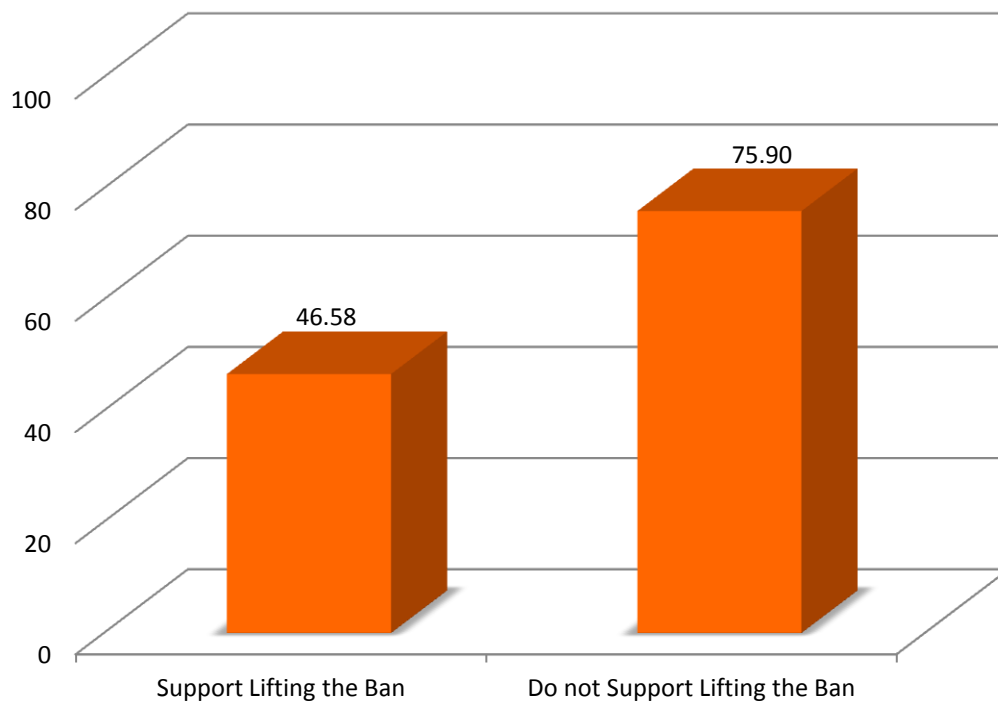
**Chart 26. Level of Concern that Mining Will Have a Negative Impact  
on the Community Index Scores and Lifting the Ban on Mining  
(N=568)**



**Level of Concern that Mining will have a Negative Impact on Business Sectors**

This factor measured whether or not the respondent was concerned that uranium mining would have a negative impact on specific business sectors such as agriculture, tourism, public waterworks, and local merchants. Results were very similar to those shown for community concern as discussed previously. Those who do not support lifting the ban have significantly greater concern related to these factors than do those who support lifting the ban (statistical testing was significant). The differences related to the impact on business sectors were not quite as large as those related to community concern, but they were statistically significant and reflect a nearly 20-point difference (see Chart 27). Respondents who support lifting the ban displayed a business concern score of 46.58 whereas those who do not support lifting the ban display a business sector concern score of 75.90.

**Chart 27. Level of Concern that Mining Will Have a Negative Impact on Specific Business Sectors Index Scores and Lifting the Ban on Mining (N=552)**



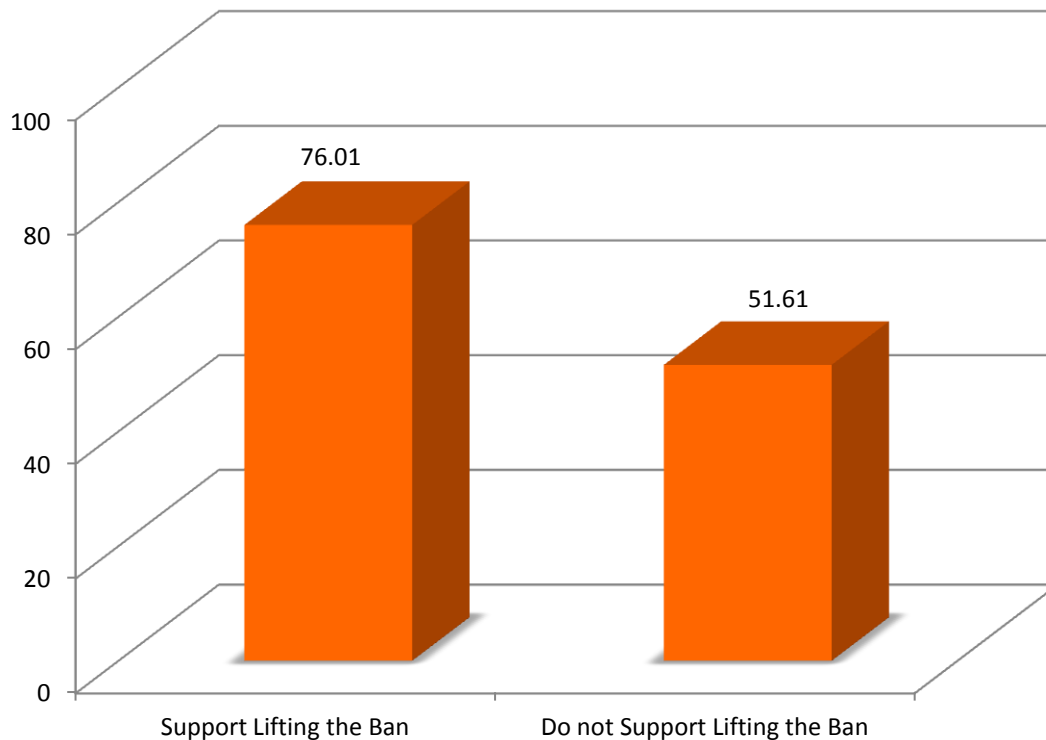
#### **2.4.4 Economic Benefits and Confidence in Regulations**

Statistical significance testing was also conducted on the indices related to business benefits, revenue generation, and confidence in regulations. The results of these analyses are presented below and quantified in the following charts.

##### **Business Benefits**

Another very strong factor in predicting a respondent's position about lifting the ban is the perception that uranium mining will bring business benefits to the area such as increased employment and attracting new businesses to the area. Those who support lifting the ban have a significantly higher belief that the uranium mine will bring economic benefits to the local area (statistical testing was significant). Those who support lifting the ban have a business benefits score of 76.01, whereas those who do not support lifting the ban have a business benefits score of 51.61 (see Chart 28).

**Chart 28. Business Benefits Index Scores and Lifting the Ban on Mining  
(N=559)**

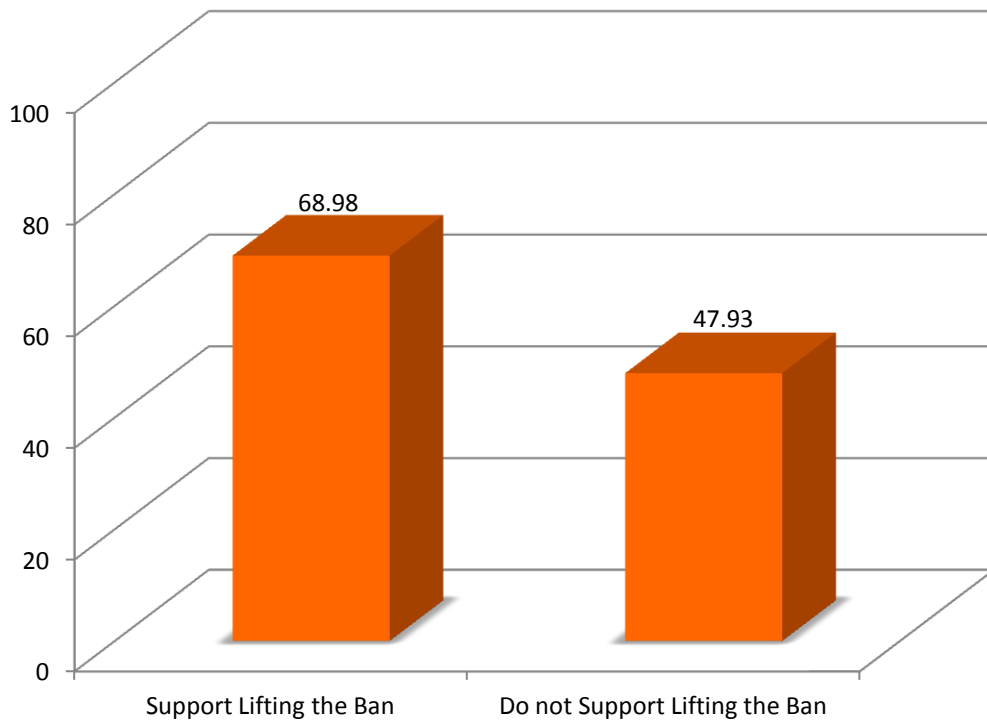


### **Business Revenue, Expansion, and Diversity**

This index measures whether or not mining is likely to have a positive impact on a number of business factors such as business revenue, expansion, and diversity. Those who support lifting the ban have a significantly stronger belief that the impact on these business factors will be positive compared to those who do not support lifting the ban. These differences are statistically significant and cover a nearly 20-point span (see Chart 29).



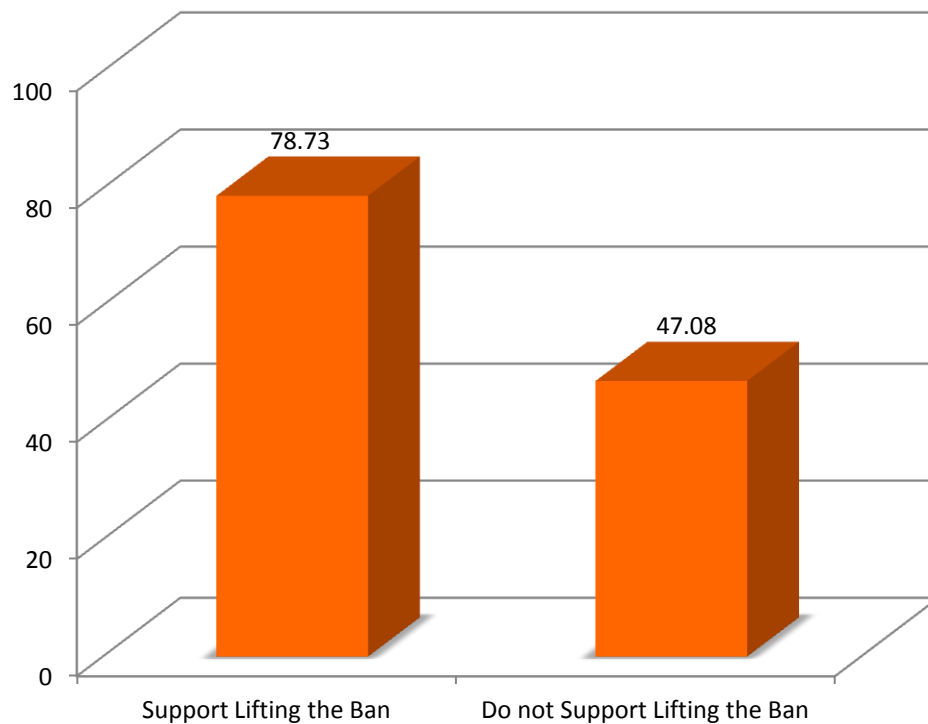
**Chart 29. Positive Impact on Business Revenue, Expansion, and Diversity Index Scores and Lifting the Ban on Mining (N=545)**



### **Confidence in Regulations**

The final index measured respondents' confidence in regulations designed to protect the public and local businesses from dangerous emissions. This index had a very strong impact on support for lifting the ban. Respondents who support lifting the ban are significantly more confident that regulations can protect the public compared to those who do not support lifting the ban. Those who support lifting the ban display a confidence in regulations index score of 78.73, while those who do not support lifting the ban display a score of 47.08. These differences are statistically significant and represent a more than 30-point span (see Chart 30).

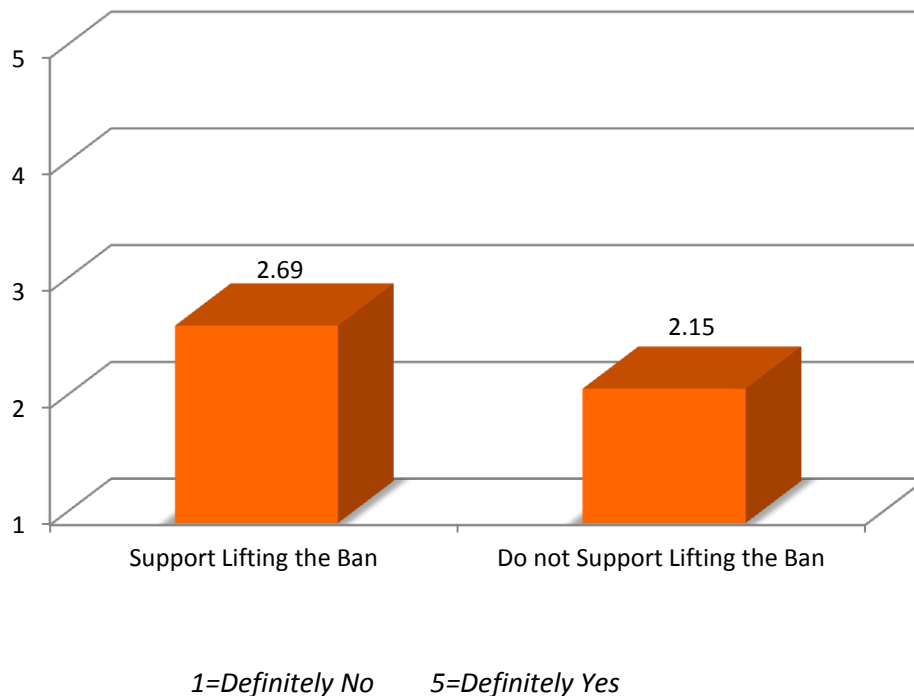
**Chart 30. Confidence that Regulations will Monitor and Protect the Community Index Scores and Lifting the Ban on Mining (N=572)**



#### **2.4.5 Understanding of Mining Processes**

Finally, there were some items on the survey that measured socio-economic factors, but were not appropriate to include in any of the indices. The final chart in this section presents a comparison using one of these single items rather than an index score. The item on the survey asked respondents to rate the following statement, "I understand the technology/processes used to extract uranium." The statement was rated using a five-point scale where 1=Definitely No and 5=Definitely Yes. An independent sample t-test was conducted to test if the mean score for this item was different for individuals who supported lifting the ban on uranium mining than those who do not support lifting the ban. Significance testing verified that there is a significant difference between the two scores, indicating that those who support lifting the ban have a significantly greater understanding of mining processes than those who do not support the ban. Results presented in Chart 31 show the average scores for the individual item using the five-point scale.

**Chart 31. Understanding of Mining and Support for Lifting the Ban  
(N=576)**



#### **2.4.6 Summary of Index Comparisons and Mining Support**

In general, socio-economic attitudes had a much stronger influence in whether or not a business leader was likely to support lifting the ban on uranium mining than did demographic factors. How a business leader felt about the mining ban differed little regardless of business size, distance from the mining site, or length of time in business. Industry type did have some impact on how respondents felt about the ban, with those in the mining/milling industry or construction industry most likely to support lifting the ban and those in the education and healthcare/social service fields least likely to do so.

The factors that had the greatest influence on opinions about the ban were attitudes towards mining risks and business benefits. That is, the respondents who most strongly believe that mining poses a risk to the community via a negative impact on the environment, residents, local businesses, local waterworks, etc., are the most likely to oppose lifting the ban. The respondents who are most likely to support lifting the ban are those who have confidence in regulations to monitor emissions and protect the community. Additionally, those who view business benefits to lifting the ban are more likely to support it than those who do not view potential business benefits.

### **3. SITE LOCATION CONSULTANT SURVEY**

#### **3.1 Research Methods for Site Location Consultant Survey**

##### **3.1.1 Sample**

Site location consultants are companies that work with business leaders to assess potential locations to expand and relocate their client's businesses. It was believed that the perceptions of these consultants could have a significant impact on the relocation of businesses into the Commonwealth. It was also believed that these consultants would be particularly sensitive to issues that are of concern to businesses looking to expand and relocate. The Survey of Site Location Consultants was designed to elicit the opinions of this influential group about the potential impact on economic development if the ban on uranium mining in Virginia is lifted.

Based on communications with Jay Langston of the Virginia Economic Development Partnership, internal research conducted by ORI, and feedback from the Fairfax County Economic Development Authority and the International Economic Development Council, ORI determined that the best approach for reaching the site location consultants would be to conduct a set of highly targeted telephone interviews.

ORI developed a contact list composed of members of the Site Selectors Guild and the Economic Development Consultants Directory. The final list included 128 site location professionals.

##### **3.1.2 Instrument**

ORI prepared an initial research plan focusing on research questions for this group in conjunction with the development of the Virginia Business Leaders Survey. This plan was also prepared based on a review of the economic analyses conducted to date, the information available on the UWG website, including the public comments posted there, and conversations within the project team.

The research plan was distributed to representatives of Virginia's UWG, the Virginia Economic Development Partnership, the Virginia Department of Health, the Virginia Department of Environmental Quality, the Department of Mines, Minerals and Energy, and Wright Environmental Services for review and comment.

After compilation of the feedback from the review team, ORI prepared a draft questionnaire, which was reviewed by the different stakeholders and finalized on November 15, 2012.

##### **3.1.3 Procedures**

Between November 15 and November 30, 2012, ORI's senior research staff and interviewing personnel experienced with high level interviews, engaged in best efforts to complete as many telephone interviews as possible with this group. A letter from Heidi Guglielmino, Director of Research at ORI, was prepared and either faxed or emailed to potential respondents if requested.

After the first attempts to reach the respondents met with little success, an email from Cathie France in her capacity as Chair of the Governor's Uranium Working Group was sent to 107 potential participants.

The interviewers made up to four attempts to contact the individuals. A voice mail message was left after the third attempt, and a follow up call was made after the voice mail.

Twenty-three respondents requested that they be given the option of filling out a hard copy of the survey. These individuals were given until December 5, 2012 to return their completed survey.

ORI was ultimately able to interview or receive a completed survey from only seven individuals. Interestingly, 41 of the 128 site location consultants refused to participate in the study citing that the survey wasn't relevant to them or the work they do (13) or that they do not do any work in Virginia (9).

### **3.2 Results from the Site Location Consultants Survey**

Because of the very low response rate and sample size, statistical computations could not be reliably calculated for this survey sample. Consequently, the results for this survey will be discussed broadly, focusing on majority responses and consistent trends. The results reported below are informative but should in no way be considered to reflect the attitudes and opinions of any individuals other than the seven respondents.

#### **Awareness of Uranium in Virginia**

Overall, the majority of site location consultants were not aware that Virginia had uranium deposits, currently has a uranium mining ban in place, or is currently evaluating the pros and cons of lifting the ban on mining. However, when asked about their awareness of uranium mining in other states, six out of seven of the respondents stated that they had previously received feedback from their client businesses regarding their thoughts and experiences with uranium mining. When asked what that feedback was, only two respondents shared comments:

- It has come up in discussions, although companies are much more aware of environmental and geologic issues than in years past.
- I served as a consultant in North Carolina to help dispose of low-level nuclear waste, but understand that uranium is a different matter.

When asked if they have any questions or concerns about uranium mining that have not been answered, six out of seven said they did not have any and they did not anticipate that their clients would have any.

#### **Perceptions of Uranium Mining in Virginia**

When asked how the potential lifting of the Virginia ban on uranium mining would affect their perceptions of Virginia as a place to recommend as a location for businesses, six out of seven respondents stated that it would have no impact at all on their perceptions of Virginia. Further, five out of six stated that it would have no impact on the perceptions of their clients regarding Virginia as a place to relocate or start a business. When asked why it would not have an impact on their personal perceptions, they responded:

- I assume that appropriate EPA rules and regulations will be put in place and enforced, so there is probably no need to make this an issue for attracting new or expanding business.
- However, it could have an impact on perceptions if we were drilling a site in a county or community where a uranium mine exists, depending on what we learn of the hazards of being proximate to a uranium mining.
- There is a nuclear facility in Oakridge, TN that is incredible. These centers haven't affected the surrounding areas negatively at all.
- The answer to the question is, "it will depend." Uranium is a radioactive material that has to be handled correctly to avoid contamination of the surrounding environment, water supplies, etc. We are exposed to radioactivity in our normal daily lives.

When asked why it would not affect their clients' perceptions of Virginia, they responded:

- High tech businesses in this field would love it.
- It will be location dependent. Do I think my clients would want to be next door; no. Do I believe they would be concerned if it was 100 miles away and downwind; no.

When asked if they thought that Virginia should lift the ban on uranium mining, the majority of the site location consultant abstained from giving an opinion, stating that they are not familiar enough with the sensitive issues, cannot make a judgment call based on the information in the survey, or have not considered the factors enough to form an opinion.

### **Community and Business Concerns about Uranium Mining**

When asked whether they believed that uranium mining could have a negative impact on businesses, site location consultants felt that mining would have the least negative impact on schools, tourism, and existing Virginia businesses (with scores below 2.5 on the 5-point scale where 1=Definitely Not Concerned and 5=Definitely Concerned). They believed it would have the most negative impact on public waterworks and wine production, with scores between 2.8 and 3.0.

They were also asked if they felt that their business clients would be concerned that uranium mining would have a negative impact on community factors such as the environment, residents, or children. Respondents reported that they did believe that residents would have moderate concerns, especially about housing property values and the environment (with scores of 3.0 for each). However, they also reported that they believed that any concerns business leaders may have would decrease if they were to learn how risks from uranium mining could be minimized to protect public health and the environment (with a score of 3.83 out of 5).

### **Business Benefits**

When asked about business benefits that are likely to result from potential uranium mining, responses varied. Only one score fell above 3.5 (at 3.6) in that site location consultants felt that uranium mining would encourage growth in local businesses in the area near the mine due to the associated increased employment potential. Two items rated quite low as respondents did not think that mining would have a positive impact on drawing new businesses from other parts of the state or from out of state, with both of these items receiving mean scores of 2.2.

### **Impact on Business Revenue, Expansion and Diversity**

When asked if mining would have a negative or positive impact on several business aspects (where 1=Very Negative and 5=Very Positive), mean scores were in the mid-range overall. Respondents were most likely to see mining as having a positive impact on the diversity of businesses drawn to the area (with a mean score of 3.67) and least likely to see a positive impact on start-up businesses or the expansion of businesses (with mean scores of 3.0 for each). No items received scores below 3.0, suggesting that site location consultants did not perceive a very negative impact for any of the business aspects presented.

### **Local Investment Strategy**

Finally, respondents were asked how important it was to the site location consultants for a local economic investment strategy to be put in place should the mine go into operations in order to begin to immediately diversify the Pittsylvania County and Danville area economies. They were asked to answer the questions using a five-point scale where 1=Not At All Important and 5=Very important. Overall, respondents felt that this type of local investment strategy was rather important, with an overall mean score of 4.0 on this five-point scale.

Using a scale where 1=Negative Impact and 5=Positive Impact, the respondents were asked what kind of an impact a local investment strategy like this would have on business from other regions of Virginia, or out-of-state businesses relocating to the Pittsylvania County area. The average mean scores were in the mid range at 3.33 and 3.0 respectively.

## **4. CURRENT SURVEY RESULTS AND PRIOR ECONOMIC ANALYSES**

### **4.1 Review of Predecessor Reports**

The Business Attitude Survey regarding uranium mining in Pittsylvania County, VA is the latest study conducted on behalf of the citizens of the Commonwealth of Virginia aimed at soliciting public input and attitudes on possible benefits and risks associated with lifting the uranium mining ban. The current study, in particular, focused on input from the statewide business community.

This section provides a summary brief of each of the predecessor studies that were used to inform the development of the Business Attitude Survey and related analyses in order to present both the range and limitations of the information provided in each report. Between October 2010 and July 2012, four predecessor studies were conducted each focusing on differing aspects associated with uranium mining in Southside Virginia. The most recent was a survey of residents of the area and their knowledge of uranium mining which was conducted by Virginia Commonwealth University<sup>8</sup> (VCU Study). That study was preceded by a study conducted by RTI International<sup>9</sup> (RTI Study) which evaluated various impacts of uranium mining at Coles Hill and a series of short studies completed by George Mason University<sup>10</sup> (GMU Study) that investigated fiscal and trend patterns. Finally, Chmura Economics & Analytics<sup>11</sup> (Chmura Study) laid the foundation for all subsequent studies by providing a framework document which aimed to assess and balance health and environmental risks against economic rewards.

#### **4.1.1 Summary of Comparative Content from Relevant Studies**

Combined, the referenced studies considered the issue of economic impact from a variety of perspectives – geological, demographic, technical, mining-type, fiscal, environmental, and attitudinal. These reports employed differing methodologies and targeted input from a range of primary and secondary data sources over inconsistent time spans. Table 3 presents a descriptive summary of all of the studies.

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<sup>8</sup> “Uranium Mining in Virginia: Perceptions of Residents of the City of Danville and the County of Pittsylvania, Virginia” (Survey and Evaluation Research Laboratory, Virginia Commonwealth University)

<sup>9</sup> “Proposed Uranium Mine and Mill, Coles Hill Virginia: An Assessment of Possible Socioeconomic Impacts” (RTI International)

<sup>10</sup> “Coles Hill Uranium Report” (Center for Regional Analysis, George Mason University)

<sup>11</sup> “The Socioeconomic Impact of Uranium Mining and Milling in the Chatham Labor Shed, Virginia” (Chmura Economics & Analytics)



**Table 3: Descriptive Summary of Coles Hill Uranium Mining & Milling Studies,  
Presented in Chronological Order of Completion**

<b>AUTHOR</b>	<b>PURPOSE &amp; UTILITY</b>	<b>ANALYTICAL METHODS</b>	<b>STUDY SPONSOR &amp; TIMEFRAME</b>
ORI (ORI)	Presents business attitude survey results from VA business leaders and regional and out-of-state business site location consultants re: knowledge, perceptions and attitudes of the impact of uranium mining on the business climate within Commonwealth; and compares results to previous body of economic analyses.	Response frequencies, means, and statistical significance tested to the $p < .05$ level; and reported out in tabular, graphic and narrative presentation. (2012)  Narrative comparison of pertinent business and economic impact conclusions drawn from previous economic analyses.	Uranium Working Group  Nov 2012 to Jan 2013
Virginia Commonwealth University (VCU)	Presents telephone survey results of a representative sample of adult residents of Pittsylvania County and the city of Danville, VA to assess public opinion of uranium mining in the area and their current level of knowledge of the topic.	Response frequencies, correlation and statistical significance tested to the $p < .05$ level; and reported out in tabular and simple narrative format. (2012)	The Alliance for Progress in Southern Virginia  June 2012 to July 2012
RTI International (RTI)	To evaluate the potential impacts of developing and operating a uranium mine and mill on a region within 50 miles of Coles Hill, VA  Develop a reference document that supports stakeholders as they formulate informed opinions, make the best collective decision possible; and become aware of questions and concerns that might warrant further investigation and monitoring if the mine and mill project is actualized.	Values-Based Decision Analysis Approach that had as its objective “to make the region the best place to live that it can be.”  Study generated a hierarchy of community-articulated objectives provided by a wide range of stakeholders – including regional business owners.  Historical data reviews, case studies and interviews were used to gain insights on previous North American uranium mining facilities (various primary and secondary data sources were used depending on availability, from 1955 to 2011)	The Danville Regional Foundation  Jan 2011 to Jan 2012
George Mason University (GMU)	Compilation of four study results: <b>1)</b> Fiscal impact analysis designed to calculate the revenue and expenditure impacts in Pittsylvania County if Coles Hill uranium mine and processing facility had been fully operational	<b>1)</b> Using the county’s audited 2010 Comprehensive Annual Financial Report (CAFR) as the base, a “balanced budget” analysis approach was conducted that loaded estimated Coles Hill revenues and associated expenditures to determine projected impacts.	Conducted by The Center for Regional Analysis <b>1)</b> Oct 2010 to Oct 2011

<b>AUTHOR</b>	<b>PURPOSE &amp; UTILITY</b>	<b>ANALYTICAL METHODS</b>	<b>STUDY SPONSOR &amp; TIMEFRAME</b>
	in 2010; <b>2)</b> Trend and pattern analyzes of the Danville MSA housing market to determine impact of proposed uranium mine and mill on the local housing market; <b>3)</b> Determine whether projected direct and indirect economic effects of uranium operations on select US communities were realized, in reality; and <b>4)</b> Consequences of uranium mining and milling on the broader economy and business base in Pittsylvania County.	<b>2)</b> Updated housing profile metrics for the Danville MSA. <b>3)</b> Literature reviews of past and current economic impact studies and case studies of other US uranium mining operations; assembled ACS & Bureau of Economic Analysis economic and demographic data; interviewed residents with knowledge of sector-specific economic impact and environmental groups. <b>4)</b> Synthesized update and blend of trend data results presented in 1) thru 3) as supported by BLS and local data sources.	<b>2)</b> Oct 2010 to July 2012 <b>3)</b> As of Dec 2011  <b>4)</b> July 2011 to July 2012
Chmura Economics & Analytics (Chmura)	To provide the facts and context to understand the magnitude of economic benefits and the socioeconomic costs stemming from a uranium mine and mill in Virginia.  Analysis provides a framework for VA legislators to assess and balance the health and environmental risks against the economic rewards inherent to mining and milling.	Literature reviews of socioeconomic baseline and impact study methodologies of other US-based uranium mining and milling operations.  The IMPLAN Pro Model was used for generating input-output analyses and lifecycle projections of the economic and fiscal impact of uranium mining and milling operations at Coles Hill. These estimates include state and local tax revenue, local infrastructure enhancements, regulatory monitoring, public health and environment, “stigma” effects on property values, and other social impacts. (Varied from 1991-2010)	Virginia Coal and Energy Commission  Early 2011 to Nov 29, 2011

The primary purpose of reviewing these studies was two-fold. First, the studies were used to inform the topics addressed for the Business Attitude Survey. Not only did the survey fill in gaps that were not addressed in the previous studies, but there was a desire to see if the survey findings would align in any way with the findings of these previous studies. The second purpose of the study was to analyze the data from the Business Attitude Survey, review the findings from the previous studies to ascertain if there were comparable data points that aligned with the survey’s findings and to see where consistent trends in data could be observed. Unfortunately, comparability was limited because the types of data collected and the data sources varied widely across each study. However, some comparability could be achieved. The remainder of this section provides a brief summary of each of the predecessor studies along with study highlights that align comparably with the findings of the Business Attitude Survey.

#### **4.1.2 Virginia Commonwealth University Study Findings**

The VCU Study was a telephone survey of a representative sample of 551 adult residents of Pittsylvania County and the city of Danville, Virginia conducted in June-July, 2012. The survey collected data on the respondents' awareness of the ban on mining in Virginia and what impact the mining operations are likely to have on property values, employment, the economy, and the health of the residents of the area.

The findings of the VCU study are consistent with those of the Business Attitude Survey in the following areas:

- More than seven out of ten (72.5%) of the respondents were familiar with the ban on uranium mining, which is consistent with business leaders' awareness (60.9%).
- Just over half (53%) of the respondents would not allow uranium mining in the Danville City/Pittsylvania County area, consistent with business leaders' opinion (50.3%).
- Just over half respondents in this study recognize the economic benefits of uranium mining for the area (54%), which is consistent with the average business leaders' impression.
- Sixty-three percent say it would pose a health risk for the residents of Danville City/Pittsylvania County, and negatively impact cattle, dairy, and crop prices, which is consistent with the concerns of the average respondent from the business leader survey.

Overall, business leaders had the same concerns and opinions as Virginia residents overall, and were aware of both the pros and cons of mining and milling in the Commonwealth.

#### **4.1.3 RTI International Study Findings**

The RTI Study provides an easy-to-understand resource guide for the citizen stakeholders of the area. It paints the clearest picture of Pittsylvania County and the Coles Hill area as viewed through the lenses of its residents' collective values, local traditions, and determination to create a meaningful future of full employment and growth for their community. It detailed the positive aspects of regional living; acknowledged introspectively-defined challenges facing its residents; prescribed a future corporate development direction for the area; identified environmental, human, and ecological health impacts of various proposed uranium mining extraction methodologies; identified "lessons learned" from other North American based uranium mining and milling operations; and defined an input-output analysis approach used to estimate a variety of economic and community impacts.

According to the RTI study, the people of this region desire jobs and new businesses in information technology, data management, automotive industry, "green" industries, and ecotourism. In order for these to be achieved, however, more comprehensive planning policies, infrastructure upgrades (roads, water, and sewer infrastructure) and revitalized community amenities would be required to make the area attractive to such industries. In addition, strong local leadership was cited as a basic need to bridge the varying economic, educational, and technological proficiencies that presently exist among the citizenry. Strategic education and training options are needed to enable residents to actively participate in transitioning to a desired future including sustained high-wage and technology-driven employment.

In this study, great emphasis was placed on quality of life issues. An input-output analysis approach was used to tie potential pollutant release and environmental impact findings to applied economic data regarding uranium mining and milling in Coles Hill. The result was an overall regional assessment of quality of life. Incomes, employment opportunities, and indoor recreation amenities were identified as the aspects expected to be positively affected by lifting the ban. Regional aspects that may be adversely affected by lifting the ban include air and water quality (minimal impacts under normal conditions), natural resources, and outdoor recreation opportunities. Finally, the value of houses closest to the mine and milling sites may be the most adversely affected by actual and/or perceived stigma. Other regional quality of life characteristics such as climate, infrastructure, schools, and health care should not be significantly affected if the uranium mining and milling operations proceed.

Much of the data in the RTI report went far beyond the attitude data collected in the Business Attitude Survey. However, the RTI report did include key stakeholder interviews and focus groups with residents to talk about their greatest concerns in order to shape the direction of study they implemented. The results of these interviews were very consistent with the results from the Business Attitude Survey.

For example, RTI reported that their interview participants “far and away” focused most of their concern on what they perceived as the lack of information on the topic of uranium mining and milling. They did not feel educated enough to make informed decisions about the ban or the lifting of the ban and presented this as a primary concern to the RTI researchers. Further, they expressed a lack of knowledge on the detailed practices of how mining is done, regulated, and transported safely.

This finding is consistent with the comments made by the business leaders and by their responses to many of the survey questions. The need for more education was evident in their response to several survey questions regarding the lack of understanding of the technology/processes used to extract uranium, the request for more information before forming an opinion, and the belief that their concerns would decrease if they were to learn more about how the risks from uranium mining could be minimized. The need for ongoing, accessible, and easy to understand information about mining was a consistent finding from both studies.

#### **4.1.4 George Mason University Study Findings**

The GMU Study was based on Pittsylvania County’s FY2010 Comprehensive Annual Financial Report; data from the American Community Survey; and data collected via interviewing local, regional, and state economic development professionals. The study examined how the total revenue collected and expenditures made in the county would have been different had the uranium mining and milling operations been in place in 2010. The findings indicate that the county would have received a net fiscal benefit with minimum impact on housing and the attraction and retaining of businesses. Their analyses indicate that the additional revenues received by the county would have been greater than the additional public service expenditures. The most important economic impact identified were the jobs that would have been provided. The study concluded that there is adequate housing to meet the housing needs of the employees of the mining and milling operations. Moreover, the remoteness of the site of the mine, the heavily rural nature of the site, and limited visibility from adjoining properties suggest that the physical presence of mine would have limited negative effects on the housing market.

Results from the GMU study were of limited comparability, due to the focus of their research and the data sources used. They did, however, collect some data from Danville area realtors, asking specifically about mining concerns and risks in an effort to assess stigma on the housing market. Consistent with the RTI report and with the Business Attitude Survey, the GMU report indicated a “general lack of knowledge” about the Coles Hill mine.

The GMU report also indicated that there was strong agreement that good regulations and regulation enforcement is desired by residents to calm fears about community health and the environment. This is consistent with business leaders in their response to several questions in the Business Leader Survey that assessed the importance of regulations to safeguard places where children gather, protect worker health and safety, protect drinking water, and more. It is also consistent with their high levels of concern for the safety of children, residents, and the environment.

This suggests that education to the public must include a clear definition of the role of regulations and regulation enforcement to communicate how environmental dangers are being monitored and risks are being mediated. All enforcement actions should be public, and residents and business leaders should have easy access to this information if the ban is lifted and mining is implemented in Virginia.

#### **4.1.5 Chmura Economics & Analytics Study Findings**

The Chmura Study examined potential economic and social impacts of uranium mining and milling in Virginia. The study projected these impacts through the targeted 35-year operation of the mining and milling operation. Analyses were conducted for three phases of the operation: the construction phase, the operation phase, and the reclamation phase. The study focused on the analysis of the impact of uranium mining and milling on direct, indirect, and induced spending and jobs; property values; state and local government revenue and expenditures; infrastructure and public service; public schools; contingency planning and disaster preparedness; and public health and the environment.

The Chmura study projects that uranium mining and milling will have a significant economic effect. Spending, tax revenue, and jobs will increase. Given the high unemployment rate in the study area, most of the jobs could be filled by residents in the area, mitigating the need for an influx of new workers and residents. It is anticipated that a relatively small number of employees would need to be recruited from outside the area; however, with effective training programs, such recruitment may be further minimized.

These findings are consistent with the Business Attitude Survey in the number of ways that business leaders indicated that mining would provide economic benefits to the Coles Hill region. Business leaders agreed that uranium mining would encourage growth in local businesses due to increased employment and the drawing in of some new residents from out of state. On average, business leaders balanced their concerns for the environment with their desire for these business benefits.

The findings of the Chmura study also suggest that absent environmental contamination in excess of federal regulations, it is unlikely that the tourism industry in the area would be significantly negatively impacted, and there is minimal risk to the degrading of the surrounding environment—air, soil, and water. On the other hand, natural vistas and landscapes within a one-mile radius of the site are likely to be negatively altered. Also, although the mining and milling operations pose minimal risk to human

health, due to stigma, these operations have the potential to negatively impact the agricultural sector and depress the sales of locally produced foodstuffs and farm-related items. Assuming contamination of resources will be controlled, the study suggests that the added economic benefit of the mining and milling operations will likely improve the quality of life via increased economic opportunities in the area. Again, these findings are consistent with the balance between awareness and concern for the environment communicated by business leaders and their interest in the benefits that mining would likely bring to the local area.

## **4.2 Comparative Analysis Summary**

As evident by the results presented in this section, the research conducted in the Commonwealth of Virginia over the last three years has demonstrated the following findings:

- Clear, unbiased, and accessible information must be continuously available to residents and business leaders, who as of this date, are still lacking in much of the information they need to make informed decisions about the mine. This was expressed directly by residents and business leaders across multiple studies.
- Thoroughly defined and enforced regulations are needed to assuage the fears of residents and business leaders about the risks of mining to the environment and children in the Coles Hill area. The monitoring and enforcement of these regulations must be made public and accessible.
- Business leaders are encouraged by the possibility of the business benefits of mining, especially the possibility for job growth and new employment. This is despite having an equal amount of concern for the possible negative effects that mining could have on the environment. Therefore, all efforts to move forward must offer a balanced approach between these two themes (business growth and environmental protection).

## 5. CONCLUSIONS AND RECOMMENDATIONS

### 5.1 Summary of Approach

A total of 652 Virginia business leaders from across the Commonwealth were surveyed for this study. Statewide, approximately 60% of respondents are aware that Virginia has uranium deposits in Pittsylvania County and that the Commonwealth is currently evaluating whether or not to lift the ban on uranium mining and exploring the issues related to effectively accessing this resource.

The study also included a survey of regional and out-of-state business location consultants. Responses from this group were difficult to secure, and only a very small sample of seven were obtained for this study. Overall, the consultants' awareness of the existence of uranium in Virginia and of the mining ban was very low.

The survey results were then placed in the context of the findings from reports and analyses previously provided to the Commonwealth. A synthesis of relevant themes and final conclusions are provided below.

### 5.2 Key Factors that Contribute to Mining Concerns and Recommendations on how to Address them in the Commonwealth

#### **Provide More Educational Opportunities About Uranium Mining**

Several survey questions asked business leaders to discuss their knowledge and understanding of uranium mining. Results indicated that knowledge of technology and processes used to extract uranium was low. Further, business leaders indicated that they believed their concerns about the risks and dangers of mining would decrease if they were to understand these processes better. Both of these findings clearly point to the importance of educating the business community, and Virginia citizens in general, about the practices of uranium mining. This education must be conducted carefully, however, as trust in the information currently being shared is low.

#### **Address Issues of Trust and Accessibility**

Business leaders must perceive that the information being delivered about uranium mining is coming from an unbiased, trustworthy source. Business leaders indicated that they are skeptical of government sources and of Big Business. Efforts must be made to be as open about all types of data associated with mining (good and bad), and research from a variety of sources should be made public. The business leaders had only engaged in a moderate level of information gathering to this point. Information should be easy to find, easy to understand, and easy to share in order to guarantee that as many people as possible can access it.

#### **Address Issues of Regulation**

Finally, business leaders who reported confidence that uranium mining could be well regulated were more likely to support the lifting of the ban. This specifically refers to confidence that regulations could be sufficiently defined and effectively enforced. Educational efforts should be sure to cover the issue of regulation: how it is done, why it will be effective, what types of contingency plans are being put in



place, and how enforcement will be guaranteed must all be addressed. Increasing confidence in regulation will increase acceptance of mining. It must be noted that a primary factor influencing respondents' acceptance of mining was whether or not they felt that the environment and citizens could be protected in the long run, over time. The general public must be involved in how the industry and government will work together ensure that risks to the population and the environment will be minimal.

### **5.3 Key Factors that Contribute to Confidence in Economic Growth and Development and Recommendations on how to Support Them**

#### **Business Priorities and Long-term Environmental Priorities**

Perhaps the most significant factor that contributed to confidence in economic growth and development was an individual's personal priority of economic growth over environmental concern. Individuals in favor of lifting the ban were also the most likely to see benefits in job and business growth. Individuals against lifting the ban were most likely to have concerns about a negative impact on children, the environment, and the water supply in the long-term. These factors were the most predictive in indicating whether a business leader was in support of lifting the ban or not in support. Going forward, the uranium mining industry and the local government will have to demonstrate to business leaders that these factors are being held in balance, so that one factor (business growth or environmental concern) is not taking precedent over another (children, the environment, water supply etc.). All efforts must be made to move forward with this balance in mind, and to ensure that it is being communicated publically to all residents and business leaders in the commonwealth.

#### **Education, Trust, and Regulations**

The other factors that contribute to confidence in economic growth and business development are those of education, trust, and regulations. As stated above, balanced, unbiased education on the pros and cons of uranium mining, along with details of how the mining will be regulated, will encourage and build confidence in business leaders. This is particularly important, because site location consultants also emphasized this for themselves and their clients. Six out of seven consultants said that lifting the ban on uranium mining in Virginia would have no impact on their perceptions of Virginia as a place to recommend for locating businesses. When asked to explain their perception, consultants indicated that they assumed the appropriate U.S. Environmental Protection Agency (EPA) rules and regulations would be put in place and enforced, thus lifting the ban would have little impact on attracting or expanding businesses. They also confirmed that their clients would not likely be concerned as long as they were adequately educated about the regulations in place.

#### **Stigma**

Virginia business leaders indicated that they believed, on average, that it was safe to locate businesses within nine miles of the mining site and that they were not likely to move their businesses from their current locations, even if mining was to occur. This suggests that stigma associated with mining was low for most of the business leader respondents. It should be noted, though, that this varied by industry. Those in the mining/milling industry and construction industry were most likely to support mining and those in the healthcare, social services, and educational industries were least likely. This indicates that stigma may not be equal across all industries and must be considered if the Commonwealth decides to move forward with lifting the ban.



## **5.4 Conclusions**

Overall, there was no clear consensus for or against lifting the ban on uranium mining by Virginia business leaders. Slightly more than one half were against lifting the ban, with four out of ten being in favor of lifting the ban. Overall, regardless of business location, size, or type; business leaders would benefit from more accessible information on the topic that is seen as unbiased and presents both the pros and cons of mining. Open communication and easy to access education is key to moving forward. The need for clear, unbiased and accessible information provided a common thread through all the studies included in this report. In addition, all efforts to move forward should include a balanced approach between business growth and environmental protection.

## APPENDIX

## Survey of VA Business Owners/Managers

### SCREENING QUESTION:

Intro1. Good [morning/afternoon], I am calling from SSI, an independent survey research firm. Thank you so much for taking the time to help with this important survey.

Would you be able to answer a few questions related to lifting the ban on uranium mining in Virginia?

☐ YES → GO TO INTRO2.

☐ NO → Who at your firm would be able to answer those questions for us?

Name: \_\_\_\_\_

Position/Department: \_\_\_\_\_

Thank you for your time. (HANG UP AND CONTACT NAME GIVEN).

### Continue with correct respondent

Intro2.

First, I'd like to ask a few questions about your role in the company. What is your job title?

[Interviewer – screen for the job titles on the list. If their job is on the list, continue with the interview. If not, thank and terminate]

Full Title
President
CEO
CXO
Founder
VP
SVP
Senior Director or Above
Owner
Co-Owner
Program Manager
Department Manager
Division Manager
General Manager
Interim Manager
Business Manager
Property Manager
Senior Project Manager
Senior Manager
Managing Member
Acting Director
Co-Manager

Manager
Acting Manager
Complex Manager

Would you be able to talk now, or would you rather schedule another time?

We are very interested in receiving the input of Virginia business leaders regarding the consideration of the pros and cons of lifting the uranium mining ban in Virginia and the possibility of uranium mining in Pittsylvania County, VA. Your input today is an important component in this decision making process.

Today's phone call should take no longer than 15 minutes. Before we begin I want you to know that your responses will be kept completely confidential, as responses are being presented only in summary form in reports. The survey is divided into four sections, one each covering awareness, concerns, benefits, and regulation of uranium mining in Virginia. If you're ready, let's begin.

1. The first set of questions is focused on your knowledge and awareness of uranium mining in Virginia. Please answer yes or no to this first set of questions:

	YES	NO
Are you aware that Virginia has uranium deposits in Pittsylvania County?	Y	N
Are you aware that Virginia is evaluating the pros and cons of lifting the ban on uranium mining to mine these uranium deposits?	Y	N
Have you ever heard of the Commonwealth's Uranium Working Group commissioned by the Governor's office to study these pros and cons?	Y	N
Are you aware of any of the studies that have been done to date by the Commonwealth's Uranium Working Group?	Y	N
Are you aware of the public meetings held by the Commonwealth's Uranium Working Group?	Y	N
Did you attend any of these meetings?	Y	N

**[If any of the answers to Q1 are "yes", then ask Q1a and Q1b**

**If all answers to Q1 are "no", skip to Q1c]**

- 1a. Now we would like to know if you have done any research on your own to investigate the impact of uranium mining on your business or community. Specifically, have you:

	YES	NO
Conducted internet searches on the topic of uranium mining?	Y	N
Discussed uranium mining with customers?	Y	N
Discussed uranium mining with other business owners or managers?	Y	N
Discussed uranium mining with neighbors, friends, family members	Y	N
Participate in discussions about uranium mining at any association or club meetings you might have attended?	Y	N

- 1b. If you have conducted any of this research [*if the respondent answers yes to any items in 1b*], what did you discover from this research? [*PROBE: What have you read, what have you heard others talking about, what has been discussed in meetings, in general, what have you learned from any of these activities*]

- 1c. On a scale of 1 to 5 where 1 = “Definitely No” and 5 = “Definitely Yes”, how would you respond to the following:

Ask of all respondents	Definitely NO				Definitely YES
I understand the technology/processes used to extract uranium.	1	2	3	4	5
I need more information about uranium mining before I can form a definitive opinion about whether or not I favor it in Virginia	1	2	3	4	5
I believe that the Commonwealth’s Uranium Working Group has been thorough and objective in their assessment of uranium mining impacts.	1	2	3	4	5
I believe that most research groups and institutions currently doing research on this topic are unbiased in their research and reporting	1	2	3	4	5
I trust the information that is in published research studies about uranium mining and its impacts.	1	2	3	4	5

- 1d. Based on the information available to you today, do you support the lifting of the ban on uranium mining in Virginia?

Yes

No

Why or why not?

2. Some people may have concerns about uranium mining in Virginia. This next set of questions focuses on these possible concerns.

Are you concerned that uranium mining in Virginia may have a negative impact on any of the following. Please answer using a scale of 1 to 5 with 1="Definitely Not Concerned" and 5="Definitely Concerned".

	<b>Definitely Not Concerned</b>				<b>Definitely Concerned</b>
The environment	1	2	3	4	5
Residents	1	2	3	4	5
Children	1	2	3	4	5
Workers	1	2	3	4	5
Businesses	1	2	3	4	5
Housing property values in Southside VA	1	2	3	4	5
Housing sales volume in Southside VA	1	2	3	4	5
Commercial property values in Southside VA	1	2	3	4	5

- 2a. Do you believe uranium mining could have a negative impact on any of the following specific business sectors? Please answer this questions using a five point scale where 1="Definitely No" and 5="Definitely Yes"

	<b>Definitely NO</b>				<b>Definitely YES</b>
Agriculture	1	2	3	4	5
Tourism	1	2	3	4	5
Private Schools	1	2	3	4	5
Elementary education	1	2	3	4	5
Secondary education	1	2	3	4	5
Higher education, including Trade Schools					
Existing Virginia businesses	1	2	3	4	5
New businesses locating into Virginia	1	2	3	4	5
Local Merchants	1	2	3	4	5
Wine production	1	2	3	4	5
Public waterworks	1	2	3	4	5
Housing market	1	2	3	4	5
Other (please specify):	1	2	3	4	5

- 2b. Do you believe your concerns would decrease if you were to learn more about how risks from uranium mining can be minimized to protect public health and the environment?

Please answer using the same scale of 1="Definitely No" and 5="Definitely Yes".

1                      2                      3                      4                      5

**[Ask 2c and 2d if Question 2b response is a 1 or 2]**

- 2c. If your concerns will not decrease, why not?
- 2d. What would you need to reduce your concerns?

3. Some people may believe there are benefits associated with mining. This next set of questions focuses on what you think these potential benefits might be. Please continue to use the same scale as you answer these questions with 1=Definitely No and 5=Definitely Yes

	<b>Definitely No</b>				<b>Definitely Yes</b>
Do you think that uranium mining will encourage growth in local businesses in the area near the mine due to the associated increased employment potential?	1	2	3	4	5
Do you think your peers (other business leaders) perceive business benefits to mining?	1	2	3	4	5
Do you think residents perceive benefits to mining?	1	2	3	4	5
Do you think that it may have a positive impact on drawing in new businesses from other parts of Virginia?	1	2	3	4	5
Do you think that it may have a positive impact on drawing in new businesses from out of state?	1	2	3	4	5
Do you think that it may have a positive impact on drawing in new residents from out of state?	1	2	3	4	5
Other (please specify):	1	2	3	4	5

- 3a. What do you think the primary impact of uranium mining in Virginia may be?
- 3b. On a scale of 1 to 5, with 1 being very negative and 5 being very positive, how would you rate the impact of uranium mining on each of the following:

	<b>Very Negative</b>				<b>Very Positive</b>
The revenue of your business?	1	2	3	4	5
VA businesses in general?	1	2	3	4	5
The number of new VA businesses?	1	2	3	4	5
The diverse types of VA businesses?	1	2	3	4	5
Start-Up VA businesses?	1	2	3	4	5
Technology-based businesses?	1	2	3	4	5
The expansion of VA businesses?	1	2	3	4	5
Other (please specify):	1	2	3	4	5



- 3c. In your opinion, how likely is it that your business would leave its current location in Virginia if uranium mining were to occur in Pittsylvania County? Please use the following scale to answer your questions 1=Not at all Likely and 5=Very Likely

1                      2                      3                      4                      5

- 3c.1 If the response is 3 or above:  
How likely is it that your business would leave the Commonwealth of Virginia? Please use the same scale

1                      2                      3                      4                      5

4. The placing or lifting of the ban on uranium mining in Virginia is a legislative act which results in law. In either instance, regulations are then used to work out the details to assure that the law's intent is carried out in a "regular" manner. This ensures that the industry, its economic objective as well as the people of the Commonwealth are protected. This final set of questions focuses on the regulation of VA uranium mining practices.

- 4a. How confident are you that regulations will be able to: (Please use the same scale)

	Not at All				Very
Protect residents living in Pittsylvania and surrounding counties?	1	2	3	4	5
Protect mine worker health and safety	1	2	3	4	5
Protect businesses in Pittsylvania County and surrounding counties?	1	2	3	4	5
Safeguard places where your children gather in and around Pittsylvania County (schools, recreation facilities, etc) by routing uranium mining related traffic away from these areas?	1	2	3	4	5
Monitor all emissions (air, water, solids) that may be released in Pittsylvania and surrounding counties?	1	2	3	4	5
Assess public and private drinking water sources for levels of hazardous constituents in Pittsylvania and surrounding counties?	1	2	3	4	5

- 4b. Do you believe that Virginian's living outside of the area will face any risks due to uranium mining in Pittsylvania County? (1=not at all, 5=Very much)

1                      2                      3                      4                      5

- 4c. How close – in terms of miles – would you consider it safe for locating a business near the uranium mining and milling operations?

\_\_\_\_\_ [Record number of miles]

- 4d. Do you think the following may have a negative or positive impact on economic growth in Pittsylvania County? Please answer using a 5-point scale where 1=Negative Impact and 5=Positive Impact.

	<b>Negative Impact</b>				<b>Positive Impact</b>
Safe and successful uranium mining in the area	1	2	3	4	5
The influx of non-locals gravitating to the Coles Hill area due to uranium mining and milling job opportunities.	1	2	3	4	5
Protracted unresolved regulatory infractions	1	2	3	4	5
Drastic dip in the per-pound price for uranium in the world market	1	2	3	4	5
Mine being idle due to a natural disaster	1	2	3	4	5

I have a few final questions for you before we finish.

5. What industry are you in? [READ LIST]
- a) Professional and technical services
  - b) Management and administrative services
  - c) Health care and social services
  - d) Educational services
  - e) Accommodation and food services
  - f) Nonprofit or association
  - g) Retail
  - h) Construction
  - i) Finance and Insurance
  - j) Information
  - k) Mining, milling or other associated extractive services
  - l) Other (Please Specify)

6. How many employees work in your company at locations in Virginia?

- a) 1 to 4
- b) 5 to 9
- c) 10 to 19
- d) 20 to 49
- e) 50 to 99
- f) 100 to 249
- g) 250 to 499
- h) 500 to 999
- i) Over 1000

7. How long has your business been in operation?

- 1. Less than 1 year
- 2. 1 to less than 5 years
- 3. 5 to less than 10 years
- 4. 10 to less than 15 years
- 5. 15 to less than 20 years
- 6. 20 years or more

Do you have any final thoughts that you'd like to share before we conclude this survey?

Thank you very much for your participation and input

[Survey Concluded]

## Survey of Site Location and Economic Consultants

Intro. Good [morning/afternoon], may I speak to [CONTACT NAME FROM LIST]

I am calling from ORI, an independent survey research firm. Thank you so much for taking the time to help with this important survey.

We are very interested in receiving your input regarding the consideration of the pros and cons of lifting the uranium mining ban in Virginia and the possibility of uranium mining in Pittsylvania County, VA. Your input today is an important component in this decision making process.

Today's phone call should take no longer than 15 minutes. Before we begin I want you to know that your responses will be kept completely confidential, as responses are being presented only in summary form in reports. Would you be able to talk now, or would you rather schedule another time?

The survey is divided into four sections, one each covering awareness, concerns, benefits, and regulation of uranium mining in Virginia. If you're ready, let's begin.

1. The first set of questions is focused on your awareness and perception of uranium mining in Virginia.

1a. Are you aware that Virginia has uranium deposits?

Yes  
No

1b. Are you aware that Virginia has a uranium mining ban in place?

Yes  
No

1c. Are you aware that Virginia is evaluating the pros and cons of lifting the ban on uranium mining to extract these uranium deposits?

Yes  
No

1d. Do you have any knowledge of uranium mining in other communities or in other states?

Yes

No

If yes, what do you know about the impact of the mining on the business community?

How do you know this information (how did you learn this)?

1e. Have you ever received feedback or input from your client businesses regarding their thoughts or experiences with uranium mining?

Yes

No

If yes, what feedback did they share with you?

1f. If the Virginia ban on uranium mining is lifted and mining becomes likely, how will this affect your perceptions of Virginia as a place to recommend new business?

\_\_\_\_\_ It will negatively affect my perceptions of Virginia

\_\_\_\_\_ It will have no impact on my perceptions of Virginia

\_\_\_\_\_ It will positively affect my perceptions of Virginia

1g. If the Virginia ban on uranium mining is lifted and mining becomes likely, how do you think this may affect your clients' perceptions of Virginia as a place to relocate or start a new business?

\_\_\_\_\_ It will negatively affect their perceptions of Virginia

\_\_\_\_\_ It will have no impact on their perceptions of Virginia

\_\_\_\_\_ It will positively affect their perceptions of Virginia

- 1h. On a scale of 1 to 5 where 1 = “Definitely No” and 5 = “Definitely Yes”, how would you respond to the following:

	Definitely NO				Definitely YES
I need more information about uranium mining before I can form a definitive opinion about whether or not I feel it poses a risk for businesses	1	2	3	4	5
I believe that most of my clients would be concerned about relocating into a county where uranium mining is taking place	1	2	3	4	5
I believe that most research groups and institutions currently doing research on this topic are unbiased in their research and reporting	1	2	3	4	5
I trust the information that is in published research studies about uranium mining and its impacts.	1	2	3	4	5

- 1i. Do you have any questions or concerns about uranium mining that have not been answered?

Yes

No

If yes, what are they?

- 1j. Do you anticipate your clients having questions or concerns regarding uranium mining?

Yes

No

If yes, what do you think these questions or concerns are?

- 1k. Do you believe that Virginia should lift their ban on uranium mining

Yes

No

Why or why not?

2. Some people may have concerns about uranium mining in Virginia. This next set of questions focuses on these possible concerns.

- 2a. Do you believe uranium mining could have a negative impact on any of the following specific business or education sectors? Please answer this questions using a five point scale where 1="Definitely No" and 5="Definitely Yes"

	Definitely NO				Definitely YES
Agriculture	1	2	3	4	5
Tourism	1	2	3	4	5
Private Schools	1	2	3	4	5
Elementary Education	1	2	3	4	5
Secondary Education	1	2	3	4	5
Higher Education, including Trade Schools	1	2	3	4	5
Existing Virginia businesses	1	2	3	4	5
New businesses locating into Virginia	1	2	3	4	5
Local Merchants	1	2	3	4	5
Wine production	1	2	3	4	5
Public waterworks	1	2	3	4	5
Housing market	1	2	3	4	5
Other (please specify):	1	2	3	4	5

- 2b. Do you believe that your clients would be concerned that uranium mining in Virginia may have a negative impact on any of the following. Please answer using a scale of 1 to 5 with 1="Definitely Not Concerned" and 5="Definitely Concerned".

	Definitely Not				Definitely Concerned
Environment	1	2	3	4	5
Residents	1	2	3	4	5
Children	1	2	3	4	5
Workers	1	2	3	4	5
Businesses	1	2	3	4	5
Housing property values	1	2	3	4	5
Housing sales volume	1	2	3	4	5
Commercial property values	1	2	3	4	5

- 2c. Do you believe that any concerns business leaders may have would decrease if they were to learn about how risks from uranium mining can be minimized to protect public health and the environment?  
Please answer using the same scale of 1="Definitely No" and 5="Definitely Yes".

1                      2                      3                      4                      5

[Ask 2d and 2e if Question 2c response is a 1 or 2]

- 2d. If concerns will not decrease, why not?
- 2e. What information would they need to reduce such concerns?
3. Some people may believe there are benefits associated with mining. This next set of questions focuses on what you think these potential benefits might be. Please continue to use the same scale as you answer these questions with 1=Definitely No and 5=Definitely Yes

	Definitely No				Definitely Yes
Do you think that uranium mining will encourage growth in local businesses in the area near the mine due to the associated increased employment potential?	1	2	3	4	5
Do you think business leaders perceive that there are business benefits to mining?	1	2	3	4	5
Do you think residents perceive that there are benefits to mining?	1	2	3	4	5
Do you think that uranium mining may have a positive impact on drawing in new businesses from other parts of Virginia?	1	2	3	4	5
Do you think that uranium mining may have a positive impact on drawing in new businesses from other states?	1	2	3	4	5
Do you think that it may have a positive impact on drawing in new residents from out of state?	1	2	3	4	5
Other (please specify):	1	2	3	4	5

- 3a. What do you think the primary impact of uranium mining in Virginia may be?
- 3b. On a scale of 1 to 5, with 1 being very negative and 5 being very positive, how would you rate the impact of uranium mining on VA businesses?

1                      2                      3                      4                      5

4. The placing or lifting of the ban on uranium mining in Virginia is a legislative act which results in law. In either instance, regulations are then used to work out the details to assure that the law's intent is carried out in a "regular" manner. This ensures that the industry, its economic objective as well as the people of the Commonwealth are protected. This final set of questions focuses on the regulation of VA uranium mining practices.



- 4a. On a scale of 1 to 5, with 1 being very negative and 5 being very positive, how would you rate the impact of uranium mining on each of the following:

	Very Negative				Very Positive
The revenue of Virginia businesses?	1	2	3	4	5
Virginia businesses in general?	1	2	3	4	5
The number of new Virginia businesses?	1	2	3	4	5
The diverse types of Virginia businesses?	1	2	3	4	5
Start-Up Virginia businesses?	1	2	3	4	5
Technology-based businesses?	1	2	3	4	5
The expansion of Virginia businesses?	1	2	3	4	5
Other (please specify):	1	2	3	4	5

- 4b. When considering Virginia as a location for new business, how concerned are you about the short- and long-term impact on the county's economic growth projections if the following were to occur. Please respond using a 5-point scale where 1=not at all concerned and 5=very concerned.

	Not at All Concerned				Very Concerned
Mines and mill are idled due to a natural disaster	1	2	3	4	5
There is a protracted unresolved regulatory infraction	1	2	3	4	5
There is a drastic dip in the per-pound price for uranium in the world market	1	2	3	4	5

- 4c. How close – in terms of miles – would you consider it safe for locating a business near the uranium mining and milling operations?

\_\_\_\_\_ [Record number of miles]

- 4d.1 How important is it to business leaders that a local economic investment strategy be put in place as soon as the mine goes into operations in order to begin to immediately diversify the Pittsylvania County and Danville area economy? Please answer this question using the following 5-point scale: 1=not at all important and 5=very important.

1                      2                      3                      4                      5

- 4d.2 What kind of an impact would a local economic investment strategy have on out-of-state businesses relocating to that part of Virginia? Please answer this question using the following 5-point scale: 1= negative impact and 5=positive impact

1                      2                      3                      4                      5

Why or why not?

- 4d.3 What kind of an impact would a local economic investment strategy have on VA businesses expanding operations to that part of VA? Please answer this question using the following 5-point scale: 1= negative impact and 5=positive impact

1                      2                      3                      4                      5

Why or why not?

- 4e. Some communities have chosen to make mining and processing facilities such as the one proposed in Virginia into special-purpose taxing districts for local, county and sub-state regional jurisdictions. This would help to establish a cash reserve to limit liability, help protect against property value loss, and provide gross receipts for long-term economic development purposes.

What type of impact do you believe this might have on businesses relocating to Southside, Virginia

Please answer this question using the following 5-point scale: 1= negative impact and 5=positive impact

1                      2                      3                      4                      5

Why or why not?

Do you have any final thoughts that you'd like to share before we conclude this survey?

Thank you very much for your participation and input

[Survey Concluded]



November 13, 2012

To Whom It May Concern:

In January 2012, the Commonwealth of Virginia's Office of the Governor issued a directive requesting the start of a Uranium Working Group (UWG) to "provide a scientific policy analysis to help the General Assembly assess whether the moratorium on uranium mining in the Commonwealth should be lifted, and if so, how best to do so." Since that time, the UWG has engaged in a series of tasks outlined in the Governor's directive. One of their tasks is to consider and seek public input on:

- "impacts on local and statewide economic development and measures that may be taken to prevent negative impacts, and capture potential opportunities for positive impact, and
- the protection of existing business, industries, individuals and property that may be impacted by a potential uranium mine/mill site and a process for the assessment of impact and appropriate response."

In addition to other research that has been reviewed, engagement with the community via public hearings, and feedback acquired through the UWG's public website, the working group is also requesting several surveys, including a specific survey of site location consultants who study potential new business locations and recommend business relocation, to determine how they view the impact on uranium mining on attracting new business to the Commonwealth.

ORI, a Herndon Virginia based market research and business intelligence firm is performing the telephone interviews for this effort, on behalf of the Uranium Working Group.

If you have any questions about this engagement, please contact Cathie France at the Virginia Department of Mines, Minerals and Energy, (804) 692-3211, or email her at [Cathie.France@dmme.virginia.gov](mailto:Cathie.France@dmme.virginia.gov).

Sincerely,

Heidi Guglielmino  
Director of Research

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