**Virginia Department of Health Discussion Meeting for Private Wells, Water Supplies, and Recreational Waters**

August 8, 2012, County Administration Building, Chatham, Virginia

The Virginia Department of Health (VDH) sponsored two public meetings in Chatham on August 7th and 8th to collect questions and comments from the public regarding private wells, public water supplies, and recreational waters as these relate to the potential for uranium mining and milling in Virginia. Notice of the meetings was provided via the Uranium Working Group (UWG) website (<http://www.uwg.vi.virginia.gov/index.shtml>), and the Commonwealth Calendar.

The first public meeting was held in the Circuit Court Building at 3 North Main Street, Chatham on August 7, 2012, from 5:00 P.M until 8:30 P.M. All interested parties were invited to speak after signing up.

At the second meeting on August 8th, VDH invited interested parties to participate in a facilitated full-day discussion of concerns and comments identified during the evening meeting the previous day as well as any other concerns to be shared by the participants. The second meeting was held in the County Administration Building at 1 Center Street, Chatham. Those interested in participating in the day-long session on August 8th were required to register in advance. Participation was limited to 20 persons chosen at random from those who registered.

VDH staff used a random selection process to select 20 participants from the total of 27 who registered. Several of those who were not selected expressed a keen interest in participating in another of VDH’s public meetings currently planned for Warrenton (August 15-16) and Virginia Beach (August 29-30). VDH notified this group of individuals that they could attend the all-day discussion meeting in Virginia Beach on August 30th because there was sufficient capacity in that group to accommodate them.

The objective of both public meetings was to gather questions and comments from the public on behalf of the UWG regarding potential impacts to private wells, public water supplies, and recreational waters from uranium mining and milling should the current moratorium on uranium mining and milling be lifted. Questions and comments identified through these meetings will be incorporated into the ongoing study being conducted by the UWG.

The following is a summary of the discussion during the full-day meeting on August 8, 2012.

Agricultural Comments, Concerns and Questions

Several participants expressed concern that the mere perception of contamination of agricultural products, such as dairy, beef cattle, chickens, eggs, wines, tobacco, wood, soybeans, wheat, and hay, would have a negative impact on the industry if the moratorium on uranium mining and milling were lifted. One participant commented that the issue of who would compensate farmers for loss of income based on this perception needs to be addressed. Another participant asked who would compensate farmers for the loss in land value. One person stated that a local organic farmer is already beginning to receive letters from his customers stating that, if the moratorium is lifted, they will not purchase his produce. One participant commented that Commonwealth of Virginia promotes the “Virginia Grown” brand and asked what effect uranium mining and milling in the state would have on that brand.

Other participants commented on the economic impacts that the agricultural industry has on the local area and the state. One participant stated that wood is the largest export from Virginia, and that soybeans and wheat are the fourth and fifth largest exports. The participant asked how much uranium a tree can uptake from the soil, and what impact would uranium mining and milling have on this industry. Another participant commented that there are 288,000 acres of farm land in Pittsylvania County. He stated that many jobs are created within the farming community, and that many people in the community depend on farmers for employment. This participant also said that the average value of agricultural products produced from each farm in Pittsylvania County is $41,866 per year, and that the average market value of machinery on these farms is $51,933.

Other participants expressed concerns about the assurance of food safety, and who the potential cost of monitoring programs. One participant asked how long it will take to perform testing on dairy products if a contamination event occurs, and whether un-tested dairy products might be marketed or if the farmers would be forced to dump their dairy products immediately. Another participant stated that dairy cooperatives have stricter standards than regulatory authorities and that, even if dairy products meet regulatory standards, they still may not meet the cooperatives’ standards. A question was raised about where farmers will get water for their cattle and crops if a contamination event occurs, until a permanent supply is provided. The participant stated that there are 46,000 cattle in the Pittsylvania County, and that each one consumes 20 gallons of water per day. He asked who would pay for new water supplies after a contamination event. Another participant stated that an assessment of current agricultural conditions should be conducted.

Water Quality Comments, Concerns, and Questions

The discussion of water quality covered a broad range of issues such as water modeling, surface and ground water monitoring of public and private water systems, local geology, and existing studies of water movement at the Coles Hill site. One participant asked if maps of the aquifers in Virginia have been created to determine which aquifers are interconnected. She also asked what effect mining at Coles Hill will have on aquifers at various distances from the mine site. Another participant asked what effect an earthquake would have on the aquifer at Coles Hill. Concern was expressed that drawdown of the aquifer from pumping at the mine would affect both the quantity and quality of water. One participant stated that good science can determine the cone of depression and the subsurface flow of water. It was stated that water quantity and quality would be modeled before mining begins.

Several participants expressed concern about the impact that drawdown from the mine would have on Smith Mountain Lake. One participant commented that if the mine withdrew 390,000 gallons per day of water; a figure that he stated is equal to 5 percent of the water used by the City of Danville; that it would take 5,000 years to use the amount of water stored in Smith Mountain Lake even without additional flow into the lake over that time. One participant stated that there is a big difference between biological contamination which can be cleaned up and radiological and radioactive contamination that will never go away. Another participant commented that a regional water study had identified uranium mining as a potential threat to water quality and quantity downstream of the mine.

Several participants asked about existing studies being conducted at Coles Hill. One participant stated that site specific studies are very expensive and are typically done as part of the application and permitting process. It was stated that Virginia currently has no regulatory authority to require a site specific study to be conducted at Coles Hill. One participant, a faculty member at Virginia Tech, stated that Virginia Tech is leading an effort to complete a number of studies at the Coles Hill site in loose collaboration with the Nuclear Regulatory Commission (NRC). He stated that studies are being conducted according to NRC guidelines for a environmental impact statement (EIS), and that studies conducted by John Wyatt, Josh Whitten, J.P. Gannon, Jim Jerden, and Billy Kingston are available online through the Virginia Tech library. He also noted several studies that are ongoing as part of graduate research and the data that has been collected will not be available to the public until their research is completed and published.

One participant commented that Virginia should be looking at the safety of public water systems for both drinking water and agricultural purposes. One participant commented that he has baseline data for his private water system, and that he does not want to pay to connect to a public water system. Participants expressed concern that retrofitting municipal systems to remove radioactive materials and heavy metals would be very expensive and that disposal of the radioactive materials would be a problem.

One participant stated that private water systems are not tested as rigorously as public water systems. It was also stated that there are no monitoring requirements for private wells. Another participant asked what assurance there is that monitoring wells would actually indicate potential contamination of local water wells. Another participant commented on state and federal programs to keep livestock out of surface waters, which in turn requires farmers to drill wells to supply water to their livestock. She added that these wells are not required to be tested for water quality, and asked if standards should be created for agricultural wells. Another participant asked what affect the cone of depression from the mine would have private wells and what the mitigation strategy would be for those wells that are affected.

There was a detailed discussion regarding to one local resident’s well. One participant stated that VDH refused to acknowledge the well was contaminated as a result of exploratory drilling at Coles Hill. Another participant commented that the well was sampled 5 times, and that each time the concentration of lead increased, with one sample exceeded the standard for public drinking water supplies. The participant also stated that the lead levels returned to normal once the exploratory drilling ceased. Another participant commented that testing could analyze isotopes to determine the source of contamination. One participant felt that VDH should conduct a detailed study of this particular well.

Participants also discussed the role local geology would play in water quality and quantity. One participant commented that the Triassic Basin near Coles Hill provided a limited supply of groundwater, and that heavy withdrawals could result in groundwater fluctuations, great environmental risk, and could limit development of the area. Another participant commented on a study completed by J.P. Gannon which he stated showed that groundwater does not flow across the Chatham Fault which lies between the ore deposit at Coles Hill and the Triassic Basin.

Participants also expressed concerns of the potential cost to mitigate water contamination issues. One participant noted that people are already unable sell their home in the Coles Hill area, and wanted to know who would pay for providing new water systems. One participant also commented that the Roanoke River Basin Association is in the process of making the Dan River a scenic byway, and questioned the negative impact that uranium mining and milling would have on the waterway. Another participant expressed concern about the lack of financial surety in the event of contamination and the need for some financial assurance to cover mitigation costs.

Economic Comments, Concerns, and Questions

Several participants expressed concern that uranium mining and milling would negatively impact tourism. One participant stated that hunting draws tourists to the area, and expressed concern that wild animals could be exposed to contamination. Another participant noted the Bass Masters tournament that is held on Smith Mountain Lake, and questioned whether that tournament would continue to be held if uranium mining and milling were occurring in the area. One person asked how tourism has been affected by Lake Anna and Surry nuclear facilities, and stated that he felt those plants are analogous to the impact of uranium mining and milling.

Other participants expressed concern over the loss of marketability of crops produced in the area, as well as the potential for perception of contamination to drive businesses away. One farmer asked who would pay for testing of agricultural products and compensate farmers for losses if products became contaminated and could not be sold on the open market. Another participant expressed concern that large companies that bring jobs to the area would be driven away by uranium mining and milling. One participant stated that directors from both Hargrave Military Academy and Chatham Hall stated that their schools will close if uranium mining and milling is allowed.

Other comments, concerns, and questions from participants on this topic included:

* The cost to install treatment capabilities for public water supplies in the event of contamination.
* Would crop insurance cover potential losses? Could it be purchased by the mine on behalf of local farms?
* If you’re worried about uranium, Babcock and Wilcox in Lynchburg is what you should be worried about.
* The Chmura and RTI International studies covered economic impacts.
* Introducing uranium mining into an area for the first time has a different effect than in areas where uranium mining as been a large part of the economy over the years.

Baseline Testing and Monitoring Comments, Concerns, and Questions

To begin the discussion on baseline testing and monitoring, the facilitator reviewed the comments, concerns, and questions received from participants at the August 7th public meeting as well as those items discussed earlier in the day by the group. Those comments, concerns, and questions from participants included:

* There is no current baseline data or monitoring for water quality in the region.
* Monitoring should be conducted before and during operation of the mine and mill.
* Development of a baseline program should include stakeholder involvement.
* How and when the public would be notified in the event contaminants exceed threshold levels?
* Who will conduct the monitoring and what contaminants will be monitored?

Discussion began with a suggestion that VDH should purchase a gamma ray spectrometer at the cost of $100,000 to be placed in wells in the vicinity of Coles Hill to begin collecting baseline data. At various times during the day, suggestions were made that data be collected and or reviewed by a third party independent from the operator of the mine or government agencies. The question was asked about how many people VDH would need to hire, and whether VDH is equipped to conduct a monitoring plan. One participant stated that for $350 dollars one could get a certified analysis of radiological and bacteriological contaminants, and felt this testing should be conducted prior to any mining and every 3 to 6 months after mining commenced. Another participant stated that VDH probably would not be doing the testing themselves, that it would be more likely for the company proposing the mine to conduct the testing or to hire a third party to conduct the monitoring.

Several participants questioned what data VDH would be collecting, and what data would be essential to set a baseline. One participant asked if current monitoring taking place as part of the exploratory drilling process would be sufficient to use for a baseline or if that testing would need to be expanded. One question raised during the August 7th meeting as well as during the all day discussion was what would be the length of time for this testing and monitoring for baseline data.

During the water quality discussion many of the participants commented on the need for a monitoring program. One participant stated that the current standard for uranium in water is 30 parts per billion, but questions whether that standard is sufficient to protect the public. Another participant commented that there are waters containing levels above that standard simply because of natural sources of uranium in the environment.

Also during the water quality discussion, one participant referenced page 158 of the National Academy of Science (NAS) study and asked what a “carefully developed ground water system monitoring program” would be. Questions were also raised of who would conduct ongoing monitoring of ponds, surface waters, and wells. Participants also stated that specific standards must be set for process water discharging from a uranium mining and milling operation. One participant also commented that Virginia should keep both the construction and operation phases of mining and milling in mind when setting standards, and stated that monitoring site selection is very important. Several participants also expressed concerns about who would bear the cost for a monitoring program, and also asked what would happen in the event that monitoring detected a level of contamination in excess of set standards.

Several participants also asked for clarification of which agencies would have authority over different subsets of a monitoring program. One participant also noted that it would be beneficial to have a third party to collect or review data from a monitoring program. It was also stated that VDH should focus on gaps in existing data rather than the data itself. One participant also stated that it feels like the mining company has framed the issue that the moratorium should be lifted because uranium mining and milling is safe, but the participant felt that we really need the EIS to know that.

Other questions and comments from participants on this topic included:

* Baseline data needs to take into account both a mineralized and non-mineralized baseline.
* Is there a model for baseline testing used in other states that could be adapted for use in Virginia?
* Will there be different baseline standards for different means of mineral extraction?

Risk Assessment Comments, Concerns, and Questions

Discussion about risk assessments focused on insurance and bonding, authority and scope, and the means of reimbursement for damages associated with uranium mining and milling. A participant asked who would insure the community. Another participant stated that homeowners insurance would not cover damages resulting from uranium mining and milling. One participant, with a background in the insurance industry, stated that a surety bond would cover major disasters and smaller damages, but added that in many cases the surety bond is nowhere near sufficient to cover damages that would result from a catastrophic event. Another participant asked how those bonds would be protected if the company operating the mine and mill were to go bankrupt or decided to leave? One participant stated that is what the surety bond is supposed to cover that event.

There was significant discussion about who would actually conduct any risk assessment and decide what constitutes acceptable risk. It was pointed out that the risk assessment is typically conducted during the environmental impact assessment. Another participant suggested that there are a number of different assessments that should be conducted to address every issue that may arise under a worst case scenario. One participant commented that citizens have made their own assessments based on the studies that have been completed, and the results of those studies were inconclusive. Another participant raised concerns that a risk assessment conducted in the 1980’s at Coles Hill did not appear to be a complete assessment, as it only addresses risk associated with radiation and cancer death rates. Another participant was concerned that the Commonwealth of Virginia might be sued by the State of North Carolina because of the potential impact a uranium mine and mill at Coles Hill could have on surface waters in North Carolina.

In regards to reimbursement for damages, one participant commented that $66 million was recently spent to remodel 4 schools near Coles Hill, along with millions more spent to construct new schools. The participant asked who would pay for damage to those facilities. He also commented that the Chmura report stated that in the event of a worst case scenario at the Coles Hill site the cost of cleanup and damages would be $11 billion.

VDH Authority Comments, Concerns, and Questions

Several participants asked which agencies would have authority over the mining and milling operations, and how an agreement state status would affect that authority. Participants suggested that the legislative process that would provide state agencies with the authority necessary to create regulations for the mining and milling of uranium needs to be made clear to the public. One participant stated that the NRC is currently the regulatory authority, and asked whether state agencies would have the necessary authority to regulate milling if Virginia becomes an agreement state. Another participant asked who, if the moratorium is lifted and if Virginia becomes an agreement state, would have authority in the interim. One participant commented that a flow chart of responsibilities among state agencies should have a single person at the top with that person responsible. That person should be in charge of all aspects of mining and milling, for making all final decisions and for eliminating conflicts between different agencies. Another participant responded that he could not think of any one agency that has such a broad base of responsibility. Another participant added that the chain of command in each agency should be eliminated to provide access to the highest level of authority.

Speaking in terms of enforcement authority, one participant felt that the authority to regulate and the authority of enforcement should be separate, stating that he didn’t see enforcement authority resting with VDH. Another participant asked which agency would have enforcement authority, and stated concerns with the enforcement history for the coal mining industry. Concerns were raised by a participant that it was not clear how Virginia would setup fines for violations in an industry where violations have effects in perpetuity. She asked how you would fine someone in perpetuity, and stated that the amount of the fine should be commensurate to the extent of the violation. There was discussion about whether, if an industry were to dispute a fine, would the operation be allowed to continue during litigation? One participant stated that in the case of a violation the operation should be ceased that day.

Catastrophic Events and Operational Failure Comments, Concerns, and Questions

To begin the discussion on catastrophic events and operational failures, the facilitator reviewed the following comment, concerns, and questions received from participants at the August 7th public meeting or mentioned by the discussion group earlier in the day:

* The impact a catastrophic event or operational failure would have on downstream users.
* Threats presented by natural disasters (hurricanes, earthquakes).
* The question of whether the EIS will cover all scenarios of a potential failure.
* Concern that process water from a uranium mining and milling operation would be released prior to an impending storm.
* Laws that exempt effluent from mines and the question of how that would apply to uranium mining.

Discussion on this topic included hurricanes, droughts, alerting systems and planning for catastrophic events and operational failures. One participant commented that hurricane Camille dropped 32 inches of water over a 5 hour period in 1969. In response, another participant commented that the location and construction of tailing impoundments would be designed using the probable maximum precipitation and probable maximum flood for the area, and referenced a paper written by Billy Kingston as a source of information on this matter. It was stated that the probable maximum precipitation event for the area is 38.3 inches over a 24 hour period, and that the largest event in Chatham over the last 90 years was 8.73 inches over a 24 hour period.

One person commented on the current drought conditions, questioned whether such a precious resource as water should be used for uranium mining in Virginia, and asked if the mine could be shut down in the event of a drought. In response, another participant asked what would be the effect of shutting down the pumping of water from the mine? One participant commented that the regional water supply plan takes droughts into consideration and would take any mining operation into consideration as well; he commented that the regional plan is reviewed every 5 years and that the plan is included in the state water supply plan. A comment was added that the current regional water supply plan shows a 2 million gallon per day surplus supply of water.

The question of how and when the public will be notified in the event of a failure was discussed. One participant commented that alerting systems would be covered during permitting. Another added that systems such as reverse 911 are already in place to notify the public and could be used in the event of a catastrophic event or operational failure. Additional questions regarding planning for catastrophic events and operational failures included:

* Is it possible to take catastrophic events into account during the permitting process, as well as the financial damages that may occur as a result?
* Would baseline monitoring include areas impacted by a catastrophic event?
* Is anyone going to create a contingency plan in the event the water is contaminated, and how far out from the mine would that plan address?

Geology and Hydrology Comments, Concerns, and Questions

Throughout the day’s session many items of concern, comments and questions regarding geology and hydrology we discussed. At the onset of the specific discussion section for this topic the facilitator noted the comments, concerns, and questions received from participants at the August 7th public meeting as well as those items discuss earlier in the day by the group; these included:

* The subsurface in the area of Coles Hill is highly fractured.
* Fractures increase with depth in the area of Coles Hill.
* That the hydrology of the area around Coles Hill is not well understood.
* The water table in the area is shallow.
* The volume of water that will be used by the proposed mine and mill at Coles Hill, stated by some to be 5 billion gallons, would deplete the aquifer.
* Discussion of the county comprehensive plan.
* A comment that a mine at Coles Hill would be adjacent to the Triassic basin, including discussion of a study completed by J.P. Gannon and whether the Chatham fault creates a barrier for water migration into the Triassic basin.

The discussion focused on local fractured rock geology, the effects of de-watering on local hydrology, and the need for additional study. One participant asked for clarification on the comment of fractures increasing with depth, stating that he believed that fractures would actually decrease with depth. Another participant responded that a study conducted by J.P. Gannon in which pump test were performed, included one well in which the upper portion contained poorly connected fractures, and that at 100 feet intersected a large fracture. He further stated that fewer but larger fractures are characteristic of the local geologic material. The participant commented that Mr. Gannon’s study did not show that there was an increase in fractures with depth, only that this one particular well intersected a large fracture at depth. Another participant asked how much the recent earthquake altered fractures on the site. Additional discussion centered on water movement and hydraulic head in granite rock formations.

One participant stated concerns with the figure that the proposed mine and mill at Coles Hill would use 5 billion gallons of water, stating the he believed the actual proposed water use is 320 million gallons per day. Another participant responded that they believed the 5 billion gallon figure was based on the life of the mine. This sparked discussion on the capacity of de-watering wells to remove all water from the mine as well as a question of the effect that shutting down the mine for some period of time would have on contamination from the site because of the loss of the cone of influence. One participant commented that the current plan for the mine at Coles Hill is for an underground workings, in which pumps would be placed at various locations throughout the mine rather than de-watering wells. The participant added that if there is an intermittent shut down of the mine the pumps would be left on because if the pumps where shut down the mine would be flooded destroying the infrastructure within the mine. In response, another participant commented that a preliminary economic assessment for the mine at Coles Hill still considered open pit mining.

Referencing the J.P. Gannon study mentioned above, one participant commented that the study stated that additional evaluation of the geology and hydrology is necessary. Another participant asked if imaging technology exists that could be used to determine the geology of the Coles Hill site. It was mentioned that some studies, such as seismic and conductivity studies, have already been completed at the site. A participant asked if modeling of the impact to local wells and ponds would be completed before mining occurs. Another responded that other states have required robust hydrologic monitoring to be conducted before mining can occur.

Other General Comments, Concerns, and Questions

Throughout the course of the discussion participants stated comments, concerns, and questions that were outside of the scope of the meeting and that will be directed to the UWG as a whole. Those comments, concerns, and questions included:

* If a mill is opened and other mines decide to ship material to the mill will the transportation of ore be regulated, and by whom will it be regulated?
* Can VUI start mining today if they state they are mining for a product other than uranium?
* The mine could be opened now to mine for a mineral other than uranium. Rock currently mined in the Petersburg area contains uranium.
* Will the UWG process involve drafting a conceptual regulatory framework?
* Who would control the amount of blasting in a uranium mine?
* Has an impact assessment been completed in regard to the gas pipeline located in the vicinity of Coles Hill?
* Who will pay for and conduct monitoring of the ground water and wells in perpetuity once a uranium mine is decommissioned?
* The UWG should clarify conditions that they feel have changed since the Uranium Taskforce made its recommendations in the 1980’s and explain any potential deviation in recommendations from those provided by the Uranium Taskforce, especially in regard to the Uranium Taskforce recommendation for a strict prohibition of process water discharge.
* There is a concern that exceptions would be made to regulations created for uranium mining and milling.
* One participant stated that he became involved in the discussion of uranium mining and milling in Virginia in 2007. He stated that the day’s discussion was a big help.
* The UWG process has not been well explained to the public; this makes the general public very cynical and worried. The UWG must be very explicit about the process, and how information collected will be used.
* One participant commented that he does not have a lot of faith in a company that has been in existence for 40 years saying that their liners will last 200 years.
* What is the current zoning of the Coles Hill area?
* In the past, when companies could not meet regulatory requirements, the regulations were changed.
* Regulatory agencies should monitor, and set a standard for, the amount of radon that can be emitted into the ambient atmosphere in the communities near a uranium mine and mill on a daily basis.
* No amount of regulation will protect people from the negative effects of uranium mining and milling.
* What will happen to monies collected through fines and penalties?
* Is there a subsidy program through the federal government for uranium mining or milling?
* How will the uranium mining and milling industry be taxed in Virginia, and will it be subject to the same tax laws as the coal industry?
* Aside from the NRC, would there be any federal oversight of uranium mining and milling in Virginia?
* The area has a particularly high cancer rate already, don’t know why.
* Does Southside Virginia need a cancer center to handle an increase in cancer due to this operation?
* The excess rates of cancer incidence and death among African Americans, minorities, and different socio-economic groups is significant.
* Will regulations enforced by state agencies take precedence over local authority if the local ordinances are more stringent?
* The simplest life forms are the first to be impacted, and stated that the Blue Ridge Parkway has more species of salamanders than any other place on earth. How will the accumulation of dust from uranium mining and milling in the surface waters affect these life forms and the biodiversity of the area?
* Atmospheric dispersion models should be completed.
* Helium balloons were released at Coles Hill, and one landed in a hay field down the road, other went hundreds of miles away. He felt this proves that dust from a uranium mine and mill at Coles Hill will have wide ranging effect.
* Previous articles from the Star Tribune and a report from Marline 30 years ago stated that residents within a 2 mile radius of Coles Hill would be relocated, that some springs and wells would be lost for drinking water purposes, and that the mill tailings storage area would be rendered unfit for habitation and agriculture.
* During exploratory drilling at Coles Hill a DMME inspector stated to one of the participants that he is required to provide 24 hour notice prior to an inspection. The participant felt that regulators should be able to conduct inspections without notice.
* In 1984 the Uranium Taskforce recommended a “no degradation standard”.
* Erosion and sediment controls are important not only during construction but also during operation.
* Can anyone say uranium mining and milling can be done safely with 100% certainty?

Conclusion and Next Steps

At the conclusion of the discussion session the facilitator and Dr. Dempsey thanked the participants for their comments and their participation in the session. Dr. Dempsey stated that the audio and video, participant names and a written summary of the day’s discussion would be posted on the UWG website as soon as technically feasible. She also noted that the day’s discussion would be used to facilitate further discussion at the next two series of public meetings and in-depth discussion sessions. Dr. Dempsey also stated that information gathered from the public meeting and discussion session in Chatham would be included in the overall efforts of the UWG. She stated that a list of studies reviewed by the UWG and those referenced during the day’s discussion would be included on the UWG website. Participants were encouraged to continue to provide comments at future public meetings and through the UWG website.