

September 12, 2014

**UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION  
ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

**G. Paul Bollwerk, III, Chairman  
Dr. Richard F. Cole, Special Assistant  
Dr. Craig M. White, Special Assistant**

In the Matter of:	)	
	)	
Strata Energy, Inc.	)	Docket No. 40-9091-MLA
	)	ASLBP No. 12-915-01-MLA-BD01
	)	
(Ross In Situ Recovery	)	
Uranium Project)	)	

**REBUTTAL TESTIMONY OF MIKE GRIFFIN**

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## **1.0 CONTENTION 3 - ALLEGED FAILURE TO INCLUDE ADEQUATE HYDROLOGICAL INFORMATION TO DEMONSTRATE SEI'S ABILITY TO CONTAIN GROUNDWATER FLUID MIGRATION**

### **1.1 Corrective Pumping to Recover a Vertical Excursion is a Valuable and Capable Technique Used to Address These Types of Events**

Q.1. In A.42 of his initial testimony, Dr. Abitz states that “when a vertical excursion occurs in the SM aquifer, the applicant will have limited options to correct the excursion” (JTI001 at 49, lines 1-2). In your initial testimony, you discuss your experience recovering a vertical excursion at the Crow Butte Mine, what is your response to Dr. Abitz’s statement?

A.1. The important thing to understand is that there are methods available to the industry to recover vertical excursions, and in my experience, vertical excursions can be successfully recovered. My initial testimony (Ex. SEI039 at 4-5) discusses at length a vertical excursion that was recovered at Crow Butte. The vertical excursion was caused by a casing leak in Well I-196-5, and as I note in A.7, Crow Butte determined that a conventional “pump and treat” groundwater remediation approach was appropriate. The affected groundwater was pumped out of the aquifer and processed through the uranium recovery plant. This corrective action of pumping to recover the leaked groundwater successfully remediated the excursion caused by the shallow casing leak.

Q.2. In A.81 of his initial testimony, Dr. Larson also alleges that “...these fluid migrations [excursions] not only occur regularly at ISL operations, but have significant groundwater impacts if uncorrected” (Ex. JTI003 at 62, 1<sup>st</sup> full ¶). How would you respond to this allegation?

A.2. It is important to note here that Dr. Larson is speculating on a hypothetical event that has a very low likelihood of occurring. Vertical excursions do not occur routinely. Throughout my career I have worked at a number of ISR operations and I am not aware of an instance where corrective actions have not been initiated once an excursion was confirmed. Further, License Condition 11.5 (Ex. SEI015 at 13-14) requires Strata to implement corrective actions in the event an excursion is detected, therefore we cannot simply ignore an excursion event. With respect to vertical excursions, License Condition 11.5 states:

“If a vertical excursion is detected during operations, then injection of lixiviant into the production area surrounding the monitoring well will cease until the licensee demonstrates to the satisfaction of NRC that the vertical excursion is not attributed to leakage through any abandoned drill hole.” (Ex. SEI015 at 14, 1<sup>st</sup> full ¶)

Therefore, it would be impossible for Strata to simply ignore an excursion event. As an industry, we cannot speculate or otherwise venture guesses regarding potential environmental impacts or those actions taken to mitigate impacts. Rather, we are held to a high standard by the many agencies that regulate us and the public as well. Because of these high standards, it is not reasonable for Dr. Larson to say “what if” without first considering the specific NRC license conditions in place and/or the plans and contingencies that Strata has developed to address the “what if scenarios”. It is clear from his testimony that Dr. Larson has not considered that there are significant regulatory controls that prevent an operator from ignoring an excursion event. Furthermore, in my review of his testimony I could not find where Dr. Larson provided any evidence to support his allegation that there are significant groundwater impacts from an excursion event if uncorrected.

Q.3. In A.23 of his initial testimony (Ex. JTI001 at 18, lines 14-16), Dr. Abitz suggests that Strata's borehole and well drilling programs should be modified. Specifically, he recommends that, "An appropriate method would be to use air-rotary drilling (JTI011 at 57) with recirculated nitrogen gas instead of air and a foam surfactant that contains organic constituents to eliminate oxygen." In your initial testimony, you indicate having worked at 15 ISR projects around the world; have you ever seen uranium ISR wells constructed using nitrogen gas as the drilling medium?

A.3. Understand that my work duties for both Cameco and Uranium One did not directly involve drilling oversight. However, in managing radiation and industrial safety and environmental protection programs for both Cameco and Uranium One, I was exposed to a number of drilling operations and to my knowledge, none of them used air rotary with a foam surfactant or nitrogen gas in place of air for drilling operations. This experience included multiple domestic projects in Wyoming, Texas and Nebraska along with international projects in Australia, Kazakhstan, and Tanzania

Q.4. In A.42 of his initial testimony, Dr. Abitz makes the following statement, "Control, prevention, and remediation of vertical excursions were largely unsuccessful at previous ISL sites in the United States (NRC020 at p. 29, Staub et al. 1986)" (JTI001 at 48, lines 20-21). Do you believe this is an accurate statement?

A.4. As I stated in A.7 of my initial testimony (Ex. SEI039 at 5), this statement is based on NUREG/CR-3967, *An analysis of Excursions at Selected In Situ Uranium Mines in Wyoming and Texas*, with a 1986 print date. ISR uranium mining was in its infancy at the time and there were relatively few examples available to use in development of the document. As previously indicated in A.1 of this rebuttal testimony, I personally have experience successfully recovering a vertical excursion at an ISR facility. Furthermore, I have been involved with similar successful groundwater cleanup projects where the pump and treat methods were used successfully (Rocky Flats for the US Department of Energy). I believe that if the aforementioned reference document were to be updated today the conclusions would be different.

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(Ross In Situ Recovery	)	
Uranium Project	)	

**AFFIDAVIT OF MIKE GRIFFIN**

I declare under penalty of perjury that my statements in prefiled Exhibit SEI049 (Mike Griffin Rebuttal Testimony) are true and correct to the best of my knowledge and belief.

/s/ Mike Griffin  
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Executed in Gillette, WY  
this 12th day of September, 2014