SEI039

August 25, 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)	)	

INITIAL WRITTEN TESTIMONY OF MIKE GRIFFIN

TABLE OF CONTENTS

1.0 WITNESS BACKGROUND INFORMATION 3

2.0 CONTENTION 3 - ALLEGED FAILURE TO INCLUDE ADEQUATE HYDROLOGICAL INFORMATION TO DEMONSTRATE SEI'S ABILITY TO CONTAIN GROUNDWATER FLUID MIGRATION 4

2.1 Vertical Excursions Have Been Successfully Remediated at Other ISR Operations 4

3.0 REFERENCES 6

AFFIDAVIT 7

1.0 WITNESS BACKGROUND INFORMATION

Q.1. Please state your name, position and employer, including duration of employment.

A.1. Michael Griffin. I am the Vice President of Permitting, Regulatory, and Environmental Compliance for Strata Energy and have been with the company since November 2012. My curriculum vitae is included as Exhibit SEI040.

Q.2. Please state your education, professional registration and memberships.

A.2. I have completed over three years towards a BS degree at the Universities of Utah and South Carolina. Prior to this I was trained as a Submarine Electrical Operator under the US Navy Nuclear Power Program. I am a plenary member of the Health Physics Society.

Q.3. What ISR projects have you been involved with in your career?

A.3. I have worked on seven ISR uranium and five conventional uranium mill projects in the U.S. as well as eight ISR and one conventional uranium project in the countries of Australia, Kazakhstan, and Tanzania.

Q.4. Describe which projects and how many you have been involved in and who you were working for at the time.

A.4.

Vitro inactive uranium mill site, Utah, employed by Chem-Nuclear Systems, Inc.
Bluewater Uranium Mill, New Mexico, employed by Chem-Nuclear Systems, Inc.
Sohio L Bar Uranium Mill site, New Mexico, employed by Chem-Nuclear Systems, Inc.
Monticello inactive uranium mill site, Utah, employed by Resource Technologies Group, Inc.
Crow Butte ISR Uranium Mine, Nebraska, employed by Cameco
Smith Ranch/Highland ISR Uranium Project, Wyoming, employed by Cameco
JV Inkai ISR Uranium Mine, Kazakhstan, employed by Cameco
Willow Creek ISR Uranium Project, Wyoming, employed by Uranium One
Moore Ranch ISR Uranium Project, Wyoming, employed by Uranium One
La Palangana ISR uranium project, Texas, employed by Uranium One
Hobson ISR Recovery Facility, Texas, employed by Uranium One
Shootaring Canyon Uranium Mill, Utah, employed by Uranium One
Honeymoon ISR Uranium Project, Australia, employed by Uranium One
South Inkai ISR Uranium Mine, Kazakhstan, employed by Uranium One
Akdala ISR Uranium Mine, Kazakhstan, employed by Uranium One
Kharasan ISR Uranium Mine, Kazakhstan, employed by Uranium One
Karatau ISR Uranium Mine, Kazakhstan, employed by Uranium One
Akbastau ISR Uranium Mine, Kazakhstan, employed by Uranium One

Zarechnoye ISR Uranium Mine, Kazakhstan, employed by Uranium One
Mkuju River Uranium Mine and Mill, Tanzania, employed by Uranium One
Ross ISR Uranium Project, Wyoming, employed by Strata Energy, Inc.

Q.5. Please describe your role in these projects.

A.5. My role at Vitro, Bluewater, and L Bar Ranch while with Chem-Nuclear Systems was managing radiation safety and environmental protection programs during the decommissioning and reclamation of these sites. The Vitro cleanup was undertaken as part of the Uranium Mill Tailings Remedial Action (UMTRA) program under the US Department of Energy. The Bluewater and L Bar Ranch decommissioning projects were undertaken by the site owners under NRC licenses.

My role at the Monticello site while with Resource Technologies Group was managing the installation, commissioning and operation of a water treatment facility designed to remove contaminants from wastewater and groundwater at the site during decommissioning activities.

My role at Crow Butte while with Cameco was managing the radiation and industrial safety, environmental protection, and regulatory compliance programs. While with Cameco I developed the Environmental, Health, and Safety Management programs for Cameco US operations including the Smith Ranch/Highland project. I also participated in Cameco corporate audits of these programs at Smith Ranch/Highland and JV Inkai in Kazakhstan.

My initial role at Uranium One included development of licensing documents and environmental, health, and safety programs for Uranium One operations in Texas, Utah, and Wyoming. Following my promotion to corporate Vice President of Safety, Health, and Environment, my role was to oversee these programs at all Uranium One operations in Australia, Tanzania, Kazakhstan, and the U.S.

Q.6. What has been your role in the Ross ISR Uranium project?

A.6. My role at the Ross project has been to oversee licensing and permitting activities and the development of environmental, health and safety programs.

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

2.1 Vertical Excursions Have Been Successfully Remediated at Other ISR Operations

Q.7. It has been alleged that remediation of vertical excursions at other sites in the U.S. were largely unsuccessful (Abitz and Larson 2014, ¶57). Have you had experience remediating a vertical excursion?

A.7. Yes. I was employed by Cameco as Manager of Health, Safety and Environmental Affairs at Crow Butte from April 1998 to May 2006. In this role I was responsible for determining the effectiveness of efforts to recover a vertical excursion from I-196-5, which was an injection

well in Mine Unit 2. A casing leak was discovered in well I-196-5 during the routine 5-year Mechanical Integrity Test (MIT) of that well on March 29, 1996. Testing isolated the leak at the casing coupling 40 feet below ground level. In response to the MIT failure a hole was drilled with air next to the well and contaminated groundwater was discovered adjacent to the leak. Fifteen shallow test wells were then drilled to delineate the contaminated area. Nine of these wells were uncontaminated and effectively delineated the excursion as covering an area of about 25,000 square feet. The contaminated area averaged about 2600 umhos/cm conductivity or about four to five times baseline. Crow Butte determined that a conventional "pump and treat" groundwater remediation approach was appropriate with the affected groundwater bled into the recovery solutions and processed through the uranium recovery plant. This would be similar to the groundwater sweep method used for groundwater restoration in the ore zone following uranium recovery operations.

I would note that the statement made by Abitz regarding the success of recovery of vertical excursions is based on an outdated reference, namely NUREG/CR-3967, *An Analysis of Excursions at Selected In Situ Uranium Mines in Wyoming and Texas*, 1986. ISR uranium mining was in it's infancy at this time. Furthermore, pump and treat is a common approach for the remediation of contaminated groundwater. I have been involved in similar successful groundwater cleanup projects including several at Rocky Flats for the US Department of Energy.

Q.8. How was this vertical excursion recovered?

A.8. The affected groundwater was recovered by continuously pumping groundwater from up to three of the contaminated wells at a rate of 1 to 6 gpm. Groundwater restoration consisted of pumping wells in the center of the contamination so that uncontaminated water flowed in from all directions, similar to the groundwater sweep employed during ore zone restoration. During the recovery period, the water quality of the contaminated wells improved, while the water quality of the uncontaminated wells remained relatively unchanged. We routinely collected and analyzed groundwater quality indicators to track the effectiveness of solution recovery efforts.

Q.9. Was the remediation successful?

A.9. The remediation successfully recovered the affected groundwater. Remediation of the area was accepted by the Nebraska Department of Environmental Quality on August 19, 1999 (Exhibit SEI041). To my knowledge final NRC approval of groundwater restoration at Mine Unit 2 has not been sought by CBR. However the NRC staff stated the following in their 2009 report (Exhibit SEI004B at 9), (emphasis added).

> "Six MIT failures were reported for the CBR Crow Butte facility. The MIT failures were investigated to determine the depth of the casing failure. Five failures were determined to be at shallow depths. One failure resulted in impacts to the shallow groundwater in the immediate vicinity of the well. **Those impacts were remediated to the aquifer baseline levels**."

Q.10. Based on your previous experience are there any unique conditions at the Ross ISR site that would change the ability to detect or remediate a vertical excursion?

A.10. Based on my experience there are not any unique conditions at the Ross site that would affect our ability to detect or remediate a vertical excursion.

There are a few controls in place at Ross that will reduce the possibility of a vertical excursion and minimize the impact if one was to occur. The I-196-5 excursion was caused by a casing coupler failure that was believed to be caused by a well workover using a drill rig. At the time Licensees were not required to perform a mechanical integrity test (MIT) of a well that had undergone well maintenance activities that could damage the casing. Since that time it is standard practice that these tests be performed after well maintenance in addition to the routine 5-year MIT to prevent inadvertently placing a damaged well back in service. This requirement is included in the Ross NRC License as License Condition 10.5 (Exhibit SEI015).

The Ross FSEIS Exhibit SEI009A (at 115) requires that 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 drillhole. The FSEIS further states (Pg. B-87) that cessation of injection is advisable if “the probable cause for a vertical excursion is a failed casing in a nearby injection well. Therefore, immediate cessation of lixiviant injection is a prudent corrective action to prevent more from escaping”. These controls require that the cause of a vertical excursion be determined before injection activities are resumed.

3.0 REFERENCES

Abitz, R. and L. Larson, 2014, Joint Third Declaration of Dr. Richard Abitz and First Declaration of Dr. Lance Larson on Behalf of the Natural Resource Defense Council and Powder River Basin Resource Council, ADAMS Accession No. ML14091A004, March 31, 2014, Exhibit 1 to Natural Resource Defense Council’s and Powder River Basin Resource Council’s Joint Motion to Migrate or Amend Contentions and to Admit Contentions in Response to Staff’s Final Supplemental Draft Environmental Impact Statement.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of:	)	
Strata Energy, Inc.	)	Docket No. 40-9091-MLA
	)	ASLBP No. 10-915-01-MLA-BD01
	)	
(Ross In Situ Recovery	)	
Uranium Project	)	

AFFIDAVIT OF MIKE GRIFFIN

I declare under penalty of perjury that my statements in prefiled Exhibits SEI039 (Mike Griffin Initial Testimony) and SEI040 (Mike Griffin CV) are true and correct to the best of my knowledge and belief.

Mike Griffin

Executed in Crawford, NE
this 23 day of August, 2014