



Nuclear Regulatory Commission  
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Withdrawn:  
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NRC000216

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


In the Matter of	)	Docket No. 70-7015-ML
	)	
AREVA ENRICHMENT SERVICES, LLC	)	ASLBP No. 10-899-02-ML-BD01
	)	
(Eagle Rock Enrichment Facility)	)	July 29, 2011

AFFIDAVIT OF BRUCE M. BIWER CONCERNING THE NRC STAFF  
 UNOPOSED MOTION TO AMEND AND SUPPLEMENT THE RECORD

I, Bruce M. Biwer, do hereby state as follows:

- I am employed as an Environmental Systems Engineer at Argonne National Laboratory under a technical assistance contract with the staff of the U.S. Nuclear Regulatory Commission ("NRC"). A statement of my professional qualifications was admitted as exhibit NRC000151.
- As part of the NRC staff's environmental review of the AREVA Enrichment Services, LLC ("AES") Eagle Rock Enrichment Facility ("EREF") license application, documented in the "Environmental Impact Statement for the Proposed Eagle Rock Enrichment Facility in Bonneville County, Idaho (NUREG-1945)," February 2011, I assisted the NRC staff in its review and analysis of aspects of the application that concerned the proposed action, purpose and need, scope, alternatives, transportation, waste management, accidents, greenhouse gases, and terrorism.
- Slides 10 and 11 of NRC Staff Presentation Topic 3, Greenhouse Gas Impacts of Facility's Production Power Consumption (NRC000190), incorrectly indicated that the EREF Greenhouse Gas ("GHG") footprint would be approximately 266,749 Metric Tons (MT) per year if all electrical power for the facility were provided by coal-fired power plants. The correct value is approximately 674,900 MT per year. The staff obtained this value by multiplying the annual EREF power demand of 683,280 MWh (NRC000190 at Slide 8) by an emission factor of 0.9877 MT CO<sub>2</sub>e/MWh, representing the amount of CO<sub>2</sub>e generated by a coal-fired power plant during

the production of 1 MWh of power. The staff calculated the emission factor by dividing the estimated annual amount of CO<sub>2</sub>e generated by coal-fired power plants in the United States in 2010 (approximately 1,828 million MT) (NRC000217 at 167) by the estimated amount of power generated by these plants in 2010 (approximately 1,850,750 million kWh (thousand MWh)) (NRC000217 at 95), yielding an estimated emission factor of 0.9877 MT CO<sub>2</sub>e/MWh. Thus, should all of the electrical power to the EREF be supplied by coal-fired electric generating plants, 0.9877 MT/MWh times 683,280 MWh/year yields 674,900 MT/year of CO<sub>2</sub>e from operation of the EREF, as presented below:

 <b>U.S.NRC</b> <small>United States Nuclear Regulatory Commission</small> <i>Protecting People and the Environment</i>	<h2 style="color: blue;">Comparisons of GHG Footprints in Satisfaction of EREF Power Demands</h2>
<b>Annual EREF power demand (NRC000176):</b>	<b>683,280 MWh</b>
<b>Global CO<sub>2</sub> emissions (all fossil fuels) (2008) (NRC000196):</b>	<b>29,381 Million Metric Tons</b>
<b>Annual U.S. electricity-related GHG footprint (2009) (NRC000193):</b>	<b>2,154 Million Metric Tons</b>
<b>Annual Idaho electricity-related GHG footprint (2009) (NRC000194):</b>	<b>1,024,000 Metric Tons</b>
<b>Annual EREF GHG footprint (power provided by coal-fired plants) (NRC000217):</b>	<b>674,900 Metric Tons</b>
<b>Annual EREF-related GHG footprint (power provided by ID generators):</b>	<b>54,145 Metric Tons</b>
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4. For purposes of the staff's conclusion on Slide 11 (NRC000190), the corrected estimate of 674,900 MT of GHGs if only coal-fired plants were to supply power to the EREF would constitute approximately 0.0023 percent of the annual global GHG emissions of 29,381 million

MT (NRC000190 at Slide 10) and would, therefore, still be expected to have only a SMALL impact on global climate, as presented below:



## Conclusions

- Estimated annual emissions of 674,900 metric tons of GHG from coal plants supplying power to EREF is 0.0023 percent of global GHG emissions and would, therefore, be expected to have only a SMALL impact on global climate.

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5. Additionally, at the national level, GHG emissions from operation of the EREF if only coal-fired plants were to supply power would be approximately 0.031 percent of the U.S. GHG emissions of 2,154 million MT annually (NRC000190 at Slide 10) and would, therefore, also be expected to have a SMALL impact.

6. In response to the Licensing Board's inquiry during the mandatory hearing regarding the estimated GHG footprint of the EREF if all power were to come from the NWPP (Transcript at 497-505), the staff calculated that footprint by multiplying the annual EREF power demand of 683,280 MWh by the CO<sub>2</sub>e emission factor for the NWPP, 858.8 lb CO<sub>2</sub>e/MWh (NRC000190 at Slide 8). Multiplication of these values and conversion to the proper units yields 266,749

MT/year of CO<sub>2</sub>e. This represents an estimated 0.00091 percent of annual global GHG emissions and 0.012 percent of annual national GHG emissions, and, thus, SMALL impacts in both cases.

7. I attest to the accuracy of the aforementioned statements, support them on my own, and endorse their introduction into the record of this proceeding. I declare under penalty of perjury that my statements in this affidavit are true and correct to the best of my knowledge, information, and belief.

**[Executed in Accord with  
10 C.F.R. § 2.304(d)]**

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Bruce M. Biwer