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VIA EMAIL: *Section934Rulemaking@Hq.Doe.Gov*

Ms. Sophia Angelini
Attorney-Advisor
Office of the General Counsel for Civilian Nuclear Programs, GC-52
U.S. Department of Energy
1000 Independence Avenue, SW, Room 6A–167
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Dear Ms. Angelini:

Comment Letter On Retrospective Risk Pooling Program For Suppliers
75 Fed. Reg. 43945 (July 27, 2010)
Section 934 Rule Making

I. Introduction

The Department of Energy ("DOE") issued a Notice of Intent ("NOI") requesting comments to assist in development of regulations pertaining to Section 934 of the Energy Independence and Security Act of 2007 ("EISA"). Section 934 addresses how the United States will meet its obligations under the Convention on Supplementary Compensation for Nuclear Damage ("CSC") and, in particular, its obligation to contribute to an international supplementary fund in the event of certain nuclear incidents. In the NOI DOE specifically seeks comments on whether implementation of Section 934 would be facilitated by further clarifying in implementing regulations the definition of various relevant terms, such as "nuclear supplier." DOE also requested comments on the appropriate risk-informed assessment formula and application of the risk factors and exclusionary criteria that DOE must take into account.

Power Resources, Inc. and Crow Butte Resources, Inc. (both doing business as "Cameco Resources") operate in situ recovery uranium mining operations in Nebraska and Wyoming. Cameco Resources is the largest producer of uranium concentrates in the United States, and is a subsidiary of Canada-based Cameco Corporation, one of the world's largest uranium producers and a leading provider of nuclear processing services. An affiliate of Cameco

Resources, Cameco Inc., operates in the United States from a main office located in Minnesota, and is the global marketing arm of the Cameco group of companies. Cameco Inc. enters into agreements to sell uranium concentrates, UF_6 and conversion services to utilities and others in the industry in the United States and elsewhere. These comments in response to the DOE NOI are submitted on behalf of the U.S. companies — Cameco Resources and Cameco Inc. (collectively "Cameco").[1]

Cameco appreciates the opportunity to provide comments on the issues raised by DOE and supports the DOE's efforts to implement the retrospective risk pooling program. As discussed below, Cameco believes that producers and providers of uranium concentrates and UF_6 conversion services, whether directly or as an intermediary, should be excluded from the definition of nuclear supplier. In this regard, Cameco generally agrees with the comments submitted by the Nuclear Energy Institute ("NEI") on behalf of its members; however, Cameco disagrees with the implication of NEI's comments that producers of uranium concentrates and providers of conversion services should be included in the risk pooling program in the same manner and to the same degree as other suppliers of front–end and back-end nuclear fuel cycle goods and services.

II. Discussion

A. Uranium Miners and Converters Are Not Nuclear Suppliers

Section 934(b)(7) of the EISA defines "nuclear supplier" as a covered person (or a successor in interest of a covered person) that (A) supplies facilities, equipment, fuel, services, or technology pertaining to the design, construction, operation, or decommissioning of a covered installation; or (B) transports nuclear materials that could result in a covered incident. DOE notes that the term nuclear supplier is potentially very broad in scope, complex, and subject to interpretation. Cameco agrees with this assessment and believes that the ambiguity will lead to unnecessary uncertainty with respect to potential liability under the statute. Cameco recommends that DOE clarify the definition of nuclear supplier in its regulations.

The statutory definition of "nuclear supplier" under the EISA excludes persons, such as Cameco, that produce, distribute, or re-sell only natural uranium concentrates or that provide or re-sell conversion services, whether directly or as an intermediary. Under any plain meaning of the term, natural uranium is not "fuel." The natural uranium produced by miners, usually in the form of U_3O_8, or by converters, in the form of UF_6, is a fungible commodity that cannot be used directly in a nuclear power plant. Although uranium is a component of nuclear fuel, numerous intervening steps are necessary to transform and enrich natural uranium into a

[1] A third U.S. subsidiary, Cameco Enrichment Holdings LLC is a 24% owner of GE Hitachi Global Laser Enrichment LLC in Wilmington, North Carolina. GLE is submitting comments on the NOI separately.

form that can be used as fuel in a reactor.[2] The reference to "fuel" in the statutory definition of "nuclear supplier" means nuclear fuel ready for loading in a reactor rather than the constituent elements or components utilized in the nuclear fuel.

This conclusion is consistent with the CSC itself. Under the CSC, natural uranium concentrates are not nuclear "fuel." Article 1 of the CSC Annex defines nuclear fuel as any material that is "capable of producing energy by a self-sustaining chain process of nuclear fission." Natural uranium concentrates are not capable of creating a self-sustaining chain reaction without extensive special processing or precisely controlled conditions. Under the Atomic Energy Act, natural uranium is considered to be source material and, according to the Nuclear Regulatory Commission, source material is natural uranium or thorium that is not suitable for use as reactor fuel (*see* http://www.nrc.gov/materials.html).

Similarly, conversion is a chemical process that converts the natural uranium into a different chemical form. Like natural uranium concentrates, the UF_6 that results from the conversion process cannot be used directly as fuel in a nuclear facility. The natural material must be enriched in order to concentrate the fissile material useful for fuel, and then must be fabricated into fuel actually suitable for use in a reactor. Accordingly, the statutory definition of nuclear supplier does not include producers of natural uranium concentrates or providers or marketers of conversion services, whether directly or as an intermediary.

This conclusion is supported by the intent of the statute. The term "nuclear supplier" is intended to include in the pool entities that provide goods and services that control the risk at a covered installation and that therefore would benefit from the CSC risk pooling program. As DOE noted, only suppliers that provide goods or services specifically intended for use in structures, systems, and components ("SSCs") that are important to safety at a nuclear installation should be included in the risk pooling program. This concept of SSCs important to safety is utilized in NRC licensing of nuclear installations (*e.g.*, nuclear reactors, fuel storage facilities) as a means to evaluate items based on their relative risk and importance to the safe operation of the nuclear installation. Because natural uranium and conversion services are not used in SSCs important to safety without significant transformation by third parties, providers of natural uranium and conversion services should not be considered nuclear suppliers. Including such providers would be similar to including within the definition of "nuclear supplier" persons that mine the iron ore used in a pressure vessel or persons that manufacture backhoes used to excavate the facility footprint during construction. The materials and services that Cameco provides — natural uranium concentrates and conversion services — do not control the risk at a covered installation and therefore fall outside the definition of nuclear supplier.

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[2] The U_3O_8 or UF_6 produced by a miner or converter is a chemical product containing only natural uranium. To be used in a nuclear power plant, the UF_6 must be enriched in a specific uranium isotope at an enrichment facility, and then fabricated into an engineered fuel assembly to be used in a nuclear power reactor.

Moreover, because of the practical commercial structure of the uranium concentrate and conversion services markets, natural uranium and conversion services suppliers do not contribute to any significant radiological transportation risk. Sales and transfers of natural uranium and conversion services are generally completed by "book transfer" at a processing facility. Under this accounting system, uranium concentrates and conversion services are treated as fungible commodities. The physical uranium is not typically processed in specific batches, but rather is used as feed in a processing stream.

Under generally accepted commercial practice, physical deliveries of natural uranium and UF_6 are provided, for a fee, by transporters specifically in the business of transportation of such materials. The miners and converters are not the "transporters." The very small risk of public liability that may exist with respect to transportation of the commodities is separately borne by purchasers of the materials or of the conversion services, or by the transporters responsible for physical deliveries. Some transporters will presumably be treated as nuclear suppliers, and the very small risk associated with transport of natural uranium and UF_6[3] should not be addressed by separately including the uranium and conversion services suppliers in the definition of nuclear suppliers due to a perceived transportation risk.

In summary, because natural uranium cannot reasonably be considered nuclear fuel, the statutory definition of nuclear supplier does not include producers of natural uranium concentrates or providers and marketers of conversion services. And, natural uranium, including concentrates and UF_6, is not used in SSCs important to safety without significant processing and fabrication by third parties. Finally, the nature of the uranium and conversion services market makes it unreasonable to assign liability to any particular lot of natural uranium or conversion services. Accordingly, DOE should clarify that providers of uranium concentrates and conversion services are not "nuclear suppliers" as defined in Section 934 of EISA.[4]

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3 Cameco does not suggest that the de minimis *toxic* risk of transport of natural uranium or UF_6 should be considered to bring those transporters of those commodities into the CSC pool. Radiological risk exists primarily for transport of enriched uranium.

4 In its comments, NEI proposes that the definition of nuclear supplier could be based on whether the entity is required to hold a license from the Department of Commerce pursuant to 15 C.F.R. Part 734, a license from the U.S. Nuclear Regulatory Commission ("NRC") pursuant to 10 C.F.R. Part 110, or authorizations from the DOE, pursuant to 10 C.F.R. Part 810, in order to export facilities, equipment, fuel or services for use in a covered installation outside the United States. Cameco is not required to be the holder of any export license from the Department of Commerce, nor is Cameco required to obtain any DOE authorization under Part 810 for its mining and conversion businesses. Therefore, if the definition of nuclear supplier is linked to export licenses or authorizations, Cameco would be excluded from the risk pooling program. In light of the definitions of "nuclear supplier" in the EISA and nuclear "fuel" in the CSC Annex as discussed above, Cameco believes that whether a supplier must obtain, be named on, or rely upon an NRC export license under Part 110 should <u>not</u> be determinative.

B. If Miners and Converters Are Considered Nuclear Suppliers, Then Cameco Should Still Be Excluded From the Retrospective Risk Pooling Program

If DOE determines that uranium miners and converters somehow fall within the definition of nuclear supplier, miners and converters should be excluded from the risk pooling program. Section 934(e)(2)(C)(ii) lists factors that should be used to exclude certain nuclear suppliers. The statute notes that the cost allocation formula may exclude (a) Goods and services with negligible risk; (b) Classes of goods and services not intended specifically for use in a nuclear installation; (c) A nuclear supplier with a *de minimis* share of the contingent cost; and (d) A nuclear supplier no longer in existence for which there is no identifiable successor. The intent of this provision is to exclude from participation in the risk pooling program those nuclear suppliers that provide goods or services that are the least likely to be a proximate cause of a nuclear incident for which requests for contributions to the international supplementary fund would be invoked.

As explained above, neither natural uranium nor conversion services control the risk at a covered facility. The natural uranium is just one of many raw materials that are used in a nuclear installation. There is nothing unique about the uranium concentrates supplied by Cameco that would create any risk or liability at a covered installation. Similarly, conversion services and the UF_6 that results from the conversion process do not create any new or different risks at a covered installation. Neither natural uranium concentrates nor conversion services could reasonably be construed to be the proximate cause of a hypothetical nuclear incident at a covered installation. The products that Cameco provides never reach a covered installation without first being substantially engineered and transformed by other entities that control the quality of their products.

The risk of a nuclear/radiological incident is not created by uranium concentrates, the conversion process, or the UF_6 that results from the conversion process. Instead, third parties unrelated to the miner or the converter transform natural uranium into a fissile form that can be used in a covered facility. These third parties manufacture the raw materials into nuclear fuel that is used in SSCs at the covered installation. It is this fuel and the SSCs themselves that must satisfy certain technical specifications at the covered installation, not the natural uranium or conversion services. Accordingly, miners and converters should be excluded from the cost allocation formula. This approach will ensure that only nuclear suppliers of goods and services that are likely to be a proximate cause of a covered incident with significant damage will be contributors to the risk pooling program.[5]

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[5] NEI in its comments suggests that NRC regulations in 10 C.F.R. Part 110, Appendix A and 10 C.F.R. Part 21 may provide helpful guidance in regard to entities that should be excluded from the definition of "nuclear supplier" based on objective, risk-informed criteria. Cameco agrees with this suggestion. Uranium concentrates and UF_6 produced by a miner or converter would not fall into any of the categories in Part 110, Appendix A.

C. If Miners and Converters Are Not Excluded From the Program, Their Allocation Should Be Very Small

As discussed above, miners and converters fall outside the statutory definition of a nuclear supplier or should otherwise be excluded from the cost allocation formula. Nevertheless, if DOE decides to include uranium miners and converters in the formula, their allocation should be very small based on application of the six risk factors in Section 934(e)(2)(C) of EISA.

1. Factor 1 — Nature and Intended Purpose of the Goods and Services

The first risk factor relates to the "nature and intended purpose of the goods and services supplied by each nuclear supplier to each covered installation outside the United States." DOE states that it intends to interpret this risk factor in light of the other statutory criteria that could exclude nuclear suppliers providing goods and services with negligible risk. Cameco agrees with this approach to the first risk factor.

DOE's interpretation of this risk factor means that, as a general matter, only nuclear suppliers that provide goods or services specifically intended for use in SSCs that are important to safety at a nuclear installation should be included. For example, DOE suggests that suppliers of such items as laboratory equipment and computers not intended for control of the installation would be excluded from the formula. In contrast, DOE indicates that suppliers such as designers and builders of nuclear islands (involving nuclear steam supply systems, reactors, *etc.*), and designers, manufacturers, and sellers of nuclear fuel assemblies or on-line nuclear measurement devices would be included in the formula. As discussed above, uranium miners and converters, if indeed they are considered nuclear suppliers, are more like the entities to be excluded from the formula. Miners and converters provide goods and services that require substantial transformation prior to use in a covered installation. They send raw materials to third parties that then manufacture the engineered fuel assemblies product that may eventually be used in a nuclear reactor. This factor supports either no contribution or a *de minimis* allocation.

2. Factor 3 — Hazards Associated With Goods and Services If They Fail to Achieve Intended Purposes

The third risk factor relates to the hazards associated with the supplied goods and services if they fail to achieve their intended purposes. DOE stated that it intends to apply the third factor in a manner similar to the first factor — that is, only nuclear suppliers of safety-related goods or services would be included in the formula. Among those goods and services, risk would then be determined based on the relative radiological hazard or harm that may be caused if a particular good or service failed to achieve its intended function. According to DOE,

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Likewise, those goods and services would not constitute a "basic component" under the definition in Part 21.

the supplier of a reactor vessel would be weighted with greater risk than the supplier of the safety-related concrete forming the foundation of the reactor building. Both goods are safety-related, but the malfunction of the former presents a greater risk of radiological hazard than the latter.

Under this approach, miners and converters should again be excluded entirely or assigned a *de minimis* allocation. Miners and converters do not supply any safety-related equipment or services. Their supply contracts generally do not specify or require that the uranium concentrates or conversion services meet any technical specifications related to SSCs or use at a covered installation. To the extent that uranium supply and conversion contracts contain any specifications, those specifications relate to further processing (assay, purity) rather than end use in SSCs at covered installation. Natural uranium and conversion services cannot cause radiological harm at a covered facility by failing to achieve a contract specification. Instead, as discussed previously, the natural uranium and conversion services are used as the inputs into manufacturing processes for other companies that then convert the raw materials into a form that must meet specifications to be used in safety-related equipment.

Further, DOE explained that it expects that the relative hazard of a good or service may be evaluated in terms of whether it is a likely contributor to a covered incident resulting in a request for contributions under the international supplementary fund (*i.e.*, is it so hazardous as to likely cause a covered incident of a magnitude that first-tier compensation is inadequate). There is no reasonably foreseeable mechanism by which the materials produced or services rendered by Cameco could result in a covered incident. In other words, as noted above, neither uranium concentrates nor conversion services could reasonably be construed to be the proximate cause of a covered incident. The intervening acts of third parties (*e.g.*, enrichers, fuel fabricators) transform the natural uranium into a form suitable for use in a covered installation. Therefore, this factor supports either no contribution or a *de minimis* allocation.

3. The Other Factors Are Inapplicable/Neutral to Miners and Converters

The second factor to be used under EISA for a risk formula relates to the quantity of the goods and services supplied by each nuclear supplier to each covered installation outside the United States. As noted above, miners and converters do not provide goods or services directly to the covered installations; the natural uranium must be enriched and fabricated into fuel prior to use in a facility. Thus, with respect to the "quantity" of the goods and services, it is not clear how DOE could appropriately measure and weight this factor on a comparative basis among various nuclear suppliers. In this context, it would be important to apply a realistic assessment of the "value" of the goods and services provided by a supplier of natural uranium and conversion services. As commodities, the value of the natural uranium concentrates and natural UF_6 derives only from a *potential* to be enriched and fabricated into other products that themselves can then be used in a covered installation. This potential cannot easily be measured or compared against the total value of constructing, operating, and maintaining a nuclear power plant.

The fourth factor relates to the hazards associated with the covered installation outside the United States to which the goods and services are supplied. Cameco agrees that the risk can be based, in part, on the hazard associated with the nuclear installation itself. However, as explained above, Cameco does not provide goods or services directly to covered installations. Instead, the natural uranium must be enriched and fabricated into fuel prior to use in a covered installation. Thus, this factor is neutral with respect Cameco.

The fifth risk factor to be used as a basis for a formula is the legal, regulatory, and financial infrastructure associated with the covered installation outside the United States to which the goods and services are supplied. DOE states that its current approach would be to interpret this risk factor to refer to the relative risk of a nuclear incident arising from a nuclear installation based upon the legal, regulatory, or financial environment in which the installation operates. For example, a nuclear installation situated in a country with little regulatory oversight of public health and safety, or inadequate financial requirements for the nuclear operator, or without the availability of judicial recourse, may lead to a relative risk factor greater than the supply of goods or services to a nuclear installation in a country with rigorous regulatory oversight, robust financial requirements, and an efficient judicial system. This factor again is not directly applicable to Cameco as its goods and services are not safety-related and are not used in covered installations without significant processing by third parties. However, presently the majority of Cameco's customers are located in North America, the European Union, and Japan — countries with strong regulatory oversight and comprehensive nuclear liability legal schemes.

The sixth factor relates to the hazards associated with particular forms of transportation. In accordance with customary industry practice, shipments of natural uranium and UF_6 are performed by licensed nuclear carriers that assume liability for the shipment. The risks associated with transport of natural uranium are low. The primary risks associated with transportation of these commodities are "vehicle-related" risks (*e.g.*, injury associated with physical trauma from vehicle accidents) that do not depend on the type of cargo being transported. The radiological risks associated with transportation of natural uranium are negligible. Further, transporters (at least transporters of enriched uranium) can be addressed separately as nuclear suppliers under Section 934(b)(7)(B) of the EISA, and DOE should not "double count" transportation liability by including both certain transporters and entities such as Cameco in the risk pooling program on the basis of small transportation risks.

III. Conclusion

Based on a plain reading of the EISA and the CSC, producers of natural uranium and providers of conversion services, whether directly or as intermediaries, should not be included in the definition of nuclear suppliers. Natural uranium is a fungible commodity that cannot be used as fuel in a reactor or in SSCs important to safety without significant processing and fabrication by third parties. If, however, DOE determines that miners and converters fall within the definition of nuclear supplier, they should nonetheless be excluded from the risk pooling program on the basis of the factors in Section 934(e)(2)(C)(ii). Neither natural uranium nor conversion services control the risk at a covered facility. The natural uranium is just one of

many raw materials that are used in a nuclear installation. Given the need for enrichment and fuel fabrication before uranium can be used in a reactor, neither natural uranium concentrates nor conversion services could reasonably be construed to be the proximate cause of a hypothetical nuclear incident at a covered installation. Finally, if DOE decides to include uranium miners and converters in the formula, their allocations should be relatively small based on application of the six risk factors in Section 934(e)(2)(C) of EISA.

Yours truly,

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