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U.S. Nuclear Regulatory Commission ATI-N:  
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Nuclear Material Safety and Safeguards  
Nuclear Regulatory Commission  
Washington, DC 20555-0001

April 22, 2016

Re: Docket ID NRC-2011-0148: Scoping Comments For Proposed Expansion Of  
Ross In Situ Uranium Recovery (ISR) Project To Include The Kendrick  
Expansion Area (License SUA-1601)

On behalf of the Natural Resources Defense Council and Powder River Basin Resource Council (collectively “Organizations”) – Intervenor in the pending proceeding over the Ross In Situ Uranium Recovery Project (Ross Project) – we are writing to provide scoping comments on the proposed Strata Energy, Inc. (SEI) Kendrick Expansion to the Ross Project. NEPA directs that the Nuclear Regulatory Commission (Commission) take a “hard look” at the environmental impacts of a project and compare them to alternative means of fulfilling the same purpose and need for agency action that may avoid or mitigate environmental harms or risks posed by the proposed project. As we have argued in the pending Ross proceeding, the Commission has unlawfully segmented the environmental analysis for the various components of the Ross Project by separately considering the environmental impacts of the initial Ross Project, the Kendrick Expansion, and the additional planned expansions of the project in the Lance District, all of which should have been disclosed and analyzed *before* the Ross Project was approved. That defect cannot be remedied here by undertaking a *post-hoc* analysis of impacts at this late stage. To the contrary, the Commission must require an entirely *new* license for this project. The Supplemental EIS (SEIS) on the Kendrick Expansion must also consider the full scope of adverse environmental impacts associated with the ISR<sup>1</sup> mining to be conducted in this location, and may not avoid that analysis by tiering to either the Generic EIS or the Ross SEIS, both of

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<sup>1</sup> ISR and ISL are used inter-changeably throughout this document. The two terms are synonymous for the type of uranium processing proposed in the Kendrick project.

which are legally deficient (as explained in the Organizations' filings before the Commission). It must also consider a full range of reasonable alternatives and mitigation approaches.

## **BACKGROUND**

NEPA is clear in its well-established mandates. The nation's "basic national charter for protection of the environment," 40 C.F.R. § 1500.1, NEPA requires agencies to "base decisions on *detailed information* regarding significant environmental impacts and [make] that information [ ] available to a wide variety of concerned public and private actors." *Morongo Band of Mission Indians v. FAA*, 161 F.3d 569, 575 (9th Cir. 1998) (emphasis added); *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349 (1989). An EIS must take a "hard look" at environmental consequences, *Marsh v. Oregon Natural Resources Council*, 490 U.S. 360, 374 (1989), considering "every significant aspect of the environmental impact of a proposed action." *Baltimore Gas & Elec. Co.*, 462 U.S. 87, 97 (1983); *see also* 10 C.F.R. Pt. 51, Subpt. A.

NEPA characterizes environmental impacts broadly to include not only ecological effects, such as physical, chemical, radiological and biological effects, but also aesthetic, historic, cultural, economic, and social effects. 40 CFR § 1508.8. NEPA requires an agency to consider both the direct effects caused by an action and any indirect effects which are reasonably foreseeable. Effects include direct effects caused by the action and occurring at the same time and place and indirect effects caused by the action, but later in time or farther removed in distance, but still reasonably foreseeable. 40 CFR § 1508.8. An agency must also properly define the project scope, 40 C.F.R. §§ 1502.4(a) and 1508.25, and meaningfully analyze cumulative impacts. *Id.* §§ 1508.25(c) and 1508.7.

As noted, the Organizations are parties to the proceeding that led to the initial license for the Ross Project. In that proceeding, the Organizations presented a contention concerning the fact that the Ross SEIS only addressed the Ross Project itself, even though it was evident that it was only a small part of a much larger area in which SEI intends to conduct ISL mining – including the area now covered by the proposed Kendrick Expansion. The contention raised a genuine issue of material fact, per 10 C.F.R. § 2.309(f), whether SEI's plans to conduct mining in the Kendrick, Richards, and Barber "Satellite" Areas were sufficiently similar and connected to the Ross Project that the entire project should be considered in a single EIS. *See also* 40 C.F.R. § 1505.25(a)(2) (requiring single impact statement for "connected actions," "cumulative actions," and "similar actions"). The Organizations' declarant provided detailed evidence showing that, contrary to the "proposed action," SEI had *concrete plans* to mine these additional areas. Declaration of Christopher Paine, ¶¶ 23-56, attached.

The Atomic Safety Licensing Board (Board) acknowledged the "strong likelihood that [SEI] intend[s] that eventually all the Lance District ISR sites will be licensed and operating," LBP-13-10 at 29, and that the mere fact that SEI had only applied for an initial license for the limited Ross Project was "hardly definitive" of whether plans for the entire Lance District should be considered in a single EIS. LBP-13-10 at 26. However, the Board refused to permit the contention on the ground that the Organizations had failed to establish – at the contention admissibility stage – "that the Ross facility lacks any independent utility in the absence of the

completion of the other Lance District ISR sites.” *Id.* at 29-30; May 23, 2014 Order 14-16 (FSEIS Order).

The Board did permit three contentions to proceed to an evidentiary hearing: (1) the failure to collect and disclose adequate baseline water quality data; (2) the failure to evaluate and disclose the degradation of water quality likely to remain at the conclusion of the project; and (3) the failure to consider and disclose the likelihood that groundwater contamination will move beyond project boundaries. As to baseline water quality, while the Board purported to recognize SEI must “establish a *pre-licensing* monitoring program that is used to provide ‘complete baseline data’ on the ISR site and its environs,” LBP-15-13 (Jan. 23, 2015) ¶ 4.16 (citing Criterion 7), the Board concluded “NEPA does not require the adoption of best practices,” and found the data used for the FSEIS was not “so facially deficient” that more data collection is necessary, because the license requires the collection of *adequate* data to establish a “post-license” (*i.e.*, post-NEPA) baseline. *Id.* ¶ 4.22. As to water quality degradation, while the Board agreed that, “based on the historical record,” it was likely that Strata would seek an Alternative Concentration Limit (ACL), *id.* ¶ 4.81, and that the SEIS failed to include information necessary to evaluate those impacts, the Board “supplemented” the SEIS with data included in Staff’s prefiled testimony, *Id.* ¶¶ 4.89-4.96, and deemed the SEIS’s “one-page discussion” of results at other ISL sites to be all that NEPA requires. *Id.* ¶ 4.72. Finally, as to fluid excursions beyond project boundaries – of particular concern given the many pre-existing boreholes in and near the project site – the Board rejected the argument that the monitoring well system fully addressed the concern, and recognized that filling the boreholes “presents a daunting challenge,” *id.* ¶ 4.127, but concluded that SEI has sufficient “incentive” to insure these holes are filled.

Nonetheless, recognizing the importance of filling boreholes, in its decision the Board strengthened one of the licensing conditions (License Condition 10.12), requiring SEI to endeavor to locate and fill additional boreholes located downgradient of each wellfield and between the perimeter well ring and the aquifer exemption boundary.

The Organizations have appealed the Board’s ruling to the Commission, which remains pending.<sup>2</sup>

In the meantime, in March 2015, SEI applied to expand the Ross Project to encompass the Kendrick Expansion. A year later, on March 8, 2016, the Commission announced the scoping process for a SEIS on the anticipated Kendrick Expansion of the Ross Project. 81 Fed. Reg. 12143 (Mar. 8, 2016). The Notice recognizes that while the Commission “typically prepares Environmental Assessments for source material license amendments,” a full SEIS is being prepared for the Kendrick Expansion “because the *Ross SEIS* identified several potential significant impacts related to historic and cultural resources, groundwater, transportation, and visual resources.” *Id.* at 12,144. According to the Notice, the “Kendrick SEIS will tier from and incorporate by reference the GEIS and the Ross SEIS.” *Id.* The Notice states that the SEIS will consider “the potential impacts from all project phases: construction, operations, aquifer

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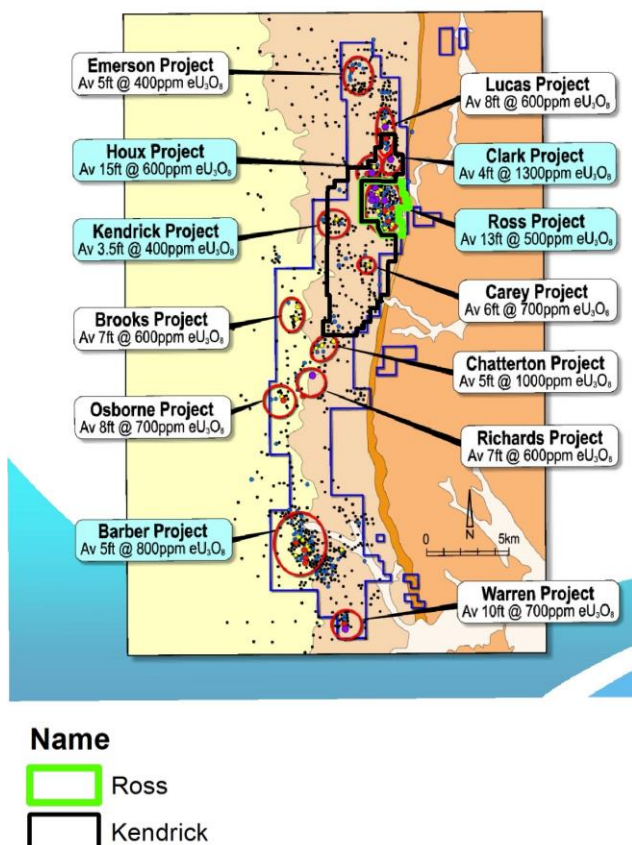
<sup>2</sup> In December 2015, SEI sought to water down this amended License Condition, even though it is relying on that same condition to defend the Board’s ruling before the Commission. Intervenors have formally objected to this proposal. *See* Int. Letter of Feb. 17, 2016.

restoration, and decommissioning,” and “will consider both radiological and nonradiological (including chemical) impacts associated with the proposed project and its alternatives. *Id.* at 12,145. As to alternatives, the Notice states that the SEIS will consider the proposed action, no action, and a third alternative in which a Central Processing Plant (CPP) will be constructed within the Kendrick Expansion area.

## DISCUSSION

### **I. The Scope Of The SEIS Must Include The Entire Ross Project, Which Includes Not Only The Ross Project And Kendrick Expansion, But Also The Further Expansions That Will Inevitably Occur In The Lance District.**

As the Organizations explained in challenging the segmented scope of the Ross Project SEIS, the Commission was required by NEPA and implementing regulations to prepare a single, comprehensive EIS that considers the environmental impacts of SEI’s plans for ISL mining throughout the Lance District, including not only the initial Ross Project and the Kendrick Expansion, but also Richards and Barber areas. Indeed, it has long been evident from Peninsula Energy public documents and statements that SEI will inevitably be developing *all* of these areas. *See, e.g.* Figure 1 below.



**Figure 1: SEI Proposed future Lance District expansion locations (Blue Line), proposed Kendrick boundary (Black Line), and the Ross ISL permit boundary (Green Line). Future Lance District boundary figure was modified according to information presented by a Peninsula Energy presentation at BMO Capital Markets**

All of the projects depicted in Figure 1 are reasonably foreseeable and have been proposed by SEI as expansions of its original Ross Project. They are adjacent to each other in geography and connected via a central processing facility. They are also connected via watersheds, aquifer systems, mineral-bearing formations, ingress and egress roads, and any number of areas whose connection directly bears on the full scope of the impacts.

NEPA requires a *single* environmental review document for “connected actions,” “cumulative actions,” and “similar actions.” 10 C.F.R. § 2.309(f). Otherwise, an agency may ignore the full adverse impacts of a project by segmenting it into smaller pieces. Segmentation also violates NEPA’s twin purpose of informing the public about the scope of environmental impacts of a project.

This is precisely what the Commission is permitting here, where it prepared one SEIS for the Ross Project, is preparing a *separate*, second EIS for the Kendrick Expansion, and no doubt will prepare further, separate environmental review documents for the inevitable further expansions of the ISL mining conducted in the Lance District. As a result, the Commission will allow the slow and steady degradation of groundwater and other resources in this area without ever comprehensively considering – and *disclosing to the public* – the full extent to which SEI is engaging in this degradation. NEPA exists precisely to prevent such an outcome.

Moreover, given that the ASLB *refused* to consider the environmental impacts associated with the Kendrick and other expansions of the Ross Project within the scope of the earlier SEIS on the grounds that the projects lacked sufficient similarity, the agency should require SEI to obtain an entirely *new* license for the Kendrick Expansion rather than allowing the company to simply *amend* its existing license. The Commission’s 2009 Guidance on its licensing approach for ISL mining facilities provides that the agency will only permit a license amendment where there is a close connection between the two sites, either due to their hydrological connection or the fact that one site is not viable without the other. *See* NRC RIS 2009-14 at 2 (discussing whether one site can be “functional” without the other).

Here, in the Ross Project proceeding, the Atomic Safety & Licensing Board took the position that the Kendrick Expansion need not be considered because the sites are independent and unconnected, and that it was therefore appropriate to limit the analysis to the Ross Project alone. Accordingly, in accordance with the 2009 Guidance, the Commission must require SEI to either obtain a *new* license for the purportedly independent Kendrick Expansion, rather than allowing a simply license Amendment, or send the entire process back to do the full EIS the Organizations argued for in the first instance – an EIS that includes all of the proposed projects within its scope.

## **II. The Kendrick Expansion SEIS May Not Ignore Relevant Environmental Impacts By Purporting to “Tier” To Either The Generic Environmental Impact Statement Or The Ross Project SEIS.**

The Kendrick SEIS must fully analyze all the relevant impacts associated with the Kendrick Expansion, and may not avoid that analysis by relying on the GEIS or the SEIS for the Ross Project because, as the Organizations have proven through comments and submissions to the Board, the Commission, and its staff, both the GEIS and the SEIS for the Ross Project are legally deficient. These previous EISs are especially deficient in their discussion and disclosure of impacts to water resources, but also in any number of other issues, including impacts to historic and cultural resources, socio-economic resources, and cumulative impacts.

As a threshold matter, the GEIS was never issued as a final NEPA document with an official Record of Decision. *See* 10 C.F.R. § 51.102(a) (“A Commission decision on any action for which a final environmental impact statement has been prepared shall be accompanied by or include a concise public record of decision.”). There is thus no basis for a *supplemental* EIS, rather than an EIS itself, fully addressing all relevant issues and impacts.<sup>3</sup>

Accordingly, the Commission cannot avoid impacts by claiming they were resolved in the GEIS, such as impacts on water resources. Nor may the SEIS rely on the non-informative terminology from the GEIS, characterizing impacts with generic terminology such as “small” “moderate” or “large.” NEPA requires “high quality” information and “[a]ccurate scientific analysis.” 40 C.F.R. § 1500.1(b); *See also Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349 (1989). In NEPA, an agency must “insure the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements.” 40 C.F.R. § 1502.24. In the case of the GEIS, and subsequent EISs that have “tiered” to it, including the Ross Project SEIS, the Commission’s characterization of impacts as “small” “moderate” or “large” is directly contradicted by the weight of scientific evidence.

As documented by the wealth of scientific literature and historical experience, the GEIS’s and subsequent Ross Project SEIS’s consideration of the adverse impacts of ISL mining does not even begin to meet these basic requirements of NEPA. Rather, the conclusions that ground and surface water impacts from ISL mining will be small to moderate are premised on the assumptions that 1) ISL operations will implement and enforce “best management practices” (BMPs) and these BMPs will be effective in avoiding and minimizing impacts from excursions, spills and leaks; 2) groundwater restoration will be successful ; 3) groundwater contaminated with radioactive elements and heavy metals will be contained within the production zone during operations and after restoration; 4) mining and restoration activities will not contribute to aquifer drawdown or depletion of water supplies; and (5) that proper background characterization of the aquifer was carried out in the first place. As fully discussed in the Organization’s filings before the Board and the Commission, available data and scientific research demonstrate that none of these assumptions are reasonable.

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<sup>3</sup> From a legal standpoint, NRC’s use of the word “supplemental” is misplaced. A SEIS is required if “[t]here are substantial changes in the proposed action that are relevant to environmental concerns.” 10 C.F.R. § 51.72. However, the GEIS did not propose any actions and instead analyzed uranium mining in the abstract.



The Kendrick SEIS also may not lawfully rely on the Ross Project SEIS as a basis for the environmental review to be conducted here. Indeed, the basic premise of the Organizations' rejected contention in the Ross Project was that the impacts of these two (and the other) phases of the planned SEI ISR mining in the Lance District are sufficiently similar – and likely to occur – that the impacts should all be considered in the same SEIS. Truncating the environmental analysis in this SEIS by relying on the Ross Project SEIS would fly in the face of the Commission's refusal to consider these impacts collectively when the Ross Project was first approved, and the Board's ratification of that segmented approach. In short, having refused to incorporate the Kendrick Expansion (or the rest of the inevitable Lance District uranium ISL mining to come) into the Ross Project SEIS, the Commission must independently consider the adverse environmental consequences of the Kendrick Expansion without simply referring back to the inadequate analysis completed for the Ross Project.

### **III. The Kendrick Expansion SEIS Must Meaningfully Consider Reasonable Mitigation Alternatives**

According to the scoping notice, the Kendrick Expansion SEIS will only consider an alternative in which the CPP is located on site, in addition to the no action and proposed alternatives. In addition, the Kendrick Expansion SEIS must consider reasonable alternatives that would actually *mitigate* the inevitable adverse environmental consequences of ISL mining in this area.

For example, as the U.S. Environmental Protection Agency (EPA) urged in commenting on the Ross Project, the SEIS should consider reasonable alternatives to address the large quantities of liquid byproduct waste that will be generated, including deep well injection, solar evaporation ponds, land application, and surface water discharge. *See* EPA Ross Project Scoping Comments (Dec. 29, 2011) (EPA Ross Comments), attached.

The SEIS should also consider a discussion of alternatives considered that the Organizations have urged on the agency (to no avail) since our 2007 comments on the scoping for the GEIS. That initial scoping was inadequate and the agency's treatment of purpose, need, alternatives and associated mitigation alternatives has remained inadequate to this day. There is a lengthy and tragic history associated with uranium recovery, and since that time NRC has failed to identify a broad national purpose, and no overarching need for a dimly defined proposed action is stated, or weighed against alternative means of accomplishing the agency's purpose and need for action.<sup>4</sup> Since the purpose and need for agency action is so ill-defined, it is by no means clear whether a GEIS is even appropriate or warranted. If, as we suggested long ago, the agency's purpose and need for action is “to increase the future supply of uranium to meet

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<sup>4</sup> *See*, for example, “As defined in the GEIS, the proposed federal action is NRC's determination to grant an application to obtain, renew, or amend a source material license for an ISL facility. Under the no-action alternative, NRC would deny the applicant's or licensee's request. As a result, the new license applicant may choose to resubmit the application to use an alternate uranium recovery method or decide to obtain the yellowcake from other sources. A licensee whose renewal application is denied would have to commence shutting down operations in a timely manner. Denials of license amendments would require the licensee to continue operating under its previously approved license conditions.” Final GEIS at xxxvii NUREG 1910, Vol 1, (2009), <http://pbadupws.nrc.gov/docs/ML1509/ML15093A359.pdf>.

increased demand for nuclear fuel,” this SEIS requires an analysis of alternatives for increasing this supply that could avoid the environmental impacts of uranium recovery in the identified areas, by examining, for example, the feasibility of increasing imports to cover the increment of supply that would otherwise have come from increased ISL mining in those areas, and the possibility of substituting increased energy efficiency for an increased supply of nuclear generated electricity.

On the other hand, if the agency’s purpose and need is essentially procedural (see note 4 above for the Final GEIS’s statement of purpose and need) – to streamline its consideration and approval of license applications for uranium recovery – then the agency is in the peculiar position of using NEPA to revise its own rules without a proposal for rulemaking being presented. And the agency has made no showing that its current rules are inadequate or overly burdensome to industry (indeed, all history suggests a conclusion must be made to the contrary), or that streamlining them would provide a higher level of environmental analysis for decision makers and better environmental protection to the public.

In any event, both the GEIS’s and the Ross Project SEIS’s definitions of the NRC’s purpose and need for action, and the resulting consideration of reasonable alternatives, are incoherent, inadequate, and unacceptable. In sum, in order to proceed with a searching and thorough NEPA process, the NRC must, in full consultation with other involved federal agencies (and in light of EPA’s pending revisions to 40 CFR 192, go back to the drawing board and craft a statement of “Purpose and Need for Agency Action” that relates whatever uranium recovery program it eventually defines to broad national objectives that are within the NRC’s purview, including for example, such goals as “improving remediation of land and water impacts from the recovery of source or byproduct materials,” or “ensuring the long-term isolation from the human and natural environment of harmful radionuclides and chemical toxins produced in the nuclear fuel cycle.” As we’ve noted, we do not believe that the uranium recovery industry (at least how it has been operated in the past) will be effective in addressing any of these goals, but this prospect is present, at least in theory. We do note, however, that other concrete policy and program alternatives exist that address practical solutions to each of the challenges presented by these objectives, and therefore merit detailed consideration in any NEPA scoping and supplemental document.

#### **IV. The Kendrick Expansion SEIS Must Thoroughly Address Environmental Impacts**

Finally, the SEIS must thoroughly address all of the adverse environmental impacts associated with the project. These include all of the impact areas addressed in EPA’s scoping comments for the Ross Project – *e.g.*, soil and groundwater resources; air quality, radiological, wetland, and climate change impacts; and effects on cultural resources and wildlife (including endangered species). *See attached.* They are also addressed in the Organizations’ comments on the Ross Project SEIS. *See attached.*<sup>5</sup>

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<sup>5</sup> Additional supporting information can be found in the numerous pleadings and exhibits submitted by the Organizations to the Board and Commission.



Moreover, the SEIS must remedy the serious analytical gaps that were permitted for the Ross Project.

First and foremost, the SEIS should be based on a complete and accurate baseline analysis of groundwater in this area, obtained with monitoring wells that use non-oxidizing drilling fluids and gases to ensure that the uranium ore zone remains under reducing conditions. Absent such a baseline, the Commission will have no basis to even predict the extent to which the ISL mining will degrade the aquifer. Indeed, as the Organizations demonstrated in the Ross Project proceeding, by failing to collect baseline data, SEI undermined the environmental analysis because the baseline data collected much later was inevitably tainted by the drilling that had already occurred.

Second, the SEIS must make the most conservative assumptions regarding the risks of contaminant migration, and may not, for example, assume that SEI will successfully fill remaining boreholes. Indeed, the fact that SEI is seeking to *amend* the License Condition in the Ross Project License to relieve it of filling boreholes that the Board itself found must be filled to mitigate adverse impacts demonstrates that the SEIS cannot assume SEI will fill these holes. Rather, the SEIS must explore the likely adverse impacts with unfilled boreholes in the Kendrick Expansion area. SEI itself acknowledged the presence of 5,000 unfilled boreholes within the Lance District, many of which SEI has not even located, yet alone properly sealed.

The SEIS must similarly make the most conservative assumptions about the risks of contaminant migration. It must analyze and disclose the likely environmental impacts were contamination to move beyond the aquifer boundary and into the environment, as has occurred at other ISL sites. In doing this analysis, the SEIS must consider fully the history of excursions and related problems at other ISL sites. In fact, SEI's own Ross Project has had its share of problems, after operating a short time. The plant was shut down just last week because of operational problems.<sup>6</sup>

Finally, the SEIS must assume that SEI will seek and obtain an ACL for the Kendrick Expansion area, as has also occurred at all other ISL sites. Any approach in which the SEIS assumes that SEI will successfully restore environmental conditions to their status quo prior to the mining would directly contradict of all available data from ISL mining, and violate NEPA's standards of analysis accuracy and basis administrative law principles. While the exact parameters of an ACL are unknown, what is known is that one will be needed for aquifer restoration at the Kendrick site. As such, the SEIS should consider environmental impacts related to a range of potential ACLs, as compared to previous ISL projects in Wyoming and elsewhere.

## **CONCLUSION**

As we noted at the outset, the Kendrick Expansion SEIS must comply with well-established NEPA requirements of taking a "hard look" at the environmental impacts of a clearly defined major federal action, and may not further exacerbate the fundamental

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<sup>6</sup> See electronic correspondence from Mike Griffin of SEI to John Saxton of NRC, April 18, 2016, available at <https://adamswebsearch2.nrc.gov/webSearch2/view?AccessionNumber=ML16109A347>

deficiencies in the Ross Project SEIS by considering only a set of quantitatively baseless environmental conclusions (that impacts will be SMALL) about an arbitrarily truncated section of a project that is simply the next step in a much larger plan for mining uranium eastern Wyoming. Thoroughly addressing the matters covered in these comments would commence the process of creating a lawful agency record, but rather than attempt to patch the holes of a leaking ship that has not even defined a destination or, in NEPA terms, the scope of the major federal action under review, we urge NRC Staff to begin anew, requiring SEI to file a new license application, and prepare a new EIS that finally addresses SEI's uranium mining project in the manner NEPA requires.

Sincerely,

A handwritten signature in black ink, appearing to read "H. Crystal", written in a cursive style.

Howard M. Crystal, for NRDC  
Geoffrey H. Fettus, for NRDC  
Shannon Anderson, for PRBRC



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**MAY 13 2013**

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U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

Re: Draft Environmental Impact Statement  
Ross In-Situ Uranium Recovery Project,  
CEQ#: 20130073

Dear Ms. Bladey:

The U.S. Environmental Protection Agency Region 8 (EPA) has reviewed the U.S. Nuclear Regulatory Commission's (NRC's) Draft Environmental Impact Statement (Draft EIS) for the proposed Ross In-Situ Leach Uranium Recovery (ISR) Project in Crook County, Wyoming. Our comments are provided for your consideration pursuant to our responsibilities and authority under Section 102(2)(C) of the National Environmental Policy Act (NEPA), 42 U.S.C. Section 4332(2)(C) and Section 309 of the Clean Air Act (CAA), 42 U.S.C. Section 7609.

**Project Background**

The issuance of an NRC license to possess and use source material for uranium milling requires an EIS. The Ross ISR Draft EIS (supplement to NRC's Generic EIS for In-Situ Leach Uranium Milling Facilities) analyzes environmental impacts associated with a proposal from Strata Energy, Inc. (Applicant) to develop the new source byproduct materials license for the proposed Ross ISR Project. The Draft EIS presents three Alternatives: (1) the Proposed Action for ISR mining and processing, (2) the No Action Alternative, and (3) a North Ross Project Alternative. For the Proposed Action, uranium would be produced over a 10 to 14 year period by using ISR methods and processed at a Central Processing Plant (CPP) which would also process uranium-loaded resins from satellite projects operated by the Applicant or from offsite water-treatment operations. The CPP is designed to process 1.4 million kilograms/year (kg/yr) of yellowcake, four times the capacity necessary for recovery of uranium from the Ross Project. The CPP also includes a vanadium recovery circuit to recover the vanadium from the uranium-depleted solutions.

**General Comments**

The NRC does a commendable job of presenting very complicated information about the ISR phases in a manner that is understandable. We offer the following comments and recommendations focused on

ground and surface water, air quality, and radiation and radon. Additionally, we have attached edits and modifications that the EPA suggests will help improve clarity and consistency in the Final EIS.

The Draft EIS relies on permitting requirements to minimize the potential impacts of the Proposed Action. To help assure that the required protection and mitigation measures are understood by the public, regulatory agencies, the Applicant and decision makers, we recommend that the Final EIS and Record of Decision (ROD) document the specific air quality and underground injection control requirements; as well required best management practices (BMPs) that are included in the permits.

Our review found apparent inconsistencies that make it difficult determine what information was used in evaluating the environmental impacts. For instance, the number of “well field areas” and total number of injection and recovery wells are described as 15- 25 and 1,400- 2000, respectively, in the executive summary and in Section 2.1.1. However, in Section 2.1.1.4, which discusses decommissioning, the total number of wells to be abandoned including all UIC Class III injection and recovery wells, monitoring wells, and the UIC Class I injection wells is listed as “between 750 and 1,000 based upon the Applicant’s estimate of 40 recovery wells per each of 15 – 20 well field modules plus monitoring wells.” The overall number of project recovery and injection wells is not clearly identified in the Draft EIS and it is therefore difficult to determine whether the associated impacts are properly identified. We recommend the Final EIS clarify this issue and confirm that the environmental impacts analyses and mitigation measures are based on the accurate project scope.

The Draft EIS states that, “The WDEQ [Wyoming Department of Environmental Quality] expressed concern regarding the proposed location of the Central Processing Plant (CPP) and the evaporation ponds along with fugitive dust and emissions,” (page 1-15, Line 42-43). The EPA recommends the Final EIS provide more information about WDEQ’s concerns and how the EIS has addressed through project design or mitigation measures.

## **Protecting Ground and Surface Waters**

Management of drilling wastes: The Draft EIS discusses using unlined mud pits near each well for disposal of drilling fluids. Given the relatively shallow ground water at the project location and the potential for contaminants to leach into the ground water, we recommend that more protective waste management options for the drilling waste be considered. For instance, other recent potential uranium ISR projects have proposed using 6,000 gallon storage tanks and reuse of fluids for drilling.

Additionally, the Draft EIS mentions that “technologically enhanced naturally occurring radioactive material (TENORM) wastes would be generated during well drilling and these wastes would be managed onsite.” The Draft EIS further states that the “TENORM water [from drilling] is discharged under a temporary WYPDES Permit.” Although the drilling fluids and mud are handled under the permit, it is important that the Final EIS described the potential for environmental impact associated with these wastes, including the level of radioactivity and metals in the drilling fluids and mud.

Consumptive ground water use and water balance: The Draft EIS states, “Impacts from consumptive use of ground water from the ore zone would be minimized by cessation of water withdrawals by the Merit oil-field water-supply wells. The ground-water model simulated a single operational sequence of wellfield development, recovery, and aquifer restoration. Different operational approaches could be more effective in reducing impacts, and the Applicant proposes to investigate these as wellfield



installation and testing progresses,” (Page 4-36 lines 16-20). It is important that the range of impacts of consumptive groundwater use is evaluated in the Final EIS. Additionally, we recommend the Record of Decision (ROD) include a requirement that prior to operation, modeling that utilizes multiple operational well fields is completed. We also recommend the ROD document a commitment to identifying and implementing mitigation measures that prevent excursions from concurrent operation of multiple well fields.

The Draft EIS provides a good synopsis of specific project phase environmental impacts. The actual project operation will include multiple project phases occurring concurrently. Concurrent operation makes it difficult to obtain from the Draft EIS a full picture of surface and ground water environmental impacts at any one point of the project. To address this, the EPA recommends including in the Final EIS a flow diagram or table that provides a water balance for each phase/process. This information will provide a more inclusive representation of the surface and ground water uses and the related impacts and mitigating measures.

Aquifer plugging: There is discussion of the Nubeth experiment in the Draft EIS relative to “undesirable plugging of the aquifer...” There is no explanation of why the aquifer became “plugged” or what this means in terms of the project operation or environmental impacts. We recommend including in the Final EIS any lessons learned from the failure of this experiment. This information will be valuable in providing reassurance that the situation that caused the plugging of the aquifer is understood and will be avoided for the proposed Ross project.

Aquifer restoration: On page 2-34, the Draft EIS states, “Following aquifer restoration, the Applicant would monitor the ground water by quarterly sampling to demonstrate that the approved standard for each constituent has been met and that any adjacent nonexempt aquifers are unaffected.” We suggest the Final EIS include a specific plan for how the Applicant will determine whether adjacent nonexempt aquifers are protected and identify mitigation measures that would be employed to address any impacts to these aquifers.

Oshoto Reservoir water use: The environmental impacts section indicates that water may be taken from the Oshoto Reservoir for site operations and may result in groundwater table impacts due to the interaction between the reservoir and the shallow ground water. We recommend that the Final EIS provide additional information regarding the impacts to the shallow ground water and the potential for associated impacts to wetlands and springs around Lake Oshoto related to its water use and project construction. For instance, the Draft EIS mentions that the groundwater table can be impacted by the level of water in the reservoir. If the groundwater table changes due to use of the reservoir water, we recommend the Final EIS assess the potential for impacts to wetlands and springs near the reservoir.

Additionally, the EPA has learned that, during the license application period, a water rights issue has arisen with other users of appropriated water from Oshoto Reservoir. The Wyoming State Engineers Office has reported that a water rights dispute has been lodged for adjudication on behalf of an oil company needing water from Oshoto Reservoir for use in enhanced recovery with water-flooding techniques. The EPA recommends that the Final EIS reassess any changes to cumulative impacts and subsequent mitigation measures resulting from the potential water use conflict.

Shallow ground water: We agree with the Draft EIS that the containment barrier wall (CBW) surrounding three sides of the CPP, in conjunction with the lined surface impoundments and shallow

groundwater monitoring system, are important mitigation measures for protecting the shallow ground water from contamination. If the CPP is used for processing uranium resins from satellite projects as stated in the Draft EIS, the project will be extended to 14 years or more. It is important to include in the Final EIS, the estimated design life of the surface impoundments and the CBW and any additional protective measures that may be employed to assure the continued protection of shallow ground for the life of the CPP operations.

The Draft EIS also states that any seepage of spillage collected on the facility side of the CBW will be discharged to the surface impoundments. We recommend that the Final EIS include information about how any contaminated water will be collected in the French drains and moved to the impoundments without impacting the down-gradient groundwater quality or the groundwater gradients within the CBW area.

Surface impoundments: Since 40 CFR Part 61 Subpart W applies to the surface impoundments, and any other uranium byproduct impoundments at the site, the EPA recommends the Final EIS discuss the applicability of Subpart W and provide a detailed description of the surface impoundment design and size. Please note that the EPA is currently considering revisions to 40 CFR Part 61, Subpart W that may result in changes to this requirement. See <http://www.epa.gov/radiation/neshaps/subpartw/rulemaking-activity2.html> for further information.

Deep Well Injection: The Draft EIS discusses the impacts of deep well injection for the Ross project, as well as satellite, future and proposed projects. To fully understand the impacts and the capacity of the formation used for deep well injections, we recommend including an assessment of the current and potential future deep well injections by other industries, including the oil and gas industry, in the Final EIS cumulative impact evaluation.

## **Protecting Air Quality**

Emission Inventory and Impact Analysis: As stated in the Draft EIS, the phases of the project will overlap. While air impacts associated with any one phase may be small, the cumulative impacts from multiple phases that are occurring concurrently may be greater. In order for the public and decision maker to understand the full impacts in any one year, we suggest including Table 5-2 from *Air Quality Permit Application for Ross In-Situ Uranium Recovery Project* (STRATA 2011c) within the Final EIS.

Cumulative Impact Analysis: In the Draft EIS cumulative air quality impacts discussion, other ISR facilities, mining, and oil and gas facilities are included, but other industries are not. There are at least six major power plants within the 80 km (50 mile) cumulative impact analysis range. Also, the Draft EIS utilizes information from 2003 and 2005 to disclose mining, and oil and gas (including coal bed methane) development. There has been growth in oil and gas development since 2005. To assure accurate assessment of cumulative impacts, the EPA recommends that the power plants and updated oil and gas information are included the Final EIS cumulative air impacts discussion.

## **Radon and Radiation**

Radiation and radon dose: When radiological dose is discussed throughout the document in terms of dose received or dose limits, it is not clear whether radon and radon progeny are included. This



information is important to understanding the appropriate dose limit. We recommend clarifying in the Final EIS whether radon is included and the comparable dose limits that apply.

Ground and surface water radiation exposures: The Draft EIS indicates on page 3-108 (lines 23-27) that ground water sample analytical results for radionuclides are at or below the respective detection limit or maximum contaminant limits (MCLs). This seems to contradict what is presented in Table 3.21 for uranium and gross alpha in the ore zone, the piezometers in the SA zone, and gross alpha radionuclides in the DM zone. The results for these samples show that some sample concentrations are above the MCLs that are presented on page 3-98. We recommend the Final EIS provide clarification regarding the current conditions of ground water so any potential impacts to them can be understood by the public and decision maker.

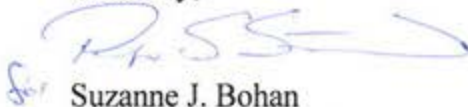
Radon: The Draft EIS references a document containing information on the estimated radon released from the facility, but the estimate is not included in the Draft EIS. So that the public and decision makers can clearly understand whether there is a potential radon impact to public health, we recommend the Final EIS include this radon release estimation.

### **The EPA's Rating and Recommendations**

Consistent with Section 309 of the CAA, it is the EPA's responsibility to provide an independent review and evaluation of the potential environmental impacts of this project. Based on the procedures the EPA uses to evaluate the adequacy of the information and the potential environmental impacts of the proposed action, the EPA is rating this Draft EIS as Environmental Concerns- Insufficient Information (EC-2). The "EC" rating indicates that the EPA review has identified environmental impacts that need to be avoided in order to fully protect the environment. The "2" rating indicates that the EPA review has identified a need for additional information, data, analysis or discussion in the Final EIS in order for the EPA to fully assess environmental impacts from the project. Specifically, the EPA has requested additional information regarding the Ross Proposed Action and its potential for impacts to water and air quality in order to assure adequate protection of these resources. A full description of the EPA's rating system is enclosed.

We hope that our comments will assist you in clarifying and further reducing environmental impacts of this project. We appreciate the opportunity to review and comment on the Draft EIS. If we may provide further explanation of our comments, please contact me at 303-312-6925, or Lisa Lloyd, at 303-312-6537.

Sincerely,



Suzanne J. Bohan  
Director, NEPA Compliance and Review Program  
Office of Ecosystems Protection and Remediation

Attachment: Minor Comments

Enclosure: EPA's Rating System Criteria







**EPA Minor Comments on  
Draft Environmental Impact Statement (EIS)  
for the Ross ISR Project in Crook County, Wyoming**

The EPA offers the following minor edits and modifications to help enhance information presentation and consistency in the Final EIS. We hope that you find these suggestions useful when preparing the Final EIS.

Injection rates and volumes: Our official comment letter mentioned explaining inconsistencies relating to potential impacts and mitigation measures. Presenting a clear understanding of the amount of material to be disposed by underground injection is one such area where clarification would be useful.

Beginning on page 2-40, flow rates for reverse osmosis treatment brine and other byproduct fluid wastes are provided for each major project phase: initial production-only (235 L/min = 62 gpm), concurrent production-restoration (859 L/min = 227 gpm), and final restoration-only (719 L/min = 190 gpm). Disposal well permits have been issued for up to five wells with no more than 75 gpm injection each, [227/75 = 3 wells needed; 2 additional wells were permitted in case the individual well injection rate is limited by the maximum injection pressure]. Waste fluid for deep-well injection during the decommissioning phase is reported to be far less (page 4-22, Section 4.4.1.4, 38 L/min = 10 gpm). Later in the Draft EIS on page 4-40, Section 4.5.1.3, the waste fluids disposal estimate is incorrectly restated as 860 L/day = 227 gal/day. The inconsistency leads to confusion for the reader.

EPA appreciates the information presented in Page 4-100, Table 4-9, "Ross Project Waste Streams." Nevertheless, the metric conversion (0.9 cubic meters/min rounded up from 8.6) becomes another opportunity for uncertainty for the reader if not clarified in a footnote. On Page 4-103, Section 4.14.1.2, another estimate for deep-well disposal (240 L/min = 62 gpm) is reported for the operational phase which can be confusing with the numbers appearing on Page 2-40 if not more thoroughly explained. Finally, on Page 4-105, Section 4.14.1.3, a different estimate is made for the fluid byproduct waste generation total during the restoration phase (740 L/min = 190 gpm) and cites evaporative loss from the surface impoundments as a reduction in the net flow rate reporting to deep injection disposal. EPA recommends that much of this confusion could be resolved by modifying Table 4-9 to show the net site water balance during each project phase: construction, early or initial production prior to restoration, concurrent production with restoration, late or final restoration prior to decommissioning, and decommissioning.

Pg. xix: "The ore zone is that portion of the aquifer that has been permanently exempted by the U.S. Environmental Protection Agency (EPA) from requirements as an underground source of drinking water under the Safe Drinking Water Act." The area that is exempted does not define the ore zone. We suggest, "For injection activities to take place, the mine area must be included in a portion of ..."

Page 1-11, Table 1.2: "Aquifer Exemption **Permit** for Class I Injection Wells (40 CFR 144, 146)," should be "Aquifer Exemption **Approval** for Class I Injection Wells." (Emphasis added for clarity of suggested change.) Also, under the status, we suggest adding that the EPA plays a role in the Aquifer Exemption Approval for Class III Injection Wells.

Page 2-21, lines 7-11: A “line-drive” well pattern option is mentioned. We recommend explaining how the line-drive well pattern is designed and why aquifer restoration efforts using this pattern will enhance mitigation measures.

Page 2-25 text box: “Usable aquifer” has no definitive meaning in the Underground Injection Control (UIC) program. The recommended language for UIC Class 1 wells is: “Wells in this Class are used for the deep disposal of industrial, commercial, or municipal waste below the deepest Underground Source of Drinking Water (USDW).”

Page 2-32, Lines 2-3: “Off-gas from the precipitation tanks and dryer would be filtered to remove particulates and directed to a wet scrubber to capture ammonia for reuse.” Line 12-13 of the same page indicates that a performance-monitoring station would be located at the CPP’s exhaust fan’s point of discharge at the roof. To provide a clearer picture of the mitigation efforts, it would be help for the Final EIS to explain: 1) what emission points will have particulate control and wet scrubbing; 2) at what control efficiencies; 3) what contaminants will be captured; and 4) what exhaust streams will be monitored. A more detailed discussion of emission points and their control technology is included in Section 4 of *Air Quality Permit Application for Ross In-Situ Uranium Recovery Project*, (STRATA 2011c). EPA recommends including this information in the Final EIS as it helps increase understanding of air quality mitigation measures.

Page 2-32, Table 2.2: The “Typical” pH standard unit is identified as 8, the “Minimum” as 6, and the “Maximum” as 6.5. Suggest that there is an error here and the “Maximum” is probably 8.

Page 3-2, Figure 3.1: We recommend adding the Land Use Categories to the map legend.

Page 3-4, Line 39 and page 3-7, Figure 3.4: The scale of the maps provided does not allow the reader to follow the directions listed on page 3-4. Also, the EIS states that to reach the project a vehicle would travel south on US 14/16, however, from the provided map it appears that project is reached by traveling north from I-90. We suggest a map with appropriate scale necessary to depict the project location and road access is included in the final EIS.

Page 3-23, lines 7-8. The Wyoming Water Development Commission publishes a Northeastern Wyoming water plan report that shows the Oshoto maximum capacity to be 339 acre-feet. The information disclosed on the maximum capacity of the Oshoto Reservoir appears to be the current annual water rights appropriation and not the maximum capacity as stated.

Page 3-45, Section 3.5.3: EPA commends the NRC for disclosing English equivalents in addition to SI (modern metric) engineering units. We recommend rechecking all such conversions as there are errors in engineering unit conversion in the Draft EIS. One example is: 1.9 L/s = 30 gal/s.; this one should be 1.9 L/s = 30 gal/min.

Page 3-71: We note two typographical errors in lines 31 and 32. The annual PM<sub>2.5</sub> NAAQS is listed as being 15 µg/m<sup>3</sup>. The current standard is 12 µg/m<sup>3</sup>, which is referenced correctly Table 3.17. Secondly, the 24-hour PM<sub>2.5</sub> standard is listed as being 5 µg/m<sup>3</sup>, but should be listed as 35 µg/m<sup>3</sup>. Also on this page, the text states that, “Existing regional pollutants are known to include gaseous emissions, such as NO<sub>2</sub> and O<sub>3</sub>...” For completeness, we recommend this list include PM<sub>10</sub>, PM<sub>2.5</sub>, CO, NO<sub>x</sub> (more generally), SO<sub>2</sub>, VOC, HAPs, CO<sub>2</sub>, and CH<sub>4</sub>.

Page 3-72, Line 9: “nitrous oxides” should be nitrogen oxides.



Page 3-109, line 39: Part 192 does not regulate TENORM, but regulates uranium byproduct material, defined in 40 CFR § 193.31(b). We recommend modifying the text to reflect this subtle but important difference.

Table 4-9 and page 4-103, lines 33-35: The table provides a very important summary of disposal methods and quantities. In order for the table to provide a complete picture of disposal, it would be valuable if it also included discharge to surface impoundments (for the excess permeate generated during the first two years as is stated in the text).

Page 6-3, Table 6.1: The project operational environmental monitoring program summarized in Table 6.1 would be more informative if it included not only the location, analyte, sampling frequency, and number of sample locations, but also the expected range of values based upon the Pre-licensing baseline water-quality data described in Chapter 3. For GW monitoring wells, radionuclide analysis for uranium (diss), Ra226, Th230, Pb210, Po210, gross alpha, gross beta, is proposed. Including an adaptive management approach for responding to unanticipated water-quality monitoring results that are outside the range of expected values in the environmental monitoring plan would be valuable additional mitigation measure.

Page 6-6, Section 6.2.4: This section discusses proposed groundwater quality monitoring wells. The EPA recommends including a map that clearly depicts the locations. Such a map is a valuable way of displaying the information discussed in the text.

Page 6-8, Section 6.3.2.1: It is believed that SRP should be cited as SPR or "Standards for Protection against Radiation", 10 CFR 20.

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  
)  
(Ross In Situ Recovery Uranium Project) )  
(Materials License Application)

**SECOND DECLARATION OF CHRISTOPHER E. PAINE IN SUPPORT OF THE  
NATURAL RESOURCES DEFENSE COUNCIL & POWDER RIVER BASIN  
RESOURCE COUNCIL’S JOINT MOTION TO MIGRATE OR AMEND  
CONTENTIONS, AND TO ADMIT NEW CONTENTIONS IN RESPONSE TO THE  
FINAL SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT**

I, Christopher Paine, declare that the following statements are true and correct to the best of my knowledge.

1. My qualifications and experience relevant to this proceeding are given in the first paragraph of my First Declaration, dated May 6, 2013, which was submitted in support of Intervenors’ Contentions raised against the Draft Supplemental Environmental Impact Statement (DSEIS) to NRC’s Generic Environmental Impact Statement (GEIS) for In-Situ Leach (ISL) Uranium Mining Facilities.
2. The purpose of this second declaration is to: (1) Substantiate the bases for a new contention that the Staff’s preparation of a “Final Supplemental EIS” on Strata Energy Inc.’s license request was part of a systemic NEPA compliance deficiency in the agency’s Office of Federal and State Materials and Environmental Management Programs (FSME), originating at least in part from the Commission itself having engaged in an

impermissible modification of its rules, absent public notice and comment rulemaking, when it directed staff to prepare site-specific EIS's on ISL licensing requests as a continuing series of "supplements" to the GEIS; and (2) Review the FSEIS and problems identified by Intervenor's contentions, including the NRC's deficient environmental impacts analysis of cumulative impacts and connected actions, including future mining projects in the Lance District connected to the Ross Project.

**Part I: The NRC Employed a Deficient Scoping Process to Define the Scope of Required Site-Specific Analysis for the "Ross Project" License Application, and this Deficiency is Reflected in the Scope of the NRC's Final SEIS for the project.**

3. This second declaration substantiates the bases for a new contention that the Staff's preparation of a "Final Supplemental EIS" on Strata Energy Inc.'s license request was part of a systemic NEPA compliance deficiency in the agency's Office of Federal and State Materials and Environmental Management Programs (FSME), originating at least in part from the Commission itself having earlier engaged in an impermissible modification of its rules, absent public notice and comment rulemaking, when it directed staff to prepare site-specific EISs on ISL licensing requests as a continuing series of "supplements" to the GEIS.
4. The "FSEIS" is really a site-specific "FEIS" tiered from the GEIS that impermissibly seeks to "supplement" the latter. It was prepared by NRC staff based on the Applicant's Environmental Report (ER) to support the grant of a Source and Byproduct Material License (SML) to Strata Energy Inc., a wholly-owned U.S. subsidiary of Peninsula Energy Limited, Australia. It was also prepared based on Strata's responses to the NRC's Requests for Additional Information (RAIs).

5. The GEIS was issued almost five years ago, in May 2009; yet it purports to contain valid conclusions regarding the environmental impacts of a typical ISL mining facility located in four specified uranium mining regions in the Western United States. One of these is the Nebraska-South Dakota-Wyoming Uranium Milling Region, which in turn contains the “Lance Uranium Mining District” in northeastern Wyoming, for which Strata, and its parent company, Peninsula Energy Ltd., has announced a detailed, step-by-step plan and intention to mine in its entirety over the next 14 to 70 years.<sup>1</sup>
6. Some evidence for the existence of this detailed plan and intent was initially set forth in considerable detail almost a year ago in my First Declaration (Paine Decl. 1 or “PD1”). My declaration laid out information explaining that the components of the Applicant’s expanded mining plan are necessarily “interdependent,” and that the “Ross Project” alone lacks a sufficient economic rationale and thus the “independent utility” that courts have used to delineate the proper scope of a Proposed Action for NEPA analysis. This second declaration contains significant new information as well as a condensed version of continuing and relevant information from PD1, with references to the numbered paragraphs where it may be found in PD1.
7. In Contention 6, Intervenor’s allege NRC has failed to properly define—for the purpose of timely NEPA analysis that by law must *inform* Commission licensing decisions rather than justify them *ex post facto* —the full scope of the Applicant’s proposed uranium mining activities.

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<sup>1</sup> As discussed, *infra*, the company has already committed substantial financial resources to implementing its mining plans and is carrying out construction activities in advance of an agency Record of Decision for this FEIS.



8. By virtue of their intrinsic physical, technological, economic, geographic, and temporal connections to the *administratively* discrete “Ross Project” proposed for licensing, these wider uranium mining activities would be sufficiently enabled by the grant of the initial project license as to require their consideration in a single environmental impact statement.
9. The NRC staff’s failure to properly define the scope of the EIS that is the subject of this proceeding is surprising, considering the Commission’s own Inspector General has recently documented a pattern and practice of failing to comply with NEPA’s scoping requirements within the NRC’s Office of Federal and State Materials and Environmental Management Programs (FSME), the very office responsible for licensing uranium In-Situ-Leach (ISL) mining facilities and regulating mined aquifer restoration and ISL facility decommissioning. NRC Office of Inspector General, *Audit of NRC’s Compliance With 10 CFR Part 51 Relative to Environmental Impact Statements*, OIG-13-A-20, August 20, 2013, at 20-26 (hereafter “OIG-13-A-20” or “OIG Audit”). I have fully reviewed this report and believe it is highly relevant to these proceedings. My review of the implication of this report for this proceeding follows.
10. OIG-13-A-20 includes a Table (reproduced below at ¶ 21) showing a systematic evasion of NEPA scoping requirements for site-specific uranium ISL environmental impact statements prepared by FSME that “tier” off a broader “programmatic” statement assessing the scope and impact of environmental effects that are common to implementing the Commission’s program for licensing ISL activity at multiple sites. The Ross Project EIS is one of these documents.

11. NRC calls such a broad programmatic statement a “Generic EIS” or “GEIS,” because environmental impacts considered to be widely applicable are analyzed in generic fashion, and any generic agency “determinations” made regarding these impacts (e.g. classifying them as “Small,” “Moderate,” or “Large”) may be referenced in future site-specific EIS’s that tier off the generic document, thereby contributing to the efficiency of the agency’s NEPA process.
12. According to the OIG Audit, FSME’s error in implementing tiering from the NRC’s 2009 GEIS on uranium in-situ leach facilities is that it repeatedly miscasts the site-specific EIS (required to support licensing of individual ISL facilities) as a “Supplement” to the GEIS, rather than as a discrete “Site-Specific EIS,” *tiered from* the GEIS, which may reference, where applicable, its generic findings and supporting analysis, but does not “supplement” it. By rule, such a tiered site-specific EIS—which by definition *focuses on narrow site-specific issues* – is not intended to and cannot perform the functions of a NEPA document designed to “supplement” – and thereby alter or amend—the generic findings of a broad programmatic statement such as the GEIS.
13. More pertinent to the instant matter, a “supplement” to an EIS—whether or not the base document is “site-specific,” “programmatic,” or “generic”—is required if: “*the proposed action has not been taken*” and “*there are substantial changes in the proposed action that are relevant to environmental concerns,*” or “*new and significant circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.*” See NRC rule on NEPA supplementation (10 C.F.R. § 51.92).
14. The GEIS states the “Proposed Action” analyzed therein “is to grant an application to obtain, renew, or amend a source material license for an ISL facility.” Final GEIS 2009 at

xxxvi. Based in significant part on the generic environmental determinations contained in the Final GEIS, the Commission proceeded to license three ISL facility operations in Wyoming in 2010 and 2011 (Nichols Ranch, Moore Ranch, and Lost Creek), and it did so without amending, via a legitimate “Supplement” to the GEIS, any of the generic environmental impact determinations that the Staff invoked in these subsequent site-specific documents.

15. If the Commission believes it must “supplement” the GEIS, because it has uncovered “new and significant circumstances or information” that could alter that document’s generic environmental conclusions, or because it desires to effect “substantial changes in the proposed action” that was the original object of generic environmental analysis (for example, use of a new uranium mining technology not previously considered) then it must do so prior to undertaking further site-specific “tiered” NEPA analyses that would cite this “Supplemented GEIS” in support of further site-specific licensing actions.
16. The NRC Staff does not state, in the present so called Final “Supplement” to the GEIS for the “Ross ISR Project,” that it has uncovered any “new or significant circumstances or information” or “*substantial changes* in the proposed action” that would require withdrawing or substantially amending any of the generic environmental findings contained in the GEIS prior to licensing the Ross ISR Project. So in NEPA terms, the “Environmental Impact Statement for the Ross ISR Project in Crook County, Wyoming” is not a “Supplement” to the GEIS that amends its generic conclusions. On the contrary, the FSME Staff continues to place substantial reliance on the original GEIS findings in reaching the conclusion that it has conducted a full and adequate analysis of the environmental impacts from granting an SML license for the Applicant’s proposed

“Lance District ISL Central Processing Plant” and the “Ross Area” initial wellfields required to feed it in the short term.

17. The fact that the Ross Project EIS is, in legal terms, a discrete site-specific EIS tiered from the GEIS, and not a “Supplement” to it, is also readily apparent from the statement of the Commission’s original purpose and need in preparing the GEIS: “Recognizing that the technology for ISL uranium milling is relatively standardized, that the applications may be submitted over a relatively short period of time, and that the potential ISL facilities would be located in relatively discrete regions in the western United States, NRC decided to prepare a GEIS to *avoid unnecessary duplicative efforts* and to identify *environmental issues of concern to focus on in site-specific environmental reviews*. In this way, NRC could increase *the efficiency and consistency in its site-specific environmental review* of license applications for ISL facilities and so provide an option for applicants to use and licensees to continue to use the ISL process for uranium recovery” (GEIS at xxxv, emphasis added).
18. “In reviewing an ISL license application, *NRC will use the GEIS as a starting point for its site-specific environmental reviews*. NRC will evaluate site-specific data and information to determine whether the applicant’s proposed activities and the site characteristics are consistent with those evaluated in the GEIS. NRC will then determine *which sections of the GEIS can be incorporated by reference* and *which impact conclusions can be adopted in the site-specific environmental review*, and whether *additional data or analysis is needed to determine the environmental impacts to a specific resource area....*No decision on whether to license an ISL facility will be made based on the GEIS alone. The licensing decision will be based, in part, on *a site-specific*

*environmental analysis that makes use of the GEIS.*” GEIS at xxxvi, emphasis added. As the italicized portions of this statement make clear, it is the GEIS, consistent with NEPA’s tiering and incorporation by reference requirements, that may be used to inform subsequent site-specific environmental reviews, and not these reviews that inform or “supplement” the GEIS.

19. The fact that the Commission further “directed the NRC staff to issue site-specific supplements to the GEIS for each new license application” (GEIS at xxxvi) represents an *impermissible amendment to the Commission’s own NEPA rules*, which do not permit this form of continuing open-ended “supplementation” of a programmatic document, or indeed any supplementation absent the presence of new and significant information or programmatic changes that would alter its broad environmental conclusions.
20. The OIG Audit, which appeared after publication of the DSEIS in March, 2013 and after the submission deadlines for contentions and comments on it, documents the practical consequences of this impermissible *de facto* amendment of the Commission’s rules. Without first engaging in public notice and comment rulemaking, the FSME staff has consistently misapplied NRC regulations governing public scoping for in-situ uranium recovery EISs that tier off of a generic EIS. “[W]hen NRC prepares site-specific EISs for applications for new in-situ uranium recovery operations, the agency does not seek broad public comment and specifically does not open a formal scoping period. Notices of Intent to prepare EISs were published for six applications received since publication of the generic EIS for in-situ uranium recovery...Final EISs have been published for three in-situ uranium recovery projects, and the draft EISs have been published for two in-situ

recovery projects. Table 5 summarizes the information regarding early public input as described in the six published Notices of Intent.” OIG-13-A-20, p.21.

21. Table 5 from the OIG’s August 2013 Audit Report on NRC’s NEPA compliance (pg. 22) documents a pattern and practice of noncompliance by the NRC’s FSME Office with NEPA’s public scoping requirements as adopted in NRC’s own 10 CFR Part 51 regulations. Note the deficient scoping process for the “Ross” tiered EIS is the most recent example of such noncompliance entered in this table.

**Table 5: Notices of Intent to Prepare EISs for New In-Situ Uranium Recovery Applications**

Notices of Intent for New In-Situ Uranium Recovery Applications			
Facility	Date Published	Information Provided by NRC	Actions Omitted
<b>Nichols Ranch (complete)</b>	August 5, 2009	NRC staff met with Federal, State, and local government agencies and public organizations in January 2009 as part of a site visit to gather site-specific information. Staff also “contacted potentially interested tribes and local public interest groups via email and telephone.”	<ul style="list-style-type: none"> <li>• No formal scoping process opened.</li> <li>• No invitation for broad public comment.</li> </ul>
<b>Antelope-Jab (on hold)</b>	August 14, 2009	NRC staff planned to place ads in newspapers requesting information and comments from the public regarding the proposed action; also planned to “meet with and gather information from” local agencies and public interest groups during a visit to the proposed site. “No public scoping meetings” would be held.	<ul style="list-style-type: none"> <li>• No formal scoping process opened.</li> <li>• No invitation for broad public comment.</li> </ul>
<b>Moore Ranch (complete)</b>	August 21, 2009	NRC staff met with Federal, State, and local government agencies and public organizations in January 2009 as part of a site visit to gather site-specific information. Staff also “contacted potentially interested tribes and local public interest groups via email and telephone.”	<ul style="list-style-type: none"> <li>• No formal scoping process opened.</li> <li>• No invitation for broad public comment.</li> </ul>
<b>Lost Creek (complete)</b>	September 3, 2009	NRC staff met with Federal, State, and local government agencies and public organizations in January 2009 as part of a site visit to gather site-specific information. Staff also “contacted potentially interested tribes and local public interest groups via email and telephone.”	<ul style="list-style-type: none"> <li>• No formal scoping process opened.</li> <li>• No invitation for broad public comment.</li> </ul>
<b>Dewey-Burdock (draft)</b>	January 20, 2010	NRC staff planned to place ads in newspapers requesting information and comments from the public regarding the proposed action. Also staff were “consulting” with various Federal and State agencies, tribal entities, and potentially interested public interest groups.	<ul style="list-style-type: none"> <li>• No formal scoping process opened.</li> <li>• No invitation for broad public comment.</li> </ul>
<b>Ross (draft)</b>	November 16, 2011	NRC staff planned to place ads in newspapers requesting information and comments from the public regarding the proposed action. Also “met with and gathered information from” local agencies and public interest groups during a visit to the proposed site.	<ul style="list-style-type: none"> <li>• No formal scoping process opened.</li> <li>• No invitation for broad public comment.</li> </ul>

Source: OIG analysis of NRC Notices of Intent

22. The OIG report correctly explains that “tiering and use of a supplement are not the same.” The OIG explained at length:

Both NRC and the Council on Environmental Quality regulations for implementing NEPA distinguish the concepts of tiering and supplementation. The

agency asserts that OIG believes that the finality of the generic EIS precludes supplementation, a misstatement of OIG's argument that demonstrates the conflation of two distinct concepts. It is not the generic EIS's finality that precludes supplementation. Rather, it is its generic nature that precludes supplementation as the agency interprets a "supplement" to the generic EIS. The purpose of supplementation is to update the understanding of environmental impacts. The generic EIS analyzed in-situ uranium recovery in four broad geographic regions. The tiered site-specific EISs do not update the generic EIS analysis. Therefore, the subsequent site-specific EISs cannot be "supplements" to the generic EIS. A supplemental analysis supports the original analysis in a site-specific EIS. In tiering, the generic EIS supports the site-specific analysis that takes place once a specific application is received by the agency. The supplemental EIS reviews only the impacts of the new information or change to the proposed action. The tiered EIS must review all the impacts of the proposed action for a specific site, drawing on and incorporating by reference relevant portions of the generic EIS. The agency also asserts that the Council on Environmental Quality definition of tiering characterizes the tiered site-specific EIS as a supplement. The full text of the definition of the term tiering reads:

'Tiering is appropriate when the sequence of statements or analyses is: (a) From a program, plan, or policy environmental impact statement to a program, plan, or policy statement or analysis of lesser scope or to a site-specific statement or analysis. (b) From an environmental impact statement on **a specific action at an early stage** (such as need and site selection) **to a supplement** (which is preferred) **or a subsequent statement or analysis at a later stage** (such as environmental mitigation). Tiering in such cases is appropriate when it helps the lead agency to focus on the issues which are ripe for decision and exclude from consideration issues already decided or not yet ripe. **[emphasis in original]**'

The use of supplement in this definition is limited. An example from NRC practice is the preparation of a supplemental EIS for a combined license for a power reactor, when a final EIS has been prepared and published for an early site permit. The early and late stages are considering the same specific site. *By contrast, the generic EIS for in-situ uranium recovery includes no discussion of matters at an early stage of a particular site. Therefore, the site-specific EIS for an in-situ uranium recovery application cannot be considered a "supplement" using the Council on Environmental Quality definition of tiering.*

OIG-13-A-20 at 48 (emphasis in italics added).

## **Part II: New & Consolidated Information that Meets the Stated Criteria for Determining the FSEIS Fails to Consider the True Scope of the Applicant's Proposed Action**



23. As previously discussed in detail in my First Declaration submitted in support of Petitioners Contention 6 against the DSEIS, the Applicant plans to mine the Lance District far beyond the boundaries of the pending “Ross Project” SML – i.e. the “Proposed Action” in this FSEIS. The proposed Lance District ISL mines are technically and economically integrated, geographically contiguous, and mutually interdependent in a manner that deprives the Ross Project of separable “independent utility” as a standalone project for NEPA analysis. This part of my declaration supports Contention 5 of this filing.
24. Prior and contemporaneous disclosures to investors by Strata’s corporate parent in Australia, Peninsula Energy Ltd., which I first discovered via an Internet search in March 2013, have explained and continue to explain the full scope of the Applicant’s plans to fully exploit the uranium resources of the Lance District, far beyond the geographic boundaries, facility capacities, and investment costs required to extract and process the uranium resource of the “Ross Project” alone.
25. Since the closure of the public comment period on the DSEIS, these disclosures regarding the Applicant’s proposed mining activities have continued, and this environmentally significant information is not reflected in the scope of the Proposed Action subjected to detailed environmental consideration in the FSEIS.
26. On 24 May 2013, Peninsula Energy Limited provided a “Lance Project Development Update” [<http://www.pel.net.au/images/peninsul---ahbue.pdf>] stating, under the heading “Pre-Production Drilling Program,” “Twelve monitoring well clusters, comprising a total of 47 holes, have been completed in the Kendrick area and will be used for base line studies of the regional water quality.” The Executive Summary of the FSEIS says

the Kendrick area is outside the scope of the Proposed Action. FSEIS at xviii. Yet, information available on the Internet shows that it is part of the Lance District and is currently in a “pre-production drilling program.”

27. As shown in “Figure 1: Lance Projects Pre-Production Drilling Location” on the next page, the Kendrick “Amendment” Area (in light blue) surrounds the Ross “Permit” Area (green border) on three sides and dwarfs it in size, but it is not included within the scope of the FSEIS “Proposed Action.” (Source of figure is the same release cited in 26 above)

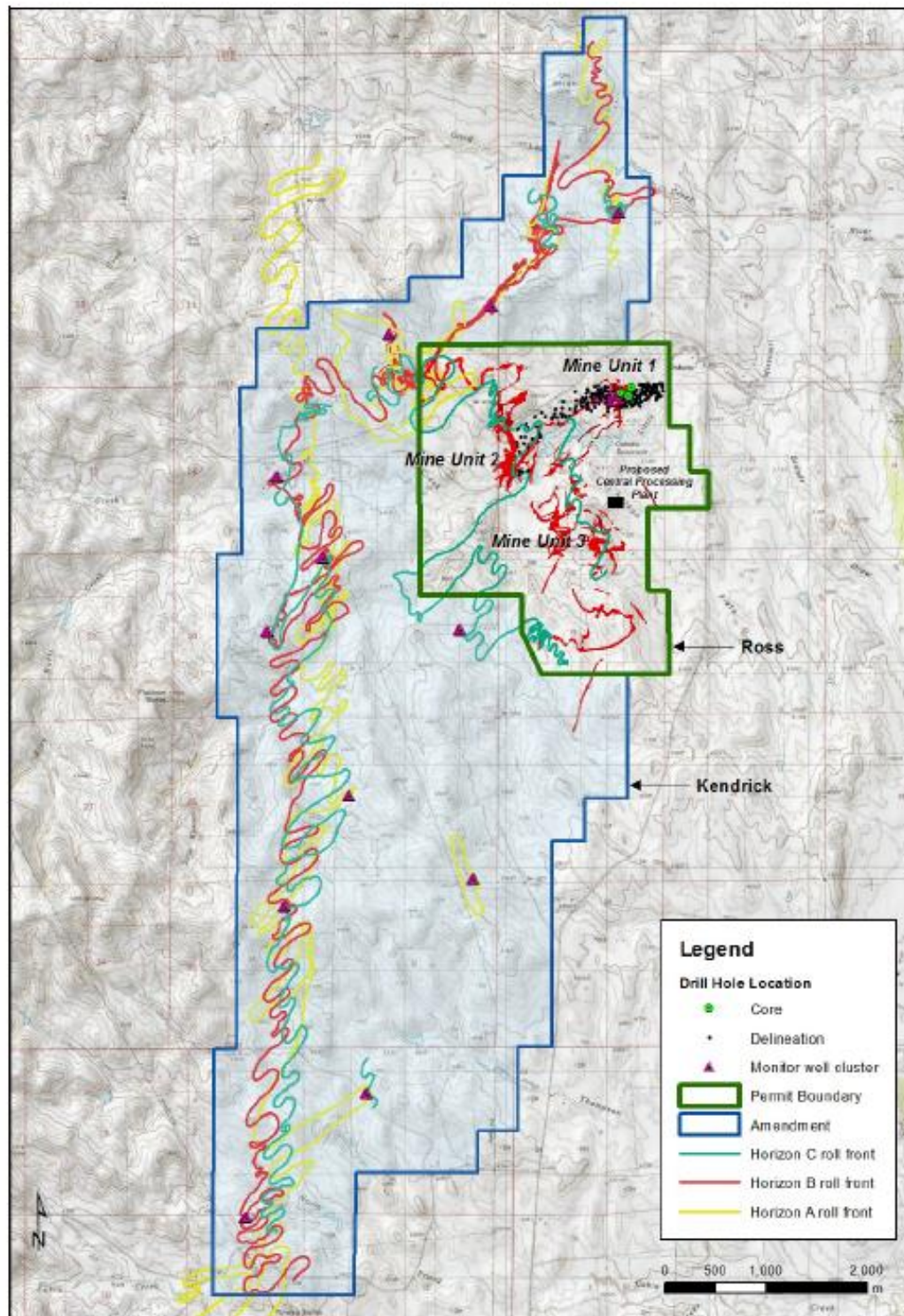


Figure 1: Lance Projects Pre-Production Drilling Location

29. In an August 7, 2013 “Company Presentation to Diggers and Dealers Conference: ASX’s Next uranium Producer,” [<http://www.pel.net.au/images/peninsul---aiwohxiyae.pdf>]

Peninsula Energy Limited gave the following schedule for its planned “Capital Expenditures by Production Phase,” showing a planned build-out of two additional “production units” within 30 months of completing the “Ross Production Unit.” The same presentation noted on another slide that the “Lance Development Model” is a “3 stage development ramping up over 4 years” that is “building a 2.2mlbs per year ISR operation, inclusive of: [an] ion exchange facility; centralized resin stripping, drying, and packaging plant at Ross (CPP); Remote ion exchange facility at Barber trucking resin to CPP.”

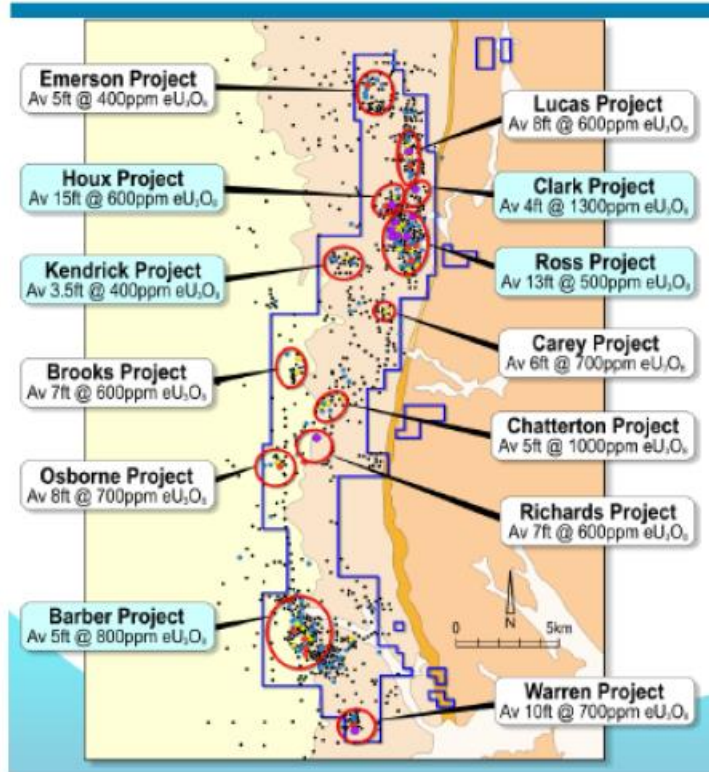
Capex by Product. Phase	US\$
Phase 1: months 1- 18 Ross Production Unit <b>750klbs pa</b>	69m
Phase 2: months 18 - 36 Kendrick Production Unit (750klbs additional) <b>1500klbs pa</b>	29m
Phase 3: months 24 - 48 Barber Production Unit (750klbs additional) <b>2200klbs pa</b>	32m

**ROBUST ECONOMICS**

30. On September 9, 2013, Peninsula Energy disclosed that it had revised its financial projections [<http://www.pel.net.au/images/peninsul---tahshoufaa.pdf>], stating that recent “metallurgical test work” had allowed it to “optimize the lixiviant solution that is to be cycled through the injection wells....enable[ing] a faster rate of mineral extraction from the ore body, decreasing the overall life of mine by 4 years whilst maintaining life of mine production at over 28 mlbs.” This development “enables the project to achieve a steady-state production rate of 2.3 mlbs per annum from *two production units concurrently*, as opposed to three previously, and allows the *inclusion of the Barber Production Unit to be deferred until 2020* when the Ross Production Unit commences its stage of natural decline, deferring significant capital expenditure at the Barber Production Unit (emphasis added).” “Wellfield Optimisation Study Further Improves Lance Economics,” at 2.
31. Peninsula further disclosed that this “wellfield optimization” would increase the production capacity of the Ross Production Unit from 750 thousand pounds per annum to 1.25 *million* pounds per annum, and would be followed “by the inclusion of the Kendrick Production Unit, ramping up over several years to 2.3 mlbs per annum steady state production.” *Id.* at 1.
32. The FSEIS does not include an analysis of the environmental impacts of changes in lixiviant chemistry that could lead to such a dramatic *67% increase in the rate of mineral extraction* above what was assumed for the Ross Project impact analysis, much less the effects of its wider application to the much larger subsurface areas represented by the

Kendrick and Barber Production Units, and subsequent production areas of the Lance District. (For the latter, see PD1 at 53.)

Detail from the March 21 Peninsula Presentation to the “2013 Mines and Money Conference”



33.

On March 27, 2014, Peninsula Energy Limited gave a presentation to the “Mines and Money” Conference in Hong Kong stating that the company is “constructing a 2.3 mlbs per annum ISR operation in 2 stages” with an “initial mine life [of] 22 years and a “potential 70+ years of mine life.” [<http://www.pel.net.au/images/peninsul---aingoequei.pdf>] (See Peninsula slide next page).

34.

The Ross Project FSEIS contains no similar bounding estimate of “mine life,” and includes conflicting, vague and unsubstantiated estimates for the life of the “Ross Project’s CPP,” ranging from 4.5 years (Fig. 2.6 bar chart “operation” line for Ross Project) to “approximately 14 years from the time that all regulatory approvals are in



place” (Fig. 2.6 footnote) to “14 years or more.” FSEIS at 2-8.

## Lance Project Overview



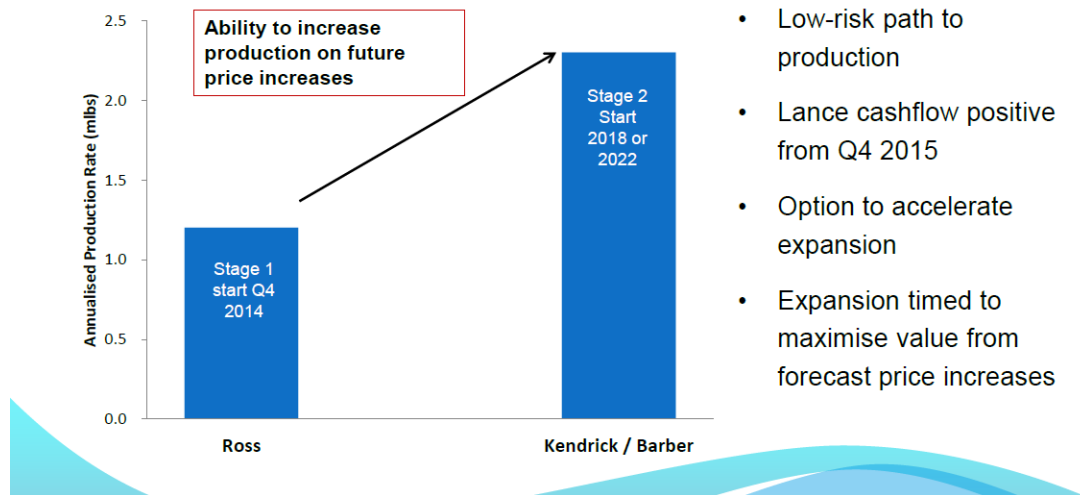
- Located in strong uranium mining jurisdiction
- Proven ISR technology:
  - ISR produced 45% of the world's uranium 2012
  - 4 ISR plants already operating in Wyoming & 2 more under construction
- Constructing a 2.3mlbs per annum ISR operation in 2 stages:
  - Short construction period of ~12 months
  - Ramp up to 2.3mlbs per annum
  - Permitting almost complete –all conditions have been satisfied
  - Awaiting final environmental permit
  - Indicated grant of permit in Q1 2014
- Targeting first production Q4 2014
- Initial mine life 22 years
- Low capital intensity compared to uranium peers
- Low cost production – total operating costs of US\$/lb \$30.65
- Exploration Target of 158-217mlbs U3O8 (169-196mt at 426-530ppm U3O8) inclusive of 54mlbs JORC (2012) Code compliant resource
- Potential 70+ years mine life

35. Peninsula’s planned mine life of 22 to 70+ years also calls into question the comprehensiveness of the “cumulative impacts analysis” in the FSEIS. “As discussed in SEIS Section 5.3.2, the timeframe evaluated in the cumulative impacts analysis is 14 years, to the year 2027.” FSEIS at 5-46. This data suggests the timeframe for the cumulative impacts analysis *falls short by 8 to 56 years*, and probably longer, given the extended post-production periods required for (only partially effective) aquifer restoration and groundwater recharge.
36. Note in this next viewgraph from the aforementioned March 2014 “Mines and Money Presentation” that “Stage 2” annual production from the Kendrick and Barber Units excluded from the FSEIS “Proposed Action” is expected to be almost twice that of the Ross unit that currently comprises the Proposed Action, and yet this big “ramp-up,” which could occur within a mere 4 years of the Applicant receiving its “Ross Project”



license, is not subjected to detailed environmental consideration as part of the Proposed Action in the FEIS.

## Two Stage Production Ramp-up



37.

38. The following slide from the same presentation gives a good idea of the Applicant's proposed sequence and timing of *three* "production units" to get to sustained 2.3 mlbs per annum by 2017-18 and then maintain that level of production by phasing in the Barber Production Unit in 2021-22 as the Ross Production Unit becomes depleted.

## Lance Capex Requirements

### Low capital intensity and staged capex requirements

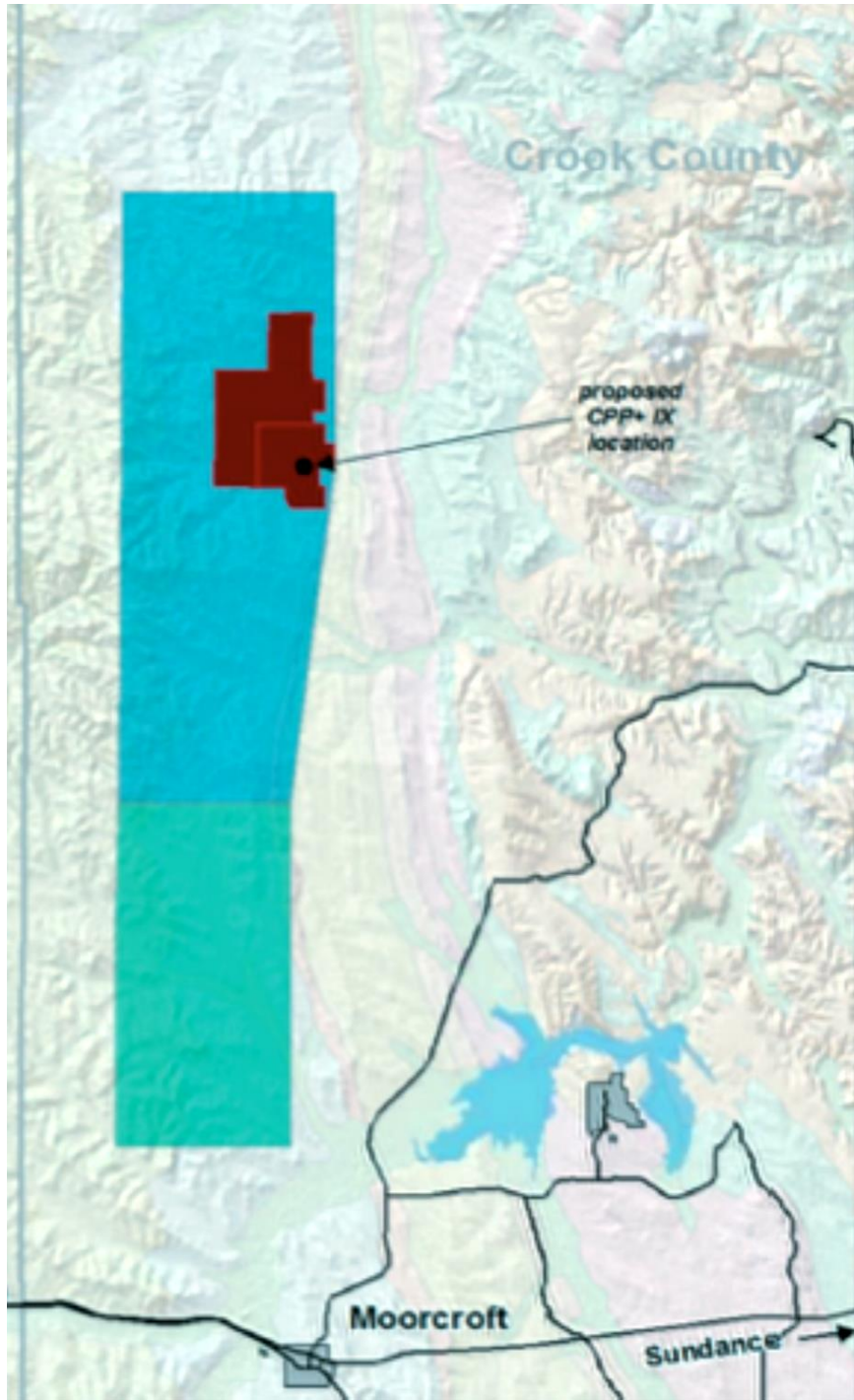
Process Plant & Wellfield CAPEX to design production rate by Production Unit	US\$	
<b>Ross Production Unit (2014 / 15)</b> (1,150klbs p.a.)	\$68m	} To be funded by equity & project finance debt facility
<b>Kendrick Production Unit (2017 / 18)</b> (1,150klbs p.a.)	\$35m	
<b>Barber Production Unit (2021 / 22)</b> (1,150klbs p.a.)	\$43m	} Funded by self-generated operating cashflow

39. The very small geographic area encompassed by the Proposed Action in the Ross Project FEIS is shown at paragraph 43 in relation to the large geographic areas of the planned Kendrick and Barber Production Units, which are arbitrarily excluded from the Proposed Action. [<http://www.pel.net.au/images/peninsul---doojahruxo.pdf>]. The brighter red line within the dark red box delineates the approximate boundary of the “Ross Project” subjected to detailed environmental consideration in the FSEIS, and the dark red area outside of it is “Ross Amendment Area 1.” Even this immediately contiguous and already named “amendment area” is excluded from the Proposed Action. FSEIS at xviii. This constitutes blatant “segmentation” of a Proposed Action.
40. The photograph below encapsulates the absurdly truncated view of the Proposed Action in the Ross Project FEIS. In the prehearing for this proceeding held in December 2011, the Applicant made much of the fact that the “Ross Project” area would not be within the viewshed of the Devils Tower National Monument because of the screening effects of topography, and the Staff repeats this argument in the FSEIS. FSEIS at 4-85. However, in the photograph below from the Applicant’s 2013 Annual Report

[<http://www.pel.net.au/images/peninsul---doojahruxo.pdf>] which, judging by the angle of view to Devils Tower in the background, appears to have been taken from further south in the Lance District, the Applicant's drilling activity is squarely within the viewshed of the National Monument, as would be all the planned heavy truck traffic ferrying uranium-loaded resin from the Barber and other subsequent Production Units not directly connected by pipeline to the Ross CPP. The cumulative impacts analysis in the FSEIS fails to specifically and accurately assess the impacts on Visual and Scenic Resources from the Applicant's planned southward expansion of uranium mining in the Lance District, and amounts to pure speculation: "The lower profile and smaller footprint associated with the Ross Project, and *presumably with the other satellite areas and the potential ISR projects*, would diminish visual impacts as well." FSEIS at 5-17.



41.



42.

43. The varying definitions and descriptions for the scope of the Proposed Action in this FSEIS are inconsistent and internally contradictory, offering citizens and their government officials confusion and uncertainty rather than clarity and an improved understanding of environmental impacts and the nature of the risks posed to environmental resources they

care about. Nonetheless, the confusion itself unwittingly betrays some of the contours of the real Proposed Action that the agency is seeking to shield from detailed environmental review. For example, Sec. 2.1.1. “Alternative 1: Proposed Action” offers the following description:

“Under the Proposed Action, the NRC would issue the Applicant a source and byproduct materials license. The Applicant would use its license to construct, operate, restore the respective aquifers, and decommission the Ross project facility and wellfields as described in its license application (Strata, 2011a; Strata, 2011b). Also, under the Proposed Action, the U.S. Bureau of Land Management (BLM) would approve the Applicant’s Plan of Operations (POO). The Ross Project would occupy 696 ha [1,721 ac] in the north half of the approximately 90-km<sup>2</sup> [56-mi<sup>2</sup>] Lance District, an area where the Applicant is actively exploring *to determine whether there are additional uranium deposits*. As Figure 2.2 shows, *Strata has identified four other uranium-bearing areas that would **potentially** extend the area of uranium recovery in the Lance District itself to the north (the **potential** Ross Amendment Area 1) and to the south (the **potential** Kendrick, Richards, and Barber AREAS) (Strata,2012a). ...The Proposed Action includes the uranium-recovery facility itself and its wellfields (see Figures 2.4 and 2.5).... **The schedule for the Proposed Action is shown in Figure 2.6.** The Proposed Action includes the option of the Applicant’s operating the Ross Project facility beyond the life of the Project’s wellfields. FSEIS at 2-3/DSEIS at 2-3.*

44. The words in **boldface** represent FSEIS additions to the same passage in the DSEIS, and the word in CAPS represents a change. The comparable passage in the DSEIS reads, “Strata has also identified four other uranium-bearing areas that *would extend the area of uranium recovery* to the north *with* the Ross Amendment Area 1 and to the south of the Lance District with the Kendrick, Richards, and Barber *satellite facilities* (Strata, 2012a).” DSEIS at 2-3, emphasis added. Note the FEIS’s attempt, via the repeated insertion of “potential” and “potentially,” to walk back the DSEIS’s unqualified statement that Strata “*would extend the area of uranium recovery...with the Ross Amendment Area 1*” and “Kendrick, Richards, and Barber *satellite facilities*.” Needless



to say, calling something a “satellite” denotes that it is orbiting around, or tethered to *something else*. Synonyms are “settlement,” “outpost,” “dependency,” “protectorate,” and “colony.” That something else is the “Ross CPP,” which the Applicant itself correctly terms the “Lance Central Processing Plant,” but the FSEIS continues to misleadingly label as the “Ross CPP.” *Cf.* Peninsula Energy Ltd. Press Release, Sept. 9, 2013. By any of these meanings, these “satellites” are encompassed within the “Proposed Action.”

45. The revised FSEIS description of the Proposed Action quoted above is even more problematic than the DSEIS description against which Intervenors earlier raised objection. It is fraught with inaccuracies and ambiguities, and conflicts with other descriptions of the Proposed Action contained in the DSEIS and elsewhere in the FSEIS. As evident from the information presented in my First Declaration (PD1) and elsewhere in this declaration, the statement that the Applicant is actively exploring “to *determine whether there are* additional uranium deposits” is inaccurate and misleading, as the Applicant has *already identified* at least 28 million pounds of U308 that it has definite plans to extract from the Lance District via already planned amendments to its “Ross Project” license.

46. Peninsula recently summarized these mining plans in its 2014 “Mines and Money” conference presentation as follows:

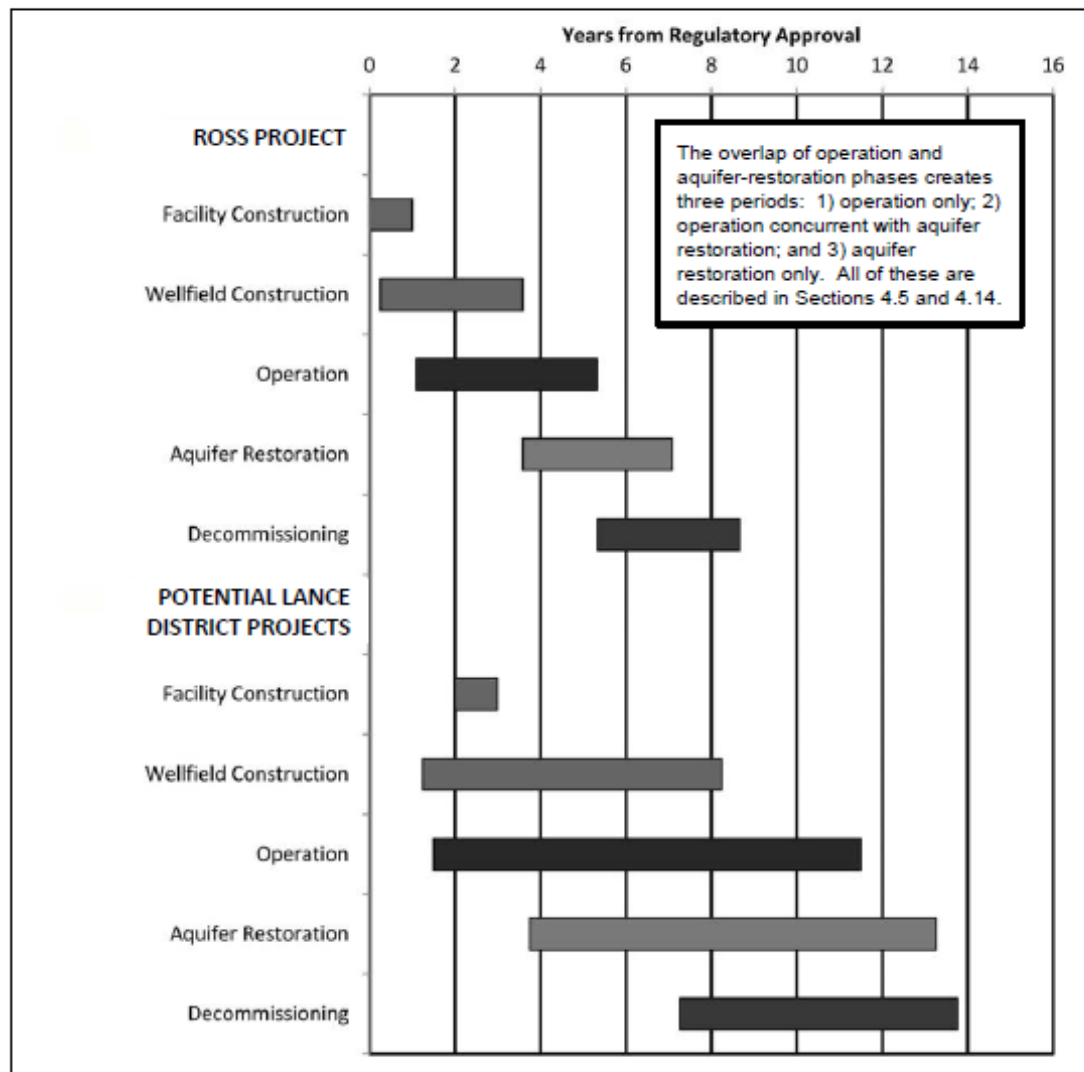
“**Mining methodology:** The mining methodology adopted for the Lance Projects will utilize the in-situ recovery (ISR) process consisting of a central processing plant at Ross (Ross Production Unit) and wellfields in three production areas at Ross, Kendrick, and Barber...**Mine Plan:** Total production over the life of mine from the mine plan is 28 million pounds of U308, with 39% sourced from Measured and Indicated Resources (10.8 million pounds) and 61% sourced from Inferred resources (17.2 million pounds).”

Peninsula Energy Ltd. Hong Kong “Mines and Money” Conference, 2014 Company

Presentation [<http://www.pel.net.au/images/peninsul---aingoequei.pdf>]

47. The conclusion reached in the preceding paragraph is reinforced by the FSEIS's inclusion and reference to a (revised) "Figure 2.6" from the DSEIS showing "the schedule for the Proposed Action." FSEIS/DSEIS at 2-8. This figure's title, "**Schedule for Potential Lance District Development**," plainly suggests that "potential Lance District Development" is the "Proposed Action." Indeed, there is nothing in the chart, other than the word "potential" in front of "Lance District Projects," to distinguish the "Ross Project" from these other projects. *Both* are included in the chart as co-equal components on the "Schedule for Potential Lance District Development." All "Ross" and "Lance" project phases save "Facility Construction" overlap in time, and Lance construction lags the Ross project by only a year. In my opinion, this information clearly shows that there is no basis for including the "Ross Project" inside the "Proposed Action" while keeping

“Lance District Projects” outside of consideration.



Source: Strata, 2012a.

Note: Decommissioning of the Ross Project's CPP would be completed after the last of the uranium from the Ross Project wellfields and satellites that may be developed within the Lance District are processed or after approximately 14 years from the time that all regulatory approvals are in place. Although Strata considers this schedule to be a "reasonably foreseeable development scenario," the actual development plans would depend upon a number of factors, including the results of ongoing exploration drilling, surface- and mineral-acquisition efforts, environmental pre-licensing, site-characterization studies for potential license-amendment areas, and the time required to acquire the necessary permits and licenses (Strata, 2012a).

**Figure 2.6**  
**Schedule for Potential Lance District Development**



48. Adding further to this muddle, Figure 2.6 now includes a lengthy footnote that states, contrary to the Ross Project's "Decommissioning" bar in the figure showing CPP decommissioning beginning around 5 years "from regulatory approval," that "decommissioning of the Ross Project's CPP would be completed after the *last of the uranium from the Ross project wellfields and satellites that may be developed within the Lance District* are processed or after *approximately 14 years* from the time that all regulatory approvals are in place" (emphasis added). Is the former time frame longer or shorter than the latter? Are citizens and public officials simply supposed to hazard their own guess? This is an unreasonable level of uncertainty for a purportedly "Final" EIS. The source for this open-ended information is given as "Strata 2012a," no title or page number given, which turning to the References for Section 2, turns out to be "Vol. 1 with Appendices" of the Applicant's Environmental Report containing "RAI Question and Answer Responses" from the Applicant. In other words, two years and one whole DSEIS later, the NRC staff continues to rely upon a dated response from the Applicant's ER, a document that the NRC bears no responsibility for preparing, rather than ascertaining for itself the current actual state of the Applicant's Lance District mining plan, and fully disclosing to the public in the FSEIS what it has found. To the contrary, the information discussed above demonstrates that the "Ross Project" is an integrated component of a much larger near-term plan to progressively ISL mine the entire "Lance District" for uranium, impairing groundwater quality and quantity and disturbing the land surface and other natural resources over an area many times larger than the "Ross Project."
49. The FSEIS Executive Summary contains yet another muddled formulation of the Proposed Action. On the one hand:

“Strata’s Proposed Action, the Ross Project, would occupy 696 ha [1,721 ac] in the north half of the approximately 90-km<sup>2</sup> [56-mi<sup>2</sup>] Lance District, where the Applicant is actively exploring for additional uranium reserves. Strata has identified four uranium-bearing areas that would extend the area of uranium recovery in the Lance District: to the north (the Ross Amendment Area 1) and to the south (the Kendrick, Richards, and Barber areas). *These areas are not components of the Proposed Action in this Final SEIS.*

On the other hand:

.... “The Proposed Action *includes the option of the Applicant operating the Ross Project facility beyond the life of the Project’s wellfields.* [**How far beyond?**] The facility could be used to process uranium-loaded resin *from satellite areas within the Lance District operated by the Applicant – [the very same Kendrick, Richards, and Barber areas that were just excluded from the Proposed Action in the preceding paragraph?]* – or from other offsite uranium-recovery projects not operated by the Applicant (i.e., “toll milling”), or from offsite water-treatment operations. *With that option – [Which option? Several were just named] the life of the facility would be extended to 14 years or more.*” [**How many is “more”?**] FSEIS at xviii (text in bold inserted as comment).

50. This is an overly vague and confusing definition for a “Proposed Action” in a *Final* EIS, and it does not accurately reflect the true scope of the proposed project.
51. In this connection, consider further the statement added to the FSEIS discussed above: “...In this case, the life of the [CPP] facility *would be extended to 14 years or more.*” This addition begs the question, “What is the commercial operating ‘life’ of the ‘Ross’ CPP facility *without* the planned influx of additional uranium-bearing lixiviant and resins from “amendment areas” and “satellite facilities,” in the event the NRC declines to license such expansion? Figure 2.6 shows the Ross Project “Operation” phase lasting only 4 years. If the “Ross Project” is truly a viable standalone ISL project with “independent utility,” does it stand to reason that SEI/Peninsula Energy Ltd. would invest tens of millions of dollars to

construct and operate a large ISL facility, only to shut it down and decommission it after 4-5 years? The question answers itself.

52. But Peninsula Energy has also answered it. As long ago as December 2011, Peninsula disclosed that its Definitive Feasibility Study did not include “the capital cost of the CPP [Central Processing Plant] , the fixed costs of operating the CPP, and decommissioning costs, *as in practice, these costs will spread across multiple production units within Lance over an extended period of time,*” and the Applicant cited the companion “Lance Expanded Economic Study” (EES) as “illustrating” this overall project financial strategy. This excerpt clearly demonstrates, the continued operation and planned expansion of the “Ross Project” CPP is tightly coupled to the planned development of additional production areas outside the scope of the “Ross Project” that would “follow Ross into production at 12 month intervals feeding the CPP.” PD1 at 35.
53. Therefore, the FSEIS’s conclusion that “development of the wider area....would not be a direct consequence of licensing the Ross Project [and]... granting a license to Strata for the Ross Project would not commit the Agency to subsequent approvals of Strata’s proposed satellite areas,” FSEIS at B-20, is without basis. The Applicant has reached an understanding with NRC staff regarding a path forward for licensing additional productions areas, whereby the Applicant will submit license amendment applications for future satellite operations – the impacts of which will be considered at a later date in a future NEPA document.
54. Section 1.2 of the FSEIS continues to define the “Proposed Action” subject to detailed environmental consideration as “the decision to either grant or deny” a license, “based upon Strata’s application” of January 4, 2011 to “construct and operate an ISR facility and

wellfields at the proposed Ross Project area, and to conduct aquifer restoration, facility decommissioning, and site reclamation.” FSEIS at 1-1 with changes from DSEIS in italics.

55. The DSEIS had included a slightly different formulation: “...to construct and operate an ISR facility at the proposed Ross Project site, and to conduct aquifer restoration, site decommissioning, and reclamation activities. DSEIS at 1-1, emphasis added. This particular description of the Proposed Action (as noted above there are others) has thus evolved to allow for the construction and operation of “wellfields” in addition to “an ISR facility” at the proposed Ross Project “area,” rather than “site,” and the phrase “reclamation activities” has been replaced with the phrase “site reclamation.” The precise purpose and import of these changes to the definition of the Proposed Action, if any, are neither highlighted nor explained in the FSEIS. Needless to say, however, it is very late in the game to be making changes to the definition of the “Proposed Action” in a “Final” EIS, when the public, other federal agencies, and state and local governments are no longer entitled to comment on them.
56. The object of these changes appears to be to re-characterize the “Ross Project site” as a production “area,” consisting of “wellfields” and “an ISR facility,” in line with the Applicant’s announced plans to promptly expand production via the addition of “amendment areas” to the “Ross Project” license.
57. Section 1.3 of the FSEIS continues to define the “Purpose and Need of the Proposed Action” as “provid[ing] an option that allows the Applicant to recover uranium and to produce yellowcake [slurry] at the Ross Project.” The only difference with the DSEIS is that the word in brackets was dropped in the Final. This passage is immediately followed by a disclaimer, repeated verbatim from the DSEIS, stating that “this definition of purpose and

need reflects the Commission's recognition that, unless there are findings in the safety review required by the Atomic Energy Act of 1954 (AEA), as amended, or findings in the NEPA environmental analysis that would lead NRC to reject the license application, NRC has no role in a company's business decision to submit a license application to operate an ISR facility at a particular location." FSEIS at 1-3/DSEIS at 1-1.

58. In public comments submitted in regard to the DSEIS, Intervenor's objected that the statement of the agency's purpose and need was unduly "vague and amorphous," and urged that it be substantially revised to include a more robust description of NRC's statutory mandate under the AEA to ensure "adequate protection of the public health and safety" from the hazards posed by its licensed activities, and to ensure that these activities are "not inimical to the common defense and security." NRDC Comments on Draft Supplemental EIS, Ross ISR Project, May 13, 2013, at 3.
59. In reality, the NRC's authorities and role are not nearly so limited as stated in the FSEIS. For example, the Commission also has the authority to disqualify license applicants and/or license-holders who stand accused of criminal conduct that has nothing directly to do with nuclear safety. The Commission can modify, deny, suspend, or revoke any license it finds "inimical to the common defense and security." It can deny or revoke a license based on the financial qualifications of an applicant or the percentage of an Applicant's project held by foreign owners. It can deny a license to export material produced by a licensed facility.
60. The FSEIS Statement of Purpose and Need likewise remains inaccurate in its assertion that NRC has "no role" in a company's "business decision to submit a license application to operate an ISR facility at a particular location." This is contradicted not only by the everyday practice of the agency, in which nuclear safety and environmental requirements



are known to have a significant impact on licensee “business decisions,” but also by specific evidence already introduced into this proceeding at the DSEIS stage, showing that NRC Staff interacted with and advised the prospective Applicant regarding its application well before a supposed “business decision” was made to submit it for review. Moreover, the NRC’s development of the GEIS on ISL Uranium Milling Facilities in 2009 was predicated on “streamlining” the environment impact assessment process for Applicants in designated Western uranium mining regions, making the “business” of developing ISL mining operations within these regions relatively more attractive.

61. According to Peninsula Energy Ltd. “In October of 2010 the NRC conducted an unprecedented on-site visit and pre-license application submission review of Strata’s proposed license application to identify any major acceptance or technical/environmental review issues. Feedback from that critical review was then incorporated into the final license application.” This release noted that the “proposed Ross ISR site...forms part of the total project area and the first to be permitted for production.”(emphasis added). PD1 at 23. This statement is significant to a legal and factual review of the actual environmental scope of the Proposed Action under scrutiny in this proceeding, as it suggests that certain NRC staff may have been made aware of the expansive nature of the overall project design even before the inception of the formal licensing process, and may have even suggested or recommended that Strata structure the pending license request to limit the scope of the required environmental review. This is certainly the implication of Peninsula Energy’s December 21, 2011 statement, issued under the heading “Permitting and Project Development Timeline,” asserting that NRC’s swift acceptance of the completeness of its application attested to its “quality” and “provided the Company with the basis to submit amendments to

bring on further production units in a timely and efficient manner.” PD1 at 36, emphasis added.

62. The following statement from the 21 December 2011 Peninsula release is also of particular interest: “Following a recent review of the permitting strategy, the Company is confident in finalizing permitting. In addition all new project areas are being designed so they are contiguous with the Ross permit area and as such will be deemed to be amendments to the Ross permit (once issued) rather than standalone applications. This strategy will significantly reduce the permitting process and timing going forward.” (emphasis added). PD1 at 36.
63. The FSEIS description of “Scope of the SEIS” (Sec. 1.4) differs slightly from that provided in the DSEIS, in that the DSEIS stated “NRC Staff prepared this SEIS to analyze the potential environmental impacts (i.e. direct, indirect, and cumulative impacts) of the proposed action and reasonable alternatives to the proposed action,” while the FSEIS employs the formulation “impacts...of the proposed undertaking (i.e. to grant an NRC license) and of reasonable alternatives to the Proposed Action.” FSEIS/DSEIS at 1-3, changes highlighted.
64. In attempting to parse the significance, if any, of this change, one may note that the DSEIS use of the phrase “proposed action” to define its scope leads one back to the definition of the Proposed Action in Sec. 1.2: “the NRC’s federal action is the decision to either grant or deny the license,” and thus the scope of the environmental review must logically involve assessing the environmental consequences of both a grant and a denial the license. This FSEIS, however—for reasons that are not explained—limits the scope of the analysis to just “the impacts...of the proposed undertaking (i.e. to grant an NRC license),” seemingly

leaving out an analysis of the environmental consequences of No Action, which in avoiding the Applicant's published plan to mine the length and breadth of entire "Lance District," could result in substantial benefits to the natural and human environment, particularly over the longer time frames now estimated for the "Lance Projects," which range from 14 to 70 years.

65. In my first declaration, I expressed great concern with the Applicant's position that "cumulative impacts associated with any potential future Strata satellites will be addressed in the environmental reports associated with each such satellite" because this carves up the potential impacts into pieces, preventing the public and regulators from realistically looking at the long term cumulative impacts.
66. With the new information discussed above, in addition to the information included in my First Declaration in this proceeding, there is ample prima facie evidence regarding both the factual and legal dimensions of defining the proper scope of the "proposed action" for the purposes of NEPA analysis.
67. Based on my review of countless NEPA documents, there is ample precedent to demonstrate that agency "proposals" can exist in fact as well as in name, and that these two do not always coincide. Indeed, requiring agencies to critically examine, with public input, the actual environmental scope of their proposed actions, on a timetable that meaningfully informs their decision-making, is a fundamental purpose of NEPA. Such is the case here: the four corners of the Applicant's request for a license to construct and operate the "Ross Project" do not encompass the full scope of the uranium recovery activities that the Applicant plainly intends, plans, and is actively preparing to conduct in the contiguous "Lance District" surrounding the Ross Project, using facilities that will be licensed (either

directly or via already planned “amendments”) pursuant to NRC’s pending licensing action for the “Ross Project.”

68. Based on my review of the Final (S)EIS and related information, I continue to believe (and factual evidence strongly supports this belief) that the Ross Project is part of a larger and interdependent series of actions in contiguous and nearby areas that together comprise the “Proposed Action” for the purposes of NEPA analysis, and therefore must be considered together in a single EIS.
69. The supplemental information I present above and the my first declaration spoke to factual evidence that demonstrates the interconnected, tightly-phased, and temporally overlapping components of the Applicant’s plan to recover uranium from the wider “Lance District,” which includes but is not limited to the “Ross Permit Area” (aka the “Ross ISR Project”) that is the subject of the disputed EIS.
70. I hereby incorporate by reference selected portions of my First Declaration that remain relevant to the issuance of the FSEIS, including specifically PD1 ¶¶ 13-16, 21, 23-24, 27, 31-36, 38, 45-46, 51-52. This information, supplemented by the new information discussed above, specifically supports the contention that the components of the wider project are “interconnected.”
71. In response to a public comment received on the DSEIS, inquiring why it continued to use the term “Ross Project facility” in place of the more informative and accurate “Lance Projects Central Processing Plant,” the NRC Staff explained that the term “Ross Project facility” continued to be used in the SEIS/FSEIS because the license application that was “submitted to the NRC” “is for the NRC to authorize the Applicant to construct and operate a[n] uranium-recovery facility and wellfields in the Ross Project area.” FSEIS, at B-36.

However, the NRC ignored relevant information – including the new information discussed above, combined with information discussed in my First Declaration – that clearly shows the true scope of the Ross Project facility is much larger than the NRC considers.

72. While the NRC Staff clings to its argument that it is bound by the scope as determined by the Applicant's license request, and thus remains in the dark regarding the planned scope of the Applicant's uranium recovery project in the Lance District, the Australian parent company of the Applicant clearly wants potential investors to know that they would be buying into a project that is substantially larger and more ambitious than the "Ross Project" alone.
73. For instance, Peninsula Energy Ltd.'s March 2013 "Mines and Money" conference presentation discusses company plans to "Commence ISR production at Lance Projects, Wyoming in 2014 building to 2.2 mlbs U308 per annum over 3.5 - 4 years (plant capacity 3 mlbs per annum)." In contrast, the annual production of the "Ross Project" analyzed in the NRC Staff's DSEIS/FSEIS is only 0.75 mlbs per annum. In other words, within 3.5 - 4 years of issuing the Ross Project license, the output of the CPP is slated to triple, utilizing uranium feed material from outside the scope of the Ross Project EIS. This large increase in U308 output, and the expanded wellfield production areas needed to feed it, is sufficiently close in time and space that the environmental impacts of all the activities and facilities required to achieve it must be considered in a single EIS. Cf. PD1 at 52.
74. In sum, given the information in the public domain that plainly controverts the description and analysis of the Proposed Action in this FSEIS, it is hard not to conclude, contrary to the purposes of NEPA, that this document clouds rather than sharpens the view of citizens, and those who act on their behalf, regarding the true extent of the Applicant's ISL uranium



mining proposal, and any unavoidable harmful impacts it poses to public health and the environment. The Commission statutory mandates under the AEA and NEPA require it to protect public health and safety and the environment from the harmful impacts of ISL production of uranium and byproduct materials. The first step in that process is ensuring that the public and environmental decision-makers at all levels of government understand what those impacts are. This FSEIS fails to meet that standard.

A handwritten signature in cursive script, reading "Christopher E. Paine". The signature is written in dark ink on a white background.

/s/ Christopher E. Paine (electronic signature approved)

Dated: March 31, 2014