REQUEST FOR ADDITIONAL INFORMATION FOR THE REVIEW OF THE ENVIRONMENTAL REPORT FOR THE JANE DOUGH AMENDMENT TO THE NICHOLS RANCH ISR PROJECT

The purpose of this Request for Additional Information (RAI) is to obtain additional information and data that are necessary for the U.S. Nuclear Regulatory Commission (NRC) to fulfill the NRC's responsibilities under the National Environmental Policy Act of 1969 (NEPA). NRC's implementing regulations are at Title 10 of the *Code of Federal Regulations* (CFR) Part 51 (10 CFR 51) and the Domestic Licensing of Source Material requirements are in 10 CFR Part 40. This RAI was developed during the NRC staff's review of Uranerz's (the "licensee") *Environmental Report* (ER) and revised *Technical Report* (TR), which were submitted to the NRC as part of its license amendment application to authorize uranium recovery from the proposed Jane Dough Unit. NEPA requirements, as well as NRC implementing regulations and guidance documents, serve as the basis for these requests.

GENERAL

RAI – GEN-1 Permit Updates

Section 1.4 of the ER (Uranerz, 2014a) states that Table 10-2 of the TR (Uranerz, 2014b) identifies necessary environmental approvals and status of each with corresponding Federal and State agencies for the Nichols Ranch ISR Project. Additionally, the text in the ER states that all listed approvals will be obtained for the proposed Jane Dough Project prior to the start of mining and are listed in Table 10-2a of the Nichols Ranch ISR Project NRC Source Material License Application TR. The NRC staff are unable to locate either Table 10-2 or Table 10-2a, which lists permits applicable to the proposed Jane Dough Project.

Provide an update of the status of proposed, pending and approved licenses and permits specifically for the proposed Jane Dough Project.

The information provided should identify: (i) the issuing agency; (ii) the type of license, permit, or approval needed; and (iii) the current status of securing the license, permit or approval. This information is needed to complete the description of the proposed action and determine the environmental impacts of the licensing and permitting process on the proposed project.

RAI – GEN-2 Site Layout

Section 2.2.4.2 of the ER states that Exhibit 2–1A illustrates current coalbed and natural gas infrastructure (e.g., wells, pipelines, utilities, and roads) located in the Jane Dough area; however, Exhibit 2–1A does not contain this information. Provide a map or several maps showing: (i) injection, recovery, and monitoring well locations; (ii) existing primary roads and secondary and tertiary roads currently used to access oil and gas and coalbed methane well pads; (iii) proposed new roads, especially where they will cross ephemeral drainage channels (including secondary and tertiary roads used to access injection, recovery, and monitoring wells); (iv) proposed pipelines, especially where they will cross ephemeral drainage channels (including Cottonwood Creek); (v) trunk lines; and (vi) proposed power lines. Also, specify the anticipated total new road length to be added within the Jane Dough Unit, and the number of anticipated drainage channel crossings for both roads and pipelines. Additionally, provide more detail in the text of the RAI response specifying the licensee's plans and process for pipeline crossings of drainages, including Cottonwood Creek (see RAI – SW-3 Wells Bored in Drainages).

RAI – GEN-3 Project Schedule

Figure 3-12 of the TR shows Nichols Ranch ISR activities for various production units; however, Figure 3-12 does not include the construction phase (Uranerz, 2015a). Additionally, Figure 3-12 also presents time information by two methods: text and graphically (i.e., arrow length). In some cases, these two methods do not express the same value. For example, the Nichols Ranch Production Area #1 production phase lasts 2.5 years according to the text and 2.25 years according to the arrow.

Revise Figure 3-12 to

a) Include the construction phase.

b) Ensure that the time values expressed by the two methods (text and graphically with arrows) are consistent.

ECOLOGY

RAI – EC-1 Annual Wildlife Monitoring Plan

Section 4.5.1.2.4 of the ER (Raptors and Nongame/Migratory Birds) states that "Potential conflicts between active nest sites and project-related activities would be mitigated by annual raptor monitoring and mitigation plans as presented in the Mine Plan."

Provide copies of all annual wildlife monitoring plans and reports completed to date for the Nichols Ranch Unit. Also provide a migratory bird plan, if such a plan exists, for the Nichols Unit. These plans and reports will provide the NRC staff with important information on wildlife behavior in the area and serve as an example of the licensee's approach to mitigating potential impacts to wildlife.

Additional Non-RAI Information Needs – Figures for the NRC Staff's Use

The following request is not required to complete the NRC staff's review but would aid in development of the required environmental documents. Please provide the figures in digital form for the NRC staff's use in developing the Jane Dough Environmental Assessment. It is requested that the revised figures not contain figure numbers and that figures are provide in a non-flattened format or in black and white (b/w) when indicated in the list of needs.

Please provide a figure with the criteria detailed in RAI – GEN-1 Site Layout, which includes all raptor nests or roosts on or within 0.8 km [0.5 mi] of the Jane Dough Unit, as well as sage-grouse leks on or within 3.2 km [2 mi] of the Jane Dough Unit.

AIR QUALITY

RAI – AQ-1 Emissions from Deep Disposal Well Drilling

Section 2.2.1.6.1 of the Nichols Ranch Supplemental Environmental Impact Statement (NRC, 2011) identifies drilling deep disposal wells as one of the activities that generates air emissions. Uranerz is permitted to install up to eight deep disposal wells for the Nichols Ranch ISR Project (WDEQ, 2009).

Provide the number of deep disposal wells that have been drilled to date, along with the maximum number of disposal wells that Uranerz expects will be needed to support operating three units including the Jane Dough unit.

RAI – AQ-2 Fugitive Dust Calculation – Sources

Section 2.5.4.3 of the TR states that particulate matter PM_{10} fugitive dust emissions estimates are based on the travel on unpaved roads from two sources: tractor trailers and workers commuting to the site. This section of the TR also states that in the calculation of fugitive dust emissions, the wellfield was assumed not to be a significant source.

a) Provide a basis for the assumption that fugitive dust from the wellfield (e.g., travel on unpaved roads within the wellfield and wind erosion to disturbed land) is not a significant source. Otherwise, revise the fugitive dust calculation accordingly.

b) Provide a basis for why travel on unpaved roads the outside of the wellfield by sources other than the travel trailers and commuters (e.g., construction equipment, drill rigs, and water trucks for dust suppression) are not included in the emission estimate. Otherwise, revise the fugitive dust calculation accordingly.

RAI – AQ-3 Fugitive Dust Calculation

The particulate matter PM_{10} fugitive dust emission estimates in TR Sections 2.5.4.2 and 2.5.4.3 overestimate Nichols Ranch ISR Project fugitive dust emissions as a result of errors in the calculation. Please revise the description of the methodology and provide one correct estimate of annual maximum fugitive dust emissions for the Nichols Ranch ISR Project that addresses all areas of operation (i.e., Nichols Ranch, Hank, and Jane Dough). In your response, please address the following concerns.

1. TR Section 2.5.4.2 described an estimate of fugitive dust emissions for the Nichols Ranch and Hank Units only. In TR Section 2.5.4.3, Uranerz used the same methodology and same assumptions described in Section 2.5.4.2 to provide a separate estimate of fugitive dust emissions for the Jane Dough Unit, and arrived at the same estimate of fugitive dust emissions reported for the Nichols Ranch and Hank Units, which is 135.9 tons per year. However, elsewhere in the text and in Table 2-10, Uranerz provides information which indicates that the project-wide fugitive dust emissions are not expected to change as a result of operations in the Jane Dough Unit. Please revise TR Section 2.5.4 to clarify whether Uranerz's project-wide estimate of maximum annual fugitive dust emissions as a result of licensed operations in the Nichols Ranch, Hank, and Jane Dough Units.

2. As stated in the TR, each estimate in TR Sections 2.5.4.2 and 2.5.4.3 is based on a total distance traveled on unpaved road by all vehicles of 47,375.6 miles, a value which is based on a single-vehicle roundtrip travel distance on unpaved roads of 15 miles. However, Uranerz stated that the distance is 17 miles from Highway 50 and 22.3 miles from Highway 387. The NRC staff notes that the actual distances appear to be about 17 miles one-way (34 miles roundtrip) from Highway 50 and about 12 miles one-way (24 miles roundtrip) from Highway 387. On p. TR-46 of the TR, Uranerz stated it used the longer of the two access routes as a basis for the fugitive dust emission calculations. The NRC staff observes that a roundtrip using the longer of the two routes (which would be about 34 miles from Highway 50) would result in an estimate of total vehicle miles traveled per year of 109,651 miles, a

value which does not appear in the TR. Uranerz appears to have used a round trip distance of 22.3 miles to calculate fugitive dust emissions of 135.9 tons per year. Please revise the description of the methodology for estimating fugitive dust emissions by using the correct roundtrip distance.

3. In TR Sections 2.5.4.2 and 2.5.4.3, the incorrect total vehicle miles traveled of 47,375.6 miles is incorrectly multiplied by the total number of vehicles and "semi's" (8 vehicles + 1 semi = 9), a mistake which causes the number of vehicles to be considered twice in the computation. As a result of this error, Uranerz reported a value of 89.5 tons per year. However, a separate total of 135.9 tons per year appears in statements below the value of 89.5 tons, and also on pp. TR-46, TR-49, TR-49b, TR-49e, and in Tables 2-10, 7-1 and 7-1a. As stated above, the higher value of 135.9 tons is the result of using an incorrect roundtrip maximum distance traveled on unpaved roads of 22.3 miles (from Highway 387), and also incorrectly includes a redundant factor of 9 vehicles. The NRC staff estimated the correct unmitigated fugitive dust emissions to be about 23 tons per year. Please revise the description of the methodology for estimating fugitive dust emissions, ensuring that the number of vehicle trips per day is not used twice.

4. In addition, in its May 8, 2009, response to NRC's request for additional information (Uranerz 2009), Uranerz stated that "reduced tractor trailer traffic" during aquifer restoration and decommissioning activities would reduce maximum annual fugitive dust emissions from 135.9 tons per year to 109 tons per year. However, the NRC staff used the equations in TR Sections 2.5.4.2 and 2.5.4.3 (without correcting the error of double-counting vehicles), assumed a roundtrip maximum distance traveled on unpaved roads of 22.3 miles, reduced tractor trailer traffic to zero, and calculated 123 tons per year. Therefore, it isn't clear how Uranerz arrived at 109 tons per year with just "reduced" tractor trailer traffic. Please explain the methodology used to estimate fugitive dust emissions during aquifer restoration and decommissioning activities and provide a correct estimate of the maximum annual fugitive dust emissions.

RAI – AQ-4 Fugitive Dust Calculation – Dust Suppression Estimate

Section 2.5.4.3 of the TR estimates the Nichols Ranch ISR project fugitive dust emission levels at 123.3 metric tons [135.9 short tons] per year. This estimate does not appear to incorporate any fugitive dust suppression mitigation. The Wyoming Department of Environmental Quality (WDEQ) air permit (WDEQ, 2009) estimates the Nichols Ranch ISR project fugitive dust emission levels at 61.7 metric tons [68 short tons] per year and requires the licensee to treat the haul road from the Hank unit to the Nichols Ranch central processing plant (CPP) and the access road to the CPP with water, a chemical dust suppressant, or both. The WDEQ permit estimate was revised based on incorporating mitigation (i.e., Best Available Control Technologies). However, the permit does not specify the efficiency of this mitigation or what the initial emission estimates were prior to incorporating this mitigation.

Verify the staff's understanding that the TR and air permit emission estimates vary because the air permit estimate incorporates dust suppression mitigation

If the calculation in Section 2.5.4.3 of the TR includes dust suppression mitigation or if the licensee intends to revise the fugitive dust emission estimates in the ER analyses by incorporating dust suppression mitigation:

- Identify the mitigation.

- Specify the efficiency of the mitigation.
- Provide the basis for the efficiency of the mitigation.

RAI – AQ-5 Fugitive Dust Calculation – Dust Suppression

The WDEQ air permit requires the licensee to treat the haul road from the Hank Satellite to the Nichols Ranch CPP and the access road to the processing plant (WDEQ, 2009). Access to the Nichols Ranch processing plant can be from the east by Highway 50 or the south by Highway 387. Clarify using TR Figure 2-1 which road segments Uranerz treats for dust suppression. Also, use this figure to identify any road segments used by Uranerz that are (i) treated by another entity (e.g., the county), (ii) describe mitigation measures implemented by the other entity, and (iii) clarify whether any changes to the current practice of dust suppression are expected with the addition of the Jane Dough unit.

RAI – AQ-6 Fugitive Dust Calculation – Peak Year and ISR Phases

It is unclear what the individual project year particulate matter PM_{10} fugitive dust emission levels are for the proposed action (i.e., addition of Jane Dough unit) and cumulatively (i.e., all three units, including Nichols Ranch and Hank). To account for overlapping phases and simultaneous activities at different production areas, the emissions estimate needs to be incorporated into the context of the project schedule. Generating emission estimates for individual years identifies the "peak year" where emissions are the greatest and the potential impacts are the largest. Text in Section 2.5.4.3 and Appendix JD–D4 of the TR estimates that the Jane Dough unit generates 123.3 metric tons [135.9 short tons] of particulate matter PM_{10} fugitive dust annually. However, emission estimates are not specified for individual ISR phases. In addition, Table 2-10 in TR Section 2.5.4.3 attributes this estimate to all three units whereas Table JD–D4–4 in TR Appendix JD–D4 attributes this estimate to just the Jane Dough unit. Section 2.5.4.2 of the TR estimates that combined the Nichols Ranch and Hank units also generates 135.9 tons of particulate matter PM_{10} fugitive dust annually. The May 8, 2009, RAI responses (Uranerz, 2007) specified that the Nichols Project (i.e., Nichols and Hank units) construction and operation phases generate 123.3 metric tons [135.9 short tons] annually and the restoration and reclamation phases generate 98.9 [109 short tons] annually. However, the RAI response did not provide the detailed calculation for estimating the restoration and reclamation phase estimate.

a) Provide the estimated particulate matter PM_{10} fugitive dust emission levels for each ISR phase. Identify whether ISR phase estimates vary by unit (i.e., Nichols, Jane Dough, and Hank). If so provide ISR phase estimates by unit.

b) Follow the example of TR Figure 2-11a and provide a detailed outline of the method used to calculate the ISR phase estimates.

c) Provide the estimated particulate matter PM_{10} fugitive dust emission levels for each project year based on the update project schedule in TR Figure 3-12 (see RAI – GEN-3).

d) Provide a detailed outline of the method used to calculate the project year estimates and any other values used to generate the project year estimates.

Additional Non-RAI Information Needs – Figures for the NRC Staff's Use

The following requests are not required to complete the NRC staff's review but would aid in development of the required environmental documents. Please provide the figures in digital form for the NRC staff's use in developing the Jane Dough Environmental Assessment. It is requested that the revised figures not contain figure numbers and that figures are provide in a non-flattened format or in black and white (b/w) when indicated in the list of needs.

TR Figure 3-12: Projected Production, Restoration, and Reclamation Schedule: Nichols Ranch, Hank, and Jane Dough Units

- Revise per RAI – GEN-3.
- Change to b/w.
- Ensure capability to delete Uranerz legend, footnote and title.

ER Figure 3-1: Monthly Temperature Comparison for the Jane Dough Unit (ER page ER–36)

- Revise so that the actual numerical values for the monthly data presented within the figure can be determined (e.g., enlarge to a full page and use smaller hash marks on the Y-axis rather than the "10"s currently used).

- Change to b/w; revise the various data lines within the figure so they can be distinguished.

- To address the above issues, consider presenting the data as a table rather than a figure.

ER Figure 3-2: Monthly Wind Speed Statistics, Baseline (Year 1) and Year 2 Comparison for the Jane Dough Unit (ER page ER–38)

- Revise so that the actual numerical values for the monthly data presented within the figure can be determined (e.g., enlarge the scale and use smaller hash marks on the Y-axis than the "5"s currently used).

- Change to b/w; revise the various data lines within the figure so they can be distinguished.

- To address the above issues, it may be easier to present the data as a table rather than a figure.

ER Figure 3-3: Wind Rose Comparison, Baseline (Year 1) and Year 2 for the Jane Dough Unit (ER page ER–39)

- If possible, separate the two wind roses and create individual files/figures for each one.

- Change to b/w; increase size of labels, legend text and symbols, and figure text throughout to improve readability.

SURFACE WATER

RAI – SW-1 Ephemeral Channels

New production area access roads, pipelines, and wells will be constructed and installed on the Jane Dough Unit, and some of this infrastructure will either cross or be installed within ephemeral drainages. This information was provided for the Nichols Ranch Unit, but was not included in the Jane Dough application. Provide the linear length of first and second order ephemeral channel thalwegs (i.e., the line drawn to join the lowest points along the entire length of a stream bed or valley in its downward slope) on the Jane Dough Unit that are known to seasonally carry focused flow.

RAI – SW-2 Surface Water Class(es)

The application has not identified the surface water classes or their intended use within the license application packet. Provide the surface water class(es) for surface waters occurring on the Jane Dough Unit and their intended use in order for staff to analyze potential impacts to surface waters.

RAI – SW-3 Wells Bored in Drainages

Several injection (and possibly recovery) wells may be placed within an ephemeral channel crossing over the southeastern ore body in Production Area #2 (Uranerz, 2015, Addendum MPI 3D of Figure MPI.1-5). An indeterminate but potentially greater number of wells (injection, recovery, and monitoring) may be placed in the flowing waters of the U.S. channel crossing over the southwestern ore body in Production Area #1. Provide the anticipated number of wells, well type (e.g., injection, recovery, and monitoring), and a map showing where they will be placed in the ephemeral drainage channels crossing above the southern ore bodies (and northern ore bodies, if applicable).

RAI – GW-1 Aquifer and Aquitard Hydrologic Properties and Gradients

Site-specific hydrologic property data provide the basis for understanding natural and induced flow processes in aquifers and aquitards. Hydrologic property data relevant to ISR operations on the Jane Dough Unit in Table 2 are needed to complete NRC review of the proposed project.

Table 2. Jane Dough (or Nichols Ranch/Hank/Other) Hydrologic Unit Properties

Groundwater Unit	Effective Porosity	Hydraulic Conductivity (m/d)	Gradient	Average Linear Velocity (m/d)	Average Direction
G Sand	0.05	1.5×10^{-3}	0.01	4.3×10^{-4}	North
FG Aquitard			1.1		Up & Down
F Sand	0.14	0.67	0.011	0.05	Northwest
BCF Aquitard	0.22	2.9×10^{-5}	0.37		Up & Down
B Sand	0.05	0.02 or 0.05	0.008	0.008	West-Northwest
AB Mudstone	0.19	9.4×10^{-5}	0.15		Up
A/AB Sand	0.05	0.16	0.0064	0.02	Northwest
1A Mudstone	0.24	6.0×10^{-5}	0.24		Up
1 Sand	0.05	0.046	0.008	0.007	Northwest
Based on information given in Appendix JD–D6					

The licensee has provided limited information concerning the properties of the main surficial aquifer, the G Sand, and somewhat less information for the underlying aquitard, FG, at the Jane Dough Unit. The G Sand information provided was primarily for the Hank Unit (Uranerz, 2014b), with the exception of the gradient. Aquitard properties appear to be from Nichols Ranch or wells located further from the Jane Dough Unit. Some aquitard gradient values were only available from the Hank Unit. Provide missing hydrologic property information for the FG aquitard. Provide a map that explicitly indicates where the wells are located that produced the data relied on in the preceding table, relative to the location of the Jane Dough Unit. If new site-specific hydrologic property data are available for any hydrologic units measured at the Jane Dough Site, provide these new site-specific data.

Clarify the discrepancy in values for the B Sand hydraulic conductivity reported on pages 5 and 8 of Appendix JD–D6 (also see table above).

Clarify the opposing gradient signs provided in Table JD–D6–5. All indications are that flow would be upward in both cases. Head in 1 Sand is greater than head in A Sand. Head in A Sand is greater than head in B Sand. This indicates upward flow in both 1A and AB aquitards. Consequently, both gradients should have the same sign.

RAI – GW-2 Geochemistry Clarification

For Radium-226 in the 1 Sand, two conflicting values were reported. Clarify the nature of the discrepancy (i.e., whether this was a rounding error), given that in the ER Appendix JD–D6 has this as 0.32 picocuries per liter (pCi/L) (page JD–D6–28) while Addendum JD–D6E.1-35 has this as 0.3 pCi/L (Table JD–D6E.1-1).

RAI – GW-3 Consumptive Water Use During Construction and Decommissioning

During wellfield construction and decommissioning, consumptive water use will include water used for dust suppression, cement mixing, drilling support, well development, well abandonment, revegetation, and reclamation of disturbed areas. Provide information regarding the main source of the groundwater consumed. Will groundwater be pulled only from surficial sources (F and G Sands)? Clarify that the two northern ore bodies extend slightly to the north beyond where the G Sand has been fully down cut and eroded by Cottonwood Creek, such that the F Sand is the surficial aquifer above limited portions of these two ore bodies. Provide the depth from land surface to the F Sand in areas of the Jane Dough unit where the F Sand is the surficial aquifer.

PUBLIC AND OCCUPATIONAL HEALTH

RAI – POH-1 Reporting Units for Uranium in Soil

ER Table ER6-2, Radiological Background in Surface and Subsurface Soil – Jane Dough Unit, (Uranerz, 2014a) provides uranium results in units of mass concentrations, whereas all the other soil concentrations are reported in activity concentrations.

Provide the uranium concentrations in Table ER6–2 based on activity concentrations (e.g., pCi/g).

RAI – POH-2 Yellowcake Dryer and Scope of Baseline Gamma Monitoring

ER Section 6.1.2.1 Baseline Gamma Survey, Purpose and Procedure, second paragraph (Uranerz, 2014a) states, "Additionally, the survey design took into account the fact that the Jane Dough Unit will not have a central or satellite processing facility and fact [sic] that the processing facility at the Nichols Ranch Unit will be limited to resin loading." This description suggests a uranium dryer will not be added to the Nichols Ranch processing facility, which is consistent with current conditions; however, the Nichols Ranch facility is licensed to have a uranium dryer and ER Section 1.3, The Proposed Action, states, "Uranerz is also approved by NRC for its own dryer and will also use its own dryer in the Nichols Ranch CPP should this equipment be installed. Initially, Uranerz will transport uranium-loaded resin beads from the Nichols Ranch CPP to Cameco Resources Inc.'s Smith Ranch Highland CPP but at some point this activity would not be necessary or conducted."

Clarify whether the statement about the sampling methodology being affected by the assumed lack of yellowcake drying at the CPP is correct and, if so, whether there are plans to conduct additional baseline sampling of the Jane Dough Unit if a dryer is installed.

RAI – POH-3 Clarify Summary of Groundwater Quality Data

TR Addendum JD–D6E, Groundwater Quality, second paragraph (Uranerz, 2014b) states that Table JD–D6E.1-1 includes the detailed groundwater quality data for the Jane Dough Unit and that "the summary of this water quality data is presented in Table JD–D6–6." Review of these tables indicates that the summary table does not summarize the data for all the monitored wells in Table JD–D6E.1-1.

Clarify why all the well monitoring data are not summarized in Table JD–D6–6 (data for some wells are not included in the summary). Provide the missing well monitoring data for the table or clarify why the information is not otherwise informative, applicable, or needed.

RAI – POH-4 Miscellaneous Editorial Clarifications

Review of information described in the ER (Uranerz, 2014a) and TR (Uranerz, 2014b) related to public and occupational health identified areas where correction or clarification is needed. These include the following:

a) ER Page ER–118, second paragraph (Uranerz, 2014a), which describes the baseline radiological characterization, cites Exhibit JD–D11–1 as "Jane Dough Unit-Soil and Sediment Sample Location Map"; however, this exhibit is actually titled "Nearest Residential Location" and JD–D11–2 is titled "Jane Dough Unit Radiological Sample Location." Confirm the correct figure reference for this description.

b) ER Section 6.1.2.3, first paragraph (Uranerz, 2014a) summarizes the results presented in Table ER6–8, Gamma Survey Results: Jane Dough Unit. The range of gamma readings described in the text does not match the data presented in the table. Confirm that the values in the table and in the text are consistent and make any necessary corrections. For example, the text describes a range of gamma readings for surface soil as 13 to 17 μR/hr when the table shows no surface soil measurements that reach 17 μR/hr. Additionally, for surface soil the text refers to a high reading of 17 μR/hr at location LAS-13 but there is no entry in the table for that sampling location. Also,

Table ER6–8 includes two sets of average, minimum, and maximum values located at the bottom of the figure that are not labeled clearly.

c) ER Section 6.4.1.2, (Flora and Fauna) Methods (Uranerz, 2014a) refers to the "NRC" Technical Report; however, it appears to be referencing a Uranerz report. Clarify which reference is correct.

d) ER Table ER6–11 Radiological Baseline Values in Vegetation: Jane Dough Unit (Uranerz, 2014a) includes averages at the bottom of the table that appear to be incorrect (many orders of magnitude different than all the values in the table that are being averaged). The table averages also do not match the comparable averages listed in Table ER6–12. The licensee should provide a corrected Table ER6–11.

e) ER Section 6.2.1.1 Regional Groundwater Monitoring (Uranerz, 2014a) states that the results of baseline water quality sampling are detailed in Addendum D6B of Appendix JD–D6. Addendum JD–D6B is titled "Single Well Pump Tests" while Addendum JD–D6E is titled "Groundwater Quality." Clarify the correct reference and make any appropriate changes to the text.

f) TR Section 2.7.3.2 (Uranerz, 2014b), first paragraph, states that in Addendum JD–D6G Table JD–D6G1–1 "lists the wells within the Jane Dough Unit" while Table JD–D6G.1–2 "lists wells in and within three miles of the Jane Dough Unit." These descriptions are inconsistent with the titles of each table. Describe the content of each table particularly with regard to whether the wells are within or outside of the Jane Dough unit boundary.

g) TR Section 2.7.3.2 (Uranerz, 2014b), first paragraph, references Exhibit JD–D6–1 as showing "the locations of the permitted wells within 4.8 km [3 mi] of the Jane Dough Unit." Exhibit JD–D6–1 is titled "Surface Water Drainage Areas." Provide the correct exhibit reference.

RAI – POH-5 Clarify Baseline Air Radionuclide Concentration Units

TR Appendix D–11, Table JD–D11–15 shows the results of quarterly air sampling of uranium, Ra-226, Th-230, and Pb-210 in concentration units of microcurie (µCi)/milliliter. Table JD–D11–16 in the same appendix presents the same data in a different format and provides averages for each sampling location; however, the units are reported as µCi/kilogram. Table JD–D11–16 indicates that they are same numerical values as in Table JD–D11–15. For consistency, provide the same units (µCi/milliliter) in both tables.

WASTE MANAGEMENT

RAI – WM-1 Decommissioning Wastes from Proposed Pipelines

ER Section 1.3, Proposed Action (Uranerz, 2014a) states that the uranium recovered from the Jane Dough Unit would be "transported via pipelines to the CPP in the Nichols Ranch Unit where the uranium would be processed." The installation of new pipelines changes the volume of waste that would be generated during decommissioning when the pipelines are removed; therefore, additional information is needed on the volumes of these new wastes.

Describe the pipelines that will be installed, including the type of piping that would be used, whether the piping would be installed above or below the ground, the estimated total length of

piping that would be used, and an estimate of the volume of decommissioning waste and type of waste (e.g., solid byproduct material, nonhazardous solid waste) from this piping when it is removed during decommissioning (e.g., chipped volume of pipe that is byproduct material destined for a licensed disposal facility and/or nonhazardous solid waste destined for a landfill).

RAI – WM-2 Solid Byproduct Material Disposal Site

The ER (Uranerz, 2014a) and TR (Uranerz, 2014b) do not describe the facility that is being used by the Nichols Ranch ISR Project to dispose of solid byproduct material. Describe any disposal agreement currently in place for Nichols Ranch.

Provide the name and location of the solid byproduct material disposal facility where this waste material from the proposed action will be disposed.

References

NRC. NUREG–1910, Supplement 2 "Environmental Impact Statement for the Nichols Ranch ISR Project in Campbell and Johnson Counties, Wyoming, Supplement to the Generic Environmental Impact Statement for In-Situ Leach Uranium Milling Facilities." ML103440120. Washington, DC: U.S. Nuclear Regulatory Commission. January 2011.

Uranerz. Letter from M. Thomas, Uranerz to NRC dated June 26, 2015, RE: "Uranerz Energy Corporation, Nichols Ranch ISR Project, NRC License SUA-1597, Docket No. 40-9067 (TAC J00726), Jane Dough Unit License Amendment Request," ML15182013. Casper, Wyoming: Uranerz Energy Corporation. 2015a.

Uranerz. "Nichols Ranch ISR Project. U.S. N.R.C Source Material SUA–1597 Jane Dough Amendment Volume IV: Chapter 2.0-Site Characterization and Chapter 3.0-Description of Facilities." ML15118A093 and ML15118A103. Casper, Wyoming: Uranerz Energy Corporation. 2015.

Uranerz. "Nichols Ranch ISR Project. U.S. N.R.C Source Material SUA–1597 Jane Dough Amendment Volume IV: Environmental Report." ML14164A323. Casper, Wyoming: Uranerz Energy Corporation. 2014a.

Uranerz. "Nichols Ranch ISR Project. U.S. N.R.C Source Material SUA–1597 Jane Dough Amendment Volume 1: Technical Report." ML14164A229. Casper, Wyoming: Uranerz Energy Corporation. 2014b.

Uranerz. "Nichols Ranch ISR Project U.S.N.R.C. Source Material License Application." Technical Report and Environmental Report. ML080080594, ML083230892, ML091000572, ML090850289, ML090850370, ML090970719, ML090850597, ML090840186, ML090820583, ML091610148, and ML102650539. Casper, Wyoming: Uranerz Energy Corporation. 2007.

WDEQ. "Permit No. CT-8644." Letter (October 2) from D. Finley, Administrator, Wyoming Department of Environmental Quality, to M. Thomas, Uranerz Energy Corporation. Cheyenne, Wyoming: Wyoming Department of Environmental Quality. 2009.