



Via Electronic Submittal

February 8, 2019

Clint Chisler, Permit Lead
Mining Act Reclamation Program
Mining and Minerals Division
1220 South St. Francis Drive
Santa Fe, NM 87505

RE: Agency Comments on Baseline Data Report Addendum 1, Roca Honda Mine, Permit Application No. MK025RN

Dear Mr. Chisler:

Attached is Roca Honda Resources (RHR) response to your letter of November 29, 2018 transmitting comments from EMNRD Mining and Minerals Department, the Department of Game and Fish, Department of Cultural Affairs and the Environment Department regarding the Baseline Data Report Addendum referenced above. We appreciate MMD's coordination of the agency reviews and look forward to continuing cooperation as the permitting process moves forward.

Please contact me at 208-354-0588 or Scott Bakken, Sr. Director of Regulatory Affairs for Energy Fuels at 303-389-4132 with any questions.

Sincerely,

A handwritten signature in blue ink that reads "Michael Neumann". The signature is fluid and cursive, with a long horizontal stroke at the end.

Michael Neumann
Sr. Project Consultant

cc: Holland Shepherd, MMD
Kurt Vollbrecht, NMED
Mathew Wonder, NMG&F
Bob Estes Ph.D, NMDCA
Scott Bakken, Energy Fuels

**Roca Honda Resources Response to Agency 11/29/18 Letter and Comments
Re: Roca Honda Project Mine Permit Application No. MK025RN**

February 5, 2019

Agency Review of Roca Honda Resources Baseline Data Report Addendum 1, Revision 1 dated July 2018			
Reviewer: C. Chisler Agency: NM MMD		Review Date: November 29, 2018	
Item #	Section/Page (or general)	Topic	Comment
1.	BDR – General	Ore body Description	Please provide a description of the ore body as required by 19.10.6.602D(13)(f) NMAC that relates to the new addition in the permit boundary of Sect. 17 and 8.
	RHR Response		<i>The ore body found beneath Sections 17 and 8 is simply a southwesterly extension of the ore deposit located beneath Sections 16, 9 and 10. As such it is geochemically and stratigraphically virtually identical to the orebody described in the January 2011 Baseline Data Report for the Roca Honda Mine, Revision 1. The only significant difference is that the ore-bearing horizon beneath Section 17 is as much as 400 feet closer to the ground surface than in Sections 16, 9 and 10, becoming progressively deeper from the southwest at an elevation of about 1,400 ft. below ground surface (bgs) to the northeast where the depth is about 1800 to 2000 feet bgs. Zones of mineralization are one to 25 feet thick, 100 to 200 feet wide, and 200 to more than 1,500 feet long. In Section 17, the ore is located primarily in the upper ore zone sandstones (A1, B1, and B2). The ore grade averages four to eight pounds of U₃O₈ per ton of host rock. The cross sections presented in Section 7.0 of the January 2011 BDR will be revised to incorporate Sections 17 and 8 and included in the revised MORP planned for submittal later this spring.</i>

Item #	Section/Page (or general)	Topic	Comment
2.	BDR – General	Ground and Surface Water Information	Please provide update surface and groundwater information pursuant to 19.10.6.602.D(13)(g) NMAC that relates to the new addition in the permit boundary of Sect. 17 and 8.
	RHR Response		<p><i>As noted in the July 2018 BDR Addendum, there are no perennial surface waters or springs located within the proposed permit boundary area in Sections 17 and 8. The established drainages that periodically route surface water during storm events from the base of Jesus Mesa north of the mine facilities area to the south only flow in response to storm events. RHR has collected one sample following such an event and would consider doing so again prior to construction if the purpose for doing so was reasonable and clearly articulated. Please see the response to NMED SWQB comment #1 on page 12 for further discussion of this issue. All facilities in Sections 17 and 8 have been designed so that runoff will either be diverted around disturbed areas or captured within the footprint of disturbed areas thus there will no contact between potentially contaminating materials (e.g. ore stockpiles or development rock piles) and surface water runoff.</i></p> <p><i>Groundwater beneath Section 17 has been characterized as described in Section 9.0 of the January 2011 BDR. An extensive inventory of all wells within 5 miles of the Roca Honda project area was compiled as part of the baseline water quality assessment. Included in the inventory were water samples obtained from three wells in Section 17; one well in the Westwater Member and two wells completed in the Gallup formation. Analytical results for the wells which were sampled from 2008 to 2010 are presented in Tables 9-7,9-8 and 9-9 of the January 2011 BDR. There are no other known wells in Section 17 or Section 8. Section 9.0 of the January 2011 BDR also discusses the occurrence and potentiometric surface of hydrogeologic units underlying Sections 17 and 8.</i></p>

Item #	Section/Page (or general)	Topic	Comment
3.	BDR General	Update information for prior mining, cultural resources, land use	Please provide updated information for the new addition in the permit boundary of Sect 17 and 8 to address BDR information required by 19.10.6.602D (12) (h) (i) and (j) NMAC.
	RHR Response		<i>A map showing previous mining-related activities will be included in the updated Mining Operation and Reclamation Plan (MORP) described in Item #4, immediately below. Please note that much of the information required by 19.10.6.602D(13)(i), cultural resources, is considered confidential and will be submitted separately. Existing land uses in Sections 17 and 8 are similar to those described for the rest of the permit area in the January 2011 BDR with the notable exception that a mine shaft was sunk in Section 17 in the late 1970's. Although the shaft was excavated to a depth of 1481 feet, into the Westwater Member, it did not reach the orebody and no ore has ever been mined from Sections 17 or 8. A map delineating existing disturbances from previous drilling and mine development work in Section 17 will be included in the updated MORP.</i>
4.	BDR General	Update MORP	Please keep in mind that the Mining Operation and Reclamation Plan (MORP), for the Roca Honda Mine, has not yet been updated for Sections 17 and 8. MMD advises that this has been done with the Mining and Reclamation Plan is updated for the whole site.
	RHR Response		<i>As discussed previously with MMD, RHR is in the process of updating the MORP primarily for the purposes of incorporating Sections 17 and 8 into the overall mine plan for the project and routing the reuse (i.e. discharge) pipeline to the south rather than north as originally planned. The update will include information previously submitted to MMD including the civil designs for Section 17 surface facilities, hydrologic analyses, expanded mine dewatering impact analysis, and reuse pipeline plans and designs.</i>
A-1.	BDR Addendum Appendix A	Biological Studies	Please refer to the 26 October 2018 Comment letter from NMDGF for comments on Appendix A.
	RHR Response		<i>RHR has reviewed the referenced letter from NMDGF and responses are provided in the following sections.</i>

Item #	Section/Page (or general)	Topic	Comment
B-1.	BDR Addendum Appendix B	Radiological Assessments	Please refer to NMED's 29 October 2018 (memo) for detailed comments to address on Appendix B.
	RHR Response		<i>RHR has reviewed NMED's 29 October 2018 Memorandum and responses are provided in following sections of this table.</i>
C-1.	BDR Addendum Appendix C	Reuse Pipeline	Please update the Reuse Pipeline Route Survey and Design Criteria to reflect the final route and outfall locations.
	RHR Response		<i>An exact outfall location has not been determined for the reuse pipeline at this time. However, existing conditions of the Rio San Jose (RSJ) within the proposed discharge zone extending over an approximate two mile reach of the RSJ have been documented such that environmental impacts can be projected regardless of the exact outfall location. EFR is pursuing the possibility of shortening the route to save substantially on construction costs.</i>
C-2.	BDR Addendum Appendix C	Discharge Volume	Please update the Reuse Pipeline Route Design Criteria to reflect the maximum discharge volume planned to be discharged through the pipeline.
	RHR Response		<i>Modeling of mine water inflows from the expanded mine plan indicates that the maximum annual average inflow would occur in Year 7 of mining at a rate of 5,920 gpm. However, the Reuse Pipeline will be designed to accommodate a flow up to 12,000 gpm in order to provide additional pipeline capacity for higher flows if needed to manage any extraordinary events. The expanded mine dewatering model indicates that average annual inflow rates to the Water Treatment Plant (WTP) will range from 1600 gpm to 5,920 with an average annual rate of 4,700 gpm.</i>
C-3.	BDR Addendum Appendix C	NMED Comments	Please refer to NMED's 29 October 2018 letter for detailed comments to address on Appendix C.
	RHR Response		<i>RHR has reviewed the referenced NMED comments and responses to those comments are presented in following sections.</i>
E-1.	BDR Addendum Appendix E	NMED Comments	Please refer to NMED's 29 October 2018 letter for detailed comments to address on Appendix E.
	RHR Response		<i>RHR has reviewed the referenced NM Environment Department comments and responses to those comments are presented in following sections.</i>

Item #	Section/Page (or general)	Topic	Comment
E-1.	BDR Addendum Appendix E	NMDCA Comments	Please review and respond to comment from NMDCA included in their 02 October 2018 letter.
	RHR Response		<i>RHR has reviewed the referenced NM Department of Cultural Affairs comments and responses to those comments are presented in following sections.</i>
E-1.	BDR Addendum Appendix E	NMDGF Comments	Please review and respond to comments NMDGF included in their October 2018 letter.
	RHR Response		<i>RHR has reviewed the referenced NM Division of Game and Fish comments and responses to those comments are presented in following sections.</i>

Agency Review of Strathmore New Mine Permit Application Documents for the Roca Honda Uranium Mine Site

Reviewer: A. Rheubottom
Agency: NMED MECS

Review Date: October 29, 2018

Item #	Section/Page (or general)	Topic	Comment
1)	Section 1.0, Pg. 1	Revised Permit Application	NMED considers this report to be an integral component to the DP-1717 application package. The proposed change of discharge location to the Rio San Jose, associated pipeline corridor and inclusion of Section 17 and portions of Section 8 will require revision of the existing permit application and re-issuance of the public notice. NMED requests the submittal of a revised permit application to supplement the existing DP-1717 application package to include these facilities. Following the submittal of a revised permit application, NMED will coordinate with Roca Honda Resources (RHR) on the process for the public notice.
	RHR Response		<i>RHR agrees to submit a revised discharge permit application that will address the changes noted by NMED and understands that re-issuance of public notice will be required.</i>
2)	Section 1.0, Pg. 3	Pipeline Routes	The figure provided shows multiple pipeline routes, however the accompanying text does not discuss the different routes. Please revise the text to explain the routes and submit a revised figure which notes them more clearly.

	RHR Response		<i>The reason for the different pipeline routes shown on the referenced figure is to provide site access options. If RHR is unable to resolve access to the WTP from the south, directly through Sections 20 and 17, the surface of which are owned by Fernandez Co., the reuse pipeline, and primary access road will be routed from the WTP in Section 16 through Sections 9, 10 and 11 on USFS land.</i>
3)	Appendix B, ERG Report Pg. 2	Gamma exposure Rates	Please discuss the reliability of the statistics on Figure 2 for Mean Exposure Rate below 20 µR/hr as the R2 value is 0.817.
	RHR Response		<i>As explained in the attached response from ERG (see Attachment A), the apparently low R squared value reflects an increasing variance at increasing gamma readings. However since post-mining radiological surveys will use methods and instruments consistent with the baseline surveys, the resulting estimates of Ra-226 concentrations are expected to be reliable. Further, soil samples will be taken during final surface reclamation from areas exhibiting higher gamma levels to determine actual soil Ra-226 concentrations and compliance with closure standards.</i>
Item #	Section/Page (or general)	Topic	Comment
4)	Appendix B, ERG Report, Pg. 11	Elevated Gamma Levels	Please discuss how RHR intends to address the areas with elevated levels detected in the survey in the southern part of Section 17.
	RHR Response		<i>As described in ERG's response in Attachment A; RHR has documented existing radiological conditions in Section 17. If the existing area of elevated gamma readings exhibits any increase in gamma levels following mining , the area will be considered impacted by RHR mining operations and remediated in accordance with MMD guidelines. In that case, soils exceeding 5pCi/g Ra-226 greater than baseline (i.e. existing conditions) would be removed, mixed with waste rock, and placed underground during mine backfill operations.</i>
5)	Appendix B, Arcadis-Senes pgs. 6 & 7	Elevated gamma levels	Please discuss how Energy Fuels intends to address the areas with elevated levels detected in the survey and the process for documentation "prior to future mining operations".
	RHR Response		<i>See ERG Response #4 in Attachment A. At least three months prior to beginning pipeline construction, RHR will re-survey the "midsection" of the pipeline route as described in the ARCADIS_SENES report using similar methods and equipment as used for the survey documented in the January 2014 report. While the higher gamma values obtained during the baseline survey suggest there may have been some contamination from historic mining</i>

Item #	Section/Page (or general)	Topic	Comment
			<i>operations in Ambrosia Lake, the radiation doses to potential receptors associated with gamma readings less than 50 µR/hr would be negligible. None-the-less representative soil samples will be collected where gamma readings exceed 25 µR/hr during construction to determine soil concentrations of Ra-226, Th-232 and U nat. During construction, soils exhibiting gamma levels greater than 25 µR/hr will be placed in the bottom of the trench and covered with cleaner soils to ensure that the New Mexico Radiation cleanup criteria of 5 pCi/g Ra-226 greater than background will be achieved. Should any soils with Ra-226 concentrations greater than 5 pCi/g above background be encountered, they would be removed and placed on waste rock piles at the Roca Honda mine for eventual underground disposal.</i>
6)	Appendix B, Arcadis-Senes pg 10, January 2016 ERG, Pg 6	Soil analytical suite	Please explain why the soil analytical suite for the 2016 report was Ra-226, Th-230, U-nat and the 2014 report was Ra-226, 228-Ra, 230-Th U-nat, K-40. Specifically, please address why Ra-228 and K-40 were omitted from the 2016 report, and Th radionuclide differed between the two surveys.
	RHR Response		<i>See ERG Response # 6 in Attachment A for a detailed explanation. The main reason for the differences are that New Mexico regulatory requirements and guidelines for conducting radiological surveys changed over the time span that the different surveys were conducted.</i>
7)	Appendix B	95% Confidence level for reclamation	Considering the two studies presented herein, and the previous studies submitted by RHR, what is the site specific 95% confidence background level to be achieved at the completion of mine activity. Please discuss any changes this number has undergone as a result of expanded baseline work presented to the coordinating agencies.
	RHR Response		<i>The 95th percentile for baseline gamma exposure rates across the permit area is 15.6 µR/hr. See ERG Response #7 in Attachment A for a detailed explanation of how this value was determined.</i>
8)	Appendix C, June 2015 Wilson & Co., Pg 1; and Appendix E October 2017 RSJ Characterization,	Discharge Rate Discrepancies	The maximum capacity stated in Wilson is 4,500 GPM for the discharge pipeline, the RSJ report states the maximum discharge volume is 5,920 GPM and the Application states 8,000 GPM as a discharge volume. Please discuss the discrepancy of these values. Additionally, when the revised application is submitted (Comment1) please state the appropriate proposed discharge volume.

Item #	Section/Page (or general)	Topic	Comment
	Section 1, Pg 1; and January 2009 DP Application		
	RHR Response		<i>When the 2009 DP application was filed and the first Wilson & Company design were done the mine permit area consisted of 3 sections. After Energy Fuels acquired Section 17 the proposed permit area was expanded to 4 full sections and a quarter quarter section (8), with two production shafts and a revised mining sequence that requires additional dewatering. The original mine dewatering model projected a maximum annual average dewatering rate of 4500 gpm. The dewatering model was expanded to reflect simultaneous pumping from two shafts in addition to more wells required for the expanded mine plan. Results of that modeling indicate a maximum annual average dewatering rate of 5,920 gpm, with an average annual rate of 4,700 gpm over the mine life. In order to accommodate unexpected underground pumping disruptions, the WTP and pipeline will be constructed to handle a maximum treatment rate of 12,000 gpm (twice the maximum expected inflow). Pertinent sections of the DP application and design drawings reflecting these rates will be included in the revised DP application.</i>
9)	Appendix E, 2017 Technical Memorandum	Revised Dewatering Model	NMED would recommend RHR submit the Technical Memorandum to NMOSE for their review, considering NMOSE requirements pertaining to mine dewatering.
	RHR Response		<i>RHR has met several times with OSE staff to review the results of the revised drawdown modeling and INTERA's analysis as described in the April 17, 2017 Technical Memorandum referenced above. As a follow up OSE requested a copy of the model used to simulate drawdown as altered by the addition of Section 17. RHR subsequently provided the model to OSE in 2017 in order for the agency to independently verify the results obtained by INTERA.</i>
10)	Appendix E, Technical Memorandum, Pg. 1	Model Extent	Dewatering was evaluated only for Sections 9,10,16, and 17. A small portion of Section 8 is a part of this project, and it does not appear this was included in the 2017 assessment. Please include a discussion regarding inclusion of Section 8 in the 2017 dewatering assessment.
	RHR Response		<i>Although the small portion of Section 8 included in the proposed permit area (40 acres) is not explicitly labeled on the figures in the Technical Memorandum, the model encompasses it. The</i>

Item #	Section/Page (or general)	Topic	Comment
			<i>combination of pumping water from the Section 17 shaft and the surrounding dewatering wells creates a drawdown cone that extends into and well beyond the SE4SE4 of Section 8 as shown by the drawdown contours in Figures 4 through 10 of the Technical Memorandum. Those figures were also included in a handout presented and discussed at a March 17, 2017 meeting of the Roca Honda Interagency work group.</i>
11)	Appendix E, Technical Memorandum, Pg.8	Impact to Private Wells	It is stated that public water supply in the Gallup will not be impacted by Roca Honda dewatering efforts. Were potential impacts to private wells evaluated?
	RHR Response		<i>Yes; in addition to potential impacts to public water supplies, potential drawdown in private Gallup wells were evaluated. As described in the Technical Memorandum (pg. 9) drawdown is predicted to be between 5 and 58 feet at four Gallup wells. Three of these were considered in the INTERA (2012) report (<u>Assessment of Potential Groundwater Level Changes from Dewatering at the Proposed Roca Honda Mine</u>) included in the January 2011 BDR. The fourth well, B-1442 expl-2, is a deep exploratory well. As explained in Sections 5.1 and 6.0 of the 2012 INTERA report, maximum drawdown in the Gallup aquifer occurs at the end of the first year of depressurization for construction of the production shafts and thereafter water levels in the Gallup recover rapidly. Note that the Mine Dewatering permit approved by the NM OSE requires RHR to replace three wells that would potentially be impaired from aquifer drawdown as a condition of mine development but those wells are in the Westwater. See Hydrosience Associates Inc. response to this comment on Page 3 of Attachment C for more detail.</i>
12)	Appendix E, Technical Memorandum, Pg. 8	Hydrology	Please clarify what geologic unit “upper water-bearing sandstones” is referring to in paragraph 4.
	RHR Response		<i>The upper water-bearing units referred to are the Menefee and Point Lookout formations.</i>
13)	Appendix E October 2017 RSJ Characterization, Pg. 20	Alluvial Wells	NMED agrees that additional alluvial characterization in the form of alluvial monitoring wells would be prudent considering the challenges in the characterization efforts presented herein. However, NMED had previously recommended, in a letter to RHR dated September 22, 2015, the installation of three new alluvial wells. NMED will evaluate the proposed alluvial monitoring program as a component of the DP-1717 permitting process.
	RHR Response		<i>The revised DP permit application will provide more detail about plans for installing alluvial</i>

Item #	Section/Page (or general)	Topic	Comment
			<i>wells prior to initiating any discharging activity. As described in the RSJ October 2017 characterization report, alluvium depth varies considerably downstream of the proposed discharge zone from zero to a maximum of about 38 feet over the course of the seven mile reach surveyed with geophysical methods and sampled.</i>
14)	Appendix E, October 2017 RSJ Characterization, Field Data	Soil Properties	Sites 1, 3 and 9 had greater Radiation scan values at depth than on the surface. Did these locations exhibit any other differences in soil properties with depth?
	RHR Response		<i>The difference in gamma readings for the shallow (0.5 ft.) and deeper (1.5 ft.) sediment samples from sites 3 and 9 are considered insignificant (less than 10 µR/hr) as are the differences in radionuclide concentrations. The 22 µR/hr difference between the shallow and deeper samples from Site 1 is likely due to the higher uranium value for the deeper sample, 3.5 mg/kg, vs. 0.8 mg/kg for the shallower sample. Both samples were classified as sandy clay loams and the chemical composition of the samples was very similar. Note that the reference in NMED's comment should be to Attachment A of the October 2017 RSJ characterization document: Findings of Water Quality and Sediment Chemistry Along the Rio San Jose, September 2017.</i>
15)	Appendix E, October 2017 RSJ Characterization	Figure 2	Does Roca Honda have any historic water quality data on Well 6535? If so please provide this to NMED.
	RHR Response		<i>The 6535 label on the referenced figure (Figure 2) appears to be a bench mark elevation, not a well number. The State Engineer's well data base does not list any permitted wells near the location of the "well" label on the base map.</i>
16)	Appendix E, October 2017 RSJ Characterization	Table E.2	The line for <i>Erigeron rhizomatus</i> states Chinle is not in the project area, however the report introduction states Chinle is in the project area. Please discuss this discrepancy.
	RHR Response		<i>According to the New Mexico Geologic Map of Milan Quadrangle, June 2012, included as</i>

Item #	Section/Page (or general)	Topic	Comment
			<i>Attachment C in the October 2017 RSJ Characterization report, there is no Chinle formation present at the surface within the proposed discharge zone. The only two geologic units shown on that map within the area of immediate interest are, predominantly, Quaternary valley fill (Qvf) and, secondarily, Bluewater basalt flow (Qbt). RHR accordingly agrees with the conclusion in the Tierra report that the potential for occurrence of Erigeron rhizomatus within the proposed discharge zone is unlikely.</i>
17)	Appendix E, October 2017 RSJ Characterization, Appendix H	Photo Description	Please provide a revised figure for the second full page photo which includes a photo description.
	RHR Response		<i>See attached figure of re-engineered Rio San Jose channel with description (Attachment B).</i>
Reviewer: A. Klatt Agency: NMED Surface Water Quality Bureau			Review Date: October 29, 2018
Item #	Section/Page (or general)	Topic	Comment
#1	BDR Addendum 1 PDF Pg. 8	Additional Data Collection	The State of New Mexico protects non-perennial surface waters under 20.6.4 of the New Mexico Administrative Code (NMAC). SWQB is aware of the logistical challenges involved with sampling non-perennial waterbodies and requests that an attempt be made to collect surface water samples for a baseline water quality evaluation using ISCO samplers or similar automatic sampling equipment. In addition, SWQB recommends that physical or biological data be collected as part of the baseline data report. Examples of physical data include channel width, floodplain width, channel depth, channel slope, sinuosity, grain size distribution, percent canopy cover, etc. Data should be collected at the permit area and the potentially affected areas which includes San Rafael Canyon and the Rio San Jose.

Item #	Section/Page (or general)	Topic	Comment
	RHR Response		<i>RHR is not opposed to collecting additional information or performing further analysis where it can be demonstrated that such analysis is necessary to better understand the foreseeable impacts from mine development. However we question the value of, for example, attempting to collect surface water samples within an area where the only surface water occurrences are immediately following storm events. In light of the fact that all storm water that falls within the project area will either be diverted around facility and disturbed areas or captured and retained within the footprint of surface facilities, we do not understand how sampling run-off events would contribute to an understanding of potential water quality impacts from mining operations. We also note ISCO samplers or similar automatic samplers are very expensive to obtain and install and not always particularly reliable or informative in terms of the data recovered. However, RHR will attempt to sample storm water flows as conditions permit once project development begins and trained environmental staff are on site to perform such duties. RHR will also document existing characteristics of the RSJ immediately below the discharge point by constructing pre-discharge cross sections of the channel and establishing photo points for monitoring potential changes to channel morphology over the mine life.</i>
#2	2018 BDR Addendum 1 – P. 34 PDF	San Rafael Canyon	SWQB recommends coordinating with the USACE to determine if San Rafael Canyon is a water of the U.S. However, regardless of the outcome of this determination, San Rafael Canyon retains its status as a surface water of the state. A surface water of the state includes tributaries that combine with other surface waters of the state by either surface or subsurface connections ¹ . The lower reach of San Rafael Canyon is located within an alluvial geologic unit ² and has a close proximity to San Mateo Creek which likely supports a subsurface connection to San Mateo Creek due to the increased hydrologic conductivity associated with alluvial materials. As a surface water of the state, San Rafael Canyon is subject to New Mexico's Antidegradation Policy and Implementation Plan (20.6.4.8 NMAC), General Criteria (20.6.4.13 NMAC), and Intermittent Waters (20.6.4.98 NMAC) with designated uses that include livestock watering, wildlife habitat, warmwater aquatic life, and primary contact. Mining related activities with the potential to adversely affect the chemical, physical, and biological characteristics of surface waters of the state should be conducted with Best Management Practices (BMPs) to protect and maintain existing water quality.
	RHR Response		<i>RHR will coordinate with USACE to determine the status of San Rafael Canyon as a potential water of the U.S. as recommended. RHR also understands that even though San Rafael Canyon is dry except for rare flows in response to significant storm events it is none-the-less subject to the New Mexico Antidegradation Policy and Implementation Plan and has incorporated</i>

Item #	Section/Page (or general)	Topic	Comment
			<i>appropriate BMP's to protect water quality into the project design. Those measures will be identified in the revised DP application discussed in earlier comment responses and be integral elements of the Stormwater Pollution Prevention Plan (SWPPP) for the project. With regard to the potential for subsurface hydrologic connection between San Rafael Canyon and San Mateo Creek, please see Hydrosience Associates, Inc. (HAI) response to this comment found in Attachment C. Also note that no indications of any significant tributary or subsurface discharge to San Mateo Creek were observed in the reach most likely to receive any theoretical discharge from San Rafael Canyon, as described in the Appendix 8A, pgs. 22-45 of the January 2011 BDR (Summary of San Mateo Creek Level 1 Stream Survey, 12/10/2009 HAI memo).</i>
3)	2018 BDR Addendum 1 – PDF Pgs. 122 and 129	Wetlands	<p>Wetlands are surface waters of the state and are defined in 20.6.4 NMAC as:</p> <p><i>"areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions in New Mexico."</i></p> <p>The state definition does not require all three wetland attributes (i.e. hydric soils, hydrophytic plants, and supporting hydrology) to be present at the same time for an area to be classified as a wetland. Therefore, the sites that meet the vegetation requirement for a wetland would be a surface water of the state subject to 20.6.4 NMAC. The General Criteria under 20.6.4.13 NMAC includes standards for suspended or settleable solids, oil and grease, toxic pollutants, total dissolved solids, as well as additional criteria not listed here. Mining related activities in these areas should be conducted with Best Management Practices (BMPs) to prevent, "...any water contaminant [to discharge] in such quantity and of such duration as may with reasonable probability from injuring human health, animal or plant life or property, or unreasonably interfering with the public welfare or the use of property." (20.6.4.13 NMAC)</p>
	RHR Response		<i>Comment noted. There will be no discharge of water or sediment from the mine site other than treated water from the reuse pipeline which will discharge at least 7 miles downstream of the nearest wetlands described in the Marron report. The only potential for impacts to the wetlands would be during Reuse pipeline construction and appropriate BMPs will be used to protect the wetlands during construction.</i>
#4	2018 BDR	Radiologic	SWQB agrees with the suggestion for additional radiological surveying and

Item #	Section/Page (or general)	Topic	Comment
	Addendum 1- PDF Pg. 243	Surveys	recommends surveying upstream and downstream of the discharge outfall location to provide additional data on background conditions.
	RHR Response		<i>RHR agrees with NMED's recommendation and will perform gamma surveys to characterize existing radiological conditions for a distance of 100 meters above the Reuse pipeline outlet and for 500 meters down stream. Note that gamma readings were taken at the surface and at incremental depths where possible at the sampling sites described in the Report for Findings of Water Quality and Sediment Chemistry Along the Rio San Jose in the RSJ Characterization report. It's important to remember that the treated water will meet drinking water quality and EPA NPDES standards.</i>
#5	2018 BDR Addendum1- PDF Pg. 5	RSJ Assessment Units	<p>The State of New Mexico <i>Clean Water Act §303(d),(P05(b) Integrated Report (IR)</i> is a biennial report developed by the NMED-SWQB that is based on water quality monitoring data assessment results. The IR is designed to serve as a source of basic information on water quality and water pollution control programs in New Mexico. The IR is organized into watersheds and "assessment units," i.e., waterbodies or stream reaches with assumed homogeneous water quality. The Rio San Jose has two assessment units, which are split between non-perennial and perennial portions and described in more detail below.</p> <p>Assessment Unit: Rio San Jose (Grants BNSF railroad crossing to the headwaters): This assessment unit is non-perennial. The <i>List of Assessed Waters</i> (Appendix A of the IR) reports this assessment unit as Category 3A – insufficient data to determine whether or not the Rio San Jose (Grants BNSF railroad crossing to the headwaters) is in support of its designated uses³. The <i>NMED-SWQB Water Quality Survey Summary Report</i>⁴ explains in the summary that water quality data were not collected (in many reaches including this one) due to dry flow conditions at the time of sampling.</p> <p>Assessment Unit: Rio San Jose (non-tribal HWY 117 to Grants BNSF RR crossing): This assessment unit is perennial and downstream of both the Rio San Jose (Grants BNSF railroad crossing to the headwaters) assessment unit and the proposed discharge location for the Roca Honda Mine. The IR's <i>Assessment Rationale</i>⁵ houses additional details on the history of various assessment conclusions. According to the <i>Assessment Rationale</i>, the Rio San Jose (non-tribal HWY 117 to Grants BNSF RR crossing) was listed as impaired for dissolved arsenic following the 2011 survey; however, arsenic was re-assessed using only the downstream station (36RSanJol 11.0). Station 36RSanJol 11.0 had zero of seven (0/7) arsenic exceedences, therefore the arsenic impairment listing was removed. The Rio San Jose (non-</p>

Item #	Section/Page (or general)	Topic	Comment
			tribal HWY 117 to Grants BNSF RR crossing) is currently in full support of its designated use.
	RHR Response		<i>The information provided is noted, particularly the fact that “water quality data were not collected (in many reaches including this one) due to dry flow conditions at the time of sampling”. This statement underscores the difficulty in trying to obtain samples from non-perennial stream reaches, such as those near the project area, particularly on a seasonal basis.</i>
#6	PDF Pg 19 of the report “Findings of Water Quality and Sediment Chemistry along the Rio San Jose”	Water Quality	The gross alpha result of 32.3 pCi/L collected from site RSJ #7 on 9/1/2015 converts to an adjusted gross alpha value of 16.22 pCi/L following the NMED-SWQB Comprehensive Assessment Listing Methodology ⁶ conversion procedure. An adjusted gross alpha value of 16.22 pCi/L exceeds the water quality standard for Livestock Watering which is 15 pCi/L. (see 20.6.4.900 NMAC)
	RHR Response		<i>Comment noted; thank you for pointing out the lower adjusted gross alpha value. It should be noted that EPA’s NPDES effluent limitations for uranium mines as specified in 40 CFR Part 440 Subpart C will be met at the point of discharge from the RHR water Reuse pipeline.</i>
#7	PDF Pg 20 of the report “ Findings of Water Quality and Sediment Chemistry along the Rio San Jose”	Water Quality	<ul style="list-style-type: none"> • The reported bis(2-chlorethyl)ether (BCEE) value of 3.89 mg/L is roughly 4 orders of magnitude greater than the water quality standard for human health-organism only (HH-00) which is 5.3 µg/L. Downstream tribal water quality standards may have uses and criteria not identified in the State's water quality standards. BCEE is a mobile chemical compound and known carcinogen. • From a SWQB correspondence with GWQB-Superfund Oversight Section, the Grants Chlorinated Solvent Site is unlikely to be the contributing source for the BCEE and Phenols. An extensive Remedial Investigation to document the nature and extent of the site contamination did not identify BCEE or Phenols as Contaminants of Concern. • Appendix B on page 45 reports the same concentrations of Bis(2-chloroethyl)ether (BCEE) and phenol from site RSJ #6 on 5/27/2015 and site RSJ #7 on 5/27/2015. SWQB recommends verifying the accuracy of these values and re-sampling to help verify results (see Comment #9). The reported units of mg/L should also be verified.

Item #	Section/Page (or general)	Topic	Comment
	RHR Response		<i>With respect to the possible source of the bis(2-chloroethyl)ether (BCEE), if it is not the Grants Chlorinated Solvent Site and NMED does not know the source perhaps it should investigate. Logic would suggest that if the low concentration of BCEE detected in only one sample (less than 5 mg/L) became mobilized due to a steady flow of 5-13 cfs in the RSJ that it would be rapidly diluted. Perhaps NMED could sample the same location following a storm event to see if the sample results can be replicated when there is water flowing in the channel. The proximity of the sampling site to the outlet of the dismantled Grants Wastewater Treatment Plant may also have a bearing on current water quality at that location. Also note the BCEE values obtained from RHR's sampling were reported incorrectly in the cited report; the surface water sample at Site RSJ8 yielded the 3.89 mg/L BCEE value (as reported) while the sample from Site RSJ-6 actually had a non-detectable level of BCEE, not the 3.89 mg/L incorrectly given in the report. Attachment D provides copies of the sample transmittal forms and lab data sheets for the samples in question with the corresponding correct values.</i>
#8	PDF Pg 21 of the report " Findings of Water Quality and Sediment Chemistry along the Rio San Jose"	Monitoring Plan	In addition to a monitoring plan for monitoring wells mentioned above, SWQB recommends developing and implementing a similar monitoring plan for surface water in the Rio San Jose
	RHR Response		<i>RHR agrees that implementing a monitoring program in the Rio San Jose once discharge begins would be prudent although quality of the water to be discharged will be sampled after treatment and before discharge to insure that all relevant water quality standards are being met before any water is released to the Rio San Jose.</i>

Item #	Section/Page (or general)	Topic	Comment
#9	General	Seasonal Sampling	The Workplan, Sampling Analysis Plan, and the Baseline Data Report do not appear to specify the number of repeat water quality sampling events nor does it appear to discuss how the number of repeat water quality sampling events was determined. A single water quality sample for a single location is typically insufficient to accurately characterize the environmental condition of surface water due to seasonal and interannual variability. SWQB recommends repeat sampling over at least three seasons, if possible, to characterize the existing environmental conditions pursuant to NMAC 19.10.6.602 D. (13) (g) (ii).
	RHR Response		<i>See HydroScience Associates, Inc. response to this comment in Attachment C. It is not feasible to collect seasonal water quality samples from ephemeral stream channels.</i>
#10	RSJ Characterization report- BDR Appendix I; letter to USFS	RSJ Flows	<p>In a response letter from Roca Honda Resources (RHR) to the U.S. Forest Service concerning the Dewatering Discharge Plan that is part of the Baseline Data Report, RHR states:</p> <p>"There is no potential for discharge to result in stream bank changes downstream. The RHR discharge will be small and will have no tractive power, because the channel is adapted to much larger storm flows between 100s or even 1000s of cfs. The projected maximum annual discharge rate of slightly less than 6,000 gpm is approximately 13 cfs which is a very small fraction of the existing channel capacity. In comparison, the newly reconstructed channel is designed to accommodate 2500 cfs with two feet of freeboard (Wilson and Company, Village of Milan, Milan Farms Master Plan)."</p> <p>The portion of the Rio San Jose at the proposed discharge location has been substantially re-engineered and widened; however, directly below the proposed discharge location at the Stanley Avenue bridge, the Rio San Jose has a much narrower channel width. The discharge associated with 1.5 year recurrence interval is commonly referred to as the bank- full discharge. This discharge has been routinely related to the formation, maintenance, and dimensions of channels. The USGS gaging station 8343000, approximately 3 miles downstream of the proposed discharge location, has 56-years of recorded annual peak flows between the years 1950 and 2011. The 1.5 year recurrence interval for this period of record is 34 cfs. An increase of 13 cfs to the discharge associated with the 1.5 year recurrence interval represents a 38% increase in discharge. Furthermore, between 1990 and 2012 only 0.24% of the days reported a mean daily discharge of 13 cfs or greater. In this context, SWQB considers the continual estimated discharge of 13 cfs over the period of 13 years to be a</p>

Item #	Section/Page (or general)	Topic	Comment
			significant change to the hydrologic regime with the potential to alter channel dimensions. SWQB's recommendations under Comment # I will help determine if any geomorphic changes occur as a result of the proposed project.
	RHR Response		<i>See the HydroScience Associates, Inc. response to this comment in Attachment C. Although RHR believes it highly unlikely that a maximum discharge rate of approximately 13 cfs is capable of significantly altering the channel dimensions, it will construct some basic channel cross sections and establish photo stations to document existing channel conditions below the point of discharge before discharge begins. RHR has observed over many years that the RSJ channel below the Stanley Street bridge and downstream through the Village of Milan and city of Grants is regularly dredged with construction equipment and vegetation growing along the banks is periodically removed as well. These regular activities will have more effect on channel characteristics and stability than a typical flow of 5-10 cfs resulting from mine discharge.</i>
#11		RSJ Sediment Samples	<p>In a response letter from RHR to the U.S. Forest Service concerning the Dewatering Discharge Plan that is part of the Baseline Data Report, RHR states:</p> <p style="padding-left: 40px;">"There is no potential for discharge to liberate contaminants that could affect the quality of water that issues from Horace Spring. Analysis of sediment samples obtained by EFR [Energy Fuels Resources] in 2015 from the Rio San Jose streambed, from the proposed discharge point to the eastern boundary of the City of Grants, confirms that there are no contaminants of concern present in the streambed."</p> <p>Sediment samples were collected at depths of 0.5 and 1.5 feet. The thickness of alluvial material and the depth to bedrock below the Rio San Jose was reported by RHR to be 24 feet. The statement above would be greatly supported by sediment samples collected and analyzed from the bedrock contact as initially proposed by RHR and previously commented on by NMED in the Work Plan.</p>

Item #	Section/Page (or general)	Topic	Comment
	RHR Response		<i>As noted in the report "Findings of Water Quality and Sediment Chemistry along the Rio San Jose (Appendix A of Rio San Jose Characterization Report) it was physically not possible to obtain sediment samples above the bedrock contact with the method used. However as stated in earlier responses, RHR intends to install as many as three monitor wells where the alluvial material is deeper (e.g. greater than 15 feet) and will sample sediments at depth during the construction/installation of those wells.</i>
#12	PDF PG. 6 of the Rio San Jose Characterization Work Plan (Appendix __ of the RSJ Characterization report).	Regulatory Process	<p>PDF page 6 of the Rio San Jose Characterization Work Plan- Revision 1" reads:</p> <p style="padding-left: 40px;">"the treated mine water will be discharged under a NPDES permit and will be treated to meet effluent limitations specified in the permit by the U.S. EPA. The discharged treated mine water will also meet New Mexico Water Quality Control Commission (WQCC) standards as set forth in NMAC Section 20.6.2.3103, human health standards for groundwater."</p> <p>Through correspondence between SWQB and Energy Fuels, it is the understanding of SWQB that the U.S. Environmental Protection Agency is waiting for the U.S. Forest Service to issue a Final Environmental Impact Statement prior to their review of the NPDES permit application. As a part of the NPDES permitting program under Section 402 of the Clean Water Act (CWA), SWQB will conduct a CWA Section 401 review pursuant to NMAC 20.6.2.2001 to ensure the federally permitted activities comply with applicable state surface water quality standards established under 20.6.4 NMAC, including the antidegradation policy and the statewide water quality management plan.</p>
	RHR Response		<i>RHR appreciates NMED's clarification of the State's role in the NPDES permitting and CWA Section 401 review process.</i>

Agency Review of Roca Honda Resources Baseline Data Report Addendum 1, Revision 1 dated July 2018

Reviewer: Bob Estes			Review Date: October 2, 2018
Agency: Department of Cultural Affairs			
Item #	Section/Page (or general)	Topic	Comment
NA	General	Section 106 Consultation	We have been working closely with the Cibola National Forest for the Roca Honda undertaking and will advance the consultation under Section 106 of the National Historic Preservation Act.
	RHR Response		<i>RHR appreciates the comments and looks forward to continuing work with the DCA as the Section 106 consultation process moves forward.</i>

Agency Review of Roca Honda Resources Baseline Data Report Addendum 1, Revision 1 dated July 2018

Reviewer: Matt Wunder, PhD			Review Date: October 26, 2018
Agency: NM Dept. of Game and Fish			
Item #	Section/Page (or general)	Topic	Comment
NA	Pg.1, paragraph 2	Raptor Surveys	The report states that the ground surveys of the proposed Section 17 Expansion Area were conducted between 25 and 27 August 2015, and that the raptor and golden eagle (<i>Aquila chrysaetos</i>) survey was conducted on 26 and 27 August 2015. Four species of raptors were observed: golden eagle, red-tailed hawk (<i>Buteo jamaicensis</i>), sharp-shinned hawk (<i>Accipiter striatus</i>), and American kestrel (<i>Falco sparverius</i>). The report also states that peregrine falcons (<i>Falco peregrinus</i>) were documented "only a few miles to the southeast of the study area." The report states that no raptor nests were documented on the cliffs along Jesus Mesa located 0.15 mile east of the study area, although Marron Indicates that these cliffs provide suitable habitat for nesting raptors. Young raptors typically fledge by August, and therefore the timing of the raptor survey was not sufficient to document active raptor nest sites, especially for species using cavities or ledges such as American kestrel, peregrine falcon, prairie falcon (<i>Fa/co</i>

Item #	Section/Page (or general)	Topic	Comment
			<i>mexicanus</i>), and great horned owl (<i>Bubo virginianus</i>). The Department recommends additional surveys with dates that would include March for golden eagles and great horned owls; and April, May, and June for songbirds and other raptors. Winter surveys are also recommended in order to document avian use of the study area during non-breeding seasons.
	RHR Response		<i>RHR will conduct the additional raptor and song bird surveys as recommended by NMG&F.</i>
	Pg. 1, Paragraph 3	Gray vireo	Gray vireos (<i>Vireo vicinor</i>) were heard calling in the northern portion of the study area, but no nest sites were identified. Gray vireo is state listed as Threatened and is considered a Species of Greatest Conservation need. As part of the avian use surveys, the Department also recommends conducting protocol surveys for gray vireo to determine if the species nests within the project area.
	RHR Response		<i>RHR will conduct protocol surveys for gray vireo as recommended.</i>
	Pg. 2, Paragraph 1		The Department has previously recommended that an acoustic monitoring survey be conducted for bats as part of the Roca Honda Sampling and Analysis Plan and Baseline Data Report. To date, this request has been repeatedly ignored. The Roca Honda permit area appears to contain high quality bat habitat, and a number of sensitive bat species could occur there including the state Threatened spotted bat (<i>Eudenna maculatum</i>). This species was captured on 30 June 2006 and 5 June 2007 near an earthen stock tank approximately seven miles south of the proposed Roca Honda site (Geluso 2008), providing evidence of a reproducing population in the area. Spotted bats utilize vertical fissures in cliff faces for roosting, and the cliff faces along Jesus Mesa may provide important habitat for this species. In addition, any existing or future development of water sources, such as stock tanks or mining ponds, will serve to attract bats. Therefore, the Department reiterates the necessity to conduct bat surveys as part of the Baseline Data Report.
	RHR Response		<i>RHR will perform acoustic monitoring for bats as requested by NMG&F following consultation with NMG&F personnel on methodology and timing for such a survey.</i>

Item #	Section/Page (or general)	Topic	Comment
	Pg. 2, Paragraph 2	Reuse Pipeline	Any future pipeline construction along sections of NM Highway 605 that Marron has designated as potential nesting habitat should occur outside the primary migratory songbird breeding season of 15 April-1 September (plus 1 January-15 July in habitats for golden eagle and great horned owl; and 1 March-1 September for other raptor species). If pipeline construction activities during the breeding season cannot be avoided, the area should be surveyed for active nest sites, and adequate buffer zones should be established around any active nests (with birds or eggs present in the nesting territory). Buffer distances should be ≥ 100 feet from songbird and raven nests, 0.5 mile from golden eagle and ferruginous hawk nests, and 0.25 mile from other raptor nests. Active nests in trees or shrubs that must be removed should be mitigated by qualified biologists or wildlife rehabilitators.
	RHR Response		<i>The overlapping avoidance periods recommended by NMG&F cover January through September, leaving a 3 month window of opportunity for construction. Pipeline construction requires the use of specialized equipment and crews that work on a campaign basis and it would be economically prohibitive as well as extremely impractical to construct a 20 mile pipeline in 3 month work periods. RHR expects that pipeline construction will require 12 to 18 months of continuous work so it will be impossible to avoid all raptor and bird breeding seasons. Therefor RHR will coordinate with NMG&F on mitigation measures such as those recommended prior to beginning construction.</i>

Attachment A

Environmental Restoration Group January 22, 2019 Memo



Memo

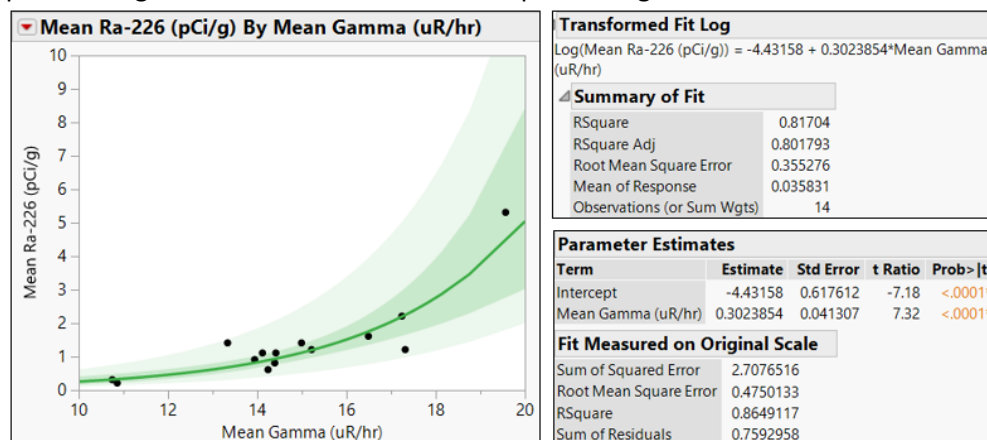
To: Mike Schierman (ERG)
From: Mike Neumann (Energy Fuels)
Date: January 22, 2019
Re: Response to NMED and NMMMD Comments

Mining Environmental Compliance Section

The Mining Environmental Compliance Section (MECS) of NMED has been providing comments associated with the various components of this mine permit application since May 29, 2009. MECS is providing the comments below for the Baseline Data Report Addendum I, which was submitted to MMD on July 24, 2018. Roca Honda Resources (RHR) has reproduced NMED comments below, each of which is followed by RHR's response.

NMED Comment 3: *Appendix B, January 2016 ERG page 2: Please discuss the reliability of the statistics on Figure 2 for Mean Exposure Rate below 20 $\mu\text{R}/\text{h}$ as the R^2 value is 0.817.*

RHR Response: Statistical information for the exponential regression data (data < 20 $\mu\text{R}/\text{h}$) as shown in Figure 2 of the 2016 ERG report are provided below. Slope and intercept coefficients are statistically significant (P-values < 0.0001). The 95% confidence and prediction intervals (green shaded areas) reflect increasing variance with increasing gamma radiation. The root mean square error (a.k.a. standard error of the estimate) indicates that the average prediction error for Ra-226 values across this range of gamma readings is ± 0.475 pCi/g. While this amount of uncertainty is considerable relative to low-level background concentrations, post-mining surveys will use methods and instruments consistent with baseline surveys as specified in the 2013 Post Mine Radiological Surveys Plan (SENES, 2013a), and resulting gamma-based estimates of Ra-226 concentrations are expected to be reliable for demonstration that post-mining conditions are consistent with pre-mining baseline conditions in corresponding areas.



Reference:

SENES Consultants Limited (SENES). 2013a. Post Mine Radiological Surveys. Addendum to Roca Honda Mine Reclamation Plan (Rev. 1). Mine Permit No. MK025RN, McKinley County, New Mexico. March 2013.

NMED Comment 4: *Appendix B, January 2016 ERG page 11: Please discuss how RHR intends to address the areas with elevated levels detected in the survey in the southern part of Section 17.*

RHR Response: During the reclamation phase of mining, RHR will resurvey areas in Section 17 with elevated terrestrial gamma readings using methods consistent with those specified in the 2013 Post Mine Radiological Surveys Plan (SENES, 2013a). Spatial comparisons of interpolated (kriged) gamma survey maps, based on data collected before and after mining operations, will be performed to determine whether or not quantitative and spatial characteristics of gamma radiation in these areas have remained static during the course of mining operations. Pre-mining radiological baseline data for the entire permit area, including Section 17 and the reuse water pipeline corridor, have been collected and presented in the documents cited in the Reference list provided following this response.

If gamma radiation levels in the southern portion of Section 17 have clearly increased in these areas during the course of mining operations (as described in SENES, 2013a), and/or the spatial extent of elevated gamma readings has increased, the affected area will be considered “impacted” by mining operations and will be remediated to meet the remedial criteria for new uranium mining operations as specified by New Mexico Mining and Minerals Division (MMD, 2016). Otherwise, these areas will be considered to be non-impacted by mining operations and the area will be left in the same condition that existed prior to mining in this portion of Section 17 based on the data presented in the 2016 Supplemental Radiological Baseline Surveys Report (ERG, 2016).

References

ARCADIS-SENES. 2014. Baseline Radiological Survey of Pipeline Corridor and Reuse Water Discharge Area. Mine Permit No. MK0205RN, McKinley County, NM. January 2014.

Environmental Restoration Group, Inc. (ERG). 2016. Supplemental Radiological Baseline Surveys for Expanded Permit Areas at the Roca Honda Mine Site. Mine Permit No. MK0205RN, McKinley County, NM. January 2016.

Mining and Minerals Division (MMD). 2016. Guidance for Meeting Radiation Criteria Levels and Reclamation at New Uranium Mining Operations. Title 19, Chapter 10, Part 3 and Part 6, New Mexico Administrative Code. Energy, Minerals & Natural Resources Department, Mining and Minerals Division, 1220 South St. Francis Drive, Santa Fe, NM 87505. April 2016.

Roca Honda Resources, LLC (RHR). 2011a. Reclamation Plan for Roca Honda Mine, Revision 1. Prepared by Duran Bokich Enterprises, LLC for Roca Honda Resources, LLC. Submittal to the New Mexico Mining and Minerals Division. August 2011.

Roca Honda Resources, LLC (RHR). 2011b. Baseline Data Report, Section 13.0, Radiological Survey. Section 13 of the Roca Honda Mine Reclamation Plan (RHR, 2011a). Submittal to the New Mexico Mining and Minerals Division. January 2011.

SENES Consultants Limited (SENES). 2013a. Post Mine Radiological Surveys. Addendum to Roca Honda Mine Reclamation Plan (Rev. 1). Mine Permit No. MK025RN, McKinley County, New Mexico. March 2013.

SENES Consultants (SENES). 2013b. Supplemental Radiological Baseline Surveys, Addendum to Section 13 of the Roca Honda Mine Reclamation Plan (Rev. 1). Mine Permit No. MK0205RN, McKinley County, NM. August 2013.

NMED Comment 6: *Appendix B, January 2014 ARCADIS-SENES page 10 AND January 2016 ERG page 6: Please explain why the soil analytical suite for the 2016 report was Ra-226, Th-232 U-nat and the 2014 report was Ra-226, Ra-228, Th-230, U-nat, K-40. Specifically, please address why Ra-228 and K-40 were omitted from the 2016 report and the Th radionuclide differed between the two surveys.*

RHR Response: U-nat, Ra-226, Th-232 and K-40 are the radioanalytes specified in the 2013 Post Mine Radiological Surveys Plan (SENES, 2013a). In 2014, draft guidance from the New Mexico Mining and Minerals Division (MMD) was released to specify U-nat, Ra-226, and Th-232 for new uranium mines in the State of New Mexico. This MMD guidance was finalized in 2016 (MMD, 2016). Potassium-40 (K-40) is not a radionuclide associated with uranium ore and as such is not normally defined for uranium mine reclamation purposes. The reason for inclusion of K-40 in the original 2013 Post Mine Radiological Surveys Plan (SENES, 2013a) was to provide potential diagnostic information regarding any confounding influence on the gamma/Ra-226 correlation.

Part of the reason there are a few inconsistencies in the radioanalytes specified for soil sampling under the various radiological baseline studies that have been conducted over the years, is that a number of these studies (including sampling and analysis plans) were designed and conducted before 2014 when the New Mexico Environment Department (NMED) and MMD released draft guidance documents that specified remedial radiation standards for new or existing uranium mines in the State of New Mexico, guidance documents that were subsequently finalized in 2016 (MMD, 2016; MMD and NMED, 2016).

The inclusion of Th-230 in the 2014 Baseline Survey of Pipeline Corridor and Reuse Water Discharge Area (ARCADIS-SENES, 2014) was related to the fact that historic uranium milling in nearby parts of New Mexico could have previously impacted portions of the planned pipeline corridor, and Th-230 is commonly evaluated for impacts from milling facilities as disequilibrium in uranium decay series radionuclides is possible (e.g. in windblown tailings). Although Th-232 was not specifically requested in the 2014 Pipeline Corridor Study, inclusion of Ra-228 in that survey should provide a reasonable indication of Th-232 levels in soil given that Th-232 is not known to be elevated in uranium ores in this region of New Mexico, and for mine-related impacts (if any with respect to the Th-232 decay series), Ra-228 is expected to be low-level and in approximate radiological equilibrium with its Th-232 parent.

With respect to the 2016 Supplemental Radiological Baseline Survey of expanded permit areas in Section 17 (ERG, 2016), the newly published draft guidance from MMD (MMD, 2016) was followed, and K-40 was dropped from the list of specified radioanalytes for soil samples. Analysis of Th-230 was not necessary for this supplementary baseline survey as 1) it is not specified in the new MMD guidance, 2) only mining will

occur in the areas surveyed (no milling), 3) the area has not been impacted by historic uranium milling operations that took place elsewhere in the San Mateo Creek Basin (including the Ambrosia Lake district), and 4) mining wastes are generally expected to exhibit approximate radiological equilibrium between uranium decay series radionuclides.

References

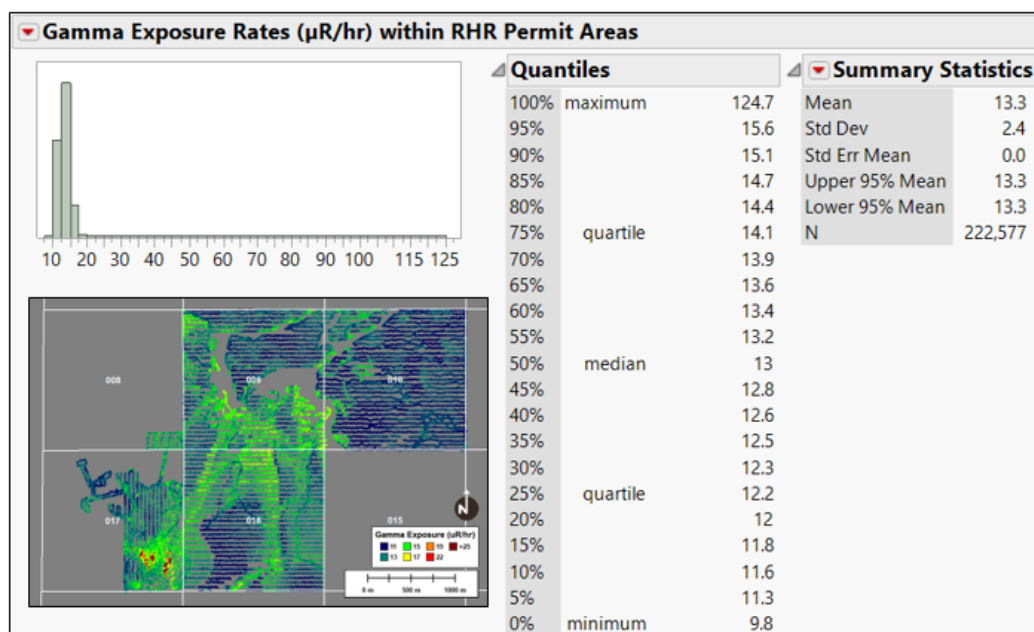
Mining and Minerals Division (MMD). 2016. Guidance for Meeting Radiation Criteria Levels and Reclamation at New Uranium Mining Operations. Title 19, Chapter 10, Part 3 and Part 6, New Mexico Administrative Code. Energy, Minerals & Natural Resources Department, Mining and Minerals Division, 1220 South St. Francis Drive, Santa Fe, NM 87505. April 2016.

Mining and Minerals Division and New Mexico Environment Department (MMD and MNED). 2016. Joint Guidance for the Cleanup and Reclamation of Existing Uranium Mining Operations in New Mexico. Energy, Minerals & Natural Resources Department, Mining and Minerals Division and New Mexico Environment Department, Mining Environmental Compliance Section. March 2016.

SENES Consultants Limited (SENES). 2013a. Post Mine Radiological Surveys. Addendum to Roca Honda Mine Reclamation Plan (Rev. 1). Mine Permit No. MK025RN, McKinley County, New Mexico. March 2013.

NMED Comment 7: *Appendix B: Considering the two studies presented herein, and the previous studies submitted by RHR, what is the site specific 95% confidence background level, to be achieved at the completion of mine activity. Please discuss and changes this number has undergone as a result of expanded baseline work presented to the coordinating agencies.*

RHR Response: The 2013 Post Mine Radiological Surveys Plan (SENES, 2013a) was submitted to MMD before 2014 draft guidance from MMD introduced a definitional criterion at the 95th percentile on baseline soil radionuclide concentration (MMD, 2016). For this reason, a site-specific 95th percentile on baseline gamma radiation survey measurements had not previously been calculated. In response to this



comment, relevant statistical summary information for all gamma survey data within mine permit areas is provided in the below figure.

The 95th percentile for baseline gamma exposure rates across the permit area is 15.6 $\mu\text{R/hr}$. The 2013 Post Mine Radiological Surveys Plan (SENES, 2013a) specifies different semi-quantitative spatial analysis criteria to identify and define areas that have become impacted by mining operations at the Roca Honda Mine site. In the event that a given area is determined to have been impacted by mining operations, this 95th percentile on baseline will be used to determine cleanup criteria in accordance with current MMD guidance on the matter (MMD, 2016).

References

SENES Consultants Limited (SENES). 2013a. Post Mine Radiological Surveys. Addendum to Roca Honda Mine Reclamation Plan (Rev. 1). Mine Permit No. MK025RN, McKinley County, New Mexico. March 2013.

Environmental Restoration Group, Inc. (ERG). 2016. Supplemental Radiological Baseline Surveys for Expanded Permit Areas at the Roca Honda Mine Site. Mine Permit No. MK0205RN, McKinley County, NM. January 2016.

Mining and Minerals Division (MMD). 2016. Guidance for Meeting Radiation Criteria Levels and Reclamation at New Uranium Mining Operations. Title 19, Chapter 10, Part 3 and Part 6, New Mexico Administrative Code. Energy, Minerals & Natural Resources Department, Mining and Minerals Division, 1220 South St. Francis Drive, Santa Fe, NM 87505. April 2016.

Attachment B

Rio San Jose Channel Photo



Improved Rio San Jose Channel in Discharge Zone 2017

Attachment C

Hydroscience Associates, Inc. January 16, 2019 Memo

HYDROSCIENCE ASSOCIATES, INC.
Consulting Hydrogeologists & Engineers

P.O. Box 1994 Corrales, NM 87048 (505) 301-7583 mwhydrosci@yahoo.com

MEMORANDUM

TO: RHR/EF
FROM: M. Wasiolek
RE: Response to Combined Inter-agency Comments re RHR Mine
DATE: January 16, 2019

INTRODUCTION: Energy Fuels/RHR was provided a package of interagency memoranda dated October, 2018 regarding various agencies' comments on the Roca Honda Mine-Baseline Data Report Revision 1-Addendum 1 to Permit Application No. MK025RN. This Memorandum recommends certain responses to particular comments by the SWQB and the NMED.

Responses to SWQB Comment #2, Comment #7, Comment #9, Comment #10, and Comment #11:

Response to SWQB Comment #2: San Rafael canyon is a roughly three-mile long, ephemeral drainage that drains south along the boundary between Sections 8 and 9, then thru the east half of Section 17, to dissipate in the middle of the eastern half of Section 20 (T 13N, R8W) approximately 4,000 feet from San Mateo Creek. RHR's discharge of treated mine dewatering water into the Rio San Jose many miles downstream cannot possibly have any effect on surface or subsurface waters within San Rafael canyon.

The geologic cross-section shown on the 2009 NMBGMR geologic map of the San Mateo topographic quadrangle *Geologic Map of the San Mateo Quadrangle* (2009) by McCraw, Reed, Lawrence, Goff, and Goff RHR indicates that Cretaceous bedrock of mostly shale is present between the end of San Rafael canyon and San Mateo Creek. This is consistent with the fact that the NMOSE WATERS database indicates no wells exist within Section 20. A connection between through the shale over the 4,000 feet between the end of the ephemeral drainage and San Mateo creek is therefore thought to be unlikely.

Response to SWQB Comment #9: RHR disagrees with SWQB's recommendation that repeat sampling over at least three seasons should be carried out in the streams of the RHR project area because "A single water quality sample for a single location is typically insufficient to accurately characterize the environmental condition of surface water due to seasonal and inter-annual variability." All the drainages in the project are ephemeral. Although it may ideally be desirable

to collect water quality samples from a perennial stream during three seasons because of potential changes in biota and chemistry of flowing water over the course of a year, it is not possible to collect “seasonal” water quality samples from an ephemeral stream, which by definition, carries water only occasionally.

Response to SWQB Comment #10: RHR has verified that the peak discharge associated with a 1.5 year recurrence at USGS gaging station 08343000 from 1950 through 2011 is 34 cfs. However, SWQB’s statement that “SWQB considers the continual estimated discharge of 13 cfs over the period of 13 years to be a significant change to the hydrologic regime with the potential to alter channel dimensions” is unsupported, and is disagreed with by RHR.

The shape of a stream channel is a result of many interacting factors of which there are two general classes: factors related to the debris load, its size, lithology, amount and depositional forms, and factors related to water flow. (Dunne and Leopold, *Water in Environmental Planning* (1978), p. 599). A channel is formed and maintained by the flow it carries but is never large enough to carry even discharges of rather frequent occurrence without overflow. (*Ibid*) Bankfull discharge stage is the most effective or dominant channel-forming flow. Wolman and Miller (1960) determined that flows less than bankfull discharge have little effect on channel characteristics. (Dunne and Leopold, *Water in Environmental Planning* (1978), p. 609.

SWQB notes that between 1990 and 2012 during only 0.24% of the days was a mean daily discharge of 13 cfs or greater reported. Therefore, an addition of 13 cfs will result in a mean daily discharge in the Rio San Jose of between 13 and 26 cfs 99.76% of the time. Mean daily discharge will be at a rate well below bankfull discharge of 34 cfs more than 99.76% of the time. The times when any increase in bankfull discharge could potentially impact the stream channel of the Rio San Jose are therefore very limited. Moreover, stream channels change very slowly over long periods of time, not in response to a few events.

RHR is willing to consider doing some basic channel cross sections to document existing conditions. However, Milan and Grants regularly excavate riparian vegetation and control flood flows, which activities would tend to obscure any possible change to channel configuration caused by RHR.

Response to SWQB Comment #11: It was physically impossible for RHR personnel to obtain sediment samples at the bedrock contact.

Responses to NMED Comments #11 and #15.

Response to NMED Comment #11: Yes, potential impacts to private wells were evaluated, in great detail. As the Technical Memorandum (pg. 8) referenced in Comment #11 states:

Nine Westwater wells are predicted to have drawdown that ranges between 41 and 393 feet (Table 3). These are the same nine Westwater wells identified in the INTERA (2012) report and the 2013 mine dewatering hearing before the NMOSE. Although the drawdowns under the 2016 mine plan are somewhat larger, the remaining water column in seven of the wells is more than sufficient for production to remain unimpaired (Hydroscience Associates, 2017). RHR already committed to replacing the remaining two wells, B-1104 and B-1115, as well as the B-1636 well that is not in the model domain (Stipulated Facts and Conclusions, 2013). Maximum drawdown occurs at these wells between 14 and 62 years after the start of Roca Honda mine dewatering and then declines.

The Technical Memorandum is referring to the resolution of a hearing on RHR Dewatering Application B-1706 PODs 12 through 31 that was held before the NMOSE in November, 2013. At this hearing, the merits of RHR's Application and the hydrologic impacts of granting that application on private and public wells, springs, and surface waters were considered. A large number of exhibits were entered into the record and hydrogeologic testimony was heard. The hearing was resolved with a Stipulation of Facts and Conclusions, which specified in part that RHR would replace private wells B-1636, B-1104 and B-1115. RHR's Application to Dewater was granted by the NMOSE.

Response to NMED Comment #15: RHR understands that the NMED is referring to a well located on Figure 2 of the report "A Biological Assessment for the Proposes Milan Farm Tracts Drainage Channel Project in Cibola County, New Mexico," by Tierra Right of Way, prepared for US Fish and Wildlife Service and others. An inspection of Figure 2 indicates that although a well is noted on Figure 2, the number "6535" is referring to a land surface elevation, not a well number or a data point. The well appears on the 1957 (updated 1981) USGS 7 ½ topographic map used as a base map for Figure 2, and does not represent a data point used in the 2014 report. RHR has no water quality information regarding this well and does not know whether it still exists after 62 years.

Attachment D

Field Data and Lab Report Forms

May 2015 Rio San Jose Sampling



Inter-Mountain Labs
Sheridan, WY and Gillette, WY

- CHAIN OF CUSTODY RECORD -

Page of

158890

All shaded fields must be completed.
This is a legal document: any misrepresentation may be construed as fraud.

Client Name		Project Identification		Sampler (Signature/Attestation of Authenticity)		Telephone #		
Roca Honda Resources		Rio San Jose				505-428-6772		
Report Address		Contact Name						
4001 Office Court Dr Ste 107		Dan Kaportasy						
Santa Fe, NM 87507		Email		dkaportasy@energysolutions.com				
Invoice Address		Phone		505-428-6772				
Same As Above		Purchase Order #		856				
ITEM	LAB ID (Lab Use Only)	DATE SAMPLED	TIME SAMPLED	SAMPLE IDENTIFICATION	Matrix	# of Containers	ANALYSES / PARAMETERS	REMARKS
1	51505470-001	5/27/15	15:24	RH-6W-RS08-002	WT	21	X	See Attached Bottle Order
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								

LAB COMMENTS	Requisitioned By (Signature/Printed)	DATE	TIME	Received By (Signature/Printed)	DATE	TIME
6.00		5/27/15	15:45		5/28/15	12:46

SHIPPING INFO	MATRIX CODES	TURNAROUND TIMES	COMPLIANCE INFORMATION	ADDITIONAL REMARKS
<input type="checkbox"/> UPS	Water	Check desired service	Compliance Monitoring? Y <input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/> Fed Express	Soil	<input checked="" type="checkbox"/> Standard turnaround	Program (SDWA, NPDES, etc.)	
<input type="checkbox"/> US Mail	Solid	<input type="checkbox"/> RUSH - 5 Working Days	PWSID / Permit #	
<input type="checkbox"/> Hand Carried	Filter	<input type="checkbox"/> URGENT - < 2 Working Days	Chlorinated? Y <input checked="" type="checkbox"/>	
<input type="checkbox"/> Other	Other	Rush & Urgent Surcharges will be applied	Sample Disposal: Lab <input checked="" type="checkbox"/> Client	



Summit Environmental Technologies, Inc.
3310 Win St.
Cuyahoga Falls, Ohio 44223
TEL: (330) 253-8211 FAX: (330) 253-4489
Website: <http://www.settek.com>

WO#: 15053249
Date Reported: 6/25/2015
Company: Inter-Mountain Laboratories, Inc.
Address: 1673 Terra Ave
Sheridan WY 82801
Received: 5/29/2015
Project#: S1505470

Client ID#	Lab ID#	Collected	Analyte	Result	Units	Matrix	Method	DF	RL	Run	Analyst
S1505470-001	001	5/27/2015	4-Chlorophenyl phenyl ether	ND	mg/L	Non-Potable Water	EPA 625	5	0.0205	6/18/2015	MSM
S1505470-001	001	5/27/2015	4-Nitrophenol	ND	mg/L	Non-Potable Water	EPA 625	5	0.0615	6/18/2015	MSM
S1505470-001	001	5/27/2015	Acenaphthene	ND	mg/L	Non-Potable Water	EPA 625	5	0.0205	6/18/2015	MSM
S1505470-001	001	5/27/2015	Acenaphthylene	ND	mg/L	Non-Potable Water	EPA 625	5	0.0205	6/18/2015	MSM
S1505470-001	001	5/27/2015	Anthracene	ND	mg/L	Non-Potable Water	EPA 625	5	0.00513	6/18/2015	MSM
S1505470-001	001	5/27/2015	Benzidine	ND	mg/L	Non-Potable Water	EPA 625	5	0.0821	6/18/2015	MSM
S1505470-001	001	5/27/2015	Benzo(a)anthracene	ND	mg/L	Non-Potable Water	EPA 625	5	0.00513	6/18/2015	MSM
S1505470-001	001	5/27/2015	Benzo(a)pyrene	ND	mg/L	Non-Potable Water	EPA 625	5	0.0205	6/18/2015	MSM
S1505470-001	001	5/27/2015	Benzo(g,h,i)perylene	ND	mg/L	Non-Potable Water	EPA 625	5	0.0205	6/18/2015	MSM
S1505470-001	001	5/27/2015	Benzo(k)fluoranthene	ND	mg/L	Non-Potable Water	EPA 625	5	0.0410	6/18/2015	MSM
S1505470-001	001	5/27/2015	Benzo(b)fluoranthene	ND	mg/L	Non-Potable Water	EPA 625	5	0.0410	6/18/2015	MSM
S1505470-001	001	5/27/2015	Bis(2-chloroethoxy)methane	ND	mg/L	Non-Potable Water	EPA 625	5	0.0205	6/18/2015	MSM
S1505470-001	001	5/27/2015	Bis(2-chloroethyl) ether	3.89	mg/L	Non-Potable Water	EPA 625	500	2.05	6/19/2015	MSM
S1505470-001	001	5/27/2015	Bis(2-chloroisopropyl) ether	ND	mg/L	Non-Potable Water	EPA 625	5	0.0205	6/18/2015	MSM
S1505470-001	001	5/27/2015	Bis(2-ethylhexyl) phthalate	ND	mg/L	Non-Potable Water	EPA 625	5	0.0205	6/18/2015	MSM
S1505470-001	001	5/27/2015	Butyl benzyl phthalate	ND	mg/L	Non-Potable Water	EPA 625	5	0.0205	6/18/2015	MSM
S1505470-001	001	5/27/2015	Chrysene	ND	mg/L	Non-Potable Water	EPA 625	5	0.0205	6/18/2015	MSM
S1505470-001	001	5/27/2015	Di-n-butyl phthalate	ND	mg/L	Non-Potable Water	EPA 625	5	0.0205	6/18/2015	MSM



Inter-Mountain Labs
Sheridan, WY and Gillette, WY

- CHAIN OF CUSTODY RECORD -

Page of

All shaded fields must be completed.
This is a legal document: any misrepresentation may be construed as fraud.

158898

Client Name	Proca Hande Resource	Project Identification	Rio San Jose Sampling	Sampler (Signature/Attestation of Authenticity)	11-22	Telephone #	505-428-6372
Report Address	4001 Office Court Dr. Ste 107	Contact Name	Dan Kapostasy				
Invoice Address	Santa Fe, NM 87507	Email	dkapostasy@energyfuels.com				
	Same as Above	Phone	505-428-6372				
		Purchase Order #	85C				

ITEM	LAB ID (Lab Use Only)	DATE SAMPLED	TIME SAMPLED	SAMPLE IDENTIFICATION	Matrix	# of Containers	ANALYSES / PARAMETERS	REMARKS
1	51505510	5/27/15	14:18	RH-SW-RSTC-001	WT	21	See Attached	See Attached Bottle
2								Order
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								

LAB COMMENTS	Relinquished By (Signature/Printed)	DATE	TIME	Received By (Signature/Printed)	DATE	TIME
145C	Dan Kapostasy	5/27/15	15:00	See Attached	5-29-15	12:08

SHIPPING INFO	MATRIX CODES	TURNAROUND TIMES	COMPLIANCE INFORMATION	ADDITIONAL REMARKS
<input type="checkbox"/> UPS <input checked="" type="checkbox"/> Fed Express <input type="checkbox"/> US Mail <input type="checkbox"/> Hand Carried <input type="checkbox"/> Other	Water WT Soil SL Solid SD Filter FT Other OT	Check desired service <input checked="" type="checkbox"/> Standard turnaround <input type="checkbox"/> RUSH - 5 Working Days <input type="checkbox"/> URGENT - < 2 Working Days Rush & Urgent Surcharges will be applied	Compliance Monitoring? Y <input checked="" type="checkbox"/> Program (SDWA, NPDES,...) — PWSID / Permit # — Chlorinated? Y <input checked="" type="checkbox"/>	



Summit Environmental Technologies, Inc.
3310 Win St.
Cuyahoga Falls, Ohio 44223
TEL: (330) 253-8211 FAX: (330) 253-4489
Website: <http://www.settek.com>

WO#: 15060178
Date Reported: 7/7/2015
Company: Inter-Mountain Laboratories, Inc.
Address: 1673 Terra Ave
Sheridan WY 82801
Received: 6/2/2015
Project#:

Client ID#	Lab ID#	Collected	Analyte	Result	Units	Matrix	Method	DF	RL	Run	Analyst
S1505510-001	001	5/27/2015	Benzo(b)fluoranthene	ND	mg/L	Non-Potable Water	EPA 625	1	0.00800	6/10/2015	MSM
S1505510-001	001	5/27/2015	Bis(2-chloroethyl) ether	ND	mg/L	Non-Potable Water	EPA 625	1	0.00400	6/10/2015	MSM
S1505510-001	001	5/27/2015	Bis(2-chloroisopropyl) ether	ND	mg/L	Non-Potable Water	EPA 625	1	0.00400	6/10/2015	MSM
S1505510-001	001	5/27/2015	Bis(2-ethylhexyl) phthalate	ND	mg/L	Non-Potable Water	EPA 625	1	0.00400	6/10/2015	MSM
S1505510-001	001	5/27/2015	Butyl benzyl phthalate	ND	mg/L	Non-Potable Water	EPA 625	1	0.00400	6/10/2015	MSM
S1505510-001	001	5/27/2015	Chrysene	ND	mg/L	Non-Potable Water	EPA 625	1	0.00400	6/10/2015	MSM
S1505510-001	001	5/27/2015	Di-n-butyl phthalate	ND	mg/L	Non-Potable Water	EPA 625	1	0.00400	6/10/2015	MSM
S1505510-001	001	5/27/2015	Dibenzo (a,h) anthracene	ND	mg/L	Non-Potable Water	EPA 625	1	0.00400	6/10/2015	MSM
S1505510-001	001	5/27/2015	Diethyl phthalate	ND	mg/L	Non-Potable Water	EPA 625	1	0.00400	6/10/2015	MSM
S1505510-001	001	5/27/2015	Dimethyl phthalate	ND	mg/L	Non-Potable Water	EPA 625	1	0.00400	6/10/2015	MSM
S1505510-001	001	5/27/2015	Fluoranthene	ND	mg/L	Non-Potable Water	EPA 625	1	0.00400	6/10/2015	MSM
S1505510-001	001	5/27/2015	Fluorene	ND	mg/L	Non-Potable Water	EPA 625	1	0.00400	6/10/2015	MSM
S1505510-001	001	5/27/2015	Hexachlorobenzene	ND	mg/L	Non-Potable Water	EPA 625	1	0.00400	6/10/2015	MSM
S1505510-001	001	5/27/2015	Hexachlorobutadiene	ND	mg/L	Non-Potable Water	EPA 625	1	0.00400	6/10/2015	MSM
S1505510-001	001	5/27/2015	Hexachlorocyclopentadiene	ND	mg/L	Non-Potable Water	EPA 625	1	0.00400	6/10/2015	MSM
S1505510-001	001	5/27/2015	Hexachloroethane	ND	mg/L	Non-Potable Water	EPA 625	1	0.00400	6/10/2015	MSM
S1505510-001	001	5/27/2015	Indeno(1,2,3-cd)pyrene	ND	mg/L	Non-Potable Water	EPA 625	1	0.00400	6/10/2015	MSM
S1505510-001	001	5/27/2015	Isophorone	ND	mg/L	Non-Potable Water	EPA 625	1	0.00400	6/10/2015	MSM