USFS R3 Review of Roca Honda Uranium Mine Baseline Report, Sampling Plan, and NM MMD comments and RHR Responses; 12.10.2009

Memo

To: Susan S. Millsap, Natural Resource and Planning Staff Officer, Cibola NF

From: Joe Vieira, Air & Water Quality Liaison, US Forest Service - Region 3 -New Mexico Environment Department - Air Quality Bureau

Date: 12/10/2009

Subject: Review of Roca Honda air quality baseline data, sampling and analysis plan, applicant response to NM MMD comments,

As requested, I have reviewed the following documents relative to the Roca Honda Mine permit application:

1. BASELINE DATA REPORT, Section 2.0, Climatology and Air Quality OCTOBER 2009 Submitted To: New Mexico Mining and Minerals Division & U.S. Forest Service (Cibola National Forest) Prepared by: Roca Honda Resources, LLC 4001 Office Court, Suite 102, Santa Fe, NM 87507

2. SAMPLING AND ANALYSIS PLAN, Section 2.0, Meteorology and Air Quality, OCTOBER 2009, Submitted To: New Mexico Mining and Minerals Division & U.S. Forest Service (Cibola National Forest) Prepared by: Roca Honda Resources, LLC 4001 Office Court, Suite 102, Santa Fe, NM 87507

3. Response to NM MMD Comments to SAP, July 15, 2009 Roca Honda Resources LLC Permit No. MK025RN, October 16, 2009

In my review I noted that New Mexico Environment Department – Air Quality Bureau comments and/or applicant responses were not included so I informally consulted with AQB staff on questions that I had as they related to the applicant's baseline data report, proposed sampling and analysis plan, and responses to state comments.

My comments here concern regulatory authority, baseline data presentation, and sampling objectives.

Regulatory authority
The National Emissions Standards for Hazardous Air Pollutants, 40 CFR Part 61, subparts (61 61.01 to 61.359) apply under this application. Specifically:

- **B,** National Emission Standards for Radon Emissions from Underground Uranium Mines

- **T,** National Emission Standards for Radon Emissions from the Disposal of Uranium Mill Tailings;
- **W**, National Emission Standards for Radon Emissions from Operating Mill Tailings.

In reference to the Roca Honda uranium mining there would be 2 main pollutants of concern. The first is particulate matter. In New Mexico there are 3 regulated PM air pollutants; 2 federal criteria pollutants, PM10 and PM2.5; and 1 state regulated pollutant, Total Suspended Pollutants (TSP). National Ambient Air Quality Standards (NAAQS) apply with reference to the federal criteria pollutants. The applicant is correct that the McKinley County is in attainment of PM. The second main air pollutant would be radionuclides, which is an EPA Hazardous Air Pollutant.

According to the Roca Honda Plan of Operations, the mining would take place underground. There would be only construction activity and stock piles on the surface. Presently, the New Mexico Air Quality Bureau does not regulate particulate matter emissions from construction activities or stock piles. Nor does the AQB regulate radionuclide air pollution. EPA Region 6 has that authority. EPA Region 6 may or may not require air permitting for the underground uranium mining activities. Further consultation by the applicant would be required.

In addition to permitting requirements that Region 6 may have, there are 2 air related federal regulations that may apply to this project. These federal regulations would apply regardless if an air permit is required by EPA Region 6. The 3 regulations are 40 CFR 61, Subparts B, T, and W (see link above).It appears that the NM MMD state regulations require this baseline air monitoring.

Baseline data report
Overall, the applicant's revised description of regional climate, site air quality, and climatological factors representative of the permitting area respond directly to the state's July 2009 comments and are satisfactory. The applicant has reasonably addressed state agency questions brought forward regarding meteorological data, precipitation, pan evaporation, air quality. The exception would be graphic description of prevailing winds (Figure 2-2). The applicants own narrative states that:

> *Local wind conditions at the Roca Honda permit area are affected by topographic features that modify general synoptic wind patterns.*

NMED Air Quality Bureau commonly monitors prevailing winds and reports wind rose data at least on a monthly basis to describe the range of variability in wind direction and speed. Given the complexity of the terrain in the permit area, the risk of PM drift from mine portals, vents, and the states defined concerns about weather station sufficiency, the baseline prevailing wind reporting should be presented more than an annual average. Individual wind roses for the 12 months of the year would be more descriptive of conditions at the site.

Sampling
In terms of content of the sampling and analysis plan and applicant responses to the state's July 2009 comments, Roca Honda has reasonably addressed such issues as sampling objectives, data needs, air quality, methods of collection, air quality monitoring, air particle pump, radon

detectors. There is some minor disagreement between the applicant and the state on where to document radiation data and collection methodology (Doc.3 Item 2. P.4). The applicant's discussion and response to NMED SWQB categorizing radon and gamma data gathering as an ambient air quality characterization appear reasonable.

NM MMD also questions the adequacy of location of meteorological monitoring stations to characterize site-level wind patterns. The fundamental concern is terrain complexity in the mining area and variable effects on dust collection, transport, and accumulation. NMED AQB staff specialists familiar with sampling protocols and uranium mining also expressed surprise that only one monitoring station was in place. The applicant's response (Doc.3 Item 9 p.17) discounts the state's concern and fails to address micro-climatic variability and potential mine dust impact on biological components that could occur in the small canyons, differing slopes, or open mesa.

The direction of any potential drift and fate of PM from the uranium mine site, roads, or vents is a USFS concern as well. Understanding how any dust moves relative to the mine site, where it deposits, how much deposits, form the basis of understanding environmental impact on Forest Service and surrounding land. This would facilitate more meaningful mitigation. At this scale, any terrain complexity should be taken more seriously in the sampling and analysis plan. While this reviewer presumes stringent mitigation to prevent any such PM drift would be placed on this land use, were it to be permitted, I agree with NM MMD and NMED AQB caution and comments.

A representative network of 'mini'- stations, as requested by NM MMD, installed on high ridges, north and south facing valleys, coves, open plateaus, along haul roads, at least in the short-term is good science for the purpose of protecting people and the environment. This state request for a data collection should be well considered, given the nature of the mineral to be mined. Further consultation with EPA Region 6 on this permit, the comments here, NESHAP adherence, and these monitoring questions is also recommended.

Response to "Request for Review and Comment on the Revised Sample and Analysis Plan for the Roca Honda Mine, Roca Honda Resources, LLC in support of Permit No. MK025RN"

From: Livia Crowley, hydrologist, Cibola Nat'l Forest, December 14, 2009

I have reviewed Topsoil (Section 6), Surface Water (Section 8), Ground Water (Section 9), and Radiological Baseline (Section 10) of the "Revised Sample and Analysis Plan for the Roca Honda Mine, Roca Honda Resources, LLC in support of Permit No. MK025RN"

General Comments:

1. It is understood that the intent of this document is to respond to the State of NM permit process. Because of this, some elements that would be needed for Forest Service purposes are not included in these documents. This includes, but is not limited to:

a. Watershed condition/values
b. Characterization of watercourses using morphological/physical parameters
c. Cumulative effects

2. Sampling regimes/protocols are somewhat general and not specified so as to enable evaluation of whether or not such sampling will be adequate.

Section 6 - Topsoil Comments

1. Agree with state comments about not relying on composite samples. Individual sample analysis is better for characterization of site.

Section 8 - Water Quality

1. References used in the response to comment 5. From MMD, on page 40 in regards to sample, location number of samples, field protocols being determined using protocols and techniques used by the USGS for the NWQAP (National Water Quality Assessment Program) may not be completely suitable for this purpose since sampling includes radiologic parameters which may require other considerations and protocols.
2. Characterization of stream reaches by only perennial, intermittent, and ephemeral does not capture the full diversity of these stream systems. Morphological parameters should be considered such as Rosgen stream classification methods. This would provide information on how the stream reach would adjust to proposed change to perennial flows.
3. Sediments should be analyzed in regards to size so that information is available on the distribution of parameters by size class. This is important since streams transport and sort sediments by size. The finest particles are transported the farthest and most easily. Larger sediment collects in bends and on bars.

4. Drainage profiles should include cross sections at representative reaches as determined by an appropriate stream typing classification system such as Rosgen's method. Not just engineering methods. (section 8.5.1.8)
5. Spring data should include basic characteristics of springs including type of spring, morphology, and discharge in addition to water quality data.
6. Sampling of runoff water should also be completed in the ephemeral watercourse draining the project area.

Section 9 - Ground Water

1. Please discuss the relevance of the Fernandez Monocline which crosses the project area.
2. Groundwater sampling and site monitoring should include the vadose zone perhaps through the use of lysimeters.
3. Water level monitoring should be done more continuously than quarterly. Water level data collectors are not expensive or hard to use. Sample frequency should utilize the water level data to capture the variability to see if there is a relationship.
4. Figure 9-7 is not of sufficient detail to see where proposed sample locations are located.

Section 10 - Radiological Survey

1. What constitutes a steep slope? Map (figure 10-1) is not of sufficient detail.
2. Soils samples will be taken from typical areas. What are 'typical' areas? Please define.
3. How is this date used to determined the background? From the highest samples? The lowest? Is there a range?

Comments from Ian R. Fox,

Timber Management Officer, Cibola National Forest, December 15, 2009Phone (505)346-3814, Cell (505)401-5245, Fax (505)346-3901

I have reviewed the material for Roca Honda, primarily the State's comments. I concur with all of the statements. I would like to add on page 25 of the State's comments Items # 6 and 8 that:

"There should be at least one enclosure site identified as the reference area for vegetation, not just wildlife. This area should be identified in cooperation by Forest Service Specialist and Strathmore and approved by the Forest Service. The area should be the best site that represents desired condition for reclamation of the site"

Holland,

RE: State comments on the Roca Honda SAP:

I have one comment lagging behind the others I sent you. From wildlife person on the Mount Taylor District; along with the table listing species of concern, notation should be made of "Forest Service Sensitive Species". Roca Honda's contractor has a listing of these FS sensitive species. If not I can provide a FS wildlife contact.

If it is possible, please send this along. Otherwise, we will address this as it comes around again.
On other business, the MOU for the State Agencies and FS regarding Roca Honda should get moving now that the holidays are over.
Stay tuned &
Thank you,

Diane

Diane Nowlin Tafoya
Zone Geologist
Cibola and Kaibab National Forests
USDA Forest Service,
2113 Osuna Rd, Albuquerque, NM 87113
(505) 346-3809 FAX (505) 346-3901