MD2

WESTERN MINING ACTION PROJECT

Roger Flynn, Esq.,
Jeffrey C. Parsons, Esq.
P.O. Box 349
440 Main Street, Suite 2
Lyons, CO 80540
(303) 823-5738
Fax (303) 823-5732
wmap@igc.org

via email, hardcopy to follow

March 20, 2009

David Berry, Minerals Supervisor
Div. of Reclamation, Mining and Safety
1313 Sherman Street, Room 215
Denver, CO 80203
(303) 866-4938
david.berry@state.co.us

RE: Powertech (USA) Inc. Request for Modification to Notice of Intent (NOI) File No. P-2008-043; Centennial Uranium Project, Weld County, Colorado

Dear Mr. Berry:

This letter is submitted on behalf of **Coloradoans Against Resource Destruction (CARD)**, **Environment Colorado**, and **Information Network for Responsible Mining (INFORM)** to express serious legal and environmental contamination concerns regarding the recent Request for Modification to Notice of Intent (NOI) File No. P-2008-043 submitted March 4, 2009 by Powertech (USA) Inc. (Powertech) for the Centennial Uranium Project in Weld County. As the DRMS is aware, these organizations and their members, including local residents and ground water users, have a long-standing interest in Powertech's proposal to conduct *in situ* leach uranium mining.

According to Powertech's Request for Modification:

> Powertech intends on conducting an aquifer pumping test in Section 33 of Township 10 North and Range 67 West during April, 2009, in order to determine hydrogeologic properties of sedimentary rock units that host uranium mineralization as well as adjacent rock units. Groundwater will be pumped from the target sand unit at a rate of 20 gallons per minute for a maximum duration of 6 days, resulting in a total water discharge quantity of 172,800 gallons. Discharged water will be routed via a pipeline to an off-channel infiltration pit located adjacent to the pumping well.

Powertech Request for Modification at 1. As a water disposal method, Powertech asserts that "[p]roduced water will evaporate and infiltrate through the substratum underlying the pit location, and ultimately disperse into the atmosphere and throughout bedrock." Id.

The legal concerns expressed herein revolve around three issues: 1) whether the activities proposed are properly considered "prospecting" under the Colorado Mined Land Reclamation Act (MLRA), C.R.S. §§ 34-32-101, et seq.; 2) how the proposed activities relate to the requirements in the MLRA that prospective in situ leach uranium mining applicants submit and confer with the DRMS on a detailed plan for establishing a thorough baseline characterization of site conditions, enacted via HB 08-1161 as C.R.S. 34-32-112.5(5).; and 3) whether the Request for Modification contains sufficient information for the Division of Reclamation Mining and Safety (DRMS) to assess the impacts of the proposed activities with respect to soil and ground water impacts.

1. The proposed activities are not "prospecting" activities under the MLRA.

The Mined Land Reclamation Act specifically differentiates between "prospecting" activities and "development" activities. Under the Act:

> "Prospecting" means the act of searching for or investigating a mineral deposit. "Prospecting" includes, but is not limited to, sinking shafts, tunneling, drilling core and bore holes and digging pits or cuts and other works for the purpose of extracting samples prior to commencement of development or extraction operations, and the building of roads, access ways, and other facilities related to such work.

C.R.S. § 34-32-102 (12). Whereas,

> "Development" means the work performed in relation to a deposit, following the prospecting required to prove minerals are in existence in commercial quantities but prior to production activities, aimed at, but not limited to, preparing the site for mining, defining further the ore deposit by drilling or other means, conducting pilot plant operations, constructing roads or ancillary facilities, and other related activities.

C.R.S. § 34-32-102(4).

Here, Powertech is proposing to conduct hydrogeologic aquifer testing, which is equivalent to a trial run of the groundwater pumping process Powertech has announced it intends to use for its *in situ* leach operation. Powertech states in its Request for Modification, at 1, that its proposed activities are designed "to determine hydrogeologic properties of sedimentary rock units that host uranium mineralization as well as adjacent rock units." This activity cannot reasonably be considered "the act of searching for or investigating a mineral deposit." Rather, the work is focused on the hydrogeology of sedimentary rock units both where mineralization exists and adjacent rock units. Nor is this work "for the purpose of extracting [mineral deposit] samples." Rather, the testing proposed by Powertech is development work, "aimed at, but not limited to, preparing the site for mining, defining the ore deposit by drilling or other means, conducting pilot plant operations ... and other related activities."

Thus, the activities proposed are not related to searching for a mineral deposit. At best, the currently proposed activities are aimed at establishing baseline site characteristics, which as discussed in detail below are subject to prior conference and approval of the DRMS. In

either case, the DRMS cannot approve the Request for Modification under a Notice of Intent to conduct prospecting at this time.[1]

2. A baseline characterization must be in place prior to proceeding with the proposed activities.

The Colorado Mined Land Reclamation Act places distinct obligations on a prospective *in situ* leach uranium mining operator with respect to a baseline site characterization:

> Prior to submitting an application, the prospective applicant shall confer with the office concerning the baseline characterization and plan for ongoing monitoring of the affected land and affected surface and ground water. The board or the office may retain an independent third-party professional expert to oversee baseline site characterization, monitor field operations, or review any portion of the information collected, developed, or submitted by an applicant or prospective applicant pursuant to this subsection (5).

C.R.S. § 34-32-112.5(5)(a).

The MLRA further requires that:

> Prior to submitting an application, a prospective applicant for in situ leach mining shall design and conduct a scientifically defensible ground water, surface water, and environmental baseline characterization and monitoring plan for the proposed mining operation. This plan shall be designed in such a manner as to:
> (I) Thoroughly characterize premining site conditions;
> (II) Detect any subsurface excursions of ground water containing chemicals used in or mobilized by in situ leach mining during the mining operations; and
> (III) Evaluate the effectiveness of postmining reclamation and ground water reclamation plans.

C.R.S. § 34-32-112.5(5)(b)

Lastly, the MLRA specifies that:

---

[1] We note that Powertech's previously proposed activities, approved by DRMS via the original Notice of Intent (P-2008-043) on August 27, 2008 and on October 22, 2008 via Modification #1 to the Notice of Intent, also raise serious questions with regard to both the application of the baseline characterization requirements of HB 1161 and the propriety of approval by DRMS as "prospecting" activities. These previously approved activities consisted entirely of installation of groundwater monitoring wells "for baseline environmental data collection," and drilling of exploration boreholes "to delineate uranium resource in the project area." Thus, these activities should either be covered by a baseline characterization plan as specified by HB 1161 (C.R.S. § 34-32-112.5(5)) or treated as "development" under the MLRA because the delineation drilling is, by definition, aimed at "defining further the ore deposit by drilling." C.R.S. § 34-32-102(4).

> The design and operation of the baseline characterization and monitoring plan for in situ leach mining, together with all information collected in accordance with the plan, shall be a matter of public record regardless of whether such activities are conducted pursuant to a notice of intent to conduct prospecting operations under section 34-32-113.

C.R.S. § 34-32-112.5(5)(c).

These baseline characterization requirements are quite broad – requiring a "thorough" characterization of "premining site conditions." The activities proposed in the Request for Modification are aimed at such a characterization. Indeed, Powertech states that the aquifer pumping tests are designed to "determine the hydrogeologic properties of the sedimentary rock units that host uranium mineralization as well as adjacent rock units." Request for Modification at 1. Yet, no plan has been submitted to DRMS, nor reviewed by the public, with respect to any comprehensive baseline study.

The MLRA requires that any baseline characterization must be done in a systematic, sequential, and planned manner. Certainly such a plan must be in place prior to the authorization of any activities that may compromise or otherwise distort or alter a baseline characterization. Further, in the development of this baseline characterization plan, the DRMS should take advantage of its clear authority to contract with outside experts, at Powertech's expense, to conduct and/or review a proposed baseline characterization plan for the site. At minimum, prior to conducting any activity at the site, Powertech must provide a conclusive demonstration that its activities will not in any way affect, alter, or distort any future baseline characterization of the site and the groundwater.

3. The Request for Modification lacks information necessary to assess impacts

Even if Powertech's submittal could be considered "prospecting" (which as noted herein, cannot be the case under the MLRA), the MLRA mandates that:

> Operators of in situ leach mining operations shall take all necessary steps to prevent and remediate any degradation of preexisting ground water uses **during the prospecting**, development, extraction, and reclamation phases of the operation.

C.R.S. § 34-32-116(8)(emphasis added).

The MLRA further requires that any notice of intent to conduct prospecting activities must "contain the following: ...(f) Measures to be taken to reclaim any affected land consistent with the requirements of section 34-32-116." C.R.S. § 34-32-113(2). Section 34-32-116 specifically requires that:

> (7) Reclamation plans and the implementation thereof shall conform to the following general requirements:

(g) Disturbances to the prevailing hydrologic balance of the affected land and of the surrounding area and to the quality and quantity of water in surface and groundwater systems both during and after the mining operation and during reclamation shall be minimized

C.R.S. § 34-32-116(7).

Lastly, this same section of the MLRA requires consultation with the affected local governments:

Prior to approving any new reclamation plan or approving a change in any existing reclamation plan as provided in this section, the board shall confer with the local board of county commissioners and the board of supervisors of the conservation district if the mining operation is within the boundaries of a conservation district.

C.R.S. § 34-32-116(7)(j). No such consultation appears to have occurred in this case.

With respect to the content of Powertech's Request for Modification, substantial critical information is lacking, including information necessary to establish compliance with the MLRA. In particular, without full knowledge of the previously existing groundwater quality, there is no rational way to comply with the specified land and groundwater protection requirements. As amended by HB 08-1161, in the special case of *in situ* uranium leach mining, the MLRA requires that baseline conditions must be protected during any site activities, especially when these activities seek to extract 170,000 gallons from the aquifer which covers the target uranium ore body.

This lack of groundwater quality information is highlighted by Powertech's statement in its Request for Modification that the aquifer pumping tests are designed to "determine the hydrogeologic properties of the sedimentary rock units that host uranium mineralization **as well as adjacent rock units**." Request for Modification at 1(emphasis added). However, it appears that Powertech has submitted as part of its Request for Modification data from only two sample points for groundwater quality – one for the deep aquifer from which it hopes to extract, and one from the shallow aquifer into which it hopes to dispose of its produced water. Apart from the invalidity of relying on such a paucity of samples and the commensurate unsupportable assumption of homogeneity of both aquifers, there is no data or information as to what conditions and uses exist in, or what impacts may occur to, these amorphous "adjacent rock units."

Additional critical technical information is also lacking. For instance, there is no discussion on the geometry of the wells with respect to the location of pumping wells versus wells used to monitor the pressure drop. There is also no discussion of whether the monitoring wells are in overlying and underlying aquifers as well as the target aquifer, as is appropriate. Further, no models are identified to support the contention that Powertech will get the expected response in 144 hours.

There is no demonstration as to how pumping some 170,000 gallons out of the aquifer is likely to change the hydraulic flow within the aquifer, which can lead to changes in groundwater

quality (e.g., flow from reduction zones into more oxidizing zones could lead to iron oxyhydroxide precipitation and well fouling). The proposed volume should be compared to local use of the groundwater aquifer in order to determine the level of stress the proposed activities may put on the aquifer flow geometry. The Request also lacks any information related to the multitude of historically drilled wells, exploration and bore holes, or other holes in the immediate vicinity that may affect the hydrologic balance or groundwater quality during any aquifer pump tests.

The analytical result submitted in Appendix E shows elevated uranium and radium-226 concentrations, and Powertech uses this one measurement to conclude that the entire aquifer has elevated uranium and radium. This single analysis is insufficient, and inappropriately assumes complete homogeneity of the aquifer. Further, there is no information as to the length of the screened interval in the well. In order to provide sufficient information, it must be screened through the entire thickness of the aquifer, rather than just the ore zone within the aquifer. The well must be developed until the turbidity falls below acceptable standards, as suspended particles in a water sample can result in high uranium and radium values. There is also no information as to how long the well was developed and whether any turbidity measurements were taken prior to taking the sample.

Powertech proposes to collect water samples from the pump wells. If the company is permitted to perform the pump test, the water quality samples should be collected at the end of the pump test before it shuts down the pumps. This will provide some assurance that the groundwater zone affected by drilling fluids has been flushed out prior to collecting the sample. Additionally, the sample should be collected from a well that is screened through the entire thickness of the aquifer. These issues all further demonstrate the need for not only a comprehensive baseline characterization plan, but also for a third-party expert to oversee the plan, monitor field operations, and review data collection.

Powertech asserts in its discussion of reclamation of the water and disposal pit that radium-226 must not exceed 5 pCi/g above background, and uranium must be less than 30 pCi/g above background in the top 15 cm of soil. Higher levels are listed for soils lower than 15 cm. There is no information as to where these standards derive from, nor any demonstration of background samples to establish the baseline soil concentrations for radium-226 and uranium. There is no information as to how will background levels will be established prior to disturbing any soil. Further, there is no information as to the potential soil and groundwater contamination associated with the other heavy metals contained in the aquifer water to be pumped out and deposited in an unlined pit on the surface.

The extraction and deposition of radioactive materials on the surface also implicates the jurisdiction of the Colorado Department of Public Health and Environment, Radiation Management Unit, and the applicable soil standards and the jurisdictional issues must be resolved prior to proceeding with any commencement of the proposed activities, including whether the materials extracted and concentrated at the surface constitute Technically Enhanced Naturally Occurring Radioactive Material (TENORM).

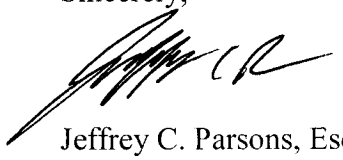
Overall, there is insufficient data and plans to properly and comprehensively evaluate the Request for Modification.

Conclusion

Based on the foregoing, the MLRA precludes the authorization of Powertech's proposed activities under a Notice of Intent as "prospecting" activities. Further, Powertech's proposal does not comply with the MLRA's requirements regarding baseline characterization, as enacted through HB 08-1161. Lastly, there are numerous deficiencies in the information presented relating to the impacts to land, groundwater, and the hydrologic balance at the site.

We look forward to your prompt attention on this matter. Please do not hesitate to contact me directly with any questions.

Sincerely,



Jeffrey C. Parsons, Esq.
On behalf of CARD, Environment Colorado, and INFORM

cc: Ron Cattany, Director, DRMS
Rep. Randy Fischer
Rep. John Kefalas
Steve Tarlton, CDPHE, Radiation Management Unit
Thomas Honn, Director, Weld County Planning and Zoning Department