

MD 03

NON CONFIDENTIAL

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

November 25, 2009

NOV 25 2009
to

do Allen Sorenson, Reclamation Specialist
Div. of Reclamation, Mining and Safety
1313 Sherman Street, Room 215
Denver, CO 80203

RE: Powertech (USA) Inc. Request for Modification to Notice of Intent (NOI) File
No. P-2008-043 ✓

Dear Mr. Sorenson:

This letter is submitted on behalf of Coloradoans Against Resource Destruction (CARD), Environment Colorado, Clean Water Action, and Information Network for Responsible Mining (INFORM) and pertains to the Division's ongoing consideration of Powertech (USA) Inc.'s ("Powertech") Request for Modification to Notice of Intent (NOI) File No. P-2008-043 submitted in September, 2009, and the additional information submitted on or about October 28, 2009, for the Centennial Mine proposal in Weld County. Commenters submitted an earlier letter on September 29, 2009, and attach this letter and hereby incorporate herein the issues raised in that letter, as it appears that despite the submittal of additional information, Powertech has not sufficiently addressed those issues. In addition, the new information submitted by Powertech appears incomplete, primarily in that fails to include critical data necessary to substantiate the assumptions and assertions contained therein.

In its October 28, 2009 submittal, Powertech purports to respond to substantial issues raised by the Division in a September 25, 2009 letter from the Division to Powertech. It appears that this recent Powertech submittal relies heavily on data and analysis submitted to the Division in the context of Powertech Notice of Intent to Conduct Prospecting File No. P-2007-015. However, despite relying extensively on data purported to have been submitted in the context of NOI File No. P-2007-015, it appears that Powertech has not saw fit to waive its confidentiality with respect to that file. Thus, it appears that information critical to assessing Powertech's application to conduct aquifer pump tests in the context of the publicly available NOI File No. P-2008-043 is improperly unavailable to public review.

For instance, according to Powertech's October 28, 2009 submission, in response to Division requests for more information concerning the pumping wells and monitoring wells, Powertech asserts

that "SEO Well Construction and Test Reports for groundwater wells utilized during the previous pumping tests have been submitted to the DRMS in the form of the confidential Surety Reduction Request for NOI P-2007-015." Similarly, in the attachment to Powertech's October 28 submittal is a report prepared by Petrotek Engineering Corporation dated October 27, 2009 ("Petrotek Report"). This document contends in response to Division requests for further information regarding the potential for vertical communication between aquifers, that "[b]ased on previous pumping tests conducted by Powertech in Section 33 and the observed aquifer response during development of pumping well PW-1, it is estimated that PW-1 can be produced at a sustainable rate of 8 to 10 gallons per minute for the planned test duration of 3 to 5 days." Petrotek Report at 3.

Thus, Powertech relies on data from previous pumping tests conducted under NOI File No. P-2007-015 to support its analysis for the instant amendment to NOI File No. P-2008-043, yet this critical information does not appear to have been made public. Indeed, throughout the Petrotek document there are references to data from previous pump tests or other studies that do not appear to have been made public. See Petrotek Report at p. 8 ("The results from the Theis simulations for the well development scenario and from the previous pump tests are consistent and indicate the order of magnitude of hydraulic conductivity and storativity.").

This problem is not limited to just information on previous pump tests. The Petrotek Report appears to rely on assumptions and assertions for which no data appears to have been produced for public review, or to the best of commenters' knowledge, Division review. For example, on page 5 of the Petrotek Report, Powertech references a conclusion regarding the potential zone of flow for injectate, "based on the best estimate of aquifer properties for the A2 sand," yet no scientific basis for this estimate is evident. In the same paragraph, the Petrotek Report purports to assume "'piston-like' displacement" in the aquifer and an "assumed aquifer thickness," but fails to justify its reliance on such assumptions with any data or related studies.

Lastly, with respect to the impacts associated with conductivity between aquifers via historic well holes in the direct vicinity of the currently proposed aquifer pump test, Powertech simply asserts that "the condition of the exploration boreholes and monitoring wells installed by others is unknown but will be evaluated through ongoing monitoring during the pumping test and reinjection of the produced fluid." Petrotek Report at 6. However, no information is provided as to what efforts Powertech has made to assess the condition of these holes, what methodology Powertech proposes to use in conducting these evaluations, nor why such information is unavailable from the apparent previous pump tests conducted in the vicinity. In a similar manner, Powertech asserts that a "detailed review of available potentiometric-level data for Section 33 monitoring wells shows the data to be consistent and does not indicate any apparent anomalies, which may be caused by vertical leakage through artificial penetrations." Petrotek Report at 6. Again, the data upon which this review was conducted does not appear to be included in the submittal or otherwise publicly available, nor is the methodology or techniques used in conducting such a review evident.

Overall, Powertech's responses to the Division's September 25 adequacy letter do not contain the necessary data upon which assumptions were made, nor a description of the scientific methodology employed to arrive at such assumptions. Although commenters are aware that some data has been produced by Powertech in response to Division requests subsequent to the October 28, 2009 submittal, commenters' ability to review that data and information has been considerably hampered by an unrelated issue concerning the inactive status of the Division's electronic files.

Apart from the substantial concerns raised in commenters' September 29, 2009 comment letter that appear to have gone unaddressed by Powertech, the as-of-yet unsubstantiated assumptions and assertions contained in Powertech's October 28, 2009 submittal cannot form the basis of Division approval for the proposed pump test.

We look forward to your prompt attention on this matter, and the prompt disclosure of all necessary information necessary to assess the impacts of Powertech's proposed activities, including all relevant data from previous activities. At that time, commenters reserve the right to provide additional comment on this project. Please do not hesitate to contact me directly with any questions.

Sincerely,

/s/ Jeffrey C. Parsons

A handwritten signature in black ink, appearing to read "Jeffrey C. Parsons". The signature is written in a cursive, flowing style.

Jeffrey C. Parsons, Esq.

On behalf of CARD, Environment Colorado, Clean Water Action, and INFORM

Enclosure

WESTERN MINING ACTION PROJECT

MD03

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

RECEIVED

SEP 30 2009

Division of Reclamation,
Mining and Safety

NON CONFIDENTIAL

via email, hardcopy to follow

September 29, 2009

Allen Sorenson, Senior Environmental Protection Specialist
David Berry, Minerals Supervisor
Colorado Div. of Reclamation, Mining and Safety
1313 Sherman Street, Room 215
Denver, CO 80203

RE: **✓ Powertech (USA) Inc. Request for Modification to Notice of Intent (NOI) File No. P-2008-043**

Dear Messrs. Sorenson and Berry:

✓ This letter is submitted on behalf of **Coloradoans Against Resource Destruction (CARD), Environment Colorado, Clean Water Action, and Information Network for Responsible Mining (INFORM)** and pertains to the Division's consideration of Powertech (USA) Inc.'s Request for Modification to Notice of Intent (NOI) File No. P-2008-043 submitted in September, 2009 for the Centennial Mine proposal 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 in Weld County. As discussed in detail below, there appear to be serious concerns regarding this recent Request for Modification.

According to Powertech's Request for Modification:

The objectives of the Section 33 pumping test described in this plan are to:

1. Collect site-specific information on geology and groundwater conditions in Section 33 and for the regional hydrogeological characterization;
2. Assess the hydrologic characteristics and their lateral continuity within the mineralized production zone (i.e., A₂ sand horizon);
3. Assess hydrologic communication in the mineralized zone between the pumping well and surrounding production zone monitoring wells;

4. Assess the presence of hydrologic boundaries, if any, within the production zone; and
5. Evaluate the degree of hydrologic communication, if any, between the production zone and the overlying and underlying aquifers in the test area.

Powertech Request for Modification, Appendix 1 at pp. 1-2.

As a water disposal method, Powertech asserts that “[a]t the conclusion of the aquifer test, all waters produced from the step-rate and primary pumping tests will be re-injected back into the same formation from which it was extracted. Powertech is currently seeking authorization for water injection through the Environmental Protection Agency’s (EPA) Underground Injection Control (UIC) program, utilizing a Class V permit.” *Id.* at p. 8.

The legal and technical concerns expressed herein revolve around two issues: 1) how the proposed activities relate to the requirements in the Colorado Mined Land Reclamation Act (MLRA), C.R.S. §§ 34-32-101, et seq. (“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 2) 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 ground water and hydrologic balance impacts.

1. A baseline characterization plan 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:

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 specifically designed to determine premining geologic and hydrologic site conditions. Request for Modification, Appendix 1 at pp. 1-2. Although these activities affect the baseline and form an integral part of the baseline characterization plan required by the MLRA, Powertech proposes to go forward with these activities as “prospecting operations” before the baseline characterization plan is fully reviewed and approved by the DRMS.

The plain language of 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. Indeed, this is precisely how the DRMS has interpreted the MLRA in the context of the ongoing MLRA rulemaking process. The proposed regulations explicitly preclude baseline characterization activities prior to approval of a baseline characterization plan. See proposed Rule 1.4.3(1)(A). While the proposed Rules allow for operators to conduct some baseline characterization prior to finalization of the rules in some circumstances, this allowance is discretionary and limited to those activities which are consistent with the MLRA. In this case, because of the potential of the proposed activities to impact the baseline, and, as discussed below, the lack of sufficient baseline data included in the Request, the Division should decline to allow the activity prior to final approval of the baseline characterization plan. Critically in this case, Powertech has already submitted a proposed baseline characterization plan, which is currently under review by DRMS. As a result, there will be minimal delay while the baseline characterization plan is finalized and approved.

DRMS review of both the baseline characterization plan and the Request for Modification should be coordinated to ensure faithful implementation of the MLRA and the new Rules. As has been expressed by DRMS, activities conducted prior to finalization of the baseline characterization plan may impact the baseline ground water conditions at the site, thereby impairing, or even precluding, the ability of the Division to obtain an accurate baseline characterization. Overall, because of the potential to impact the baseline, the MLRA requires the Division to ensure that the baseline characterization plan is finalized prior to approving this baseline characterization activity.

In the alternative, should activities be allowed to proceed, prior to conducting any such activity at the site, Powertech must provide competent information required to support a formal DRMS finding on whether or not the proposed activities will in any way affect, alter, or distort any future baseline characterization of the site and the groundwater.

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

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).

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 and all site activities.

However, the information submitted by Powertech does not appear to include any baseline monitoring information that has already been compiled, even though actual data is required in order to establish a legitimate “pre-mining site condition,” to ensure baseline is protected, and to ensure that the proposed activities do not disturb this baseline. Rather, Powertech proposes several monitoring wells to collect data *during* the proposed aquifer pump test, rather than before. This failure to provide existing groundwater information and the failure to include a plan for obtaining data prior to pumping highlights the need for the baseline characterization plan to be coordinated with the proposed activities, and to be approved prior to pump test authorization.

It may be that some of the relevant data exists, as Powertech previously submitted a proposed plan for an aquifer pump test that included some data showing elevated uranium and

radium-226 concentrations. As raised in previous comments on that previously proposed modification, Powertech had used this one measurement to conclude that the entire aquifer has elevated uranium and radium. As then, this single analysis is insufficient, and inappropriately assumes complete homogeneity of the aquifer. Regarding this lack of pre-activity data, the undersigned recently submitted comments to EPA regarding this proposal, similarly identifying the lack of comprehensive data necessary to evaluate and protect against the impacts of the proposed activities, among other concerns relevant to DRMS review. These comments are attached as Exhibit 1 hereto, and are fully incorporated herein by reference. Of particular note with respect to the lack of baseline data is the discussion in the letter at pages 2-3.

Apart from the lack of baseline data, there is no information as to the length of the screened interval in the well. Rather, Powertech simply states that “[b]ased on the geophysical logs the completion interval and screen length will be determined on a site-specific basis.” Powertech Request for Modification, Appendix 1 at p. 5. In order to provide sufficient information, the wells must be screened through the entire thickness of the aquifer, rather than just the ore zone within the aquifer. The wells 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. While the Request indicates that some of the wells to be used are already in existence, there is also no information as to how long the wells were developed and whether any turbidity measurements were taken prior to taking any previous samples.

Additional critical technical information is also lacking. For instance, there is no demonstration as to how pumping the relatively large amounts of ground water involved 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. This is critically important due to Colorado Geological Survey publications indicating that “recent mineral exploration drilling activities and water extraction from existing wells appear locally to have altered natural flow paths...” (Hydrogeologic and Stratigraphic Data Pertinent to Uranium Mining, Cheyenne Basin, Colorado - Kirkham, O’Leary, and Warner. Colorado Geological Survey, 1980, at 18). 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 (this issue is addressed extensively in Exhibit 1 at 4-6). The Request also fails to provide any information or description on how reinjection of the groundwater may impact the aquifer. Powertech states that no additional pressure will be needed to inject the water, relying instead on gravity flow, but does not indicate how long this might take.

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 this activity to be coordinated with, and approved only after completion of, a comprehensive baseline characterization plan.

The Request identifies previous pump test activities that have been conducted at the site. These activities should be fully described so as to inform the need for this test, and the possible need for additional monitoring and baseline characterization information prior to commencing any activities. Further, the Request indicates that the A2 Sand is the primary (70%) formation for uranium. However, it also appears that the confining layers between the A2 and WE, and the WE and B, are one foot or less. Powertech should be required to demonstrate that this barrier is sufficient to protect adjacent aquifers and the hydrologic balance during the proposed pump test. Also, Powertech asserts that the criteria for "significant" hydraulic connection between the production zone and overlying/underlying sands will be drawdown greater than 2.4 inches. Powertech should be required to fully justify its reliance on this number.

Lastly, with respect to water storage above ground in the Baker tanks, there is no time line for the length of time needed for storage. As colder weather is steadily approaching the proposed pump test area, measures should be in place to ensure that above-ground piping and water conveyances will not be subject to freezing or failure as a result.

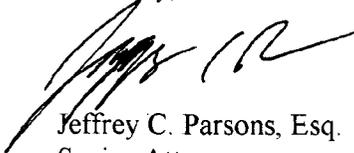
Overall, there is insufficient data and plans to properly and comprehensively evaluate the Request for Modification. Powertech refers to the fact that it has applied for an Underground Injection Control (UIC) permit from the EPA with respect to this proposal. The Division should work closely with EPA to ensure coordination of the agencies' respective programs, and make sure that all information requests from either agency are incorporated into each agency's review.

Conclusion

Based on the foregoing, Powertech's submittal 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 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.
Senior Attorney

Western Mining Action Project

On behalf of CARD, Environment Colorado, Clean Water Action, and INFORM

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
vmmap@igc.org

via email

July 24, 2009

Valois Shea
U.S. Environmental Protection Agency Region 8
8P-W-GW, UIC
1595 Wynkoop Street
Denver, CO 80202
shea.valois@epa.gov

RE: Proposed Underground Injection Control Program (UIC) Permit (Permit Number: CO51237-08412).

Dear Ms. Shea,

Thank you for the opportunity to comment on your agency's proposal to issue an Underground Injection Control Program (UIC) Permit (Permit Number: CO51237-08412)¹ for Powertech (USA) Incorporated's proposed aquifer pump test in the Fox Hills Aquifer in Weld County, Colorado. As discussed herein, the draft permit cannot be issued as proposed. At a minimum, substantial additional information is required to demonstrate the ability of the permit applicant to protect underground sources of drinking water. This information includes additional baseline data on the water quality of both the injectate and the receiving water. In addition, the permit applicant should be required to demonstrate that the substantial historic exploration drilling in the area of the proposed permit will not result in contamination of adjacent aquifers, including underground sources of drinking water. Lastly, the EPA's permit processing exercise should be better coordinated with the required state permitting process for the proposed underground injection activities.

¹ We note that various permit numbers are used in various documents, making it unclear to the public as to which permit is under review. The Public Notice and Statement of Basis and Purpose show permit No. CO51237-08412, whereas the Draft Permit cites permit No. CO51237-08408. Still further, the text of the Draft Permit states that "[t]he EPA permit number the UIC Program Director ... has assigned to this permit is CO51237-08404." Draft Permit at 2. Lastly, the bottom margin of each page of the Draft Permit lists "Petroglyph Energy, Inc., UIC Class V Permit No. CO51221-00000." Thus, in various places, the EPA has listed no less than 4 different permit numbers in the materials. At a minimum, this is confusing to the public, and at worst, renders the public notice insufficient, and requires re-notice of the permit application to the public.

Regarding the Draft UIC Permit and the Statement of Basis for the permit, we make the following comments.

The statement of Basis and Purpose states that the permit will contain “no requirements for reinjectate sampling and analysis.” Statement of Basis and Purpose at p. 6. However, the same document states that the applicant “will sample the stored groundwater and have it analyzed before reinjection occurs.” *Id.* at 5. The draft permit should be revised to specifically require a full suite of water quality sampling prior to any injection into the aquifer. Such a sampling is necessary to ensure that the injectate does not present a threat to underground sources of drinking water or to the existing quality in the aquifer, as required by 40 CFR § 144.82(a). This sampling should include protection against such things as bacterial growth in the storage containers, as well as to assess the potential impacts to the aquifer and the existing uses of the affected ground water.

The need for sampling prior to injection raises additional issues related to the draft permit – namely the lack of a requisite analysis of the existing water quality in the aquifer. In fact, there appears to be a critical lack of information related to the existing water quality in the affected aquifer, including the water quality of the proposed injectate. Powertech states in its cover letter attached to the permit that “The water quality analysis displayed in attachment D was obtained from an existing well...located about 500 feet south of the pump test/proposed injection well, and completed in the same formation and interval.” Cover letter at p. 3. The EPA must justify any decision to not require a more comprehensive characterization of not only the water proposed to be injected, but also the area of the aquifer proposed for injection. It appears that, as currently proposed, the agency is proposing to rely on a single sample from a single existing well located some 500 feet from the injection area to characterize the entire area of the aquifer from which the proposed injectate will be drawn and the area of the aquifer potentially impacted by the proposed reinjection activities. Review of the materials and discussion with agency personnel indicate that the withdrawn water proposed for injection will be drawn from the middle of a uranium ore-body – yet there does not appear to be any data demonstrating the quality of the water in the well from which the water will be drawn. Further, there is no data demonstrating that the water to be drawn and reinjected will not encounter oxidizing conditions as the pumping and reinjection occurs (for instance, flow from reduction zones into more oxidizing zones that could lead to iron hydroxide precipitation and well fouling). Should this occur, it could result in mobilization of additional contaminants in the aquifer, posing additional threats to underground sources of drinking water. In short, this existing data set is woefully inadequate. Should the data demonstrate that the quality of water proposed to be injected contains high levels of toxic or noxious chemicals, a Class I UIC permit may be appropriate to ensure protection of underground sources of drinking water. However, without this data, the EPA cannot make a reasoned analysis of the impacts of the proposed injection in order to fulfill its duty to protect underground sources of drinking water.

Notably, the additional information required of Powertech includes not only data on water quality of the aquifer and of the injectate, but also the geologic characteristics of the injection zone and the so-called confining strata. The EPA is authorized to require this information pursuant to 40 CFR § 144.27. Indeed, although drafted prior the finalization of the complete Class V regulatory program, the EPA’s Statement of Basis and Purpose for the

agency's Underground Injection Control Regulations issued by the EPA's Office of Drinking Water (May, 1980; National UIC Program Docket Control Number D 01079) demonstrates the potential problems where injectate containing contaminants will be injected above or below an underground source of drinking water and the geologic information is lacking. This document states, at pages 13-14:

[I]f the confining stratum which separates the injection zone from an overlying or underlying underground source of drinking water is either fractured or permeable, the fluids can migrate out of the receiving formation and into the protected region.

For obvious reasons, there are no well construction standards which can address this problem of migration of fluids through this pathway. Consequently, the regulations propose two provisions to assure that fluids do not travel this pathway into underground drinking water. First, the regulations require that, prior to the issuance of a permit, the geologic characteristics of the injection zone and confining strata be reviewed. Data already available from the states can assist Directors in making these reviews. A permit should only be issued upon the Director's finding that the underground formations are sufficiently sound to contain fluids in the injection zone.

Second, the regulations require that well injection pressure be controlled to prevent opening fractures in the confining strata or otherwise causing the rise of fluids into an overlying protected zone.

In this case, the EPA should require additional information regarding the geologic setting of the proposed injection activities. Based on this information, the EPA should consider and adopt restrictions on injection pressures in order to ensure protection of underground sources of drinking water.

Further demonstrating the lack of sufficient data is the statement on page 8 of the Statement of Basis and Purpose that the nearby domestic well "is completed deeper than the injection zone, and is probably in the B Sand of the Lower Fox Hills Formation..." This statement shows a lack of sufficient data to ensure protection of underground sources of drinking water. The conclusion is also supported by the statement on page 2 of the cover letter, where the applicant states, with regard to the nearby domestic well, "[t]he depth of the screened interval of the proposed injection well will be approximately 500 to 550 feet below the ground surface This well is much deeper than the zone of injection (620 feet), and is likely screened in the B-Sand of the Lower Fox Hills." However, the Well Construction and Test Report, State of Colorado, Office of the State Engineer, for this well indicates a Perforated Casing from 440 to 460 feet and from 520 to 560 feet (attached as exhibit 1). This demonstrates a lack of sufficient data and analysis to issue the permit at this time.

Overall, significant additional data is necessary for the EPA to fulfill its obligations under the federal Administrative Procedure Act (APA), which requires that the agency consider all information and make its decision based on a rational assessment of all relevant facts and circumstances. Absent full characterization of the injectate and the receiving aquifer and the

impacts on underground sources of drinking water, the EPA cannot effectively discharge this duty.

The Draft Permit states at page 7 that “[c]ompliance with this permit does not ... authorize ... any infringement of state or local law or regulations.” Further, Powertech (USA) Inc.’s April 30, 2009 Request for Permit letter states that the Colorado Division of Reclamation Mining and Safety (DRMS) is the state agency “overseeing the project.” However, there is no record of Powertech having any active application for any permit covering the activities proposed in the Class V Draft Permit. Indeed, Powertech has recently withdrawn an application that would have covered some of the relevant activities.

EPA should require Powertech to explain the relationship between the currently applied-for EPA permit and Colorado DRMS permit requirements for this same activity. As stated above, the Applicant does not at this time have any permit application in place before the DRMS, where the Applicant will be required to present substantial technical and baseline characterization evidence in order to obtain state authorization to conduct the proposed pump test. For instance, a letter dated March 31, 2009 from Mr. Allen C. Sorenson, Reclamation Specialist, DRMS to Mr. Richard Blubaugh, Powertech (USA) Uranium Inc., demonstrates the broad extent of the information that will be required as part of the state review. (attached as exhibit 2). This includes critical pieces of information related to the protection of the hydrologic balance and protection of water quality and quantity. Given the significant information that will be required in the state permit process, and the scant information currently available to EPA in the context of this UIC Class V permit (discussed herein) regarding the hydrologic balance and impacts on groundwater quality and quantity, the EPA should delay its permitting exercise to better coordinate with the DRMS in order to ensure that the EPA has sufficient evidence to draw rational conclusions with respect to the applicant’s ability to comply with the SDWA and EPA regulations. Failure of the applicant to provide sufficient information to allow the EPA to draw such rational conclusions would violate the APA.

The DRMS also expresses its requirement that the Applicant provide the location information for all wells within two miles of the proposed operation, including not just Powertech wells but also any other wells historically drilled in the area. These old wells may indeed present significant problems with respect to protecting underground sources of drinking water. The EPA’s 1980 Statement of Basis and Purpose (National UIC Program Docket Control Number D 01079) provides a clear description of the problem, at pages 14-15:

One of the common ways by which fluids can enter an underground source of drinking water is by migration through improperly abandoned and improperly completed wells. This would occur if fluids moving laterally within an injection zone encountered an improperly abandoned or completed well, and, following the path of least resistance, flowed upward within the well until entering an overlying underground source of drinking water or overflowing onto the land surface. Because of the large number of wells drilled in the past, and because well operation and abandonment have not always benefitted from close regulatory scrutiny, contamination by this route can present a significant risk to public health.

...

[In the case of a potential problem], however, the well operator would be expected to correct it. Correcting the problem could mean that the well operator would have to plug a faulty well at his/her expense.

In this case, the extent of the prior drilling in the area is highly significant. As demonstrated by the attached map prepared by Powertech and altered only with respect to identifying local roadways, and entitled "Topo and Drill Hole Location Map, Indian Springs and Centennial Uranium Projects", there are literally thousands of historic wells in the areas proposed by Powertech for in situ leach uranium mining, and many wells in the area proposed for injection under the Draft Permit. (Map attached as exhibit 3). In order to discharge its duties under the Safe Drinking Water Act and the APA, the EPA should require the applicant to provide information demonstrating that these wells have been properly abandoned in a manner that will not allow for communication between the injection area and the overlying underground source of drinking water.

The concerns with the previous abandonment of these wells are well documented. Indeed, documents suggest that many of these wells were not properly abandoned and could provide a conduit between the aquifers. For instance, a May 19, 2003 letter from Mark E. Hoffman, Project Manager for Exxon Mobil to Tony Waldron, DRMS, regarding reclamation activities at the Indian Springs Prospecting project (attached as exhibit 4 (with attachments)) states:

Prospecting was conducted as described in three Notices of Intent to Conduct Prospecting Operations submitted to the Colorado Department of Natural Resources, Mined Land Reclamation Board, dated August 23, 1977, November 10, 1978, and October 27, 1980 (Attachment A). A total of 492 uranium exploration boreholes were drilled during this period.

...

Mr. J.J. Faulhaber, of Alternative Energy, in an interoffice memo, dated May 28, 1985 (Attachment D) summarized borehole abandonment procedures and standards for the Project. Boreholes were abandoned with drilling mud consisting of varying viscosities from the bottom of the hole to ten feet below the ground surface. Cement plugs were installed from ten feet to the surface or two feet below the surface depending upon local cultivation practices.

The borehole abandonment standards varied over the course of the Project, but the most stringent standards applied to the 1980 drilling program....

The boreholes were drilled into the stratigraphic horizon that contains the Laramie-Fox Hills aquifer, a regional hydrogeologic unit that spans the base of the Laramie Formation and the top of the Fox Hills Formation. In a letter to Mr. Kenneth Holmes (Mobil), dated February 23, 1982 (Attachment E), Ms. Walker [Colorado Division of Mining] expressed concerns over the use of drilling mud in an interval of an aquifer, and the potential for contaminants in the Upper Laramie Formation to enter the Laramie-Fox Hills aquifer.

The interoffice memo referred to in this excerpt (exhibit 4, attachment D) also refers to well abandonment procedures that were done in the 1970s, before Colorado legislation passed in the early 1980s (House Bill 1195) that required more substantial protections in drill hole abandonment procedures to protect groundwater. These documents refer to use of such materials “beet pulp” in the abandonment procedure in wells.

Other historic documents demonstrate that other companies drilled substantially more numbers of wells in the area in the 1970s and 1980s, including Rocky Mountain Energy, who reported to the State of Colorado in 1982 that it drilled some 2,142 holes in the area, including in the section proposed for the injection permit (attached as exhibit 5). There is little data on the abandonment procedures used in these wells, but one might assume they consisted of similar techniques that were standard at the time that gave rise to the State of Colorado’s concerns with respect to aquifer communication and contamination with the Mobil project wells. In any case, the EPA should require the applicant to provide all information regarding these wells, any abandonment information, and require repair and proper closure prior to any injection authorization.

In addition, the applicant’s own documents demonstrate that there have been problems encountered with abandonment procedures at historic drill holes. In an August 2007 Powertech (USA) Inc. “Activity Update” (attached as exhibit 6), the company recounts its experiences in discovering and attempting to repair broken well casings that appear to have been improperly abandoned in the first instance. As stated by the applicant:

Some wells were broken off at ground surface during the intervening 20 plus years. We have attempted to locate wells with GPS system and hand digging. Some wells we could not locate this way and we used a backhoe to find the buried well. We gently raked 4 inches at a time searching for the casing. We did not break any wells with our backhoe. The photos found on some websites are actually jagged broken casings that were buried for 20 plus years.

Further, Powertech is on record in a letter dated October 16, 2007 from Mr. Richard Blubaugh, Powertech (USA) Inc. to Mr. Jim Woodward, www.powertechexposed.com (except attached as exhibit 7) overtly recognizing the problems associated with historic well abandonment procedures in defending assertions that it or its contractors were responsible for leaving open well casings:

While these open well casings are on property owned by Powertech, these are not wells that were drilled by Powertech or its contractors. In fact, the wells left unprotected were drilled by previous exploratory efforts in the 1980s, and were uncovered by Powertech’s geotechnical teams while in the process of locating each bore site.

In response to these local community concerns with respect to the potential failures of historic well abandonment, the applicant affirmatively committed to “ensuring that **all wells on its properties** meet state and local safety requirements and standards.” We urge EPA to hold Powertech to its promised commitments to the local community and require the applicant to

submit this additional information of proper well abandonment as part of the permit review process, and before the grant of any such permit.

Overall, the SWDA and associated regulations provide that “no injection shall be authorized by permit or rule if it results in the movement of fluid containing any contaminant into Underground Sources of Drinking Water” 40 C.F.R. § 144.1(g). In order to ensure compliance with the SDWA and EPA regulations, the applicant must present significantly more detailed evidence with respect to the existence and potential cross-aquifer communication that may result from these historic wells, and require proper abandonment be completed prior to issuing a permit for injection. In fact, the applicant is on record as committing to However, as it currently stands, the record is insufficient to demonstrate that the applicant can achieve the protection of all USDW. As such, the strictures of the APA preclude the issuance of a permit in this case until the applicant can provide sufficient evidence demonstrating the ability to comply with applicable law.

Lastly, any permit issued should require complete reporting of water quality data encountered before, during, and after the pumping and injecting. While any approved pump test is ongoing, should any communication between aquifers be encountered, and the permit should include a provision for re-assessment of the viability of injection pursuant to the permit, as this new information would be critical to protecting underground sources of drinking water. Should such cross-communication be discovered, the existing permit should be suspended or voided pending additional review by the EPA.

Given the complexity of these issues, we continue to express a high level of concern with the proposed reinjection activities, and based on the current record urge the EPA to deny the proposed permit. At minimum, given the extensive amount of data and information that the EPA requires (as identified herein) in order to process the proposed permit for injection, we hereby request that the agency provide an additional public comment period to facilitate review of any amended Draft Permit or Statement of Basis and Purpose that may be forthcoming in the future. We understand that such additional review is not uncommon, and given the controversy surrounding the impacts associated with Powertech’s proposed activities, is entirely appropriate. In addition, we are currently conducting ongoing research into such things as historic drilling records in the area, and reserve the right to supplement these comments should additional relevant information become available. Lastly, we hereby incorporate herein by reference all of the public comments submitted in this comment period, to the extent these comments address issues or detail facts or evidence not included herein.

We look forward to reviewing the EPA’s responses to these comments, and please do not hesitate to contact me directly with any questions regarding these comments.

Sincerely,

/s/ Jeffrey C. Parsons

Jeffrey C. Parsons

Senior Attorney
Western Mining Action Project
On behalf of
Coloradoans Against Resource Destruction
Information Network for Responsible Mining