POWERTECH (USA) INC.

December 9, 2019

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U. S. Environmental Protection Agency Region 8
Underground Injection Control Program
Mail Code: 8WD-SDU
1595 Wynkoop Street
Denver, CO 80202-1129

Re: Powertech (USA) Inc. Comments on Dewey-Burdock Project Revised Draft Class III Area Permit

Dear Valois:

This letter and enclosures represent Powertech (USA) Inc.'s (Powertech's) written comments on the Draft Class III Area Permit for the Dewey-Burdock Project issued for public comment on August 26, 2019 (the "Revised Draft Class III Permit"). The written comments pertain to the Draft Class III Area Permit, Draft Class III Area Permit Fact Sheet, Draft Aquifer Exemption Record of Decision and other supporting documents, including the Draft Cumulative Effects Analysis, Draft Environmental Justice Analysis and the CADMUS documents. General comments are followed by specific technical comments (Tables 1-6).

While Powertech believes that the Revised Draft Class III Permit issued on August 26, 2019 is somewhat more consistent with Class III Underground Injection Control (UIC) permits issued for other uranium in-situ recovery (ISR) operations in the USA, the Revised Draft Class III Permit continues to include unprecedented and unwarranted new requirements. Further, the Revised Draft Class III Permit is not consistent with UIC permits for similar uranium ISR operations within Region 8 of the U.S. Environmental Protection Agency (EPA or the Agency), which includes the Dewey-Burdock Project.

As noted in General Comment G-3 in Powertech's June 16, 2017 letter to the EPA (the "Original EPA Letter"), the unprecedented and unwarranted requirements included in the original draft permit were a significant departure from previous EPA Region 8 UIC Program reviews and approvals for ISR aquifer exemptions in adjacent Wyoming. The Dewey-Burdock Project is in a similar hydrogeologic setting to Wyoming ISR projects and borders the Wyoming/South Dakota state line. Powertech's groundwater protection measures approved in its U.S. Nuclear Regulatory Commission (NRC or "the Commission") license are virtually identical to those approved in adjacent Wyoming operations and were reviewed by the very same group at EPA Region 8 with far different outcomes. Powertech's Revised Draft Class III Permit continues to include unprecedented and unwarranted conditions, none of which were imposed by EPA Region 8 on other ISR projects during the approval process. These other ISR projects include: the Lost Creek ISR Project, the Nichols Ranch ISR Project (including the recent Jane Dough amendment), the Ross ISR Project and the Reno Creek ISR Project, all of which were reviewed and approved in the same general

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timeframe as the Dewey-Burdock draft permit was developed by EPA. This lack of consistency within EPA Region 8 and, more importantly, within the UIC Program at EPA Region 8 is unjustified given that there have been no changes to the regulations or associated guidance from EPA during this period and the technical attributes of the Wyoming ISR Projects and the Dewey-Burdock Project are virtually identical. The Revised Draft Class III Permit provides Wyoming ISR operators a clear business advantage over a similar project located just across the state border in South Dakota.

Further, the EPA still has not offered a scientific or factual justification for the imposition of unprecedented and unwarranted new requirements in the Revised Draft Class III Permit. Because these requirements would be uniquely imposed on Powertech, as noted above, the Dewey-Burdock Project operations would be subjected to economic and competitive disadvantage in comparison to other uranium ISR facilities in the USA.

In particular, the EPA has now proposed exhaustive geochemical modeling requirements for site closure at the Dewey-Burdock Project. Though Powertech proposed an alternative solution that included geochemical modeling for site closure, in its Original EPA Letter (Attachment A-3, Proposed Alternate Solution to Post-Restoration Groundwater Monitoring), the scope of the geochemical modeling requirements included in the Revised Draft Class III Permit far exceeds that included in Powertech's proposed alternative solution (specific comments on the geochemical modeling are included below and in the technical comment tables). Further, these requirements are unprecedented and unwarranted and are not required for other uranium ISR operations in the USA, including those in EPA Region 8. These requirements stretch well in excess of current standards, standards that the NRC has successfully enforced for decades at uranium ISR facilities in the USA.

Powertech simply asks to be treated consistently and equitably with other domestic uranium ISR projects, where EPA appropriately leave matters regarding the regulation of ISR wellfields to the NRC. Consistent with other licensed uranium ISR operations, the EPA should follow the lead of the NRC in matters of regulation of ISR wellfield operations, including site closure.

As noted in comment G-9 of Powertech's Original EPA Letter, EPA does not have the authority for proposing duplicative and in many cases expansive requirements for areas already regulated by NRC (especially excursion monitoring within the exempted aquifer). Congress amended the Atomic Energy Act of 1954 (AEA) with the Uranium Mill Tailings Radiation Control Act (UMTRCA) in 1978 to specifically address a new Class of AEA materials known as 11e.(2) byproduct material. As mandated by Congress, EPA was granted limited and indirect regulatory authority to propose generally applicable standards that would serve as the starting point for the NRC to promulgate regulations that would address such byproduct material and the process known as "uranium milling." NRC and not EPA was granted direct regulatory authority over this to implement and enforce appropriate regulations consistent with EPA's generally applicable standards. However, while EPA was allowed to promulgate such standards, it has no authority to create the applicable regulations, to impose requirements on NRC's licensees or to enforce NRC license requirements on such licensees.

With respect to ISR operations such as the Dewey-Burdock Project, in the 1980s, the Commission determined that the active operational portion of such an operation constitutes "uranium milling" and therefore falls under the provisions of UMTRCA. Later, in 2000, the Commission determined that restoration fluids from ISR operations are 11e.(2) byproduct material as well as determining that it had exclusive, preemptive federal jurisdiction under the AEA/UMTRCA over both the radiological and non-radiological aspects of 11e.(2) byproduct material and, thus by definition, "uranium milling." As a result of these decisions, the Commission later determined that 10 CFR 40 Appendix A Criteria, including Criterion 5 groundwater corrective action requirements, are to be applied to ISR wellfields as a matter of law, despite the fact that ISR licenses up to that point included license conditions mandating groundwater restoration in such wellfields. As a result of this determination, which has never been challenged by EPA or any other entity, the Commission fully regulates all aspects of ISR operations, including but not limited to groundwater restoration.

It is completely unnecessary for EPA to impose duplicative regulatory requirements on ISR projects, especially where the Commission already imposes detailed wellfield monitoring programs that specifically prohibit the migration of production or restoration fluids outside of the perimeter monitoring well ring, which is designed to serve as an early warning system for such potential migration. Powertech is required by Commission regulation to submit detailed wellfield packages to NRC for review and, in some cases, either written verification or specific approval, which include the proposed monitoring program and commitments to immediately engage in corrective action if identified constituents are found at a perimeter monitoring well. Further, after termination of active operations, groundwater restoration must be conducted in accordance with Criterion 5 requirements, which are Commission-approved background or a maximum contaminant level (MCL), whichever is higher, or an alternate concentration limit ("ACL") as determined by the Commission using an exhaustive list of approximately 13 separate requirements. Also, an ACL will not be granted by the Commission unless it is determined to be adequately protective of public health and safety, is demonstrated to show that there are no steadily increasing trends of constituents of concern that may indicate the potential for future excursions to adjacent, non-exempt aquifers, and that the Commission's as low as reasonably achievable (ALARA) standard has been met. In accordance with the ACL requirements, Powertech must demonstrate that the ACL value and the geochemistry in the depleted ore body and down-gradient areas will be adequately protective of human health and the environment at the point of exposure (POE), which is the aquifer exemption boundary.

To evaluate the success of this regulatory program, the Commission directed NRC staff to conduct a study of its licensed ISR projects, past and present, to determine if there has ever been migration of ISR ore body fluids to adjacent, non-exempt aquifers. As described in comment G-1 in the Original EPA Letter, in 2009, NRC staff completed its inquiry and reported that no such migrations had ever taken place. Therefore, EPA's imposition of otherwise duplicative and, in many cases, onerous requirements on Powertech for groundwater monitoring and corrective action, in the face of NRC's regulatory program, is improper.

As noted above, though the Revised Draft Class III Permit is somewhat more consistent with Class III permits issued for other uranium ISR operations in the USA, Powertech continues to see the EPA extending its reach into areas of NRC authority.

Further, as noted in Powertech's Original EPA Letter, the only justification offered by the EPA in consideration of such requirements, in either version of the draft permit, is connected to the Agency's proposed rulemaking (40 CFR Part 192), which would have imposed expansive new requirements in conjunction with setting health and environmental protection standards under UMTRCA. However, as discussed further below, this proposed rulemaking was withdrawn. The rulemaking began with publication of a proposed rule on January 26, 2015 (80 Fed. Reg. 4156; Exhibit 007 in Powertech's Original EPA Letter). For reasons that have been amply documented in comments on that proposed rule, the Agency proposed regulatory requirements that exceeded its statutory authority under UMTRCA and for which it provided no scientific or technical justifications. In January 2017, EPA discarded the 2015 proposal and published another proposal, 82 Fed. Reg. 7400 (January 19, 2017; Exhibit 025 in Powertech's Original EPA Letter). In so doing, EPA openly acknowledged the lack of support for the types of provisions that would have been imposed: "Focusing on the area of surrounding or adjacent aquifers, the EPA acknowledges that the Agency does not have sufficient information to document a specific instance of contamination of a public source of drinking water caused by an ISR." 82 Fed. Reg. at 7404. Instead of providing any scientific evidence to support the need for additional regulations, EPA engaged in speculation by suggesting that "the lack of data does not demonstrate that no contamination is occurring, as industry commenters assert, but instead merely demonstrates the lack of data available to be able to make such a determination, especially where there has been limited post-restoration monitoring." 82 Fed. Reg. at 7404. This speculation runs contrary to the conclusions of the NRC based on data amassed by NRC and operators over decades of experience with ISR technologies (see Powertech's Original EPA Letter, comment G-1). As noted by the Supreme Court of the United States, it is also an unlawful basis for administrative action: "assumptions are not a proper substitute for the findings of a significant risk of harm required by the Act."[1]

Further, on October 30, 2018, the EPA issued notice of the withdrawal of its proposed rulemaking on 40 CFR Part 192 (83 Fed. Reg. 54543). On withdrawal, the EPA stated that, "stakeholders, including the NRC, raised significant concerns regarding the EPA's legal authority under UMTRCA to propose these standards. Based on those significant concerns, we now have serious questions concerning whether the EPA has the legal authority under UMTRCA to issue the regulations as developed in the 2017 Proposal." 83 Fed. Reg. at 54543. The EPA's reasoning went even further stating that, "the EPA no longer believes that a national rulemaking to promulgate standards is currently necessary as the Agency believes the existing regulatory structures are sufficient to ensure the targeted protection of public health and the environment at existing ISR facilities. The NRC stated in its public comments that its 'current regulations, at 10 CFR part 40, Appendix A, and those of the various Agreement States, as supplemented by site-specific license conditions, guidance documents . . .and the operational experience and technical expertise of the regulatory agency staff, *constitute a comprehensive and effective regulatory program* for uranium in situ recovery operations (ISR) facilities.'" 83 Fed. Reg. at 54543. With such statements invalidating the need for new requirements, it is unreasonable for the EPA in the Revised Draft Class III Permit to continue to promulgate additional requirements beyond what NRC requires for groundwater protection.

[1] *Industrial Union Dept., AFL-CIO v. American Petroleum Institute*, 448 U.S. 607, 662 (1980) ["IUD v. API"].

While many of the proposed Revised Draft Class III Permit requirements are now somewhat more aligned with NRC requirements, the EPA has now proposed exhaustive geochemical modeling requirements for site closure, which go well beyond current NRC requirements for uranium ISR operations for site closure and well beyond Powertech's Proposed Alternate Solution to Post-Restoration Groundwater Monitoring, Attachment A-3 in Powertech's Original EPA Letter.

Many of the geochemical modeling requirements proposed by the EPA remain vague and unspecified, and the results that must be demonstrated for successful closure by EPA are unclear. Many of the proposed requirements contain open-ended wording, which creates ambiguity to the extent which the EPA could implement actual requirements after issuance of the permit. This is further compounded by the fact that many of the supporting documents for the geochemical model make use and reference the no-longer applicable March 2017 draft Class III permit requirements and the withdrawn, previously proposed, 40 CFR Part 192 rulemaking. Even more concerning is that an expansive geochemical model was a specific requirement of the withdrawn 40 CFR Part 192 rulemaking (see Powertech's Original EPA Letter, comment G-5).

In conclusion, while Powertech appreciates the EPA updating the Revised Draft Class III Permit to be somewhat more consistent with Class III permits issued to other uranium ISR operations in the USA, including Region 8, the Revised Draft Class III Permit continues to include unprecedented and unwarranted new requirements. Further, Powertech continues to see the EPA extending its reach into areas of NRC authority. EPA's imposition of otherwise duplicative and, in many cases, onerous requirements on Powertech for groundwater monitoring and corrective action in the face of NRC's regulatory program is improper. This is evidenced by the withdrawal of the proposed 40 CFR Part 192 rulemaking. In order to ensure that Powertech is not at an economic and competitive disadvantage relative to other uranium ISR operations in the USA, including operations in Region 8, Powertech would largely expect the consistent application of permit conditions for all ISR operators in the USA and Region 8. Therefore, Powertech requests that the EPA remove the exhaustive geochemical modeling requirements as well as address the other requests made by Powertech in this comment letter with respect to the Revised Draft Class III Permit. Many of the requirements proposed by the EPA have been developed outside of the context of more than 40 years of ISR operations regulated by the NRC, during which migration of ISR ore body fluids to adjacent, non-exempt aquifers has NEVER occurred. The NRC license comprehensively addresses the regulation of ISR wellfields, and regulation of ISR wellfields should remain solely with the NRC. Powertech acknowledges that it proposed an alternative solution to post-restoration groundwater monitoring, which included geochemical modeling for site closure, in its Original EPA Letter; however, the scope of the geochemical modeling requirements included in the Revised Draft Class III Permit far exceed that included in Powertech's proposed alternate solution as further discussed in this comment letter. If the EPA insists on including geochemical modeling, despite the fact that Powertech remains unaware of any other Class III permits for uranium ISR operations in the USA, including Region 8, that require mandatory geochemical modeling, Powertech requests that the geochemical modeling be consistent with its proposed alternative and its discussion in this comment letter.

Powertech incorporates its Original EPA Letter by reference with this submission. This letter often references comments from Powertech's Original EPA Letter. In the tables below, Powertech has included

comments from the Original EPA Letter that Powertech believes have not been fully addressed by the EPA. Powertech has also provided new comments based on its review of the Revised Draft Class III Permit.

Powertech appreciates the opportunity to provide these comments and would be happy to discuss them further with the EPA. We request that the EPA give these comments full consideration and produce a final Class III permit that reflects the current regulations, consistency with other ISR permits for projects in the United States and Region 8 and reflects EPA's proper regulatory authority. We request that this process be completed within a reasonable time frame and no later than the end of the 1st quarter of 2020.

Additional General Comments to Powertech's Original EPA Letter.

G-17: The proposed geochemical model for site closure generated by the EPA in Part IV of the Revised Draft Class III Permit and represented by the five CADMUS documents far exceeds industry standards and is inconsistent with other uranium ISR operations in the USA, including Region 8. Further, the EPA/CADMUS proposal is not consistent with the NRC requirements for any other domestic uranium ISR operations. In addition, the scope of the proposed geochemical model is far beyond the Proposed Alternate Solution to Post-Restoration Groundwater Monitoring, included in Attachment A-3 of Powertech's Original EPA Letter. In its proposed alternative, Powertech envisioned two geochemical models being completed, one for each major wellfield area (i.e., one geochemical model for the Dewey area and one for the Burdock area), each generated after the successful conclusion of all ISR activities within each major wellfield area and following the NRC-approved closure of all wellfields within each major wellfield area. Powertech's proposal was designed to address the aquifer exemption boundary at each of the Dewey and Burdock areas, following the closure of the associated wellfields. Powertech envisioned the modeling effort for the Dewey and Burdock areas to be consistent with an ACL application under NRC regulations.

The extensive requirements described in the five CADMUS documents would constitute an expansive and cost prohibitive undertaking that would require a full-time modeling effort lasting more than a decade. These requirements have been developed outside of the context of more than 40 years of ISR operations regulated by the NRC, during which migration of ISR ore body fluids to adjacent, non-exempt aquifers has NEVER occurred. The geochemical modeling efforts described within the CADMUS documents and incorporated into the Revised Class III Draft Permit, appear to be consistent with the withdrawn, previously proposed, rules under 40 CFR Part 192. As evidenced by the EPA statements associated with the withdrawal of the proposed Part 192 rules, these proposed, extensive CADMUS requirements are unnecessary as there is already a "comprehensive and effective" regulatory framework for ISR wellfield operations, groundwater restoration and closure imposed by NRC. It is not appropriate for the EPA to develop an entirely unique approach to ISR regulation for this project for which it does not have regulatory authority. Further, the proposed, extensive CADMUS requirements effectively ignore the established protocols of the NRC, which have been successful in regulating ISR operations in the USA, including Region 8, for decades.

Powertech respectfully requests that all references/connections to the CADMUS documents be removed from the Revised Draft Class III Permit. As discussed above, inclusion of the CADMUS documents into the Revised Draft Class III Permit is not supported. Further, Powertech requests Part IV of the Revised Draft Class III Permit be revised to remove requirements that are directly derived from the proposed CADMUS document requirements and replace these with requirements that are fully consistent with NRC requirements and existing regulations applicable to other uranium ISR operations in the USA, as was contemplated in the closure plan in its Proposed Alternate Solution to Post-Restoration Groundwater Monitoring, Attachment A-3 of Powertech's Original EPA Letter. Powertech has four major areas of concern with the CADMUS documents, as follows:

1.) <u>The five CADMUS documents, and thus the Revised Draft Class III Permit, fail to fully recognize the current standards and regulations for groundwater restoration.</u>

The geochemical modeling efforts described by the CADMUS documents do not recognize the existing standard for groundwater restoration of ISR wellfields found under 10 CFR Part 40, Appendix A, Criterion 5 (see Powertech's Original EPA Letter, comments G-9 and G-10), which does not specifically require further demonstration, or modeling, of the transport of ISR contaminants across the aquifer exemption boundary if groundwater restoration is successfully returned to the Commission-approved background or an MCL. This regulation sets the standard for what is protective of human health and the environment for groundwater restoration of an ISR wellfield, yet it is never mentioned in any of the CADMUS documents or the Revised Draft Class III Permit. In contrast to this, in accordance with the Revised Draft Class III Permit, the EPA would require Powertech to do advance model "iterations" and collect potentially irrelevant site-specific geochemical data to determine the geochemical transport properties for constituents, which following groundwater restoration and stability phases, may meet the standard of being protective of human health and the environment. In such cases no further demonstration should be required. Review of ISR restoration data shows that nearly all, if not all, constituents are readily returned to background conditions or MCLs. Powertech requests that the Revised Draft Class III Permit be updated to reflect that no geochemical modeling would be required for constituents that meet the Commission-approved background or an MCL. The standards of 10 CFR Part 40, Appendix A, Criterion 5B(5) have successfully protected human health and the environment for groundwater restoration of ISR wellfields, which is reinforced by the fact that migration of ISR ore body fluids to adjacent, non-exempt aquifers has NEVER occurred. Thus following NRC requirements, there is no endangerment outside of the aquifer exemption boundary.

2.) <u>The five CADMUS documents, and thus the Revised Draft Class III Permit, contain no specific standards of requirements for successful data collection or closure with a geochemical model.</u>

The requirements of the CADMUS documents do not contain any specific criteria or standards needed for Powertech to obtain approval of closure by the EPA using a geochemical model. In fact, even for the preliminary conceptual site model (CSM), there is no clear and complete list of analytes, laboratory testing or sampling methodologies (for example, locations, frequencies, etc.)

that would be deemed sufficient for the EPA to accept a completed CSM. In the "Geochemical Model Acceptance Criteria Checklist for the Dewey-Burdock Project," each criterion listed is presented in the form of a question, leaving it completely unclear what Powertech needs to achieve for a sufficient geochemical model that will obtain closure approval from the EPA. The vague requirements surrounding the CSM and geochemical models, as currently written in the Revised Draft Class III Permit, do not provide Powertech with an understanding of the EPA's expectations on these matters, nor do they enable Powertech to plan in advance a monitoring program that will satisfy the EPA. Further, the Revised Draft Class III Permit currently enables the EPA staff to request additional analysis and data collection for the CSM and geochemical model regardless of any determinations made by the NRC pertaining to the approval of wellfield authorizations or closures. It also remains unclear what actions the EPA may take if it does not find it has sufficient information for the CSM or geochemical model.

3.) <u>The five CADMUS documents, and thus the Revised Draft Class III Permit, impose different modeling time frames and are inconsistent with Powertech's proposal and NRC requirements.</u>

In its Proposed Alternate Solution to Post-Restoration Groundwater Monitoring, Attachment A-3 of Powertech's Original EPA Letter, Powertech stated that "Powertech requests the ability to prepare a Closure Plan that will be submitted to EPA for review and approval following NRC approval of groundwater restoration in the first wellfield. The Closure Plan will be updated or a new Closure Plan prepared for each subsequent wellfield. The Closure Plan will document groundwater restoration efforts, stability monitoring results, and NRC correspondence during the approval process. This would include documentation of NRC staff's rigorous review process for any ACLs to determine that the ACL does not pose a potential hazard to human health or the environment." In addition, Powertech stated, "Following the completion of each major wellfield area (i.e., the Dewey area or the Burdock area), the Closure Plan will be updated to include an integrated hydrologic and reactive transport (geochemical) model encompassing all restored wellfields in that area. The model will evaluate the geochemical stability of the production zone and the possibility of release of constituents from the restored production zone to the aquifer exemption boundary." These statements place the timing of the geochemical modeling effort after completion of stability for each major wellfield area (one geochemical model for the Dewey area and one geochemical model for the Burdock area), and this would occur subsequent to the closure of all wellfields within each major wellfield area by the NRC. Again, the concept here was to have a single geochemical model for each major wellfield area. The NRC license does not require groundwater modeling, particularly when an ACL application is not required. However, in the event an applicant determines an ACL application is needed, modeling could be one of the methods typically used to address the license requirement to satisfy 10 CFR Part 40, Appendix A, Criterion 5B(6). The difference here is that the geochemical modeling done for such applications usually only involves one or two constituents of concern, as identified from groundwater restoration and stability monitoring (e.g., see Exhibit 020 from the Original EPA Letter; NRC geochemical modeling at Christensen Ranch included two constituents, uranium and radium).

The Revised Draft Class III Permit would require an iterative geochemical modeling effort following each round of sample data collection during groundwater restoration and stability. For the 44 parameters that would need to be sampled in accordance with the Revised Draft Class III Permit EPA baseline requirements, of which 21 are metals or radionuclides, how many must be modeled? This is unclear. Given that there are 14 wellfields and assuming quarterly sampling over a 2-year period for restoration and stability, this would equate to 112 geochemical models for just one parameter. If this were required for all metals or radionuclides, the number of geochemical models would be 2,352. The suggested approach is completely impractical, especially when considering that conducting geochemical modeling at the start of groundwater restoration would be before the need for any potential ACL is determined. In addition, it is unclear if the CSM represents a separate preliminary geochemical model, as statements allude to this being some form of a geochemical/hydrologic model with the Revised Draft Class III Permit. For example, it states that, "In the event that unresolved data gaps or uncertainty are identified concerning geology, hydrologic properties, geochemical characteristics, and/or geochemical processes that could affect mobility and transport of uranium and other metals, the Director may require the Permittee to develop more than one CSM to characterize a range of potential site conditions." Even without additional alternative models, the CSM would need to be updated quarterly with new information, further expanding the scope many times over. Powertech requests that, if geochemical modeling is required in the Final Class III Permit, despite Powertech demonstrating in its letter that the protections to human health and the environment as currently regulated and enforced by the NRC at all other ISR uranium operations in the USA, including Region 8, are sufficient and do not require this, the Revised Draft Class III Permit should be revised to include a single geochemical model that will be constructed after successful completion of stability for each major wellfield area (one geochemical model for the Dewey area and one geochemical model for the Burdock area). Further, constituents of concern should be limited to specific analyte(s) if concentrations exceed Commission-approved background or an MCL at the end of groundwater restoration and stability monitoring.

4.) <u>The NRC license requirements provide full protection against the transport of contaminants outside the aquifer exemption boundary.</u>

The Revised Draft Class III Permit offers no additional protections beyond those already imposed by NRC in the approved NRC license. As noted earlier, the NRC has a well-developed ISR oversight program that has been enforced successfully for several decades at numerous ISR operations in the USA, and there has never been migration of ISR ore body fluids to adjacent, non-exempt aquifers. Following completion of the Final Environmental Impact Statement (FSEIS) for the Dewey-Burdock Project, on which the EPA provided comment, Powertech was issued its comprehensive NRC license in 2014. Though the Revised Draft Class III Permit is more consistent with Class III permits issued for other uranium ISR operations in the USA and the Dewey-Burdock Project NRC requirements, one significant exception that remains is the geochemical model. The fundamental requirement for groundwater restoration within the approved NRC license is tied to 10 CFR Part 40, Appendix A, Criterion 5B(5), which states:

5B(5)—At the point of compliance, the concentration of a hazardous constituent must not exceed—

(a) The Commission approved background concentration of that constituent in the groundwater;

(b) The respective value given in the table in paragraph 5C[2] if the constituent is listed in the table and if the background level of the constituent is below the value listed; or

(c) An alternate concentration limit established by the Commission.

In the event an ACL is warranted, the licensee is required to submit a wellfield-specific license amendment application to the NRC for its review and approval. The NRC review and approval process includes: a mandatory technical/safety and environmental review, production of a safety evaluation report (SER) and, at a minimum, an environmental assessment (EA), and notice of an opportunity for an administrative hearing before the Atomic Safety and Licensing Board (ASLB). An ACL is a site-specific (wellfield-specific), constituent-specific, risk-based human health standard that addresses a number of specific requirements, including satisfaction of the ALARA standard that the Commission considers when evaluating an ACL license amendment application. Such a license amendment application is required to include an affirmative demonstration by the licensee that all of Criterion 5B(6) standards for ACLs have been met, including the ALARA standard, showing that the licensee has attempted to restore groundwater within the depleted ore body to primary or secondary restoration goals in Criterion 5B(5). In accordance with ACL requirements, the licensee must demonstrate that the values calculated for ACLs and the geochemistry in the depleted ore body will be adequately protective of human health and the environment at the point of exposure – i.e., will not pose a substantial present or future hazard. Standards for demonstration of an ACL are specified in regulation 10 CFR Part 40, Appendix A, Criterion 5B(6), which states:

5B(6)—Conceptually, background concentrations pose no incremental hazards and the drinking water limits in paragraph 5C state acceptable hazards but these two options may not be practically achievable at a specific site. Alternate concentration limits that present no significant hazard may be proposed by licensees for Commission consideration. Licensees must provide the basis for any proposed limits including consideration of practicable corrective actions, that limits are as low as reasonably achievable, and information on the factors the Commission must consider. The Commission will establish a site specific alternate concentration limit for a hazardous constituent as provided in paragraph 5B(5) of this criterion if it finds that the proposed limit is as low as reasonably achievable, after considering practicable corrective actions, and that the constituent will not pose a substantial present or potential hazard to human health or the environment as long as the alternate concentration limit is not exceeded. In making the present and potential hazard finding, the Commission will consider the following factors:

(a) Potential adverse effects on groundwater quality, considering—

[2] Table 5C – Maximum Values for Groundwater Protection; generally consistent with EPA MCLs

(i) The physical and chemical characteristics of the waste in the licensed site including its potential for migration;
(ii) The hydrogeological characteristics of the facility and surrounding land;
(iii) The quantity of groundwater and the direction of groundwater flow;
(iv) The proximity and withdrawal rates of groundwater users;
(v) The current and future uses of groundwater in the area;
(vi) The existing quality of groundwater, including other sources of contamination and their cumulative impact on the groundwater quality;
(vii) The potential for health risks caused by human exposure to waste constituents;
(viii) The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents;
(ix) The persistence and permanence of the potential adverse effects.

Unlike the requirements of the CADMUS documents and Part IV of the Revised Draft Class III Permit, these NRC requirements are directly tied to potential impacts to human health and environment. Again, the NRC has successfully regulated ISR sites for decades, and the additional requirements proposed in the CADMUS documents and Part IV of the Revised Draft Class III Permit provide no further protections. As stated in Appendix B of the FSEIS for the Dewey-Burdock Project, "The staff will not approve an ACL if it will affect any adjacent USDWs" (See Exhibit 008 at p. B-3 of Powertech's Original EPA Letter). This statement directly aligns with the goals of the EPA, and unprecedented and unwarranted permit conditions are not required to achieve this, as currently contemplated in the CADMUS documents and Part IV of the Revised Draft Class III Permit.

G-18: As discussed above, on October 30, 2018, the EPA issued notice of the withdrawal of its proposed rulemaking on 40 CFR Part 192. Further, the expansive geochemical modeling and constituent monitoring in the Revised Draft Class III Permit appear to be directly tied to this withdrawn, previously proposed, rule, 40 CFR Part 192, 82 Fed. Reg. 7400 (January 19, 2017; Exhibit 025 in Powertech's Original EPA Letter). The proposed rule stated: "Long-term stability monitoring, modeling and other analysis ... In addition to the long-term stability monitoring requirements described in paragraph (d)(2) of this section, the licensee must provide to the regulatory agency geochemical modeling and other analysis sufficient to demonstrate that the long-term stability standard in 192.52(c)(3) has been met." The 2017 draft rulemaking documents, when describing the draft rule, stated: "Complying with the proposed standards may require some existing ISR facilities to monitor groundwater for additional constituents that they are not currently monitoring. It would also require all ISR facilities to continue monitoring for a period of at least three years after the initial stability standard is met, and to conduct geochemical modeling and other analysis to demonstrate that the applicable constituent concentration standards will continue to be met in the future. The additional monitoring, modeling and analysis that would be required under this proposed rule could increase costs to ISR facilities." Such additional constituents exceed those required by the NRC license for the Dewey-Burdock Project, yet these remain in the Revised Draft Class III Permit. The exhaustive geochemical modeling requirements are discussed elsewhere, so this discussion focuses on the additional constituents. In its Original

EPA Letter, Powertech made numerous comments regarding the lack of justification for the additional constituents during baseline monitoring and that the constituents listed by the EPA were inconsistent with the NRC long-established monitoring programs. Despite modifying this list in the Revised Class III Draft Permit, EPA retained a total of 44 constituents or parameters in Table 8 of the Revised Draft Class III Permit. This is substantially greater than the 36 constituents or parameters required by the NRC and inconsistent with other ISR uranium operations licensed by the NRC in the USA, including Region 8. Powertech requests that Table 8 be made consistent with the NRC requirements for constituents.

G-19: The EPA does not appear to have addressed Powertech's comments on the Cumulative Effects Analysis. As stated in comment G-6 of the Original EPA Letter, the NRC staff prepared the FSEIS for the Dewey-Burdock Project, which evaluated potential impacts to groundwater outside of the exempted aquifer (Exhibit 008 of Powertech's Original EPA Letter). As noted on page 5 of the Draft Cumulative Effects Analysis, EPA reviewed the draft and final NRC SEIS. However, at no time did the EPA comment that the groundwater protection measures required by the NRC were insufficient to protect groundwater outside of the exempted aquifer. The EPA offers no evidence that impacts have occurred at other ISR facilities as a basis for the proposed requirements.

G-20: The Revised Draft Class III Permit continues to contain a number of requirements that are duplicative of or inconsistent with NRC requirements. EPA does not have the authority for proposing duplicative and in many cases expansive requirements for areas already regulated by NRC. Such duplication of regulation and review by EPA is unnecessary and inefficient. Duplicative requirements include, but are not limited to:

1.) Requirements for excursions including:
    a. Reporting (Part IX, Sections B.1.c, d, f, and h)
    b. Monitoring for Excursions (Part IX, Section C)
    c. Remediation of Excursions (Part IX, Section C.5)
    d. Requirements inconsistent with NRC requirements during a confirmed excursion event (Part IX, Section C.4), including, but not limited to:
        i. Monitoring Nearest Unimpacted Wellfield Perimeter Monitoring Wells (Part IX, Section C.4.c)
        ii. Criteria for Expanding Excursion Plume (Part IX, Section C.4.d)
        iii. Verification Actions for Expanding Excursion Plume (Part IX, Section C.4.e)
        iv. Additional Requirements for Excursions Detected in Non-Injection Interval Monitoring Wells (Part IX, Section C.4.f)
        v. Geochemical Modeling of an Expanding Excursion Plume (Part IX, Section C.4.g)

2.) Requirements for groundwater monitoring including:
    a. Wellfield baseline analysis requirements (Part IX, Section B.2, Part II, Section E, Tables 6,7)

b. Wellfield baseline parameter list (inconsistent with NRC list) (Part II, Section E, Table 8)
c. An operational monitoring program including operational, domestic, and stock wells (Part IX, Sections B.3.a, b, and c and Tables 8, 9, 10, 11, and 12)

G-21: Powertech remains unaware of any other Class III permits for uranium ISR operations in the USA, including Region 8, that require mandatory, expansive geochemical modeling proposed in the CADMUS documents and Part IV of the Revised Draft Class III Permit. This has been extensively discussed throughout.

Sincerely,

John Mays
Chief Operating Officer
Powertech (USA) Inc.

Enclosures:

Table 1. Draft Class III Area Permit Specific Comments and Recommended Permit Language Revisions
Table 2. Draft Class III Fact Sheet Specific Comments
Table 3. Draft Aquifer Exemption Record of Decision Specific Comments
Table 4. Draft Cumulative Effects Analysis Specific Comments
Table 5. Draft Environmental Justice Analysis Specific Comments
Table 6. CADMUS Documents Specific Comment
Update to Attachment B Exhibits – Addition of Exhibit 040 (EPA 40 CFR 192 Withdrawal)

Table 1. Draft Class III Area Permit Specific Comments and Recommended Permit Language Revisions

<table>
<tr><th>No.</th><th>Page</th><th>Recommended Alternative Language or Other Modification</th><th>Explanation of Alternative(s)</th><th>Comment</th></tr>
<tr><td>10</td><td>16</td><td>Table 4. Observation Wells for Monitoring the Integrity of the Morrison Formation Lower Confining Zone
<table>
<tr><td>DRJ 90</td><td>SESE Section 35
T6S R1E ~~T6S R1E~~</td></tr>
<tr><td>DB08-1-7</td><td>SE Section 1
T7S R1E</td></tr>
</table></td><td>Typographical correction.</td><td>There is a typo in “T6S R1E T6S R1E.”</td></tr>
<tr><td>16</td><td>20</td><td>Table 8. Baseline Water Quality Parameter List
<table>
<tr><th>Test Analyte/Parameter*</th><th>Units</th><th>Analytical Method</th></tr>
<tr><td colspan="3">Physical Properties</td></tr>
<tr><td>pH**</td><td>pH Units</td><td>A4500-H B</td></tr>
<tr><td>Total Dissolved Solids (TDS)</td><td>mg/L</td><td>A2540C</td></tr>
<tr><td>Specific Conductance**</td><td>µmhos/cm at 25°C</td><td>A2510B or E120.1</td></tr>
<tr><td>~~Specific Gravity~~</td><td>~~Ratio to density of water~~</td><td>~~ASTM D1429-13, SM 2710F~~</td></tr>
<tr><td>~~Turbidity~~</td><td>~~nephelometric turbidity units (NTU)~~</td><td>~~EPA-NERL: 180.1~~</td></tr>
<tr><td colspan="3">~~Groundwater-quality parameters related to mobility of uranium and other metals~~</td></tr>
<tr><td>~~Temperature~~</td><td>~~°C~~</td><td>~~2014 EPA Region 4 SOP (Temperature)~~</td></tr>
<tr><td>~~Dissolved Oxygen~~</td><td>~~mg/L~~</td><td>~~2017 EPA Region 4 SOP (DO)~~</td></tr>
<tr><td>~~Oxidation-Reduction Potential~~</td><td>~~Millivolts (mV)~~</td><td>~~2017 EPA Region 4 SOP (ORP)~~</td></tr>
<tr><td>~~Carbon Dioxide~~</td><td>~~mg/L~~</td><td></td></tr>
<tr><td>~~Total Organic Carbon~~</td><td>~~mg/L~~</td><td>~~415.3, 9060A~~</td></tr>
</table></td><td>Powertech requests modifying the baseline water quality parameter list for consistency with NRC license requirements.</td><td>There is an inconsistency between the NRC license and draft permit in terms of the parameters sampled during baseline monitoring in the perimeter monitoring wells, wells completed within the injection interval, and non-injection interval monitoring wells. License Condition 11.3 of SUA-1600 (Exhibit 016 in Powertech’s Original EPA Letter) requires Powertech to sample these wells for the parameters listed in Table 6.1-1 of the approved NRC license application. Part II, Section E.2.b.iii would require Powertech to have samples from the same wells analyzed for a different set of parameters. Powertech has edited the list so that inconsistencies with the NRC license are made consistent.

Since these wells typically would be within the exempted aquifer, Powertech questions the need to significantly expand the list of parameters beyond what was</td></tr>
</table>

Table 1. Draft Class III Area Permit Specific Comments and Recommended Permit Language Revisions (cont.)

No.	Page	Recommended Alternative Language or Other Modification			Explanation of Alternative(s)	Comment
		~~Dissolved Organic Carbon~~	~~mg/L~~	~~415.3, 9060A~~		approved by NRC, especially since that list was taken directly from NRC guidance (NUREG-1569, Exhibit 012 in Powertech's Original EPA Letter) and reflects constituents typically affected by ISR operations. Overall, the addition of the extra parameters would add substantial cost without providing any added protection for USDWs beyond what is already required by NRC license requirements.
		Common Elements and Ions				
		Total alkalinity (as Ca CO_3)	mg/L	A2320B		
		Bicarbonate Alkalinity (as Ca CO_3)	mg/L	A2320B (as HCO_3)		
		Calcium	mg/L	E200.7		
		Carbonate Alkalinity (as Ca CO_3)	mg/L	A2320B		
		Chloride, Cl	mg/L	A4500-Cl B; E300.0		
		Magnesium, Mg	mg/L	E200.7		
		Nitrate, NO_3^- (as Nitrogen)	mg/L	E300.0		
		Potassium, K	mg/L	E200.7		
		~~Silica, Si~~	~~mg/L~~	~~E200.7~~		
		Sodium, Na	mg/L	E200.7		
		Sulfate, SO_4	mg/L	A4500- SO_4 E; E300.0		
		Dissolved Metals				
		Arsenic, As	mg/L	E200.8		
		Barium, Ba	mg/L	E200.8		
		Boron, B	mg/L	E200.7		
		Cadmium, Cd	mg/L	E200.8		
		Chromium, Cr	mg/L	E200.8		
		Copper, Cu	mg/L	E200.8		
		Fluoride, F	mg/L	E300.0		
		Iron, Fe	mg/L	E200.7		
		Lead, Pb	mg/L	E200.8		
		Manganese, Mn	mg/L	E200.8		
		Mercury, Hg	mg/L	E200.8		
		Molybdenum, Mo	mg/L	E200.8		

Table 1. Draft Class III Area Permit Specific Comments and Recommended Permit Language Revisions (cont.)

<table>
<tr><th>No.</th><th>Page</th><th>Recommended Alternative Language or Other Modification</th><th>Explanation of Alternative(s)</th><th>Comment</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><td>Nickel, Ni</td><td>mg/L</td><td>E200.8</td></tr>
<tr><td>Selenium, Se</td><td>mg/L</td><td>E200.8; A3114 B</td></tr>
<tr><td>Silver, Ag</td><td>mg/L</td><td>E200.8</td></tr>
<tr><td>Uranium, U</td><td>mg/L</td><td>E200.7, E200.8</td></tr>
<tr><td>Vanadium, V</td><td>mg/L</td><td>E200.7, E200.8</td></tr>
<tr><td>Zinc, Zn</td><td>mg/L</td><td>E200.8</td></tr>
<tr><td colspan="3">Radiological Parameters</td></tr>
<tr><td>Adjusted Gross Alpha***</td><td>pCi/L</td><td>E900.0</td></tr>
<tr><td>~~Gross Beta~~</td><td>~~pCi/L~~</td><td>~~E900.0~~</td></tr>
<tr><td>Radium, Ra-226</td><td>pCi/L</td><td>E903.0</td></tr>
<tr><td>~~Radium, Ra-228~~</td><td>~~pCi/L~~</td><td>~~E904.0~~</td></tr>
</table>
*Laboratory analysis only, except where indicated.
**Field and Laboratory
***Excluding radon and uranium.
</td><td></td><td></td></tr>
<tr><td>19</td><td>21</td><td>See comment #16.</td><td>Powertech requests omitting silica from the baseline water quality parameter list.</td><td>It is appropriate to remove silica from the list of baseline water quality parameters on the following basis:
1. It is not required by NRC license requirements (see Table 6.1-1 of the approved NRC license application).
2. Powertech could find no basis for requiring analysis of silica in all monitoring wells or for establishing compliance limits for silica based on the baseline sampling results.
3. Even in the context of reactive transport modeling, the</td></tr>
</table>

Table 1. Draft Class III Area Permit Specific Comments and Recommended Permit Language Revisions (cont.)

No.	Page	Recommended Alternative Language or Other Modification	Explanation of Alternative(s)	Comment
				benefits of having silica data would be slight. The near neutral pH present in typical ISR lixiviants will do little to dissolve silicate minerals.
23	22-23	**G. Additional Requirements to Obtain Authorization to Commence Injection for Burdock Wellfields 6, 7 and 8** 1. Because the Chilson Sandstone downgradient from Burdock Wellfields 6, 7 and 8 has been partially oxidized by native groundwater, the Permittee shall evaluate the capacity of the downgradient Chilson Sandstone to remove residual contamination from restored wellfield groundwater as it travels downgradient toward the aquifer exemption boundary. 2. To fulfill this requirement the Permittee shall: a. ~~Develop Conceptual Side Models for wellfields 6, 7 and 8 by conducting all the sampling and testing required for all wellfields as described under this Part.~~ Conduct geochemical modeling using site-specific data to demonstrate that contaminants will not cross the down-gradient aquifer exemption boundary and cause a violation of any primary MCLs or otherwise adversely affect the health of persons. b. In addition, the Permittee shall ~~expand the Conceptual Site Model for wellfields 6, 7 and 8 by collecting samples from the downgradient injection interval for the purposes of characterizing the geochemistry of the downgradient injection interval.~~ ~~c. In addition, the Permittee shall further expand the Conceptual Site Model for wellfields 6, 7 and 8 by~~ conduct~~ing~~ column testing, batch sorption testing, or other appropriate laboratory and field testing methods to provide site-specific inputs into the geochemical model, as specified in Part IV, Section C. ~~d. The Permittee shall calibrate the geochemical model using analytical data from field and laboratory testing as specified in Part IV, Section B.5.~~ c.~~e.~~ Submit the ~~Conceptual Site Model and~~ geochemical modeling results to the Director as part of the Injection Authorization Data	Powertech requests removing **G. Additional Requirements to Obtain Authorization to Commence Injection for Burdock Wellfields 6, 7 and 8** because the additional requirements are inconsistent with the NRC license. Powertech requests that EPA leave matters pertaining to the evaluation of the suitability of these wellfields and the data collection requirements for these wellfields to the NRC who retains the regulatory authority on this matter. However, if the EPA does not satisfy this request, Powertech requests these edits be made.	The scope of geochemical modeling in the Revised Draft Class III Permit is far beyond the Proposed Alternate Solution to Post-Restoration Groundwater Monitoring included in Attachment A-3 of Powertech's Original EPA Letter. In its proposed alternative, Powertech envisioned two geochemical models being completed, one for each major wellfield area (i.e., one geochemical model for the Dewey area and one for the Burdock area), each generated after the successful conclusion of all ISR activities within each major wellfield area and following the NRC-approved closure of all wellfields within each major wellfield area. Regardless, NRC requirements apply to these wellfields and if they are authorized by NRC, they meet the requirements of demonstrating that contaminants will not cross the down-gradient aquifer exemption boundary. Further, under NRC regulation, there has NEVER been an occurrence of a

Table 1. Draft Class III Area Permit Specific Comments and Recommended Permit Language Revisions (cont.)

No.	Page	Recommended Alternative Language or Other Modification	Explanation of Alternative(s)	Comment
		Package Report for each wellfield evaluating the potential for ISR contaminants to cross the downgradient aquifer exemption and cause a violation of any primary MCLs or otherwise adversely affect the health of persons. ~~boundary.~~ 3. If, during the wellfield pump tests using a pumping rate simulating production and restoration in Burdock Wellfields 6, 7 or 8, the Chilson aquifer potentiometric surface is drawn down to the point where the proposed injection interval becomes less than fully saturated, the Permittee shall develop a 3-D unsaturated groundwater flow model for the area where less than fully saturated conditions are anticipated. ~~a. The model shall be calibrated to site-specific hydrologic conditions and verified by use of wellfield-specific pump test data.~~ ~~b. The model shall assess the ability to maintain hydraulic control in the partially saturated injection interval and demonstrate the ability to detect and reverse excursions in the partially saturated injection interval and in the first overlying non-injection interval aquifer.~~ ~~c. The model shall incorporate the effects of concurrent production and restoration activities in other Burdock wellfields on the Chilson aquifer potentiometric surface in the areas where partially saturated injection intervals are anticipated.~~ ~~4. The results from the additional requirements for Burdock Wellfields 6, 7 and 8 shall be included in the Injection Authorization Data Package Report for each of these respective wellfields.~~ ~~5. If the aquifer exemption for Burdock Wellfields 6 and 7 has not been approved upon issuance of this Final Area Permit, the results from these additional requirements for Burdock Wellfield 6 and 7 shall be submitted to the Director as part of the aquifer exemption request.~~ ~~6. After review of groundwater flow model results, if the Director determines that additional hydrologic testing using pumping and injection is required to verify the groundwater flow model, the Director may issue a Limited Authorization to Inject in order to~~		migration of ISR ore body fluids to adjacent, non-exempt aquifers.

Table 1. Draft Class III Area Permit Specific Comments and Recommended Permit Language Revisions (cont.)

No.	Page	Recommended Alternative Language or Other Modification	Explanation of Alternative(s)	Comment
		~~allow reinjection of groundwater pumped from the field test site pumping well(s) for the purposes of hydrologic testing only.~~ ~~7. The Director will issue a Limited Authorization to Inject into Burdock Wellfields 6 and 7 only after the aquifer exemption for those two wellfields has been approved according to Section I.3 of this Part.~~ **H. Injection Authorization Data Package Reports** 1. An Injection Authorization Data Package Report shall be prepared for each wellfield and submitted to the EPA UIC Program Director for review in order to obtain written Limited Authorization to Inject for each wellfield. 2. The information in this report shall become part of the Conceptual Site Model required under Part IV, Section A. 3. Each Injection Authorization Data Package Report shall contain a description of all logging and testing procedures required under Part II, Sections B through F (~~Sections B through G for Burdock Wellfields 6, 7 and 8)~~		
24	24	**II.H. Injection Authorization Data Package Reports** 2.o. Estimation of wellfield maximum injection pressure calculated using an estimated fracture pressure equation under Part V, Section F.3 of this Permit and depth measurement of the injection interval top from wellfield delineation drilling and logging for the purpose of selecting well casing and piping that meet requirements under Part VIII, Section~~s E.2.c and E.3.c~~ E.1.	Powertech requests changing the reference for maximum injection pressure to Part VIII, Section E.1.	Part V, Section F is referenced for the equation for the maximum injection pressure; however, that section contains the fracture pressure equation but not the maximum injection pressure equation.
38	51	**B. Requirement to Demonstrate and Maintain Mechanical Integrity** 1. The Permittee is required to ensure each injection well and production well maintains mechanical integrity at all times. Injection into a well that lacks mechanical integrity is prohibited. 2. Before the Authorization to Commence Injection is issued by the Director for each wellfield, the Permittee shall demonstrate that each wellfield injection and production well installed during development of the Injection Authorization Data Package Report has mechanical integrity according to 40 CFR § 146.8.	Inconsistent with NRC license requirements.	Powertech requests removal of the requirement to receive written authorization from the Director for a successful MIT prior to commencing operation of injection and production wells constructed after the Authorization to Commence Injection is issued. The requirement to obtain Director approval for wells that successfully pass MIT is inconsistent with

Table 1. Draft Class III Area Permit Specific Comments and Recommended Permit Language Revisions (cont.)

No.	Page	Recommended Alternative Language or Other Modification	Explanation of Alternative(s)	Comment
		3. For injection and production wells constructed after the Director issues the initial Authorization to Commence Injection, the Permittee shall send documentation to the Director demonstrating that each well has mechanical integrity. ~~4. The Permittee must receive written authorization from the Director prior to commencing operation of additional wells.~~ **Table 13. Well Testing Program** Updates required to sentences under the column labeled "Due Date": ~~Before Authorization to Commence Injection is issued for wells constructed before the wellfield pump test is conducted.~~ ~~For wells constructed after initial Authorization to Commence Injection, demonstration of mechanical integrity must be submitted to the Director for written approval before commencing operation.~~ For injection and production wells constructed after the Director issues the initial Authorization to Commence Injection, the Permittee shall send documentation to the Director demonstrating that each well has mechanical integrity.		License Condition 10.5 of SUA-1600. If the well passes MIT, Powertech should have the capability of operating the well immediately, in conformance with the approved NRC license. See also comment #83.
43	56	**VII.F.5. Hydraulic Control of Wellfield during Groundwater Restoration** c. The Permittee shall monitor the water levels in the wellfield perimeter monitoring well ring in accordance with the requirements in Part IX, Section B.1.e, Table 14.~~D~~F and Part IX, Section C.	Powertech requests correcting the reference from "Table 14.D" to "Table 14.F," which contains the 60 Day Interval Excursion Monitoring During Groundwater Restoration and Stability Monitoring.	Reference is made to Table 14D, but that contains monitoring requirements during ISR operations rather than groundwater restoration.
49	61-75	Remove Table 14C. Remove Table 14D.	Understanding that EPA's primary concern is	The draft permit contains many duplicative monitoring

Table 1. Draft Class III Area Permit Specific Comments and Recommended Permit Language Revisions (cont.)

No.	Page	Recommended Alternative Language or Other Modification	Explanation of Alternative(s)	Comment
		Remove Table 14F. Remove the following from Table 14G: - Samples from operational monitoring stock wells within permit area for chloride, total alkalinity, and specific conductance - Samples from domestic wells and operational monitoring wells listed in Table 16 for baseline parameters (Table 8) - Any updates to the Conceptual Site Model required under Part IV, Section A.3. Remove Table 16. Remove Figures 8-12. Powertech requests adding this as a replacement: **IX.F. Reporting Requirements** **10. Submittal of NRC Reports and Documents** a. The Permittee shall submit, for informational purposes only and at the same time as provided to NRC, the following information: i. All groundwater sampling data. ii. The semi-annual report required by NRC under License Condition 11.1B, which discusses the status of wellfields in operation. The report includes the progress of wellfields in restoration and restoration progress, status of any long-term excursions, and a summary of MITs conducted during the reporting period. iii. The groundwater quality data required by NRC under License Condition 11.3. This data includes the background water quality for the ore zone, overlying aquifers, underlying aquifers alluvial aquifer, and perimeter monitoring areas. iv. Water quality data from the annual samples required by NRC under License Condition 12.10 for each domestic well within 2 km (1.25 miles) of the boundary of each wellfield as measured from the perimeter monitoring well rings.	to be provided with the results of the monitoring performed under NRC license requirements, Powertech requests that EPA remove duplicative monitoring requirements for monitoring required by the NRC license. This includes excursion monitoring (Tables 14C, 14D and 14F), stock and domestic well monitoring (Table 14G) and sampling operational monitoring wells (Table 14G, Table 16 and Figures 8-12). The reporting requirements under Table 14G would require Powertech to provide monitoring results to EPA in the quarterly reports, without the need to specify monitoring locations, frequencies, or parameters in the Class III permit.	requirements with those required by NRC. This includes excursion monitoring (Tables 14C, 14D and 14F), stock and domestic well monitoring (Table 14G) and sampling operational monitoring wells (Table 14G, Table 16 and Figures 8-12). Explicitly calling out each monitoring well, sampling frequency, etc. in the Class III permit would require modifying the permit in the event that a monitoring location is changed or added. This would be unduly burdensome for monitoring performed under NRC's jurisdiction. Powertech would be willing to submit to EPA any groundwater monitoring results and applicable changes in the NRC license monitoring requirements. Powertech requests adding a new Section 10 under the Part IX, Section F reporting requirements as shown.

Table 1. Draft Class III Area Permit Specific Comments and Recommended Permit Language Revisions (cont.)

No.	Page	Recommended Alternative Language or Other Modification	Explanation of Alternative(s)	Comment
		v. Water quality data from the quarterly samples required by NRC under License Condition 12.10 for each stock well within the permit area. vi. Water quality data from the quarterly samples required by Section 5.7.8.2 of the approved NRC license application for each operational monitoring well. vii. Any reports submitted to NRC regarding excursions, including initial reports, follow-up reports, progress reports and quarterly reports required under License Condition 11.1 that include excursion parameter concentrations, wells placed on or removed from excursion status, corrective actions taken, and the results for all wells that were on excursion status during the quarter.		
51	59	**Table 14. Monitoring Parameters and Frequency** **F. 60 DAY INTERVAL EXCURSION MONITORING DURING GROUNDWATER RESTORATION ~~AND STABILITY MONITORING~~**	As described in comment #49, Powertech requests removal of Table 14F, since it contains monitoring requirements under NRC regulatory jurisdiction. In the event that the table is not removed, Powertech requests modification of the table title for consistency with NRC license requirements.	The proposed requirement to conduct excursion monitoring during the stability monitoring period is inconsistent with NRC license requirements. Section 6.1.8.1 of the approved NRC license application indicates that excursion monitoring will occur during active restoration, which does not include the stability monitoring period. Since the groundwater would have been restored and no injection would occur into the wellfield during stability monitoring, there is no nexus for an excursion to occur. The current language is also inconsistent with Section 9.2 (page 95) of the Fact Sheet, which indicates that "Groundwater level measurements must be recorded … every 60 days during

Table 1. Draft Class III Area Permit Specific Comments and Recommended Permit Language Revisions (cont.)

No.	Page	Recommended Alternative Language or Other Modification	Explanation of Alternative(s)	Comment
				groundwater restoration" (with no mention of stability monitoring).
53	59	**Table 14. Monitoring Parameters and Frequency** **G. QUARTERLY** ANALYZE: Samples from operational monitoring stock wells within permit area for chloride, total alkalinity, and specific conductance Samples from ~~domestic wells and~~ operational monitoring wells listed in Table 16 for baseline parameters (Table 8)	As described in comment #49, Powertech requests removal of monitoring requirements in Table 14G that are duplicative of NRC monitoring requirements, including those for stock wells and operational monitoring wells.	The table specifies that samples from domestic wells and operational monitoring wells must be analyzed for the Table 8 list of baseline parameters. As described in comment #16, the Table 8 list of parameters is inconsistent with NRC license requirements, specifically with Table 6.1-1 of the approved NRC license application. Powertech requests removing domestic wells from the quarterly sampling table. Consistent with Section 5.7.8.2 of the approved NRC license application, domestic wells are sampled annually.
60	65	**Figure 9. Operational Monitoring Wells - Stock Wells**	Powertech requests correcting the internal inconsistency regarding whether Well 41 is a stock or domestic well. Figure 5 in the Aquifer Exemption ROD should be corrected to depict Well 41 as a stock well.	The figure depicts Well 41 as a stock well, but Figure 5 in the draft Aquifer Exemption ROD depicts it as a domestic well. Section 4.2.1 of the Fact Sheet (page 31) describes how this is now a stock watering well located at an uninhabitable residence. This residence has not been inhabited since before Powertech has worked on the property and is believed to have been uninhabited for at least 30 years or more. It is currently in a state of disrepair which would not allow use by the residence.
61	69	**IX.C. Excursion Monitoring** **2. During Groundwater Restoration ~~and Stability Monitoring~~**	Powertech requests removing "and Stability	See comment #51, which describes how the approved NRC license

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No.	Page	Recommended Alternative Language or Other Modification	Explanation of Alternative(s)	Comment
			Monitoring" for consistency with NRC license requirements. See also comment #51.	application requires excursion monitoring during active restoration but not stability monitoring.
62	70	**IX.C. Excursion Monitoring** **3. During a Confirmed Excursion Event** ~~**c. Monitoring Nearest Unimpacted Wellfield Perimeter Monitoring Wells:** For injection zone excursions impacting wellfield perimeter monitoring wells, the nearest injection interval wellfield perimeter monitoring wells on each side of the impacted well(s) that have not been impacted by the excursion shall also be monitored weekly according to a and b above to verify that the excursion plume is not expanding.~~	Powertech requests removing section 3.c. excursion monitoring requirements because the additional requirements are inconsistent or duplicative with the NRC license. Powertech requests EPA leave all matters of excursion monitoring and control to NRC, who retains the regulatory authority on this matter. However, if the EPA does not satisfy this request, Powertech requests these edits be made.	The excursion monitoring and corrective action program reviewed and approved by NRC is a proven method of detecting excursions and will provide timely detection and correction of a potential expanding excursion plume, without the need for additional monitoring requirements or corrective actions. Refer to Attachment A-7 of the Original EPA Letter, which includes comments related to the proposed monitoring requirements and corrective actions for an "expanding excursion plume." Specifically, comment A-7-10 describes how standard excursion monitoring procedures include sampling all perimeter monitoring wells every 2 weeks, which will allow Powertech to make a timely determination whether an expanding excursion plume exists.

Table 1. Draft Class III Area Permit Specific Comments and Recommended Permit Language Revisions (cont.)

No.	Page	Recommended Alternative Language or Other Modification	Explanation of Alternative(s)	Comment
63	70	**Part IX, Section C. Excursion Monitoring** 4. During a Confirmed Excursion Event d. Criteria for Expanding Excursion Plume: ~~ii. If groundwater sample analyses in a non-injection interval monitoring well show increasing concentrations in excursion parameters during four consecutive sampling periods or an existing non-injection interval excursion expands to an adjacent unimpacted monitoring well.~~ **Part IX, Section C. Excursion Monitoring** 4. During a Confirmed Excursion Events f. Additional Requirements for Expanding Excursion Plumes i. For excursions detected in non-injection interval monitoring wells ~~that 1) show excursion parameter concentrations increasing for four consecutive weeks or 2) if an excursion plume in a non-injection interval expands to include an adjacent non-injection interval monitoring well~~, in addition to the monitoring required under ~~3a and 3b~~ 4a and 4b above, the Permittee shall collect a groundwater sample from the impacted well(s) and analyze the sample(s) for the baseline parameters in Table 8. ii. For expanding excursions detected in the injection interval ~~that 1) show excursion parameter concentrations increasing for four consecutive weeks or 2) the expanding excursion plume expands further to impact adjacent wellfield perimeter monitoring wells,~~ the Permittee shall collect a groundwater sample from the impacted well(s) and analyze the sample(s) for the baseline parameters in Table 8.	Powertech requests removing Section 4.d excursion monitoring requirements because the additional requirements are inconsistent or duplicative with the NRC license. Powertech requests EPA leave all matters of excursion monitoring and control to NRC who retains the regulatory authority on this matter. However, if the EPA does not satisfy this request, Powertech requests these edits be made. Powertech requests removal of condition 4.d.ii, since the criteria for an expanding excursion plume is adequately defined in d.i of this Part. Powertech requests revising the requirements in 4.f.1 and 4.f.ii for consistency with 4.d.ii.	The excursion monitoring and corrective action program reviewed and approved by NRC is a proven method of detecting excursions and will provide timely detection and correction of a potential expanding excursion plume, without the need for additional monitoring requirements or corrective actions. Refer to Attachment A-7 of the Original EPA Letter, which includes comments related to the proposed monitoring requirements and corrective actions for an "expanding excursion plume." Specifically, comment A-7-10 describes how standard excursion monitoring procedures include sampling all perimeter monitoring wells every 2 weeks, which will allow Powertech to make a timely determination whether an expanding excursion plume exists.
65, 66	71	~~5. Geochemical Modeling for Expanding Excursion Plumes~~	Powertech requests removing additional	The excursion monitoring and corrective action program

Table 1. Draft Class III Area Permit Specific Comments and Recommended Permit Language Revisions (cont.)

No.	Page	Recommended Alternative Language or Other Modification	Explanation of Alternative(s)	Comment
		~~a. If concentrations of excursion parameters increase for four consecutive weeks or if an expanding plume expands further to include an adjacent monitoring well, then the Permittee shall update the Conceptual Site Model with the excursion information and develop a reactive transport model to evaluate the characteristics and potential extent of the expanding excursion plume and to evaluate the potential of the excursion plume to cross the aquifer exemption boundary and impact down-gradient USDWs.~~ ~~b. The Conceptual Site Model shall be updated with all available information list in Part IV, Section A.1 for the non-injection interval aquifer impacted by the expanding plume.~~ ~~c. The reactive transport model shall:~~ ~~i. Be calibrated to flow and geochemical conditions present at the excursion site and excursion parameter concentrations measured in the monitoring well(s);~~ ~~ii. Evaluate the extent of the excursion plume;~~ ~~iii. Determine the potential for the excursion plume to reach the aquifer exemption boundary at the current rate of expansion; and~~ ~~iv. Estimate the concentrations of ISR contaminants at the aquifer exemption boundary, taking into account the effects of dispersion and natural attenuation based on the geochemistry of the aquifer unit. d. After reviewing the model results, the Director will determine what actions the Permittee should take to protect USDWs, including the installation of additional monitoring wells and aquifer remediation, if needed.~~ ~~**6. Requirement to Remediate Excursions**~~ ~~The Permittee must implement corrective action for an excursion and continue excursion monitoring at all impacted monitoring wells until the excursion parameter concentrations meet non-excursion levels for four consecutive monitoring periods in all impacted monitoring wells. Non-excursion levels means no single excursion parameter exceeds 20% of its UCL and no two excursion parameters exceed their respective UCLs in any monitoring well.~~	monitoring requirements for excursions because the additional requirements are inconsistent or duplicative with the NRC license. Powertech requests EPA leave all matters of excursion monitoring and control to NRC who retains the regulatory authority on this matter.	reviewed and approved by NRC is a proven method of detecting excursions and will provide timely detection and correction of a potential expanding excursion plume, without the need for additional monitoring requirements or corrective actions.

Table 1. Draft Class III Area Permit Specific Comments and Recommended Permit Language Revisions (cont.)

No.	Page	Recommended Alternative Language or Other Modification	Explanation of Alternative(s)	Comment
80 – New Comment	28	**Part III, Section B. Wellfield Delineation Drilling and Pump Testing** ~~6.If vertical excursion cannot be controlled in the area around a breach that cannot be located or remediated with corrective action because operational controls are not effective, the Permittee shall be prohibited from injection activity in this location.~~ ~~7.The Permittee shall remediate any vertical excursions that have occurred in the area around a breach that cannot be located or remediated.~~ ~~8.Excursion monitoring shall continue in the area where around a breach that cannot be located or remediated with corrective action even though there is no longer any injection activity occurring.~~	Powertech requests removal of conditions 6 through 8. These requirements relate to vertical excursions, which are discussed in Part IX, Section C. Excursion monitoring is required during ISR operations and groundwater restoration but not during wellfield delineation drilling and pump testing. These conditions are not consistent with the NRC license.	
81 – New Comment	29	**PART IV. REQUIREMENTS FOR DEVELOPMENT OF A CONCEPTUAL SITE MODEL AND A REACTIVE TRANSPORT GEOCHEMICAL MODEL**	As discussed in the introduction of this submission and noted in General Comment #G-17, Powertech requests Part IV of the Revised Draft Class III Permit be revised to remove requirements that are directly derived from the proposed CADMUS requirements and replace these with requirements that are fully consistent with NRC requirements and existing regulations applicable to uranium ISR operations in the USA, as was contemplated in the Closure Plan in its Proposed Alternate Solution to Post-Restoration Groundwater Monitoring, Attachment A-3, of Powertech's Original EPA Letter. As evidenced by the October 30, 2018 withdrawal of EPA's proposed rulemaking on 40 CFR Part 192, these requirements are already satisfied by the regulatory program in place by the NRC. The EPA should remove requirements not consistent with those of the NRC. Powertech would further add that requirements under the Safe Drinking Water Act are fully met by the NRC regulatory program, which fully addresses any endangerment to human health and environmental safety as required under 10 CFR Part 40, Appendix A, Criteria 5B(5) and 5B(6) (see G-9, G-10 in the Original EPA Letter). A groundwater model is not required by NRC to demonstrate successful protection outside the aquifer exemption boundary, which by	

Table 1. Draft Class III Area Permit Specific Comments and Recommended Permit Language Revisions (cont.)

No.	Page	Recommended Alternative Language or Other Modification	Explanation of Alternative(s)	Comment
			regulation is satisfied by successful groundwater restoration to drinking water standards, Commission-approved background, or by application for an ACL. While an ACL application may demonstrate environmental protection outside the aquifer exemption boundary with a geochemical model, it is not the only means for satisfying this requirement. EPA's use of 40 CFR §144.12(a) to promulgate the unprecedented requirements in this section is unjustified and without any presented basis for endangerment that may result in such system's not complying with any national primary drinking water regulation or may otherwise adversely affect the health of persons as required under 42 U.S.C. § 300h(b)(1)(B)9d) (2) (see comment G-4 in Original EPA Letter). Powertech requests that the geochemical model be revised to a single model at the end of each major wellfield area (i.e., one geochemical model for the Dewey area and one geochemical model for the Burdock area) following completion of stability monitoring for each major wellfield area. Powertech requests that EPA limit the constituents of the geochemical model to one or two constituents of concern or to those contained in an ACL application, if such is used by the applicant to satisfy NRC requirements for groundwater restoration. See also comments #109 through 134 for specific changes requested to Part IV.	
82 – New Comment	45	**Part V, Section G** 7. The Permittee shall indicate the MAIP determined for the injection well in accordance with Section F.7 of this Part in the construction report.	Internal inconsistency	Part V, Section G.7 should be consistent with Part V, Section F.7, which states that the well construction report shall contain "The MAIP determined for the injection well based on requirement 6 above."
83 – New Comment	51	**Part VI, Section A. Requirements for Well Stimulation, Workovers and Alterations** 5. A successful demonstration of internal mechanical integrity is required following the completion of any well workover or alteration which affects the integrity of the casing, packer or	Inconsistent with NRC license requirements	Powertech requests removal of the requirement to obtain written approval from the Director for a successful MIT following well stimulation, workover or

Table 1. Draft Class III Area Permit Specific Comments and Recommended Permit Language Revisions (cont.)

No.	Page	Recommended Alternative Language or Other Modification	Explanation of Alternative(s)	Comment
		tubing. Documentation of mechanical integrity test results shall be included in the next Quarterly Monitoring Report, or sooner if the Permittee chooses. Injection operations shall not be resumed until the well has successfully demonstrated mechanical integrity ~~and the Director has provided written approval to resume injection.~~		alteration. Requiring such written approval before resuming operations is inconsistent with License Condition 10.5 of SUA-1600. If the well passes MIT, Powertech should have the capability of injecting into the well immediately, in conformance with the approved NRC license.
84 – New Comment	51	**Part VI, Section A. Requirements for Well Stimulation, Workovers and Alterations** ~~6. If an acidizing operation is conducted on well perforations, then the Permittee shall demonstrate the integrity of cement above the well screen or open hole has not been compromised by exposure to the acid. Documentation of this demonstration shall be included in the next Quarterly Monitoring Report.~~	Powertech requests removal of this condition, since fluid flow is horizontal not vertical and due to the small volume of acid used for well stimulations. The acid largely would be consumed by precipitates and natural formation buffering. It is also impossible to demonstrate the integrity of the cement for PVC casing.	
85 – New Comment	51	**Well Workover or Alteration** 3. Documentation of mechanical integrity test results shall be included in the next Quarterly Monitoring Report, or sooner if the Permittee chooses. ~~if the Permittee would like to recommence injection into the well sooner, the documentation of mechanical integrity test results may be submitted immediately to the Director.~~	Inconsistent with NRC license requirements	See Comment #83. The requirement to obtain Director approval prior to injection for a well that successfully passes MIT is inconsistent with License Condition 10.5 of SUA-1600. If the well passes MIT, Powertech should have the capability of injecting into the well immediately, in conformance with the approved NRC license.
86 – New Comment	51	**Part VI, Section B. Demonstration of Well Mechanical Integrity after Well Workover or Alteration** ~~4. If the workover is being conducted because of mechanical integrity loss, the Permittee shall not resume injection until the Director has provided written approval.~~	Inconsistent with NRC license requirements	Powertech requests removal of this condition. See Comment #83.
87 – New Comment	51	**Part VII, Section B. Requirement to Demonstrate and Maintain Mechanical Integrity**	Inconsistent with NRC license requirements	Powertech requests removal of the requirement to receive written authorization from the Director for

Table 1. Draft Class III Area Permit Specific Comments and Recommended Permit Language Revisions (cont.)

No.	Page	Recommended Alternative Language or Other Modification	Explanation of Alternative(s)	Comment
		~~4. The Permittee must receive written authorization from the Director prior to commencing operation of additional wells.~~		a successful MIT prior to commencing operation of injection and production wells constructed after the Authorization to Commence Injection is issued. The requirement to obtain Director approval for wells that successfully pass MIT is inconsistent with License Condition 10.5 of SUA-1600. If the well passes MIT, Powertech should have the capability of operating the well immediately, in conformance with the approved NRC license. See Comment #83.
88 – New Comment	53	**Part VI, Section G. Ongoing Demonstration of Mechanical Integrity** 5. Demonstration of Mechanical Integrity after Well Workovers In addition to these regularly scheduled demonstrations of mechanical integrity, the Permittee shall demonstrate internal mechanical integrity following any workover that affects the integrity of the casing or cement of any injection or production wells within a wellfield as required under Part VI, Section B. ~~The Permittee shall not resume injection after a well workover until the Director has issued writing approval to resume injection.~~	Inconsistent with NRC license requirements	See Comment #83. The requirement to obtain Director approval prior to injection for a well that successfully passes MIT is inconsistent with License Condition 10.5 of SUA-1600. If the well passes MIT, Powertech should have the capability of injecting into the well immediately, in conformance with the approved NRC license.
89 - New Comment	59	**Table F. 60 Day Interval Excursion Monitoring During Groundwater Restoration** ~~and Stability Monitoring~~	Inconsistent with NRC license requirements	See Comment #51 above
90 - New Comment	59	**Table G. Quarterly** ANALYZE: Samples from operational monitoring stock wells within permit area for chloride, total alkalinity, and specific conductance	Inconsistent with NRC license requirements	See Comment #53 above

Table 1. Draft Class III Area Permit Specific Comments and Recommended Permit Language Revisions (cont.)

No.	Page	Recommended Alternative Language or Other Modification	Explanation of Alternative(s)	Comment
		Samples from ~~domestic wells and~~ operational monitoring wells listed in Table 16 for baseline parameters (Table 8)		
91 - New Comment	61	**Part IX, Section B. Monitoring Parameters, Frequency, Records and Reports** 2. Determining Baseline Water Quality The Permittee shall determine ~~baseline water quality~~ Commission-approved background groundwater quality data for the ore zone, overlying aquifers, underlying aquifers, alluvial aquifers (where present), and the perimeter monitoring areas according to the requirements under Section 11.3 Establishment of Commission-Approved Background Water Quality in the NRC Source Material License.		Typographical correction.
92 - New Comment	61	**Part IX, Section B. Monitoring Parameters, Frequency, Records and Reports** 3. Operational Groundwater Monitoring a. Domestic Wells i. During operations, the Permittee shall monitor all downgradient domestic wells within 1.2 miles of the boundary of each wellfield (as measured from the perimeter monitoring well ring), unless the well owners do not consent to sampling or the condition of the wells renders a well unsuitable for sampling.		Typographical correction.
93 - New Comment	61	**Part IX, Section B. Monitoring Parameters, Frequency, Records and Reports** 3. Operational Groundwater Monitoring a. Domestic Wells iii. Samples shall be collected ~~quarterly~~ annually and analyzed for the baseline parameters listed in Table 8.	Inconsistent with NRC license requirements	Powertech requests revising "quarterly" to "annually" for consistency with Section 5.7.8.2 of the approved NRC license application. See Comment #43.
94 - New Comment	61	**Table H. 24-Hour Reporting** REPORT: ~~Any noncompliance which may endanger human health or the environment, including:~~	Inconsistent with NRC license requirements	Powertech requests removal of this statement in this table. Powertech would be required to make a nearly immediate determination of what "may cause

Table 1. Draft Class III Area Permit Specific Comments and Recommended Permit Language Revisions (cont.)

No.	Page	Recommended Alternative Language or Other Modification	Explanation of Alternative(s)	Comment
		~~• Any monitoring or other information which indicates that any contaminant may cause endangerment to a USDW; or~~ ~~• Any noncompliance with a permit condition or malfunction of the injection system which may cause fluid migration into or between USDWs.~~		fluid migration into a USDW" and "endangerment to a USDW" despite the fact such a determination is under the authority of the NRC. Further, as written, Powertech would be in violation of its permit for not reporting within 24 hours any event which could cause these possible outcomes, even if such an event is outside of the detection of the monitoring systems and the controls put in place by this permit. The vagueness of the condition means that the permittee could be in violation for untimely reporting even if all other conditions of the permit are followed. Such a condition is also excessive and unclear, as "non-compliance" here is not explained and as written, this could potentially make the reporting requirement not limited to requirements beyond this permit. It would imply that any information" and "malfunction of injection system" are unspecific and not explained elsewhere in this permit. For example, if a light bulb burned out inside a header house, this could be considered a malfunction of an injection system requiring 24-hour reporting. Powertech believes such a condition, as written, is unrealistic.

Table 1. Draft Class III Area Permit Specific Comments and Recommended Permit Language Revisions (cont.)

No.	Page	Recommended Alternative Language or Other Modification	Explanation of Alternative(s)	Comment
				Furthermore, Powertech believes such a condition is inconsistent with other similar UIC permits and outside of existing regulations.
95 - New Comment	69	**Part IX, Section B. Monitoring Parameters, Frequency, Records and Reports** ~~3.4~~. Monitoring Records Must Include: a. Chain of Custody for fluids samples b. The date, exact place, and time of sampling or measurements; c. The individual(s) who performed the sampling or measurements; d. The date(s) analyses were performed; e. The individual(s) who performed the analyses; f. The analytical techniques or methods used; and g. The results of such analyses.		Typographical correction.
96 - New Comment	69	**Part IX, Section C. Excursion Monitoring** 2. During Groundwater Restoration ~~and Stability Monitoring~~	Powertech requests removing section C. Excursion Monitoring requirements because the additional requirements are inconsistent or duplicative with the NRC license. Powertech requests EPA leave all matters of excursion monitoring and control to NRC who retains the regulatory authority on this matter. However, if the EPA does not satisfy this request, Powertech requests these edits be made.	Powertech requests removing "and Stability Monitoring" for consistency with NRC license requirements. See Comment #51 and #89.
97 - New Comment	70	**Part IX, Section C. Excursion Monitoring** 4. During a Confirmed Excursion Event	Powertech requests removing Section C	Powertech requests revising the condition for consistency with

Table 1. Draft Class III Area Permit Specific Comments and Recommended Permit Language Revisions (cont.)

No.	Page	Recommended Alternative Language or Other Modification	Explanation of Alternative(s)	Comment
		d. Criteria for Expanding Excursion Plume: i. If groundwater sample analyses from either an adjacent unimpacted wellfield perimeter monitoring well or ~~a~~ non-injection interval monitoring well begin to show concentrations of any two excursion indicator parameters that exceed their respective UCL, as established under the NRC License, or any one excursion indicator parameter exceeds its UCL by 20 percent, the excursion criterion is exceeded and the excursion is now considered to be an expanding excursion plume.	excursion monitoring requirements because the additional requirements are inconsistent or duplicative with the NRC license. Powertech requests EPA leave all matters of excursion monitoring and control to NRC, who retains the regulatory authority on this matter. However, if the EPA does not satisfy this request, Powertech requests these edits be made.	other uses of "non-injection interval monitoring well" and to clarify that in order to be considered an expanding excursion plume, an excursion would need to be detected in an adjacent, unimpacted well, not just any non-injection interval monitoring well.
98 – New Comment	70	**Part IX, Section C. Excursion Monitoring** 4. During a Confirmed Excursion Event d. Criteria for Expanding Excursion Plume: ~~ii. If groundwater sample analyses in a non-injection interval monitoring well show increasing concentrations in excursion parameters during four consecutive sampling periods or an existing non-injection interval excursion expands to an adjacent unimpacted monitoring well.~~	Powertech requests removing Section C excursion monitoring requirements because the additional requirements are inconsistent or duplicative with the NRC license. Powertech requests EPA leave all matters of excursion monitoring and control to NRC who retains the regulatory authority on this matter. However, if the EPA does not satisfy this request, Powertech	Powertech requests removal of this condition, since the criteria for an expanding excursion plume is adequately defined d.i of this Part.

Table 1. Draft Class III Area Permit Specific Comments and Recommended Permit Language Revisions (cont.)

No.	Page	Recommended Alternative Language or Other Modification	Explanation of Alternative(s)	Comment
			requests these edits be made.	
99 – New Comment	70	**Part IX, Section C. Excursion Monitoring** 4. During a Confirmed Excursion Events f. Additional Requirements for Expanding Excursion Plumes i. For excursions detected in non-injection interval monitoring wells ~~that 1) show excursion parameter concentrations increasing for four consecutive weeks or 2) if an excursion plume in a non-injection interval expands to include an adjacent non-injection interval monitoring well~~, in addition to the monitoring required under ~~3a and 3b~~ 4a and 4b above, the Permittee shall collect a groundwater sample from the impacted well(s) and analyze the sample(s) for the baseline parameters in Table 8. ii. For expanding excursions detected in the injection interval ~~that 1) show excursion parameter concentrations increasing for four consecutive weeks or 2) the expanding excursion plume expands further to impact adjacent wellfield perimeter monitoring wells~~, the Permittee shall collect a groundwater sample from the impacted well(s) and analyze the sample(s) for the baseline parameters in Table 8.	Powertech requests removing Section C excursion monitoring requirements because the additional requirements are inconsistent or duplicative with the NRC license. Powertech requests EPA leave all matters of excursion monitoring and control to NRC who retains the regulatory authority on this matter. However, if the EPA does not satisfy this request, Powertech requests these edits be made.	Powertech requests revising these requirements for consistency with Comment # 98.
100 – New Comment	72-73	**Part IX, Section E. Reporting Requirements** 4. Injection, Production and Monitoring Well Completion Reports a.~~d.~~ After an injection, production or monitoring well has been completed, the Permittee shall submit a well completion report including the information in EPA Form 7520-9 Completion Form for Injection Wells with attachments. b.~~e.~~ The report may be in electronic format including the completion information for a number of wells. The EPA Form 7520-9 can be found at http://water.epa.gov/type/groundwater/uic/reportingforms.cfm. c.~~f.~~ The well construction report shall also contain the manufacturer-specified maximum operating pressure for all components of the injection or production well.		Typographical correction.

Table 1. Draft Class III Area Permit Specific Comments and Recommended Permit Language Revisions (cont.)

No.	Page	Recommended Alternative Language or Other Modification	Explanation of Alternative(s)	Comment
		d.~~g.~~ The cementing procedure shall be documented in detail in each well completion report. e.~~h.~~ Remedial cementing may be required if the Director determines the well cementing record is not adequate for demonstration of external mechanical integrity. f.~~i.~~ Injection well completion reports shall be submitted to the Director with the next scheduled Quarterly Monitoring Report, unless well construction was completed within 45 days of the next Quarterly Monitoring Report due date. g.~~j.~~ If well construction was completed within 45 days of the next Quarterly Monitoring Report due date, the well completion report shall be submitted with the following Quarterly Monitoring Report.		
101 – New Comment	75	**Part IX, Section E. Reporting Requirements** 9. Excursion Monitoring d. Reporting Increase in Concentration of Excursion Indicators in Impacted Monitoring Wells If concentrations of excursion parameters increase for four consecutive weeks or if an expanding plume expands further to include an adjacent monitoring well, then the Permittee shall notify the Director within 24 hours per Part XII, Section ~~D.11.e~~ D.10.e and, within 5 days, follow up with a written reporting that includes a discussion of the Permittee's plans to comply with Sections C.5 and C.6 of this Part and develop a reactive transport model of the expanding excursion plume.		Typographical correction, provided this section is not removed from the permit.
102 - New Comment	75	**Part IX, Section E.9.a**	Reference "per Part XII, Section D.11.e" is no longer valid as this section no longer exists. Suggest deleting this reference.	
103 - New Comment	85	**Part XIV, Section B.**	Powertech requests clarification on the basis of a 1-mile avoidance buffer for the whooping crane, rufa red-knot and northern long-eared bat and how this was determined to be protective. Such a buffer appears to be much greater than typical wildlife buffers and was formulated without basis within the documents provided. From the documents provided, it appears that the buffer was arbitrarily increased from 1/4 mi to 1 mile by EPA and applied to other species arbitrarily.	

Table 1. Draft Class III Area Permit Specific Comments and Recommended Permit Language Revisions (cont.)

No.	Page	Recommended Alternative Language or Other Modification	Explanation of Alternative(s)	Comment
			Powertech recommends that a mitigation plan be allowed to be developed upon observation of these species. Such a plan could involve various strategies to avoid a take.	
104 - New Comment	85	**Part XIV, Section B.**	Powertech requests modification of the requirement that all operations and construction must cease within 1 mile upon sighting a whooping crane, rufa red-knot or northern long-eared bat. In particular, active operations cannot be immediately ceased as this could endanger protection of USDWs as operations are required to be manned. As well, this could create serious issues with compliance conditions within the Class III permit, for example, the need to continuously maintain a bleed on the wellfield. Powertech recommends that a mitigation plan be allowed to be developed upon observation of these species. Powertech questions the authority of the EPA to enforce such requirements. Such conditions are enforceable under the South Dakota DENR Large Scale Mine Permit, and Powertech believes these requirements are better applied in this fashion, with direct interaction with SD GFP, where trained wildlife biologists can determine an appropriate approach.	
105 - New Comment	85	**Part XIV, Section B.** "Mitigation measure 5: If supplemental lighting is used during construction or operation, the lights must be directed and/or sheltered to minimize the amount of light escaping the work or project site."	This condition appears arbitrary and not tied to the known presence of wildlife of concern. Powertech suggests that this condition be modified so that if a whooping crane, rufa red-knot or northern long-eared bat have been confirmed at the site by trained wildlife biologist, then such a condition would be applied if deemed appropriate by a trained wildlife biologist.	
106 - New Comment	85	**Part XIV, Section B. The Endangered Species Act (ESA), 16 U.S.C 1531 et seq.** Section 7 of the ESA and its implementing regulations (50 CFR part 402) require the EPA to ensure, in consultation with the Secretary of the Interior or Commerce, that any action authorized by EPA is not likely to jeopardize the continued existence of any endangered or threatened species or adversely affect its critical habitat.	From the biological assessment documents provided, it does not appear that the EPA sought specific input on the parameters of mitigation for the whooping crane and rufa red-knot prior to creating permit requirements. Powertech requests clarification on the Section 7 consultation with the Secretary of the Interior (U.S. Fish and Wildlife Service). Are the mitigation measures described in the draft permit a result of	

Table 1. Draft Class III Area Permit Specific Comments and Recommended Permit Language Revisions (cont.)

No.	Page	Recommended Alternative Language or Other Modification	Explanation of Alternative(s)	Comment
			this consultation? If not, Powertech requests that this section be revised once consultation has been completed.	
107 - New Comment	85	**Part XIV, Section B. The Endangered Species Act (ESA), 16 U.S.C. 1531 et seq.** 8. During the northern long-eared bat active season (April 1 to October 31), the Permittee shall use a motion-activated camera to monitor the Triangle Mine vertical ventilation shaft located at NWNW Section 35, T6S, R1E for 5 days and nights and determine if bats are entering and exiting. If no bats are observed entering or exiting the shaft, the Permittee shall investigate the shaft to determine if bats are inside the shaft. If no bats are inside the shaft, the Permittee shall cover the entrance to the shaft with finer mesh to prevent bats from entering. If bats are observed in the shaft, the Permittee shall work with South Dakota Game, Fish and Parks to evaluate methods for establishing an appropriate buffer zone around the shaft to prevent tree removal or wellfield construction activity. The buffer zone will need to take into account the fact that the shaft is only a few feet away from a road that is used by local residents and may be improved to use as an access road to the Project Site.	Powertech requests clarification on the frequency of the motion-activated camera monitoring. Powertech requests clarification that additional monitoring will not be required if the shaft entrance is covered following a determination that no bats are inside the shaft.	
108 - New Comment	89	~~APPENDIX B~~ ~~Cadmus Report on Acceptance Criteria for the Geochemical Model~~	Powertech requests that all references/connections to the CADMUS documents be removed from the Class III Permit. As discussed in the introduction and General Comment #G-17, inclusion of the CADMUS documents in the Revised Draft Class III Permit is not supported. References made in Part IV of the Revised Draft Class III Permit to the CADMUS documents should be removed. Appendix B and the link to the Cadmus documents in the Revised Draft Class III permit should also be removed.	
109 – New Comment	29	**Part IV, Section A.1.a** vii. Petrologic and mineralogic characteristics that can affect hydraulic and geochemical properties of the injection interval and confining zones~~, such as grain size, cementation, overgrowths, and nodules~~ as available.	Inconsistent with NRC license requirements. The overall hydraulic properties will be measured by the pump test and thus more	See Comment #81

Table 1. Draft Class III Area Permit Specific Comments and Recommended Permit Language Revisions (cont.)

No.	Page	Recommended Alternative Language or Other Modification	Explanation of Alternative(s)	Comment
			representative of these properties.	
110 – New Comment	30	**Part IV, Section A.1.b** b. Hydrologic Properties i. For each wellfield injection interval and the first confining zones overlying and underlying the injection interval, the CSM shall include hydraulic properties as measured by pump testing. ~~, but not be limited to, site-specific data concerning:~~ ~~A) Porosity;~~ ~~B) Intrinsic permeability (horizontal and vertical); and~~ ~~C) Vertical hydraulic conductivity.~~	In accordance with the NRC license, this data is collected only by pump testing.	See Comment #81
111 – New Comment	30	**Part IV, Section A.1.b** ii. For each wellfield injection interval, the CSM also shall include site-specific data to assess as available:	The EPA needs to clarify that the data for the CSM should be limited to data collected under the requirements of the NRC license.	See Comment #81
112 – New Comment	30	**Part IV, Section A.1.b.ii** ~~E) Transient hydraulic-head conditions during injection activities;~~	This cannot be measured and is not consistent with NRC license requirements and may not be required to demonstrate an ACL.	See Comment #81
113 – New Comment	30	**Part IV, Section A.1.c.i** ~~D) Potential for colloid-facilitated transport of uranium and other metals. This can be assessed by separation of colloidal and dissolved uranium fractions by ultrafiltration on a subset of samples; and~~	This requirement goes beyond the analysis required by the NRC license and should be removed as it may not be required to demonstrate an ACL.	See Comment #81
114 – New Comment	30-31	**Part IV, Section A.1.d**	Powertech requests removal of requirements A), B), D), and E) as they are not consistent with NRC requirements.	See Comment #81

Table 1. Draft Class III Area Permit Specific Comments and Recommended Permit Language Revisions (cont.)

No.	Page	Recommended Alternative Language or Other Modification	Explanation of Alternative(s)	Comment
115 – New Comment	31	**Part IV, Section A.1.d. Geochemical Processes** i. To ensure important geochemical processes at the Dewey-Burdock site are represented, the CSM ~~shall~~ may include consideration of the following interactions between fluids and solids in each injection interval:	These requirements are not consistent with the NRC license. Further, not all of these requirements are needed for all models to assess transport across the aquifer exemption boundary and this assumes a particular 3-D transport model is generated. Powertech requests flexibility in approach as needed to appropriately address transport of contaminants.	See Comment #81
116 – New Comment	31	**Part IV, Section A.1.d** ii. The following geochemical processes ~~shall~~ may also be evaluated for inclusion in the CSM:	The requirements of this section do not account for situations where Commission-approved background or an MCL is met, or if the constituent is not of concern (i.e., no endangerment). This section stipulates requirements which may not be necessary for demonstration of transport of contaminants across the aquifer exemption boundary. Powertech requests using the word "may" to allow for	See Comment #81

Table 1. Draft Class III Area Permit Specific Comments and Recommended Permit Language Revisions (cont.)

No.	Page	Recommended Alternative Language or Other Modification	Explanation of Alternative(s)	Comment
			flexibility of reasonable approaches to appropriately address this requirement.	
117 – New Comment	32	**Part IV, Section A.2.a** g. Sufficient data were collected to characterize heterogeneity and statistically represent variations in geologic, hydrologic, and geochemical conditions across the site. h. Geochemical data spatially represent the sites necessary to identify and characterize geochemical processes at the site.	Powertech requests the EPA clarify that these requirements will not exceed the NRC license requirements.	See Comment #81
118 – New Comment	32	**Part IV, Section A.2.a** ~~i. Data meet quality-assurance requirements. Water-quality analyses have a charge imbalance less than 10 percent.~~	Powertech requests deletion of this requirement as it is not consistent with NRC license requirements.	See Comment #81
119 – New Comment	32	**Part IV, Section A.2.a** m. Appropriate field measurements of water-quality physical properties (pH, temperature, and specific conductance~~dissolved oxygen, oxidation-reduction potential~~) were made.	Powertech requests the field parameters be made consistent with the NRC license requirements.	See comments #81 and #16
120 – New Comment	32	**Part IV, Section A.2.a** ~~n. The oxidation state of uranium, iron, manganese, and other redox-sensitive metals are characterized in the solid phase.~~ ~~o. Iron phases in sediment are characterized.~~ ~~p. Geochemical processes related to uranium mobility were characterized by using laboratory or field testing.~~	Powertech requests deletion of these requirements as they are not consistent with the NRC license requirements.	See comment #81
121 – New Comment	33	**Part IV, Section A.4** The Permittee shall provide information about updates to the Conceptual Site Model in the Quarterly Monitoring Reports~~ or certify that none of the activities listed under 3 above occurred to trigger an update, as required under Part IX, Section E.8~~.	Powertech requests deletion of the highlighted text. These requirements are not consistent with the NRC license.	As noted previously, Powertech requests removal of excursion monitoring requirements as they are under the regulatory jurisdiction of NRC. However, if the EPA does not satisfy this request,

Table 1. Draft Class III Area Permit Specific Comments and Recommended Permit Language Revisions (cont.)

No.	Page	Recommended Alternative Language or Other Modification	Explanation of Alternative(s)	Comment
				Powertech requests these edits be made.
122 – New Comment	33	**Part IV, Section B** 1. The Permittee ~~shall~~ may incorporate the following scenarios into the geochemical model:		See comments #81 and #115
123 – New Comment	33	**Part IV, Section B.2** The ultimate objective of the geochemical model is to simulate ~~as accurately as possible~~ the fate and transport of ISR contaminants as they interact with downgradient, injection-interval geochemical conditions~~, such that the model becomes a tool to evaluate the potential for ISR contaminants to cross the aquifer exemption boundary~~.	Powertech requests that the text be changed so that it does not reflect an ongoing research project, but an assessment sufficient to be protective of human health and the environment. Furthermore, Powertech, in its Original EPA Letter Attachment A-3, Proposed Alternate Solution to Post-Restoration Groundwater Monitoring, only proposed to complete geochemical modeling for each major wellfield area (i.e., the Dewey area and the Burdock area only) following completion of stability. In the Revised Draft Class III Permit, these requirements go well beyond the NRC license requirements and well beyond what Powertech	See comment #81

Table 1. Draft Class III Area Permit Specific Comments and Recommended Permit Language Revisions (cont.)

No.	Page	Recommended Alternative Language or Other Modification	Explanation of Alternative(s)	Comment
			proposed in its Original EPA Letter.	
124 – New Comment	33	**Part IV, Section B.2** ~~Because simulations representing long-term post-restoration conditions and transport are purely predictive and will lack field-verification of results, geochemical modeling shall be~~ ~~performed on an iterative basis during project phases when field and laboratory measurements can be~~ ~~used to calibrate the model and additional data can be collected as needed to verify simulation results.~~	Powertech requests the deletion of this text as it is not consistent with the NRC license requirements and it is not consistent with Attachment A-3, Proposed Alternate Solution to Post-Restoration Groundwater Monitoring in Powertech's Original EPA Letter (a single geochemical model at the end of stability for each major wellfield area [i.e., the Dewey area and the Burdock area only]).	See Comment #81
125 – New Comment	33	**Part IV, Section B.2** a. The Permittee ~~shall~~ may conduct ~~iterative~~ modeling (batch reaction or reactive transport) for calibration and verification including representation of the following:	Powertech requests modification of the text to provide flexibility for alternative approaches to address the transport of contaminants across the aquifer exemption boundary. Powertech requests the deletion of text which is not consistent with NRC license requirements and not consistent with Attachment A-3, Proposed Alternate	See Comment #81

Table 1. Draft Class III Area Permit Specific Comments and Recommended Permit Language Revisions (cont.)

No.	Page	Recommended Alternative Language or Other Modification	Explanation of Alternative(s)	Comment
			Solution to Post-Restoration Groundwater Monitoring in Powertech's Original EPA Letter (a single geochemical model at the end of stability for each major wellfield area [i.e., the Dewey area and the Burdock area only]).	
126 – New Comment	33	**Part IV, Section B.2** b. For constituent of concern, that present endangerment of human health, and that do not satisfy Commission-approved background, or an MCL, as determined by NRC, the Permittee shall conduct predictive modeling of contaminant transport for site closure that includes the following: i. Reactive transport of post-restoration fluids in the wellfield downgradient toward the aquifer exemption	Powertech requests modification of text which is not consistent with the requirements of 10 CFR Part 40, Appendix A, Criterion 5.	See comment #81
127 – New Comment	34	**Part IV, Section B.2** Powertech requests deletion of Sections e and f.	Powertech requests the deletion of text which is not consistent with standard NRC license requirements and goes well beyond data requirements of the current NRC license for the Dewey-Burdock Project.	See comment #81
128 – New Comment	34	**Part IV, Section B.4** ~~4. Equilibrium, Kinetic, and Sorption Data~~ ~~a. The thermodynamic data used by the modeling program shall contain the most up-to-date information available on uranium and other constituents of concern at the site, such as those presented~~	Powertech requests the deletion of this section which is not consistent with standard NRC license requirements and goes well beyond data requirements of the	See comment #81

Table 1. Draft Class III Area Permit Specific Comments and Recommended Permit Language Revisions (cont.)

No.	Page	Recommended Alternative Language or Other Modification	Explanation of Alternative(s)	Comment
		~~by Guillaumont et al. (2003), Dong and Brooks (2006), and Muhr-Ebert et al. (2019).~~ ~~b. Where important reactions or kinetics are not included in the model's thermodynamic database, the databases shall be augmented with site-specific data from laboratory and field studies as described in Part IV, Section C.~~ ~~c. The basis of the modeling program's thermodynamic database shall be noted, along with any data that are edited/updated for this modeling effort, including the source of the data added. Limitations and uncertainties associated with the thermodynamic database shall be noted, including any constituents controlled by species that are not included in the database.~~ ~~d. The activity-coefficient model used to simulate reactions shall be chosen based on the range of ionic strengths and groundwater constituents measured in baseline groundwater, lixiviant, restoration fluid, and expected post-restoration groundwater.~~	current NRC license for the Dewey-Burdock Project.	
129 – New Comment	34	**Part IV, Section B** 5. Model calibration When applicable, to reduce model prediction uncertainty concerning the long-term fate and transport of ISR contamination at the Dewey-Burdock site, the model shall be ~~iteratively~~ calibrated as follows:	Powertech requests modification of text to reflect a single model at the end of each major wellfield area (i.e., one geochemical model for the Dewey area and one geochemical model for the Burdock area) following completion of stability monitoring for each major wellfield area. Furthermore, it may not be necessary or possible to calibrate all components of a	See Comment #81

Table 1. Draft Class III Area Permit Specific Comments and Recommended Permit Language Revisions (cont.)

No.	Page	Recommended Alternative Language or Other Modification	Explanation of Alternative(s)	Comment
			geochemical model and thus the text should be modified accordingly.	
130 – New Comment	35	**Part IV, Section B** 6. Uncertainty Analysis Uncertainty analysis shall attempt to quantify prediction uncertainty concerning the long-term fate and transport of ISR contamination at the Dewey-Burdock site ~~This may include forward Monte Carlo simulations, inverse modeling, or other methods but at a minimum shall~~ and may include the following: a. Sensitivity analyses for ~~all~~ geochemical parameters ~~that could have a substantial effect on simulation results, such as pH, pe, alkalinity, groundwater-flow rate, effective porosity, and the quantity or concentration of calcite, pyrite, iron, carbon-dioxide, and organic-carbon concentrations~~.	Powertech requests modification of the text to remove overly prescriptive language concerning the types of analysis and sensitivity analyses, which may not be used as they may not be deemed necessary.	See Comment #81
131 – New Comment	35-37	**Part IV, Section C** Powertech requests removal of Sections 1, 2, and 3.	Powertech requests removal of these requirements as they are not consistent with the data collection requirements under the NRC license. Powertech requests clarification that EPA Injection Authorization is not to be based on any information or analysis for the CSM or geochemical model and only based on the data provided in Part VII, Section C.	See Comment #81
132 – New Comment	37	**Part IV, Section D.1** Powertech requests removal of requirements under Sections a, b, and c.	Powertech requests modification of text to reflect a single model at	See Comment #81

Table 1. Draft Class III Area Permit Specific Comments and Recommended Permit Language Revisions (cont.)

No.	Page	Recommended Alternative Language or Other Modification	Explanation of Alternative(s)	Comment
			the end of each major wellfield area (i.e., one geochemical model for the Dewey area and one geochemical model for the Burdock area) following completion of stability monitoring for each major wellfield area and not an ongoing iterative modeling exercise.	
133 – New Comment	32	**Part IV, Section A** 3. The Permittee shall update the CSM when any of the following occur: a. On the basis of additional data collected during the development of each new wellfield. This iterative process will support identifying and filling data gaps over time and facilitate model calibration to observed conditions when the Permittee identifies data gaps or uncertainty concerning geology, hydrologic properties, geochemical characteristics, and/or geochemical processes that could affect mobility and transport of uranium and other metals at the Dewey-Burdock site, the Director may require the Permittee to develop more than one CSM to accommodate and characterize the areas of uncertainty.	Powertech requests that EPA clarify what is meant by "the Director may require the Permittee to develop more than one CSM to accommodate and characterize the areas of uncertainty." Powertech understands the CSM represents data collection in advance of later geochemical modeling. However, in the above statement it appears that the CSM is some form of a modeling scenario. As requested in its Original EPA Letter Attachment A-3, Proposed Alternate Solution to Post-Restoration Groundwater Monitoring, a single model at the end of each major wellfield area (i.e., one geochemical model for the Dewey area and one geochemical model for the Burdock area) following completion of stability monitoring for each major wellfield area should be used. Requiring an iterative model that runs prior to completion of stability goes well beyond the NRC license requirements and is potentially cost prohibitive.	
134 – New Comment	37	**Part IV, Section D.1.g** ~~The Permittee shall amend the Wellfield Closure Plan with the ACL analysis and submit it to the Director for review and approval at approximately the same time the License Amendment application is submitted to the NRC for approval of the ACL.~~	Inconsistent with NRC license requirements	The EPA does not have the regulatory authority to approve ACLs for groundwater restoration of an ISR site; this is the domain of the NRC. Powertech requests removal of this requirement which

Table 1. Draft Class III Area Permit Specific Comments and Recommended Permit Language Revisions (cont.)

No.	Page	Recommended Alternative Language or Other Modification	Explanation of Alternative(s)	Comment
				creates a duplicative approval process for an ACL application.

Table 2. Draft Class III Fact Sheet Specific Comments

No.	Fact Sheet		Type	Comment and Requested Modification
	Page	Section		
F1	Various	Various	C	Powertech requests that EPA update the fact sheet consistent with changes made in the Revised Draft Class III permit to address the comments in Table 1. Specific comments related to the draft fact sheet are provided below.
F13- New Comment		16.H	R	"Any noncompliance which may endanger human health or the environment, including: • Any monitoring or other information which indicates that any contaminant may cause endangerment to a USDW; or • Any noncompliance with a permit condition or malfunction of the injection system which may cause fluid migration into or between USDWs." Powertech requests that changes be made to the above statements to be consistent with any changes made in response to Comment 94.
F14-New Comment	83		R	The fact sheet states that surface casing is necessary despite the fact that the Class III wells are clearly fully cemented from total depth to surface satisfying the requirements of 40 CFR § 147.2104(d). Powertech requests that requirements for surface casing be removed.
F15-New Comment	102	11.0	T	Change 40 CFR § 146.10 (4) to 40 CFR § 146.10(a)(4).
F16-New Comment	104	12.1	R	The statement "Injection pressures must be monitored continuously through automated control and data recording systems that will include alarms and automatic controls to detect and control a potential release such as would occur through an injection well casing failure (see Section 14.2)" is inconsistent with the draft permit and the application and should be removed. It is not possible to detect such a failure in the current well design, which does not have a separately pressurized annulus such as in the Class V application. Such requirements are not necessary as there is a dedicated monitoring system (overlying monitor wells) in place and ongoing routine testing of internal mechanical integrity.
F17-New Comment	105	12.4.1	C	"Monitoring wells in the perimeter monitoring well ring must be screened across the entire thickness of the ore zone between the two operational confining zones (discussed in Section 3.4.4), which will be determined following completion of delineation drilling for each wellfield required under Part II, Section B of the Class III Area Permit." Powertech believes EPA should clarify this statement that the completion screened across the "entire thickness between the two confining units which contains the ore zone." The thickness of the ore within this may be a smaller component of the permeable unit between the two confining units that surround it.
F18-New Comment	111	12.6.4.2	R	The statement "However, if there is a breach in one of the confining zones the inward hydraulic gradient would prevent a vertical excursion only if it lowers the potentiometric surface of the injection interval aquifer to an elevation below the overlying and/or underlying aquifer potentiometric surfaces" is incorrect. Flow would still be locally moving inward due to the continuous wellfield bleed. Powertech requests

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Table 2. Draft Class III Fact Sheet Specific Comments (Cont.)

No.	Fact Sheet		Type	Comment and Requested Modification
	Page	Section		
				removal of this statement. If there is a breach in the vertical confinement, flow into overlying or underlying aquifer would not occur due to the net withdrawal within the wellfield at all times.
F19-New Comment	119	13.4	C	See Powertech's comment F13 above. Any changes made should also be made here.
F20-New Comment	121	14.1	I	"In addition, the flow rate of each production and injection well will be measured automatically." This is not consistent with the draft permit which says flows will be recorded daily (See draft permit Part VIII. F.4.b.iii.)
F21-New Comment	128	16.1	C	The requirement includes a 45-day notice for the plugging and abandonment of any injection or production well. Powertech does not believe EPA has the authority to include plugging requirements on wells which are not injection wells. Regardless, it seems that such a requirement is more detrimental than helpful. For example, if a well has failed MIT then this well should be plugged immediately so as not to serve as a conduit for unwanted flow into a USDW. Keeping a compromised well open for 45 days would be counterproductive to protecting overlying and underlying aquifers. In the Revised Draft Class III Permit, Powertech is already required to report an MIT failure within 24 hours and expects that EPA should be able to provide a similar immediate response for approval to plug and abandon a well that has failed MIT.
F22-New Comment	129	17.1	C	EPA states that Powertech stated that it initially responded to NRC that it would use an irrevocable letter of credit to secure financial assurance. Such statement was made approximately 8 years ago. As conditions change over time, Powertech may propose using any instruments for financial assurance that are applicable and sees there is no need to limit these at this time.
F23New Comment	132-133	18.2	I	See comments 103-107 on new wildlife requirements above. Powertech repeats these comments here and requests any changes made to these requirements be addressed here as well.
F24-New Comment	123	15.1	C	"Cadmus provided the EPA with a series of documents that supported the EPA's development of permit requirements that will result in effective tools for evaluating the fate and transport of ISR contaminants. Cadmus also provided acceptance criteria to assist the EPA in evaluating the resulting CSM and geochemical model the Permittee will develop according to the permit requirements." Powertech requests this statement be revised to remove requirements that are directly derived from the proposed CADMUS documents/requirements and replace these with requirements that are fully consistent with NRC requirements and existing regulations applicable to uranium ISR operations in the USA, as was contemplated in Powertech's Proposed Alternate Solution to Post-Restoration Groundwater Monitoring, Attachment A-3, of Powertech's Original EPA Letter and as discussed in this submission. NRC requirements should serve as a primary basis for any geochemical modeling. Powertech requests that EPA clarify that there is no need to implement the approaches within these documents as NRC requirement are fully protective and the EPA approval of closure will not rely on the CADMUS documents for standards of this

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Table 2. Draft Class III Fact Sheet Specific Comments (Cont.)

No.	Fact Sheet		Type	Comment and Requested Modification
	Page	Section		
				approval but instead primarily use NRC approval of groundwater restoration and stability of each wellfield as a basis.
F25-New Comment	124	15.2	E, C	"The Permittee must update the CSM as additional data is collected during the development of each new wellfield. This iterative process will support identifying and filling data gaps over time and facilitate calibration of the geochemical model as geochemical conditions change during the ISR process. In the event that unresolved data gaps or uncertainty are identified concerning geology, hydrologic properties, geochemical characteristics, and/or geochemical processes that could affect mobility and transport of uranium and other metals, the Director may require the Permittee to develop more than one CSM to characterize a range of potential site conditions." Powertech requests that EPA clarify what is meant by "the Director may require the Permittee to develop more than one CSM to characterize a range of potential site conditions." Powertech understands the CSM represents data collection in advance of later geochemical modeling. However, in the above statement it appears that the CSM is some form of a modeling scenario. As requested in its Original EPA Letter Attachment A-3, Proposed Alternate Solution to Post-Restoration Groundwater Monitoring, a single model at the end of each major wellfield area (i.e., one geochemical model for the Dewey area and one geochemical model for the Burdock area) following completion of stability monitoring for each major wellfield area should be used. Requiring an iterative model that runs prior to completion of stability goes well beyond the NRC license requirements and is potentially cost prohibitive. In particular, if groundwater is restored to an MCL, or Commission-approved background is achieved, no modeling is necessary for that constituent.
F26-New Comment	125-126	15.3	E, C	**15.3 The Geochemical Modeling Process** The objective of the geochemical model is to simulate as accurately as possible the potential for ISR contamination to cross the aquifer exemption boundary. To achieve this objective, the geochemical model must simulate the movement of groundwater and restoration fluids and their interactions with the injection zone mineralogy throughout the project site (i.e., within the ore zone and in the downgradient injection interval) to explore the potential for migration of uranium and other metals within the ore zones that might be mobilized during the ISR process, such as vanadium, arsenic, and selenium. Specifically, the geochemical model will simulate various geochemical processes to evaluate the potential for: 1) mobilization of uranium and other metals beyond the aquifer exemption boundaries;" In the above statements, Powertech requests that EPA define what "other metals" include so that Powertech understand the requirements of the geochemical modeling.

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Table 2. Draft Class III Fact Sheet Specific Comments (Cont.)

No.	Fact Sheet		Type	Comment and Requested Modification
	Page	Section		
				In addition, Powertech requests that EPA clarify that the primary objective of the model is not to "simulate as accurately as possible the potential for ISR contamination to cross the aquifer exemption boundary" but to sufficiently demonstrate protection of human health and the environment from the potential for ISR contamination to cross the aquifer exemption boundary. As proposed in General Comment #G-17, Powertech requests that EPA clarify that geochemical modeling will not be required when 10 CFR Part 40, Appendix A, Criterion 5B(5) standards are satisfied by achieving groundwater restoration of any constituents to Commission-approved background, or an MCL. Powertech also proposes that groundwater modeling be limited to any constituents requiring an ACL application, and if this is not necessary, then one or two representative constituents of concern.
F27-New Comment	126	15.3	E, C	"The geochemical model must simulate both the physical movement of groundwater and restoration fluids and their chemical interactions with injection zone mineralogy throughout the project site (i.e., within the orebody and downgradient) to explore the potential for migration of uranium and other metals (e.g., vanadium, arsenic, molybdenum, etc.)." Powertech requests that EPA clarify what "other metals" means as a requirement for geochemical modeling. Furthermore, Powertech requests that geochemical modeling is not required for every constituent. For example, constituents that meet criteria for 10 CFR Part 40, Appendix A, Criterion 5 that do not require an application for an ACL, and that meet either Commission-approved background or an MCL, consistent with the NRC license requirements, would not require geochemical modeling. See previous comment.
F28-New Comment	127	15.3	C	"The details involved in the development of a geochemical model are complex. The Cadmus document entitled *Geochemical Model Criteria Support Document for the Dewey-Burdock Project* provides a more detailed explanation of the steps involved in generating the model, the input data to the model, model calibration and sensitivity analyses and uncertainty predictions." The proposed geochemical model for site closure generated by the EPA and represented by the five CADMUS documents far exceeds required standards and is inconsistent with other ISR uranium operations in the USA, including Region 8. Further, the EPA/CADMUS proposal is not consistent with the NRC requirements for any other ISR uranium operations in the USA, including Region 8. Powertech respectfully requests that all references/connections to the CADMUS documents be removed from the Revised Draft Class III EPA Permit and supporting documents, inclusive of the Fact Sheet. These requirements are unnecessary in the light of the successful regulatory track record of NRC monitoring – a migration of ISR

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Table 2. Draft Class III Fact Sheet Specific Comments (Cont.)

No.	Fact Sheet		Type	Comment and Requested Modification
	Page	Section		
				ore body fluids to adjacent, non-exempt aquifers has NEVER occurred. Again, Powertech requests the EPA remove requirements derived from CADMUS documents. See General Comment #G-17.

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Table 3. Draft Aquifer Exemption Record of Decision Specific Comments

No.	Draft AE ROD		Fact Sheet		Type	Comment and Requested Modification
	Page	Section	Page	Section		
E4	5	Regulatory Criteria for AE Request	---	---	T	In the last paragraph, 2nd sentence, Powertech requests correcting a typographical error as follows: "As described in the September 2011~~2012~~ memorandum." This requested change also applies to the footnote: Technical Memorandum to J. Mays, R. Blubaugh - Powertech Uranium, from: Hal Demuth – Petrotek "Calculation of the Proposed Aquifer Exemption Distance beyond the Monitor Ring: Dewey-Burdock ISR Uranium Project, South Dakota" September 12, 2011~~2012~~, included as Appendix M of the Class III Permit Application.
E6	8 12-15	Fig. 3 Flow Rates Used in the Capture Zone Equation	30	4.2.1	C	Powertech disagrees with the identification of Well 41 as a drinking water well (e.g., in Figure 3 and Table 3). As described in comment #60 in Table 1, Well 41 is a stock watering well at an uninhabitable residence that has not been inhabited for 30 years or more. Powertech requests removing this well from the capture zone analysis and Figure 3 in the draft Aquifer Exemption ROD.
E7	15	40 CFR § 146.4(b)(1)	---	---	C	Powertech requests updating the reference on the commercial producibility of uranium to the most recent (2015) preliminary economic assessment for the Dewey-Burdock Project (Exhibit 026).
E8	20-21	Vertical confinement	22	3.4.2	I	Powertech requests clarifying the statement at the bottom of the page that "there is a hydraulic connection between the Fall River Formation and the Chilson Sandstone that would call into question the integrity of the Fuson Shale as an upper confining zone to the Chilson Sandstone". Specifically, Powertech requests clarifying that this statement only applies to an isolated area. As currently written, the statement could be construed as indicating a general hydraulic connection across the permit area. That is inconsistent with page 22 of the Fact Sheet, which states: The EPA has reviewed the information that Powertech provided in the Permit Application and has determined that evidence indicates that except for the northeast corner of Section 1, T7S, R1E, the Fuson member of the Lakota formation is a continuous confining zone underlying the Fall River injection interval and overlying the Chilson Sandstone injection interval throughout the Dewey-Burdock Permit Area.
E13 – New Comment	9	Figure 5. Map of the nineteen private drinking water wells			T	Powertech suggests replacing this figure or improving the image so that the well numbers are readable. Further, Powertech requests adding items not

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Table 3. Draft Aquifer Exemption Record of Decision Specific Comments (cont.)

No.	Draft AE ROD		Fact Sheet		Type	Comment and Requested Modification
	Page	Section	Page	Section		
		located within approximately 2 km (1.2 miles) of the Dewey-Burdock Project Boundary.				currently identified in the legend, including wells screened in the Inyan Kara and Unkpapa aquifers.
E14 – New Comment	10	Regulatory Criteria under which the exemption is approved				The statement is made that EPA cannot make a definitive determination that well 16 does not currently supply Inyan Kara groundwater for use as drinking water for human consumption. Therefore, the EPA is seeking input on the following three options regarding the AE in the area of well 16. Powertech believes that as written option three provides a reasonable and suitable approach to address well 16.
E15- New Comment	19	Project Timetable			C	The proposed timetable for project development is shown in Figure 8. Powertech anticipates that the Dewey-Burdock uranium ore deposits will be commercially producible for ~~nine~~ eight years. Powertech requests revising the text for consistency with the 8 years of production shown in Figure 8.
E16 - New Comment	20	Ensuring Protection of Adjacent USDWs			C	After groundwater restoration is completed for a wellfield, Powertech must conduct stability monitoring to determine that restored concentrations of ISR contaminants are chemically stable and will not rebound or increase in concentration over time. The NRC license requires that stability monitoring be conducted until the data show that the ISR contaminant concentrations for the most recent four consecutive quarters indicate no statistically significant increasing trend. If a constituent does not meet the stability criteria, Powertech must take appropriate actions to remedy the situation. Potential actions may include extending the stability monitoring period or returning the wellfield to a previous phase of active restoration until Powertech can demonstrate the chemical instability issue is resolved. If the analytical results from the stability period continue to meet the NRC license Commission Approved Background, MCLs, or ACLs and meet the stability criteria, Powertech will submit supporting documentation to the NRC showing that the restoration parameters have remained at or below the restoration standards and request that the wellfield be declared restored.

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Table 3. Draft Aquifer Exemption Record of Decision Specific Comments (cont.)

No.	Draft AE ROD		Fact Sheet		Type	Comment and Requested Modification
	Page	Section	Page	Section		
						Powertech requests adding "MCLs, or ACLs," since these are alternate standards for groundwater restoration.
E17-New Comment	22-25 of previous draft				C	It appears that all of the information that was on pp. 22-25 of the first draft ROD has been inadvertently omitted from the second draft, including the last two paragraphs under Vertical Confinement and entire sections on Lateral Confinement, Monitoring Requirements, A perimeter monitoring well ring, Operational groundwater monitoring, Monitoring within the wellfield during groundwater restoration, A groundwater stability monitoring period after restoration, Post-restoration groundwater monitoring, and Other Considerations. Powertech requests including this information in the final ROD based on what remains applicable.

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Table 4. Draft Cumulative Effects Analysis Specific Comments

No.	Draft Cumulative Effects Analysis		Type	Comment and Requested Modification
	Page	Section		
C0	All	All	R	Please refer to general comment #G-15, which describes Powertech's assertion that the Draft Cumulative Effects Analysis extends well beyond EPA's regulatory requirement under 40 CFR § 144.33(c)(3), since many aspects do not relate to drilling and operation of the Class III or V injection wells. To clarify, while Powertech believe such a cumulative impact analysis should not be a part of these draft permit documents, comments are included in event EPA decides to further pursue this analysis and, in such an event, the following comments should be considered. NRC has already completed a NEPA assessment for the project, documented in the supplemental environmental impact statement (Exhibit 008), which EPA has already reviewed and provided comments. EPA's cumulative effects analysis represents duplication of these previous efforts.
C1	4	1.0	C	The statement is made that "Powertech's current design for the treatment and storage of ISR waste fluids do not appear to meet the requirements under Clean Air Act regulations found out 40 CFR part 61, subpart W." Please refer to comment #C42, which asks EPA to update the discussion on compliance with subpart W considering the final rule that was issued in January 2017 and Powertech's November 2014 commitments to modify impoundment designs to comply with the final rule. Powertech requests that EPA update this discussion based on changes in the final rule and Powertech's commitment to comply with the final rule.
C2	5	2.0	C	With regard to EPA's review of the final NRC SEIS, the statement is made that "the EPA review letter for the Final SEIS included discussion of <u>some</u> remaining concerns and suggestions for how to address them" (emphasis added). Powertech requests clarifying that there were only two concerns expressed in EPA's comment letter on the final SEIS and that both issues are addressed in the Draft Class III Area Permit (pond permitting requirements under subpart W and monitoring domestic well #18).
C3	6	3.1.1	C	The statement is made that "During groundwater restoration, contaminated water is pumped from the wellfield injection interval, treated with reverse osmosis, and most of the clean permeate from the reverse osmosis treatment process is reinjected." Powertech requests clarifying that reverse osmosis would only be used in the deep disposal well option.
C4	8	3.1.1	I	The statement is made that "during operations, Powertech will take over control of all Inyan Kara wells located inside the project boundary." This is inconsistent with Section 3.2.1.1 of this document, which correctly states that Powertech will remove all drinking water wells within the project boundary from drinking water use and remove all stock wells within ¼ mile of wellfields from private use. Powertech requests correcting the inconsistency.
C5	9	3.1.1	I	The statement is made that "if any [private Inyan Kara wells] are located close to an ISR wellfield and cause a breach in a confining zone … Powertech will provide an alternative water source to well owners by installing a Madison water supply well, as discussed in Section 3.2.1.1." The referenced section discusses two options for replacing a private well: installing a replacement well or alternate water supply such as a pipeline from a Madison well. A replacement well would not necessarily be installed in the Madison aquifer. For example, it could be

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Table 4. Draft Cumulative Effects Analysis Specific Comments (cont.)

No.	Draft Cumulative Effects Analysis		Type	Comment and Requested Modification
	Page	Section		
				installed in the Sundance/Unkpapa aquifer. Powertech requests updating this discussion for consistency with commitments in the Class III permit application.
C6	10	3.1.2	T	In the last paragraph on this page, Powertech requests correcting typographical errors as follows: "Table 6 is Table 2-1 in Powertech's Report to Accompany Madison Water Right Permit Application shows a different breakout of the maximum estimated Madison usage as shown in Table 54. The maximum anticipated Madison usage is one gallon per minute more in Table 65 than in Table 54."
C7	11	3.1.2	T	In the last sentence on this page, Powertech requests correcting a typographical error as follows: "Therefore, the EPA finds that the impacts from Powertech's proposed net withdrawal of Madison ~~Inyan Kara~~ groundwater will not affect the availability of groundwater for other Madison groundwater users."
C8	12	3.2.1	C	The statement is made that "The EPA reviewed the information Powertech provided about the potentiometric surface drawdowns of the Inyan Kara Aquifers expected from the maximum gross pumping rate of 8,500 gpm." Since it is the net pumping rate and not the gross pumping rate that affects drawdown, Powertech requests correcting this as follows: "The EPA reviewed the information Powertech provided about the potentiometric surface drawdowns of the Inyan Kara Aquifers expected from the maximum net ~~gross~~ pumping rate of 170 ~~8,500~~ gpm Powertech is requesting from the DENR Water Rights Program."
C9	12 15	3.2.1 3.2.1.2	I	The statement is made that "the potentiometric surface elevations are expected to recover to within one to two feet at the locations of the pumping well after decommissioning of the project" (emphasis added). This is inconsistent with the permit application and Section 3.2.1.2 of this document, which correctly states that the elevations are expected to recover within one to two feet after ISR operations end, as opposed to after decommissioning, which may take years after ISR operations end depending on the length of stability monitoring, regulatory approval of successful groundwater restoration, and post-restoration groundwater monitoring, if required. This comment also applies to the similar statement on the bottom of page 15. Powertech requests changing "after decommissioning of the project" to "after ISR operations" in both instances.
C10	17	3.2.2	I	The statement is made that estimated drawdown of the Madison aquifer at 551 gpm pumping is "86.8 feet at the Dewey-Burdock site." Powertech requests clarifying that this is the estimated drawdown at the pumping well, not across the project site. This is correctly stated on page 18, which indicates that the DENR "calculated the drawdown in the Madison aquifer potentiometric surface from the Madison water supply wells to be 86.8 feet at the well locations within the Dewey-Burdock Project Area."
C11	19	3.3.1	C	The statement is made that "The NRC license requires Powertech to conduct groundwater restoration to the wellfield injection zone to restore the groundwater to pre-ISR conditions" (emphasis added). While it would be appropriate to characterize the NRC restoration requirements as consistent with pre-ISR conditions, the requirements in 10 CFR Part 40, Appendix A, Criterion 5B(5) are to restore the water to baseline or an MCL,

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Table 4. Draft Cumulative Effects Analysis Specific Comments (cont.)

No.	Draft Cumulative Effects Analysis		Type	Comment and Requested Modification
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				whichever is higher, or an ACL through the rigorous ACL approval process. Powertech requests correcting this statement as follows: The NRC license requires Powertech to conduct groundwater restoration to the wellfield injection zone to restore the groundwater to meet 10 CFR Part 40, Appendix A, Criterion 5B(5) requirements ~~pre-ISR conditions~~.
C12	26	3.3.4	T	Powertech requests correcting "Burdock pond designs" to "Dewey-Burdock pond designs".
C13	29	Fig. 9b	T	Powertech requests correcting "HDPA liner" to "HDPE liner".
C14	32	Fig. 12a	T	Powertech requests correcting "HDPA liner" to "HDPE liner".
C15	32	Fig. 12b	T	Powertech requests correcting "HDPA liner" to "HDPE liner".
C16	33	Fig. 13a	T	Powertech requests correcting "HDPA liner" to "HDPE liner".
C17	33	Fig. 13b	T	Powertech requests correcting "HDPA liner" to "HDPE liner".
C18	34	3.3.4.2	E	No justification appears to be provided for the statement that a leak from a pond storing treated water will result in "extensive impact … which will be difficult and expensive to remediate" by the time the leak is detected in the pond detection monitoring system required by the NRC. The pond detection monitoring system required by License Condition 12.25 in SUA-1600 will be designed as an early warning system using non-hazardous indicator parameters, similar to what is done for excursion monitoring in the wellfields. Based on this requirement, the fact that the ponds with single HDPE liners overlying clay liners will only store treated water, and the fact that the ponds will be about 1 mile away from Pass Creek, there is a low likelihood of an "extensive impact" from a pond leak. Powertech requests revising this discussion to address these considerations.
C19	36	3.3.4.2	C	See comments #C1 and #C42. The statement that "subpart W … requires that there be no more than two ponds, each with a surface area of no more than 40 acres that are in operation at any given time" is not supported by the final subpart W rule. Powertech requests updating this discussion.
C20	37	3.5	C	Powertech requests adding to the list of mitigation measures to prevent groundwater impacts the groundwater detection monitoring plan required by NRC License Condition 12.25 (Exhibit 016 at 14-15).
C21	38	3.5	T	Powertech requests removing "as" in "designated monitoring wells ~~as~~ during operations" in the number 8 listed at the top of this page.
C22	38	4.0	I	In the second paragraph in Section 4.0 and various locations throughout the document, Powertech's Large Scale Mine Permit application is incorrectly referenced as "the South Dakota DENR Large Scale Mine Permit." Since the permit has not yet been issued pending completion of the state hearing, Powertech requests changing all references to the Large Scale Mine Permit Application, which is done correctly at some locations within the document (e.g., at the bottom of page 36).
C23	43	4.2.3	T	In the 2nd sentence in this section, Powertech requests correcting "Table 8" to "Table 7".

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C24	43	4.2.3	T	In the 2nd to last paragraph on this page, 5th line, Powertech requests correcting a typographical error as follows: "and 5.3-7 provide the locations of planned ephemeral stream channels diversions within the permit area."
C25	48 70	4.5 6.0	C	The statement is made that "Powertech will use a phased approach to wellfield development beginning with wellfield 1 in the Dewey and Burdock Areas." See comment #F8 in Table 2, which describes how this statement is inconsistent with Section 10.10 (p. 10-13) of the Class III permit application, which states that Powertech may develop either the Burdock or Dewey area wellfields first, followed by those in the other area. Powertech's current plans include developing Burdock area wellfields prior to those in the Dewey area (Exhibit 026). This comment also applies to a similar statement on page 70. Powertech requests updating the text on p. 48 as follows: Powertech will use a phased approach to wellfield development beginning with wellfield 1 in the Dewey and Burdock Areas. ~~The Burdock B-WF1 wellfield and Dewey D-WF1 wellfield will be constructed during the initial construction phase of the project.~~ Alternately, Powertech may develop either the Burdock or Dewey wellfields first, followed by those in the other area. Similarly, Powertech requests updating the text on p. 70 as follows: Powertech anticipates that the initial construction of processing facilities, infrastructure (e.g., pipelines, access roads, power lines, and storage ponds), and the two initial wellfields is expected to be completed within two years. Powertech will develop the wellfields in a progressive manner, beginning with Dewey and Burdock wellfields #1. Alternately, Powertech may develop the wellfields and processing facilities in either the Dewey or Burdock area first, followed by those in the other area.
C26	51	4.6	T	In the last sentence in this section, Powertech requests changing the reference from Section 5.4 to Section 4.8, which lists mitigation measures for surface water quality impacts.
C27	52	4.7.1	I	The statement is made that the 243 acres of land disturbance anticipated under the deep well liquid waste disposal option includes "initial wellfields." Powertech requests correcting this to "all wellfields" for consistency with Table 10 and Section 6.0.
C28	52	4.7.1	T	In the 3rd paragraph, 4th line, Powertech requests correcting a typographical error as follows: "… measures to ensure that injection zone fluids will be vertically confined and injection will not result in the migration of …"
C29	55	4.8	T	In list item #5, Powertech requests correcting a typographical error as follows: "Maintain natural contours as much as possible, stabilizing slopes and avoiding unnecessary off-road travel with vehicles; ~~maintaining natural contours as much as possible, stabilizing slopes and avoiding unnecessary off-road travel with vehicles.~~"
C30	55	5.0	C	In the 2nd paragraph, the statement is made that "To mitigate impacts from spills and leaks and to prevent long term impacts, the DENR NPDES permit will require Powertech to develop an Emergency Preparedness Program under the project Environmental Management Plan." Powertech requests correcting this statement to reflect that

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Table 4. Draft Cumulative Effects Analysis Specific Comments (cont.)

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				the Environmental Management Plan is a requirement of the NRC license rather than the DENR NPDES permit. This comment also applies to similar statements on pages 62, 67 and 74.
C31	68	6.0	T	In the 1st paragraph, 9th line, Powertech requests correcting "2.394 acres" to "2,394 acres".
C32	70	6.0	T	In the 1st paragraph, last line, Powertech requests correcting "Table 7" to "Table 11".
C33	71	6.0	T	In the last line in this section, suggest correcting "there should be there should be".
C34	71	7.0	T	In this last line of the 1st paragraph in this section, Powertech requests correcting "there should be ~~there should be~~".
C35	76	7.4.1	I	In the 2nd paragraph, the statement is made that "Powertech estimates the maximum volume of liquid wastes injected into the deep injection wells during aquifer restoration will be 155 gpm (see Section 3.1.1 of this document)." The reference to Section 3.1.1 is for estimated Inyan Kara water consumption during concurrent operations and aquifer restoration, rather than the maximum injection volume. The correct maximum volume of liquid waste injection during concurrent operations and aquifer restoration is 232 gpm, as stated on page 144 (3rd paragraph) of this document. That amount is consistent with Figure 7.1 of the Class III permit application and Table 5.3-2 of the Large Scale Mine Permit Application. Powertech requests correcting this statement as follows: Powertech estimates the maximum volume of liquid wastes injected into the deep injection wells during aquifer restoration will be 232 ~~155~~ gpm (see Section 15.3.1~~.1~~ of this document).
C36	76	7.4.2	C	In the 1st paragraph in this section, the statement is made that "Powertech estimates that typical liquid waste flow rates during groundwater sweep under the land application option during aquifer restoration will be approximately 507 gpm as shown in Table 5, Section 3.1.2 of this document." Similar to the last comment, the reference to Section 3.1.2 is for estimated Madison usage, not wastewater disposal requirements under the land application option. Figure 7.1 of the Class III permit application and Table 5.3-2 of the Large Scale Mine Permit Application show that the maximum anticipated liquid waste flow rate during concurrent operations and aquifer restoration under the land application option is 582 gpm. Powertech requests correcting this statement as follows: Powertech estimates that typical liquid waste flow rates during groundwater sweep under the land application option during aquifer restoration will be approximately 582 ~~507~~ gpm as described ~~shown~~ in ~~Table 5,~~ Section 15.3.1~~.1~~.2 of this document.
C37	79	7.6	E	In bullet #e, Powertech requests clarifying that "Table 5.4-3" refers to the DENR Large Scale Mine Permit Application in the following statement: "The concentrations of metals and metalloids, including arsenic and selenium, are anticipated to be low as shown in Table 5.4-3."
C38	79	7.7	T	In the 2nd line under Section 7.7, Powertech requests correcting "Section 7.2" to "Section 7.6".
C39	80	8.1	C	The statement is made that "The Class III injection, production and monitoring wells will have casing screen." As described under comment #29 in Table 1, Section 11.2 of the Class III permit application specifies that the well

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Table 4. Draft Cumulative Effects Analysis Specific Comments (cont.)

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				screen assembly and filter sand may or may not be used. The omission of well screen and filter sand would only be done where the screened interval was sufficiently competent; therefore, there would be no impacts to geology with or without the well screen. Powertech requests deleting this sentence.
C40	82	8.2.2	T	In the last paragraph in this section, 3rd line, Powertech requests correcting "injection-induced" to "injection-induced seismicity".
C42	102	10.3.3	C	Powertech requests updating the statement that "EPA is considering revisions to 40 CFR Part 61, subpart W" in light of the final rule release in January 2017. It is also suggested to update the discussion to reflect the provisions in the final rule, especially that there are no longer maximum size limits or maximum number of impoundments for non-conventional impoundments such as would be constructed at the Dewey-Burdock Project. Powertech requests clarifying for the public the determination in the final rule that radon emissions from non-conventional impoundments that maintain a minimum liquid level are nearly indistinguishable from background. Since Powertech will treat the wastewater to remove radium and its byproducts, radon emissions from treated water storage ponds will be minimal. Powertech also requests updating the discussion to recognize its November 2014 commitments regarding modifications to the pond designs to comply with final subpart W provisions (Powertech 2014; Exhibit 032). In response to a request from EPA staff, Powertech committed to modifying the single-lined wastewater storage and treatment impoundments in the Burdock area to minimize the potential for contamination to reach alluvial groundwater. That letter also documents NRC staff's determination that the existing pond designs are adequately protective of human health and the environment and the NRC license conditions related to pond leak detection monitoring, routine pond inspections and development of a standard operating procedure (SOP) for potential pond releases. In addition, Powertech requests that EPA document Powertech's commitment in its November 2014 letter to submit an application to EPA for approval to construct wastewater storage and treatment impoundments at least 60 days prior to construction of the impoundments. This application was not submitted previously to EPA due to the risk that it would further delay the UIC permitting process, which has already taken more than 8 years yet is incomplete, and due to the uncertainty in the provisions of the final subpart W rule, which was not released until January 2017.
C43	103	10.4	T	In the numbered list at the top of this page, it appears that the sentence beginning "The presence of Class I areas" should be bullet #3.
C44	103	10.4	C	In the paragraph above Section 10.4.1, the statement is made that "The peak year accounts for the time when all four ISR project life-cycle phases (construction, operations, aquifer restoration, and decommissioning) are occurring simultaneously and represents the highest amount of emissions the project will generate in any one year." If post-restoration groundwater monitoring is required for this project, it would delay decommissioning by many years if not decades, such that the decommissioning phase would not overlap with any of the other project

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Table 4. Draft Cumulative Effects Analysis Specific Comments (cont.)

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				phases. Therefore, this worst-case scenario would not occur. Powertech requests updating this discussion if post-restoration groundwater monitoring is required.
C45	104	10.4.1	C	In the 1st paragraph, the statement is made that "the NRC … did not use the most recent regulatory-approved version of the [AERMOD and CALPUFF] model software platforms." The AERMOD version used by IML Air Science (IML) in the project modeling was updated by IML's software vendor, Lakes Environmental, multiple times after the original modeling protocol was developed. As a practical matter, any model version is likely to be out of date by the time an EIS is published. This is particularly true when follow-up model runs are required. The important consideration is that the versions of AERMOD and its associated software tools were current and mutually compatible when the model was implemented, and that to preserve comparability the model was not changed mid-stream. Powertech requests updating the discussion to document that the versions of AERMOD and its associated software tools were current and mutually compatible when the model was implemented.
C46	104	10.4.1	C	In the 2nd paragraph, the statement is made that "EPA did not find that NCR [*sic*] provided sufficient information to support the use of dry depletion in the AERMOD analysis." Precedent has been established by state and federal agencies for using the dry depletion option in AERMOD to model short-term impacts from fugitive dust emissions. For example, a coal lease application in Utah triggered PM_{10} modeling that included a refined analysis using deposition and plume depletion (IML 2013; Exhibit 033). Page 9 of Appendix K in the Alton Coal Lease DEIS states, "deposition was only considered for assessing the final PM_{10} modeled ambient air impacts. Deposition was not considered for any other pollutants …" Page 10 states, "the primary pollutants of concern are fugitive dust." (BLM 2015; Exhibit 034). The Colorado Department of Public Health and Environment (CDPHE) uses dry depletion to model PM_{10} impacts from fugitive dust sources at mining facilities seeking air quality construction permits (IML 2013; Exhibit 033). Recent projects for which this option was used include the Lafarge Gypsum Ranch Pit, Oxbow Mining's Elk Creek Mine, and Bowie Resources' Bowie N.2 Mine. The Wyoming Department of Environmental Quality stated that it would accept the use of plume depletion algorithms in AERMOD as long as an applicant justifies the inputs, including particle size, particle density and mass fraction (IML 2013; Exhibit 033). Both Colorado and Wyoming operate EPA-approved air permitting and enforcement programs. A recent modeling analysis was triggered by high fugitive dust impacts in the Salt River area of Arizona. Maricopa County was reclassified as a serious PM_{10} nonattainment area on June 10, 1996. The primary sources of particulate pollution in this area are "fugitive dust from construction sites, agricultural fields, unpaved parking lots and roads, disturbed vacant lots and paved roads" (IML 2013; Exhibit 033). Cited among the "general characteristics that make AERMOD suitable for application in the Salt River Study area" is the claim that

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				"gravitational settling and dry deposition are handled well." Powertech requests that EPA update this discussion in light of the evidence presented in this comment.
C47	104	10.4.1	C	In the 2nd paragraph, the statement is made that "The dry depletion option may be appropriate to use in AERMOD when sufficient data are available to determine the particle size distribution and other particle information reasonably well for each source." Powertech asserts that sufficient justification was provided in the IML 2013 modeling (Exhibit 033), as summarized below. The original PM_{10} particle size distribution was obtained from the modeling protocol for the Rosemont Mine in Arizona (IML 2013; Exhibit 033). The modelers for the Rosemont project acquired this distribution from AP-42 Section 13.2.4 and applied it to fugitive dust emissions from haul roads. Because Section 13.2.4 applies to aggregate handling and storage piles, other sources were consulted to validate the use of this particle size distribution for haul road dust. A study by Watson, Chow and Pace referenced in a New Jersey Department of Environmental Protection report found that 52.3% of the particulate from road and soil dust is less than 10 µm in diameter. Of this particulate 10.7% was found to be smaller than 2.5 µm in diameter and the remaining 41.6% fell between 10 and 2.5 µm. Assuming that fugitive dust particle sizes follow a lognormal distribution, these two data points were transformed into a multi-point particle size distribution for comparison to the original particle size distribution. The geometric mass mean diameter for the original distribution is 6.47 µm, while the mean diameter for the lognormal distribution is 5.76 µm. EPA's AP-42 Section 13.2.2 and supporting studies characterize PM_{30} from unpaved road dust (the dominant source at Dewey-Burdock) as 30.6% PM_{10} and 3.06% PM2.5. Again, assuming a lognormal particle size distribution, the mean diameter would be 6.77 µm. CDPHE has approved a mean coarse particle diameter for road dust of 6.25 µm (Trinity 2016; Exhibit 035). Since these values are clustered around the original PM_{10} size distribution, it was retained for both CALPUFF and AERMOD dry deposition modeling. As stated above, the mass mean diameter of PM_{10} particles with the chosen size distribution referenced above is 6.47 µm, or approximately 65% of the top diameter. Applying this ratio would yield about 1.5 µm for the mean $PM_{2.5}$ particle size. Hence, the choice of 1 µm mean particle size diameter for $PM_{2.5}$ was conservative in that it increases atmospheric entrainment and decreases settling. In contrast to PM_{10} modeling, the plume depletion option had only a minor effect on modeled $PM_{2.5}$ impacts. Aluminosilicate clay minerals that characterize soil dust in the project area typically have particle density near 2.65 g/cm3. As indicated in IML's final report (IML 2013; Exhibit 033), the Environmental Science Division of Argonne National Lab states, "A typical value of 2.65 g/cm^3 has been suggested to characterize the soil particle

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				density of a general mineral soil. Aluminosilicate clay minerals have particle density variations in the same range." Another study of fugitive dust from unpaved road surfaces, by Watson and Chow, also cites 2.65 g/cm^3 for soil particle density (IML 2013; Exhibit 033). In a more recent analysis, the CDPHE-approved particle density for road dust is 2.655 g/cm^3 (Trinity 2016; Exhibit 035). Powertech requests that EPA update this discussion in light of the evidence presented in this comment.
C48	104	10.4.1	E	In the 2nd paragraph, the statement is made that "dry depletion should have been applied to all receptors within the model domain." Using the dry depletion option, IML modeled all receptors with predicted 24-hour PM_{10} impacts in the initial modeling run that, when added to background, were greater than the NAAQS of 150 µg/m^3. This threshold was chosen to demonstrate ultimate compliance of all initially high receptors. The regulatory default settings were used to screen potential problem receptors, and the dry depletion option was used to refine the model results only for those receptors. Since the dry depletion option has the effect of reducing (never increasing) predicted impacts, it was deemed unnecessary to apply this option to receptors already demonstrated to be below the NAAQS threshold. The predicted concentrations would only have decreased beyond those obtained under the regulatory default option. Powertech requests that EPA update this discussion in light of the evidence presented in this comment.
C49	104	10.4.1	E	In the 3rd paragraph, the statement is made that "the approach used by NRC will not account for the diesel engine exhaust PM_{10} particles that will not settle out as quickly as the mechanically generated fugitive dust emissions." Most of the non-fugitive sources of particulate emissions at Dewey-Burdock are diesel engines. EPA is correct that some error may be introduced by including combustion sources of PM_{10} in the dry depletion runs. Most particulate matter in diesel exhaust falls within the $PM_{2.5}$ category and exhibits a much slower deposition rate than PM_{10}. Nonetheless, fugitive sources are dominant at Dewey-Burdock, where diesel exhaust constitutes only 1% of the total PM_{10} emissions. For this reason, and to avoid further complicating the final model run, IML grouped all PM_{10} sources together. Powertech requests that EPA update this discussion in light of the evidence presented in this comment.
C50	110	10.4.2.1	E	With regard to the 24-hour PM_{10} modeling results, the statement is made in the 1st paragraph that "the top 3 values are of interest regardless of when they occurred." For compliance demonstration, the standard design value is the 4th high concentration over a 3-year period. This value is shown in Table 6-1 (IML 2013; Exhibit 033) and should not be confused with the yearly statistics also presented in that table. Powertech requests that EPA update this discussion in light of the evidence presented in this comment.
C51	111	10.4.2.2	T	In the second line, Powertech requests correcting the reference to "Table 11a", which does not appear in this section.
C52	111	10.4.2.4	E	In the 1st paragraph in this section, the statement is made that "IML and NRC determined there is evidence and precedent that supports excluding ground-level, fugitive PM_{10} emissions from the assessment of project impacts

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				on visibility at Wind Cave … However, EPA did not support this approach for the SEIS." As stated in the final report (IML 2013; Exhibit 033) and acknowledged by EPA, even without excluding coarse particulates, the 98th percentile of the annual 24-hour average changes in haze index is less than the contribution threshold of 0.5 dv. Still, IML conducted a final model run excluding coarse PM_{10} for several reasons: • CALPUFF predicted that 70% of visibility impairment at Wind Cave from the Dewey-Burdock Project was caused by coarse PM_{10}. This goes against visibility modeling results obtained by various agencies including South Dakota DENR. Aerosols of sulfate and nitrate, organic carbon, and fine particulates ($PM_{2.5}$) are generally the significant contributors to visibility impairment. • To test the reasonableness of the modeled impact of coarse particulates on visibility at Wind Cave, IML used CALPUFF to model the impact of PM_{10} coarse emissions from Dewey-Burdock at three test receptors (IML 2013; Exhibit 033). The receptors were placed 40, 80, and 116 km from the project, respectively. CALPUFF predicted higher relative contribution from coarse PM_{10} as the distance from the project to the receptor increased. This outcome defies common sense and exposes the fallacy of modeling visibility without accounting for near-field deposition of coarse PM_{10}. • Notwithstanding EPA's challenge to the evidence and precedent appearing in the final report, the modeling protocol does cite NEPA precedent for excluding fugitive dust emissions from visibility impact modeling. This approach was followed in the Atlantic Rim EIS (IML 2013; Exhibit 033), which cited supporting documentation from the Western Regional Air Partnership (WRAP). • A 2005 study (VISTAS 2005; Exhibit 036 at p. 3-13) states, "$PM_{2.5}$ particles, which have a mass median diameter around 0.5 µm, have an average net deposition velocity of about 1 cm/minute … On the other hand, coarse particles … have an average deposition velocity of about 1 m/minute, which is significant, even for emissions from elevated stacks." It seems unreasonable to model the long-range transport of both species as if they behaved the same. Regarding exclusion of coarse particulates from stationary sources: It should be noted that stationary sources at Dewey-Burdock are combustion sources with negligible emissions compared to mobile sources and fugitive dust sources. Moreover, particulates from stationary combustion sources are 97% $PM_{2.5}$ (IML 2013; Exhibit 033) and were already accounted for since only coarse PM_{10} was omitted from the final visibility model run. Powertech requests that EPA update this discussion in light of the evidence presented in this comment.
C53	113	10.5	T	In the 6th line of this sentence, Powertech requests changing "in this SEIS" to "in the NRC SEIS".
C55	114	10.6.1	E	In the 2nd paragraph in this section, the statement is made that "the Dewey-Burdock project has not been shown to greatly effect [*sic*] regional cumulative air quality." This should be expected, given the comparison between project emission levels and regional emissions. Since fugitive PM_{10} emissions from Dewey-Burdock constitute the

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<table>
<tr><th rowspan="2">No.</th><th colspan="2">Draft Cumulative Effects Analysis</th><th rowspan="2">Type</th><th rowspan="2">Comment and Requested Modification</th></tr>
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<tr><td></td><td></td><td></td><td></td><td>largest single pollutant, and since EPA's analysis takes issue with the degree of conservatism in modeling fugitive PM_{10} impacts on air quality and visibility, the following table may lend some perspective:
<table>
<tr><th>Area Encompassed</th><th>Fugitive Emission Sector(s)</th><th>PM_{10} Emissions (tons/year)</th></tr>
<tr><td>State of Wyoming</td><td>Unpaved Road Dust</td><td>421,044</td></tr>
<tr><td>State of Wyoming</td><td>Mining Dust</td><td>93,331</td></tr>
<tr><td>State of Wyoming</td><td>Crops and Livestock Dust</td><td>39,112</td></tr>
<tr><td>State of South Dakota</td><td>Crops and Livestock Dust</td><td>333,119</td></tr>
<tr><td>State of South Dakota</td><td>Unpaved Road Dust</td><td>77,273</td></tr>
<tr><td>Dewey-Burdock Permit Area and County Road</td><td>All Fugitive Dust Sources (max. year)</td><td>458</td></tr>
</table>
Source: EPA 2017; Exhibit 037

Since Wyoming is situated generally upwind from Wind Cave National Park, fugitive dust from this state may be more relevant than dust from South Dakota. Projected maximum fugitive PM_{10} emissions from Dewey-Burdock represent 0.08% of the emissions from Wyoming's three largest sectors, and 0.11% of the emissions from South Dakota's two largest sectors. Powertech requests that EPA update this discussion in light of the evidence presented in this comment.</td></tr>
<tr><td>C56</td><td>114</td><td>10.6.2</td><td>T</td><td>In the number list, it appears that "Implement fuel saving practices such as minimizing vehicle and equipment idle time" should be item #1.</td></tr>
<tr><td>C58</td><td>119</td><td>11.3.1</td><td>E</td><td>In the first paragraph, the statement is made that "the year one facility construction does not appear to be distinguishable in the estimation of CO_2 emissions related to electrical power consumption during the construction phase." Powertech notes that the GHG emissions from year 1 construction amount to about 0.2% of the cumulative, project GHG emissions. For clarity, however, most of the electricity consumed during the Dewey-Burdock construction phase will be for facilities construction, where utility power will be available. Wellfield construction will involve primarily mobile and earth-moving equipment to drill wells and install piping and power lines. Electricity use in the wellfields will correspond mainly to the operations phase. Powertech requests that EPA update this discussion in light of the evidence presented in this comment.</td></tr>
<tr><td>C59</td><td>119</td><td>11.3.2</td><td>T</td><td>In the first paragraph in this section, 5th line, Powertech requests correcting "whither" to "either".</td></tr>
<tr><td>C60</td><td>121</td><td>Tables 33-34</td><td>T</td><td>It appears that metric tons and short tons are switched in several rows (i.e., those where the metric tons are higher than the short tons). Powertech recommends correcting these tables.</td></tr>
</table>

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Table 4. Draft Cumulative Effects Analysis Specific Comments (cont.)

No.	Draft Cumulative Effects Analysis		Type	Comment and Requested Modification
	Page	Section		
C61	122	11.4	E	In the 4th paragraph, the statement is made that the NRC SEIS does not include any information about GHG emissions during the uranium enrichment phase. Enrichment is downstream from the Dewey-Burdock Project. IML considered the analysis of this phase beyond the scope of the SEIS just as it did the analysis of an ultimate use for the enriched uranium (i.e., nuclear power plants). EPA acknowledges, and many studies support the net reduction in life-cycle GHG emissions achieved by nuclear power when it displaces fossil fuel power. Notably, the GHG reporting rule does not include uranium enrichment facilities or nuclear power plants among the 41 industrial sectors required to report. Powertech requests that EPA update this discussion in light of the evidence presented in this comment.
C62	130	12.1	T	In lines 4-6, it appears that references to "Table 29" should be changed to "Table 36".
C63	133	12.2	C	In the 1st paragraph, the statement is made that Powertech proposes to store, use, and receive shipments of anhydrous ammonia (NH_3). Powertech does not propose to use ammonia at the Dewey-Burdock Project. Figure 3.2-6 in the approved NRC license application shows that sodium hydroxide will be used in the precipitation circuit instead. Table 3.2-1 in the approved NRC license application, which lists the process-related chemicals and quantities planned for the project, likewise does not include ammonia. Powertech requests removing mention of anhydrous ammonia from this paragraph.
C64	133	12.3	T	In the 2nd paragraph in this section, 1st line, Powertech requests correcting "Table 30" to "Table 38".
C65	134	12.5	C	The statement is made that "Because the Dewey Road is a county road, presumably it is maintained by Custer and Fall River Counties." These counties do maintain their respective portions of the Dewey Road. Moreover, Powertech executed an agreement with Fall River County to provide equipment, materials, and/or financial assistance to cover a portion of the total road maintenance cost for Fall River County roads used by Powertech during construction and operation (Powertech 2007; Exhibit 038). Powertech requests revision of the text to reflect this commitment.
C66	135	13.1	C	In the 1st sentence in this section, the statement is made that NRC evaluated the impacts of transporting "yellowcake slurry." Slurry is an intermediate product in the yellowcake production cycle that is dried to produce the final yellowcake product. This is described in Section 3.2.3.1 of the SER: "The CPP will also contain 2 vacuum dryers for drying yellowcake slurry into its final powder form" (Exhibit 014 at p. 96). Powertech requests removing the word "slurry" since yellowcake slurry will not be shipped from the Dewey-Burdock Project site.
C67	135	13.1	I	In the 2nd line, Powertech requests changing "radioactive wastes" to "byproduct material" for consistency with other sections of this document (e.g., Section 12.2).
C68	140	14.3	E	A discussion is included about traditional subsistence practices such as hunting and wild plant gathering. Powertech suggests mentioning that the entire Dewey-Burdock permit area is either private land or BLM-managed federal land for which no public access roads exist. Therefore, there is no plausible use of lands within the proposed permit area for "traditional subsistence practices and the procurement of animals and plants for

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Table 4. Draft Cumulative Effects Analysis Specific Comments (cont.)

No.	Draft Cumulative Effects Analysis		Type	Comment and Requested Modification
	Page	Section		
				ritual, ceremonial, medicinal and other traditional needs." Powertech requests the addition of text to indicate that there is no public access to lands within the proposed permit area.
C69	144	15.3.1	C, I	In the 1st paragraph, the statement is made that the maximum liquid byproduct material quantity requiring disposal in the deep well injection option will be 197 gpm. As described in comment #C35 and as correctly listed in the 3rd paragraph in this section, the correct maximum volume of liquid waste injection during concurrent operations and aquifer restoration is 232 gpm. Powertech requests correcting the maximum liquid waste generation rate in the deep disposal well option from "197 gpm" to "232 gpm".
C70	144	15.3.1	C	In the 2nd paragraph, the statement is made that "Powertech proposed the construction of two Minnelusa injection wells, DW No. 1 in the Burdock Area and DW No. 3 in the Dewey Area." This does not appear to be consistent with the Class V permit application or Draft Class V Area Permit, both of which discuss up to four Minnelusa injection wells. Powertech requests updating the discussion to account for the four Class V injection wells included in the Class V Area Permit.
C71	144	15.3.2	C	In the 1st paragraph in this section, the statement is made that the maximum production of liquid byproduct material in the land application option will be 547 gpm. As described in comment #C36, the correct maximum volume of liquid waste injection during concurrent operations and aquifer restoration is 582 gpm. Powertech requests correcting the maximum liquid waste generation rate in the land application option from "547 gpm" to "582 gpm".
C72	145	15.3.4	C	Powertech requests clarifying that the 66 cubic yards of solid byproduct material is an annual estimate during operations. This comment also applies to Section 15.4.4.
C73	146	15.4.1	C	The statement is made that "Powertech proposes to manage aquifer restoration wastewater (i.e., liquid byproduct material) by treating the <u>wastewater</u> by reverse osmosis and reinjecting the treated water (i.e., permeate) back into the aquifer production zone undergoing restoration as described in SEIS Section 2.1.1.1.4.1" (emphasis added). Powertech requests clarification that the water withdrawn from the wellfields during groundwater restoration is not wastewater; it is treated by reverse osmosis (in the deep disposal well option), and the resulting reject is treated and disposed as wastewater. The water withdrawn from the wellfield and the treated water (permeate), while still considered 11e.(2) byproduct materials under NRC regulation, are not wastewater. Powertech requests modifying this sentence as follows: Powertech proposes to manage ~~water pumped from the ISR wellfields during~~ aquifer restoration ~~wastewater~~ (i.e., liquid byproduct material) by treating the ~~waste~~water by reverse osmosis and reinjecting the treated water (i.e., permeate) back into the aquifer production zone undergoing restoration as described in SEIS Section 2.1.1.1.4.1.
C74	146	15.4.2	E	In the 11th line in this section, the statement is made that "The NRC, the DENR and the EPA will require liquid byproduct material be treated prior to injection and treatment systems be approved, constructed, operated, and

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Table 4. Draft Cumulative Effects Analysis Specific Comments (cont.)

No.	Draft Cumulative Effects Analysis		Type	Comment and Requested Modification
	Page	Section		
				monitored to ensure release standards … are met." Powertech is not aware that EPA has any permit requirements for the land application of treated wastewater and requests clarification on this statement or removal of EPA from the list of agencies authorizing land application.
C75	147	15.5.1	C	Regarding the statement that Powertech expects to install 4,000 injection and production wells, please refer to comment #E1 in Table 3, which describes how Powertech currently estimates that approximately 1,461 injection wells and 869 production wells will be required over the life of the project.
C76	148	15.5.2	E	Powertech requests explanation of the reference for the statement that "The NRC will update this evaluation as part of the pre-operational analysis for the Dewey-Burdock Project Site, and certify that binding contractual arrangements and commitments for providing capacity for the proposed Dewey-Burdock ISR Project have been made with one or both of these landfill options prior to beginning construction."
C77	149	15.5.4	T	In the 2nd paragraph, last line, Powertech requests correcting "Section 14.3.1" to "Section 15.3.1".
C78	149	15.6	C	The statement is made that "Powertech will be required to have an agreement in place with White Mesa Mill for the disposal of solid by-product waste." Although White Mesa Mill has been identified as the preferred location for disposal of solid byproduct material, the NRC license does not require an agreement with any particular 11e.(2) byproduct material disposal facility. The requirements in NRC License Conditions 12.6 and 9.9, as stated on page 150 of this document, require Powertech to submit to the NRC a disposal agreement with a licensed disposal site before beginning operations and to maintain an agreement throughout operations. Powertech requests revising this sentence as follows: Before the NRC will authorize commencement of ISR operations, Powertech will be required to have an agreement in place with a facility that is licensed by the NRC or an NRC Agreement State to receive byproduct material, such as the White Mesa Mill ~~for the disposal of solid by-product waste~~.
C79	150	15.6	T	In the last paragraph in this section, 3rd line, Powertech requests deleting "76" in "76 License Condition 9.9 …"
C80	150	16.0	T	In the 1st paragraph in this section, 7th line, Powertech requests correcting "Table 32" to "Table 39".
C81 – New Comment	19	3.3.1	C	The statement "The EPA is proposing approval of the aquifer exemption for Burdock wellfields 6 and 7 after well 16, which is a former drinking water well completed in the proposed aquifer exemption area, is plugged and abandoned" is not correct. There are now three approaches in the Revised Draft Class III Permit and Aquifer exemption record of decision to address this. As noted in E-14, Powertech believes that as written option three provides a reasonable and suitable approach to address well 16. Powertech requests that this statement be updated accordingly.
C82 – New Comment	19	3.3.1	C	Reference is made to 40 CFR § 146.10(4). There needs to be an (a) in front of the (4)

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Table 4. Draft Cumulative Effects Analysis Specific Comments (cont.)

No.	Draft Cumulative Effects Analysis		Type	Comment and Requested Modification
	Page	Section		
C83 – New Comment	20	3.3.2.1	C	"The monitoring well detection system described in Section 12.5.5.2 of the Class III Area Permit Fact Sheet" is an incorrect reference. Powertech believes this reference should be Section 12.4
C84 – New Comment	57	5.2.3	I	Contains the statements "The header house components will be connected to programmable logic controllers that send data to the control systems components will be connected to programmable logic controllers that send data to the control systems." and "In addition, the flow rate of each production and injection well will be measured automatically. Measurements will be collected and transmitted to both the Central Processing Plant and Satellite Facility control systems." are inconsistent with the permit application and the Revised Draft Class III Permit which says flows will be recorded daily (Part VIII. F.4.b.iii.)
C85 – New Comment	60	5.2.5	T	1st bullet contains reference to Section 5.9. Powertech believes this should be Section 5.8
C86 – New Comment	71	6.0	T	"Propose" should be "proposed".
C87 – New Comment	73	7.1	T	"Area" should be "areas"
C88 – New Comment	74	7.2	T	"Area" should be "areas"
C89 – New Comment	76	7.4.1	C	States that "Powertech estimates the maximum volume of liquid wastes injected into the deep injection wells during aquifer restoration will be 155 gpm". Powertech believes the word volume should be replaced with "flowrate"
C90 – New Comment	77	7.5	T	The sentences "Plugging and abandoning injection and production wells according to the EPA UIC Area Permit requirements. Plugging and abandonment of monitoring wells must be in accordance with South Dakota requirements." Powertech believes that a bullet before the second sentence should be included as both are requirements.
C91 – New Comment	81	8.2.1	T	Contains reference to Section 5.9. Powertech believes this should be Section 5.8

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Table 4. Draft Cumulative Effects Analysis Specific Comments (cont.)

No.	Draft Cumulative Effects Analysis		Type	Comment and Requested Modification
	Page	Section		
C92 – New Comment	139-140	14.2	C	See comments 103-107 on new wildlife requirements above. Powertech repeats these comments here and requests any changes made to these requirements be addressed here as well.

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Table 5. Draft Environmental Justice Analysis Specific Comments

No.	Draft Environmental Justice Analysis		Type	Comment and Requested Modification
	Page	Section		
J5	21-22	5.0	E	In the 1st full paragraph on this page, the statement is made that "Certain types of UIC permits have been identified as priority permits, including permits for Class V deep injection wells and Class III ISR wells" by EPA Region 8 "due to the potential for significant public health or environmental impacts." In light of the evidence that there has never been an off-site impact to non-exempt groundwater after decades of uranium ISR operation in the U.S., Powertech requests explanation as the source of this "potential for significant public health or environmental impact."
J10	25	5.0	C	The statements are made that "The proposed Class III Area Permit requires Powertech to develop a Wellfield Closure Plan that is based on the Conceptual Site Model required in Part IV, Section A and geochemical modeling required in Part IV, Section B. The purpose of the geochemical modeling is to evaluate the potential for ISR contaminants to cross the aquifer exemption boundary into the surrounding USDWs. Part IV, Section C of the proposed Class III Area Permit includes requirements to calibrate the geochemical model for each wellfield based on site-specific sampling and analysis of the geochemical and water quality information acquired according to the specifications in the Conceptual Site Model. The Conceptual Site Model includes monitoring requirements that are tied to the timing of groundwater restoration and stability monitoring phases as discussed under Section 12.6.4. The Wellfield Closure Plan shall demonstrate that the wellfield closure, including plugging and abandonments of all wellfield injection and production wells, will result in adequate protection of USDWs as required under 40 CFR § 146.10(4). If the Closure Plan does not demonstrate adequate protection of USDWs, the Director shall prescribe aquifer cleanup and monitoring where he deems it necessary and feasible to insure adequate protection of USDWs to fulfill the requirements under 40 CFR § 146.10(4). For a more detailed discussion of wellfield monitoring, see the Class III Area Permit Fact Sheet, Section 12.0. The EPA proposes to include stringent characterization requirements in the Class V deep injection well permit to ensure that injection zone fluids remain within the injection zone.." NRC license requirements are adequate to ensure protection of the non-exempt aquifers surrounding the wellfields. Powertech requests replacing the above text as follows: The EPA has reviewed NRC requirements to ensure that ISR contaminants potentially migrating out of the ISR wellfield will not cause a violation of MCLs or otherwise adversely affect human health outside of the exempted aquifer.
J13 – New Comment	44	7.7	C	"The proposed EPA UIC Class III permit requires Powertech to demonstrate through geochemical modeling, calibrated by monitoring in the field, that no ISR contaminants will cross the aquifer exemption boundary into USDWs." Powertech requests that EPA revise this statement to "The proposed EPA UIC Class III permit requires Powertech, consistent with NRC requirements, to meet the federal standards under 10 CFR Part 40, Appendix A, Criterion 5 for protection of USDW's outside of the aquifer exemption boundary."

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Table 5. Draft Environmental Justice Analysis Specific Comments (cont.)

No.	Draft Environmental Justice Analysis		Type	Comment and Requested Modification
	Page	Section		
J14 – New Comments	46	7.8	I	Consistent with a number of previous comments, Powertech requests the following edits: The UIC proposed permit requirements: - consider effects to the downgradient underground sources of drinking water and private wells completed in the injection zone ~~by requiring Powertech to develop a wellfield closure plan including a geochemical model and targeted monitoring requirements to verify that no ISR contaminants cross the aquifer exemption boundary;~~ - ~~include in the proposed revised Class III permit, a robust conceptual site model designed to support geochemical models calibrated by field sampling and monitoring programs that will lead to a wellfield closure plan designed to protect USDWs;~~
J15 – New Comments	46	7.8	I	Consistent with a number of previous comments, Powertech requests the following edits: - impose requirements for ~~additional~~ hydrogeologic characterization ~~and monitoring~~ that must be met before the EPA will authorize operation of the injection wells, including: o extensive evaluation and characterization of injection zone and confining zone hydrogeologic conditions for both the Class III ISR and Class V deep injection wells; o protective construction and operating requirements for injection wells; ~~o and demonstration that extensive excursion monitoring programs are in place for the Class III wellfields that are designed to detect any threat to USDWs in a timely manner enabling Powertech to implement mitigation measures before USDWs are impacted;~~

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Table 6. CADMUS Documents Specific Comments

No.	CADMUS Documents		Type	Comment and Requested Modification
	Page	Section		
				These comments apply to all CADMUS documents
CAD1 – New Comment			C	As stated in General Comment #G-17, the proposed geochemical model for site closure generated by the EPA in Part IV of the Revised Draft Class III Permit and represented by the five CADMUS documents far exceeds industry standards and is inconsistent with other uranium ISR operations in the USA, including Region 8. Further, the EPA/CADMUS proposal is not consistent with the NRC requirements for any other domestic uranium ISR operations. In addition, the scope of the proposed geochemical model is far beyond the Proposed Alternate Solution to Post-Restoration Groundwater Monitoring, included in Attachment A-3 of Powertech's Original EPA Letter. In its proposed alternative, Powertech envisioned two geochemical models being completed, one for each major wellfield area (i.e., one geochemical model for the Dewey area and one for the Burdock area), each generated after the successful conclusion of all ISR activities within each major wellfield area and following the NRC-approved closure of all wellfields within each major wellfield area. Powertech's proposal was designed to address the aquifer exemption boundary at each of the Dewey and Burdock areas, following the closure of the associated wellfields. Powertech envisioned the modeling effort for the Dewey and Burdock areas to be consistent with an ACL application under NRC regulations. The extensive requirements described in the five CADMUS documents would constitute an expansive and cost prohibitive undertaking that would require a full-time modeling effort lasting more than a decade. These requirements have been developed outside of the context of more than 40 years of ISR operations regulated by the NRC, during which migration of ISR ore body fluids to adjacent, non-exempt aquifers has NEVER occurred. The geochemical modeling efforts described within the CADMUS documents and incorporated into the Revised Class III Draft Permit, appear to be consistent with the withdrawn, previously proposed, rules under 40 CFR Part 192. As evidenced by the EPA statements associated with the withdrawal of the proposed Part 192 rules, these proposed, extensive CADMUS requirements are unnecessary as there is already a "comprehensive and effective" regulatory framework for ISR wellfield operations, groundwater restoration and closure imposed by NRC. It is not appropriate for the EPA to develop an entirely unique approach to ISR regulation for this project for which it does not have regulatory authority. Further, the proposed, extensive CADMUS requirements effectively ignore the established protocols of the NRC, which have been successful in regulating ISR operations in the USA, including Region 8, for decades. Powertech respectfully requests that all references/connections to the CADMUS documents be removed from the Revised Draft Class III Permit. As discussed above, inclusion of the CADMUS documents into the Revised Draft Class III Permit is not supported. Further, Powertech requests Part IV of the Revised Draft Class III Permit be revised to remove requirements that are directly derived from the proposed CADMUS document requirements and replace these with requirements that are fully consistent with NRC requirements and

Table 6. CADMUS Documents Specific Comments (cont.)

No.	CADMUS Documents		Type	Comment and Requested Modification
	Page	Section		
				existing regulations applicable to other uranium ISR operations in the USA, as was contemplated in the closure plan in its Proposed Alternate Solution to Post-Restoration Groundwater Monitoring, Attachment A-3 of Powertech's Original EPA Letter. Powertech's biggest issues with these documents as they pertain to the proposed geochemical and CSM are as follows: 1.) they fail to fully recognize current standards and regulations for groundwater restoration; 2.) they contain no specific standards for requirements for successful data collection or closure with respect to a geochemical model; 3.) they impose different modeling time frames and are inconsistent with Powertech's proposal, Attachment A-3 in its Original EPA Letter and NRC requirements; and 4.) NRC license requirements already provide full protection against the transport of contaminants outside the aquifer exemption boundary. As noted above, Powertech respectfully requests that all references/connections to the CADMUS documents be removed from the Revised Draft Class III Permit, as inclusion of the CADMUS documents into the Revised Draft Class III Permit is not supported. This would effectively make any specific comments Powertech has on the individual CADMUS documents moot; however, Powertech has provided further comments on the CADMUS documents to support its position.
				Conceptual Site Model Criteria Support Document for the Dewey-Burdock Project
CAD2 – New Comment	2	1.2	C	"The purpose of this conceptual site model (CSM) support document is to describe the site-specific geologic, hydrogeologic, and geochemical site characteristics and processes that will support the development of a CSM for the Dewey-Burdock site. This document provides context and additional descriptions to complement the *Criteria for Development of a Conceptual Site Model of the Dewey-Burdock Project*, referred to as the CSM criteria document." Powertech requests that the EPA clarify the relevance of this document, if the CADMUS documents remain relevant to the Revised Draft Class III Permit. Further, this document contains a number of references to old requirements of the March 2017 draft Class III permit, which have been removed from the Revised Draft Class III Permit and are no longer applicable to the Revised Draft Class III Permit.
CAD3 – New Comment	1-2	1.1	R	~~Although the geology, hydrology, and uranium mineralization of the Dewey-Burdock project area have been studied for decades, there are still gaps in the available data. The size and complexity of the project also underscore the need for robust site characterization in order to fully assess the potential impacts of ISR activities on groundwater resources.~~ Powertech requests the removal of these statements as they appear to emphasize that the Dewey-Burdock Project is in need of additional study, which is inconsistent with the findings of the NRC in the FSEIS. Further,

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Table 6. CADMUS Documents Specific Comments (cont.)

No.	CADMUS Documents		Type	Comment and Requested Modification
	Page	Section		
				the EPA reviewed and commented on the FSEIS at that time. In addition, these statements are not supported by any specifics. In addition, statements from page 7 contradict the statements noted above. These statements state: "Overall, the Powertech and USGS monitoring data provide reasonable horizontal and vertical coverage of the Dewey-Burdock area."
CAD4 – New Comment	2		R	This sentence further demonstrates the inaccuracy of these statements "For example, previous site modeling has resulted in predictions of sorption that have high uncertainty (Johnson and Tutu, 2013). More data are needed, particularly solid-phase core data, and sampling has not been conducted throughout the project site (Johnson et al. 2013)." Uncertainty expressed as "high" for sorption of uranium seems to misstate the work of Johnson and Tutu. "At actual uranium ISR sites, site predictions could be improved using 1) actual groundwater quality from the post-restoration ISR zone, 2) actual downgradient mineralogy (i.e. amount of Fe and calcite), and 3) batch or column studies of true sorption potential in the downgradient zone. Without these data, the resulting uncertainty in uranium sorption is quite high, which could produce very different predictions in future mine-related uranium concentrations." Powertech requests revision of this statement to properly reflect statements of Johnson and Tutu.
CAD5 – New Comment	2		E	The geochemical model that will be developed for this project will entail reactive transport (fluid flow coupled to the geochemical modeling), with the goal of predicting potential excursions of uranium or other metals beyond the aquifer exemption area and rebounding of uranium concentrations after site restoration. Powertech requests clarification of what specific "other metals" are intended here.
CAD6 – New Comment	12	4.1.2	I	"The draft UIC Class III Area Permit for the Dewey-Burdock site (U.S. EPA, 2017) calls for the collection of 45 baseline parameters as part of the water quality monitoring program (Table 3)." Table 3. Baseline parameters for groundwater quality monitoring and post-restoration compliance in the draft UIC Class III Area Permit for the Dewey-Burdock site. Source: U.S. EPA (2017). Powertech requests the removal of the above sentence as it references the previous draft Class III permit and is not consistent with the Revised Draft Class III Permit. Powertech also requests that Table 3, which is not consistent with the corresponding Table 8 in the Revised Draft Class III Permit, be revised to be consistent with the final Table 8 used in the final Class III permit.

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Table 6. CADMUS Documents Specific Comments (cont.)

No.	CADMUS Documents		Type	Comment and Requested Modification
	Page	Section		
CAD7 – New Comment	14	4.1.2	I	Monitoring requirements include the establishment of: ~~A post-restoration monitoring program with wells located downgradient and upgradient of the injection zone; and~~ Powertech requests removal of the above bullet as there is no post-restoration monitoring program in the Revised Draft Class III Permit.
CAD8 – New Comment	14	4.1.2	I	"These results will be used to define permit limits for post-restoration compliance for the parameters listed in Table 3 and are therefore vital to the monitoring program." "Post-restoration sampling will be completed every 6 months for downgradient and upgradient wells included in the post-restoration compliance monitoring plan. Post-restoration sampling will also be completed every 60 days for wells located in the well field and screened in overlying and underlying aquifers." Powertech requests the removal of the above statements as there is no post-restoration monitoring program in the Revised Draft Class III Permit.
CAD9 – New Comment	14	4.1.2	C	"Recommendations for groundwater sampling at ISR sites are provided by U.S. EPA (2014). These include considerations for flow rate and the importance of avoiding exposure to air during sample handling if the groundwater is anoxic. An additional consideration is the potential for enhancement of metals transport by colloids (particles 1nm – 1µm in diameter). If metals adsorb to colloidal particles such as clays, they may migrate with the groundwater because the particles are small enough to be mobile and are hydrophilic (McCarthy and Zachara, 1989). This mechanism should be acknowledged in the CSM if groundwater samples collected with ultrafiltration indicate the presence of uranium and other metals in the colloidal size fraction." Powertech requests the above paragraph be removed as it is directly based upon the previously proposed, but now withdrawn rulemaking for 40 CFR 192.
CAD10 – New Comment	14-16	4.1.2	I	Table 4. Summary of groundwater quality monitoring requirements in the draft UIC Class III Area Permit for the Dewey-Burdock site. Source: U.S. EPA (2017) Powertech requests that Table 4, which is based upon the previous class III draft permit be made consistent with the Revised Draft Class III Permit and any applicable comments made by Powertech. The text in this section also contains a number of sampling frequencies which are inconsistent with the Revised Draft Class III Permit and need to be made consistent as well as consider any applicable comments made by Powertech.

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Table 6. CADMUS Documents Specific Comments (cont.)

No.	CADMUS Documents		Type	Comment and Requested Modification
	Page	Section		
CAD11 – New Comment	14	4.1.2	I	Requirements for solids sampling in the draft UIC Class III area permit for Dewey-Burdock site (U.S. EPA, 2017) are also included. Powertech notes that the above reference is not consistent with the Revised Draft Class III Permit.
CAD12 – New Comment	18	4.2	C	EPA has drafted considerations for ISR post-monitoring, with suggestions for solid-phase characterization (U.S. EPA, 2014). These suggestions include analyzing for ion exchange capacity, extractable sulfide, sorption capacity, adsorbed uranium, microbial population, and other parameters that may be useful for evaluating geochemical processes at an ISR site. Powertech requests the above sentences be removed as they are directly based upon the previously proposed, but now withdrawn rulemaking for 40 CFR 192.
CAD13 – New Comment	21	4.2	I	The draft UIC Class III area permit for Dewey-Burdock (U.S. EPA, 2017) provides the following requirements for core sample collection: Injection Zone Core Sample Collection from Monitoring Wells Located Down-gradient of Wellfields a. The Permittee shall collect a minimum of two (2) cores per well field through the proposed injection interval while drilling the down-gradient perimeter monitoring wells ring wells or the Down-gradient Compliance Boundary Wells. b. Core shall be recovered and preserved in a manner to prevent further oxidation so as to be representative of in-situ geochemical conditions for use in columns tests as part of Post-Restoration Monitoring to verify that no ISR contaminants will cross the down-gradient aquifer exemption boundary. Powertech requests that the above requirements from the March 2017 draft Class III permit, which have now been removed from the Revised Draft Class III Permit and are no longer applicable to the Revised Draft Class III Permit, be removed.
CAD14 – New Comment			I	~~The draft area UIC Class III permit for Dewey-Burdock (U.S. EPA, 2017) sets the following specifications for laboratory experimental work:~~ ~~Laboratory Column Testing to Verify Attenuation Capability of Down-gradient Injection Zone Aquifer 1.~~ ~~Once restoration has been completed in a well field and restored well field groundwater is available for use in the following laboratory tests, the Permittee shall use the injection zone core samples collected as required under Part II, Section D.5 to conduct column tests according to the following specifications:~~ ~~a. Compile vertical composite samples from single cores and conduct at least two laboratory bench-scale column tests per well field on the composite samples.~~

Comment type key: **A** – alternate approach proposed; **C** – correct to be consistent with application, regulations or NRC license requirements; **E** – additional explanation requested; **I** – inconsistency (internally inconsistent between parts of Draft permit or supporting documents); **R** – remove; inconsistent with application, regulations or NRC license requirements; **T** – typographical error

Table 6. CADMUS Documents Specific Comments (cont.)

No.	CADMUS Documents		Type	Comment and Requested Modification
	Page	Section		
				~~b. The two column tests shall be conducted using the following leachates:~~ ~~i. One column test shall be conducted using unrestored well field groundwater taken from a well field in which uranium recovery has been initiated, but before groundwater restoration has begun, and~~ ~~ii. The second column test shall be conducted using restored well field groundwater.~~ ~~c. The column testing fluids shall be analyzed for the analytes in Table 8 [of the draft permit] before and after recovery from the column so that changes in analyzed constituent concentrations may be determined.~~ Powertech requests that the above requirements from the March 2017 draft Class III permit, which have now been removed from the Revised Draft Class III Permit and are no longer applicable to the Revised Draft Class III Permit, be removed.
				Criteria for Development of a Conceptual Site Model of the Dewey-Burdock Project
CAD15 – New Comment	1	1	C	General Comment: "This document provides criteria to guide the development of a conceptual site model (CSM) to support evaluation of the Dewey-Burdock Project Underground Injection Control (UIC) Class III permit application. The goal of this document is to provide criteria for developing a CSM that represents the site-specific geological, hydrogeological, and geochemical system and serves as a basis for developing a reactive transport model of the Dewey-Burdock *in-situ* recovery (ISR) site. This criteria document is accompanied by the *Conceptual Site Model Criteria Support Document for the Dewey-Burdock Project* (CSM support document), which provides additional information on the topics covered in the criteria." Powertech requests that the EPA clarify the relevance of this document, if the CADMUS documents remain relevant to the Revised Draft Class III Permit. As noted in CAD1 – New Comment, Powertech respectfully requests that all references/connections to the CADMUS documents be removed from the Revised Draft Class III Permit, as inclusion of the CADMUS documents into the Revised Draft Class III Permit is not supported.
CAD16 – New Comment	7-8	4.1	I	Table 1. Baseline Water Quality Parameter List. Source: U.S. EPA (2019)(Table 13). This list is not consistent with the Revised Draft Class III Permit. The table here includes Aluminum, Antimony, Beryllium, Strontium, Thallium, Thorium, Thorium-230, Polonium-210, Lead-210, Gross Gamma, Gross Alpha that are not found in the Revised Draft Class III Permit and omits Specific Gravity, Turbidity, Temperature, Carbon Dioxide, Dissolved Oxygen, Total Organic Carbon, Dissolved Organic Carbon, and Ra-228. It is currently unclear to Powertech which analytes would be sufficient to meet EPA requirements. Powertech requests that this list be made consistent with NRC requirements (see Comment 16 above).

Comment type key: **A** – alternate approach proposed; **C** – correct to be consistent with application, regulations or NRC license requirements; **E** – additional explanation requested; **I** – inconsistency (internally inconsistent between parts of Draft permit or supporting documents); **R** – remove; inconsistent with application, regulations or NRC license requirements; **T** – typographical error

Table 6. CADMUS Documents Specific Comments (cont.)

No.	CADMUS Documents		Type	Comment and Requested Modification
	Page	Section		
CAD17 – New Comment			C	General Comment: Throughout the document there are a number of requirements that are inconsistent with NRC requirements. Powertech has made numerous comments that are directly applicable throughout this submission and suggests that the EPA make those changes in this document as well.
				Criteria for Development of a Geochemical Model of the Dewey-Burdock Project
CAD18 – New Comment	1	1	E	"This document provides criteria to guide the development of a geochemical model in support of the Dewey-Burdock Project Underground Injection Control (UIC) Class III Permit Application." "The geochemical model will be based on a conceptual site model (CSM) that identifies the geologic setting, hydrogeologic properties, and geochemical characteristics and processes at the site, including background conditions as well as conditions during the course of the ISR project. The criteria for the CSM are described in the *Draft Criteria for Development of a Conceptual Site Model of the Dewey-Burdock Project* (CSM criteria document) and are accompanied by the *Draft Conceptual Site Model Criteria Support Document for the Dewey-Burdock Project* (CSM support document)." Powertech requests that the EPA clarify the relevance of this document, if the CADMUS documents remain relevant to the Revised Draft Class III Permit. As noted in CAD1 – New Comment, Powertech respectfully requests that all references/connections to the CADMUS documents be removed from the Revised Draft Class III Permit, as inclusion of the CADMUS documents into the Revised Draft Class III Permit is not supported. Further, note the *Draft Conceptual Site Model Criteria Support Document for the Dewey-Burdock Project* contains a number of references to the March 2017 Draft Class III Permit and other inconsistencies which Powertech is requesting be clarified, modified or omitted.
CAD19 – New Comment			C	General Comment: Throughout the document there are a number of requirements that are inconsistent with NRC requirements. Powertech has made numerous comments that are directly applicable throughout this submission and suggests that the EPA make those changes in this document as well.
CAD20 – New Comment	13	6.0	C	Section 6 of Criteria for Development of a Geochemical Model of the Dewey-Burdock Project states: • ~~The geochemical model should periodically be reassessed and recalibrated as needed throughout the ISR life cycle as additional field data are collected. The collection of water quality and other data during ISR injection, extraction, restoration, and post-restoration provides an opportunity to evaluate model performance during each phase and revise model settings accordingly.~~ Powertech requests removal of the above text. Please see comments 81 and 129.
CAD21 – New Comment			E	General Comment: Powertech notes that this document contains explanations for a variety of scientific methods and approaches and while it could serve as resource for such information, the document as a whole does not set criteria for geochemical modeling of the Dewey-Burdock Project.

Comment type key: **A** – alternate approach proposed; **C** – correct to be consistent with application, regulations or NRC license requirements; **E** – additional explanation requested; **I** – inconsistency (internally inconsistent between parts of Draft permit or supporting documents); **R** – remove; inconsistent with application, regulations or NRC license requirements; **T** – typographical error

Table 6. CADMUS Documents Specific Comments (cont.)

No.	CADMUS Documents		Type	Comment and Requested Modification
	Page	Section		
				Geochemical Model Acceptance Criteria Checklist for the Dewey-Burdock Project
CAD22 – New Comment	1		E	The purpose of this checklist is to provide considerations for the evaluation and acceptance of a geochemical model with reactive transport for the Dewey-Burdock project site. This checklist accompanies and reflects discussions and considerations in the *Draft Criteria for Development of a Geochemical Model of the Dewey Burdock Project* and the *Draft Geochemical Model Criteria Support Document for the Dewey-Burdock Project*. This checklist is based on a criteria checklist in Newman (2018), with additional content added to tailor the checklist to reflect the needs of the development of the Underground Injection Control (UIC) Class III permit for the Dewey-Burdock site. As noted in CAD1 – New Comment, Powertech respectfully requests that all references/connections to the CADMUS documents be removed from the Revised Draft Class III Permit, as inclusion of the CADMUS documents into the Revised Draft Class III Permit is not supported. Also see comment #108.
CAD23 – New Comment			E	General Comment: Powertech cannot determine any specific requirements from this document, which only contains a list of questions. Powertech requests that EPA rely on NRC requirements for groundwater restoration and Powertech's proposal in its Original EPA Letter, Attachment A-3, as has been discussed throughout this submission.
				Geochemical Model Criteria Support Document for the Dewey-Burdock Project
CAD24 – New Comment			E	As noted in CAD1 – New Comment, Powertech respectfully requests that all references/connections to the CADMUS documents be removed from the Revised Draft Class III Permit, as inclusion of the CADMUS documents into the Revised Draft Class III Permit is not supported. Powertech notes that this document contains explanations for a variety of scientific methods and approaches and while it could serve as resource for such information, the document as a whole does not set criteria for geochemical modeling of the Dewey-Burdock Project.

Comment type key: **A** – alternate approach proposed; **C** – correct to be consistent with application, regulations or NRC license requirements; **E** – additional explanation requested; **I** – inconsistency (internally inconsistent between parts of Draft permit or supporting documents); **R** – remove; inconsistent with application, regulations or NRC license requirements; **T** – typographical error

Update to Attachment B

Exhibits

List of Exhibits (Addition of Exhibit 040)

Exhibit 040 EPA, 40 CFR Part 192 Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings (Withdrawal). Federal Register Vol. 83, No. 210, Tuesday, October 30, 2018, pp. 54543-54546: https://www.govinfo.gov/content/pkg/FR-2018-10-30/pdf/2018-23583.pdf.

Title V, New source performance standards, National emission standards for hazardous air pollutants, Maximum achievable control technology, Delegation of authority.

Authority: 42 U.S.C. 7401 *et seq.*

Dated: October 24, 2018.

Douglas Benevento,

Regional Administrator, EPA Region 8.

[FR Doc. 2018–23631 Filed 10–29–18; 8:45 am]

BILLING CODE 6560–50–P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 192

[EPA–HQ–OAR–2012–0788; FRL–9985–79–OAR]

RIN 2060–AP43

Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule; withdrawal.

SUMMARY: The U.S. Environmental Protection Agency (EPA) is withdrawing its January 19, 2017, proposed rule addressing health and environmental protection standards under the Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA) that would have applied to byproduct materials produced by uranium in-situ recovery (ISR) and would have subsequently been implemented by the U.S. Nuclear Regulatory Commission and its Agreement States. The EPA is withdrawing the proposed rule for three reasons. First, the EPA, informed in part by feedback received on the proposal, has serious questions as to whether the proposed rule as written is within EPA's authority under UMTRCA. Second, the EPA no longer believes that a national rulemaking to promulgate standards is necessary at this time, as the EPA believes the existing regulatory structures are sufficient to ensure the targeted protection of public health and the environment at existing ISR facilities. Third, present market circumstances suggest that the influx of new ISR license applications that was once anticipated and that was an underlying motive for the proposal is not likely to materialize.

DATES: The proposed rule published on January 19, 2017 (82 FR 7400), entitled "Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings,", is withdrawn as of October 30, 2018.

FOR FURTHER INFORMATION CONTACT: Ingrid Rosencrantz, Office of Radiation and Indoor Air, Radiation Protection Division, Mail Code 6608T, U.S. Environmental Protection Agency, 1200 Pennsylvania Ave. NW, Washington, DC 20460; telephone number: 202–343–9290; fax number: 202–343–2304; email address: *radiation.questions@epa.gov.*

SUPPLEMENTARY INFORMATION:

I. Background

On January 19, 2017, the U.S. Environmental Protection Agency (EPA) proposed new health and environmental protection standards under the Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA) (2017 Proposal).[1] The standards proposed in that action would have applied to byproduct materials produced by uranium in-situ recovery (ISR) facilities and would have subsequently been implemented by the U.S. Nuclear Regulatory Commission (NRC) and NRC Agreement States. The EPA initially proposed new health and environmental protection standards for ISR facilities on January 26, 2015 (2015 Proposal).[2] However, the EPA decided to re-propose the rule on January 19, 2017, and seek additional public comment on changes to the original proposal, including changes in the regulatory framework and approach, based on public comment and new information received from stakeholders. The EPA has not finalized either of these proposals and is not doing so today. Instead, the EPA is withdrawing the 2017 Proposal, which superseded the 2015 Proposal.

II. Why is the EPA withdrawing the 2017 Proposal?

The EPA has decided to withdraw the 2017 Proposal for three reasons. First, stakeholders, including the NRC, raised significant concerns regarding the EPA's legal authority under UMTRCA to propose these standards. Based on those significant concerns, we now have serious questions concerning whether the EPA has the legal authority under UMTRCA to issue the regulations as developed in the 2017 Proposal.

Second, the EPA no longer believes that a national rulemaking to promulgate standards is currently necessary as the Agency believes the existing regulatory structures are sufficient to ensure the targeted protection of public health and the environment at existing ISR facilities. The NRC stated in its public comments that its "current regulations, at 10 CFR part 40, Appendix A, and those of the various Agreement States, as supplemented by site-specific license conditions, guidance documents . . . and the operational experience and technical expertise of the regulatory agency staff, *constitute a comprehensive and effective regulatory program* for uranium in situ recovery operations (ISR) facilities." (emphasis added).

Third, present market circumstances suggest that the influx of new ISR license applications that was once anticipated, and that was motivation for the proposal, is not likely to materialize. Therefore, there is less need for the rule, which was intended to provide a more workable and efficient approach for addressing these expected new applications, compared to existing mechanisms.

A. The EPA's Legal Authority

In the 2015 Proposal, the EPA explained that it was "proposing these new standards" under its authority in section 206 of UMTRCA which "authorizes EPA to promulgate general standards for the protection of public health, safety, and the environment from radiological and non-radiological hazards associated with . . . the processing and the possession, transfer, and disposal of byproduct material at sites at which ores are processed primarily for their uranium and thorium source material content or which are used for the disposal of such byproduct material."[3] Many commenters stated that this provision does not provide authority for the type of standards that the EPA proposed. Other commenters agreed with the EPA's view that UMTRCA provides authority for proposing these standards. The EPA evaluated and responded to these comments in the 2017 Proposal.[4] Many of these same commenters subsequently submitted comments on the 2017 Proposal, arguing again that the proposed standards exceeded the EPA's authority to establish "generally applicable standards."[5] The NRC also submitted comments stating that it does not believe EPA has the authority to develop standards of the type contained in the 2017 Proposal. Some of these commenters raised new arguments to support their position that the proposed standards exceed the EPA's authority under UMTRCA. In light of the comments provided on the various proposals, including by the NRC, the

[1] 82 FR 7400.

[2] 80 FR 4156.

[3] 80 FR at 4163; *See also* 42 U.S.C. 2022(b)(1).

[4] 82 FR at 7418–7419, 7421–7422.

[5] 42 U.S.C. 2022(b)(1) uses the phrase "standards of general application," while 42 U.S.C. 2022(b)(2) uses the term "generally applicable standards." We use these terms interchangeably throughout the action.

EPA now has serious questions as to whether we have the legal authority to finalize the standards that were proposed in the 2017 Proposal.

Most of the commenters' objections to the EPA's application of its authority under UMTRCA in the 2015 Proposal centered around the meaning of the phrase "standards of general application" in the statutory provision. Commenters opposing the proposed standards stated, "the proposed rules were legally invalid and felt the EPA was overreaching its authority under UMTRCA by proposing standards that are too detailed and prescriptive." [6] These commenters stated that the EPA "was redefining what UMTRCA established as the EPA's role to set general standards" since these commenters did not believe UMTRCA provided the EPA with the authority to set standards that included "any prescriptive implementation requirements." [7] Other commenters that supported the 2015 Proposal stated that "the proposed standards were an appropriate application of the EPA's authority under the UMTRCA." [8]

In its response to the many comments opposing the EPA's proposed application of its authority, the EPA in the 2017 Proposal indicated that it "disagree[d] with those commenters who believe the EPA has redefined its role or overreached its authority in developing the new standards for ISR facilities." [9] The EPA stated that "the new standards proposed in this action would apply the same requirements to all ISR facilities and would establish general requirements . . . [that] the regulatory agency would be responsible for implementing. . .on a site-specific basis through the licensing process and would retain the authority to determine when an ISR license can be terminated." [10]

Several stakeholders, including the NRC, subsequently submitted comments on the 2017 Proposal, again stating that the proposed standards could not be reasonably classified as "generally applicable standards" under UMTRCA and thus was outside EPA's authority. In the 2017 Proposal, the EPA identified the proposed standards as falling into one of three different categories: (1) "Constituent concentration standards;" (2) "initial stability standards;" and (3) "long-term stability standards." [11] In its comments, the NRC asserted the initial and long-term stability standards "are not generally applicable standards but are implementation criteria, and as such, encroach upon NRC's authority and impair the NRC's ability to effectively regulate its ISR licensees." [12] The NRC also raised several new significant legal arguments in its comments to support its position that had not been previously raised with EPA.[13] For example, the NRC argues that "EPA's authority to promulgate generally applicable standards, at least for radiological material, is prescribed by what is essentially EPA's organic authority, namely, the Reorganization Plan No. 3 of 1970 (Reorganization Plan)." [14] The NRC asserts that "the Reorganization Plan provided EPA with an express transfer of AEA authority to set generally applicable standards 'for the protection of the general environment from radioactive material,'" and that the Reorganization Plan "expressly prescribed this standard setting authority by defining the term 'standards' to mean 'limits on radiation exposures or levels, or concentrations or quantities of radioactive material'—essentially, numerical limits." [15] NRC further asserts that UMTRCA's legislative history shows that "Congress was aware of and considered [this standard-setting authority in the Reorganization Plan] when it enacted UMTRCA in 1978" and that "Congress structured UMTRCA's grant of authority to the EPA Administrator upon this very provision." [16] The NRC points to several excerpts from the legislative history to support its claim that Congress intended "that EPA's generally applicable standards under UMTRCA, for both radiological and non-radiological materials, be in the form of numerical limits, namely, limits on concentrations of radiological and non-radiological material, quantities of such material, or allowable doses or levels to individuals from such material." [17]

Other commenters disputed the EPA's authority to adopt regulatory requirements that they alleged could not reasonably be considered "generally applicable standards." For example, the Uranium Producers of America (UPA) argued that the proposed standards "exceed[s] EPA's jurisdictional authority as set forth by UMTRCA." [18] UPA further criticized the "new prescriptive post-operational monitoring time and data requirements and new prescriptive post-restoration requirements" as an "impermissible attempt by EPA to direct the compliance of ISR operations." [19] The Texas Commission on Environmental Quality (TCEQ) raised the same objection, requesting that the EPA withdraw those particular requirements "because they exceed EPA's authority to promulgate standards." [20] TCEQ stated that UMTRCA "confers the NRC and Agreement State programs . . . , not EPA, with authority to implement and enforce EPA's standards," and then asserted the EPA's "proposed rules . . . go beyond the promulgation of standards and address how those standards should be implemented and enforced." [21]

Other stakeholders submitted comments in support of the 2017 Proposal, reiterating their position that they believe the EPA has the authority to propose these types of "generally applicable standards" under UMTRCA.

Based on the discussion above, EPA now has serious questions concerning whether we have the legal authority to issue the regulations as proposed in the 2017 Proposal. In conjunction with the grounds for withdrawal discussed below, this uncertainty as to our authority weighs in favor of withdrawing the 2017 Proposal.

B. Health and Environmental Protection Justification for the Rule

When EPA initiated this rulemaking, there was already an effective system in place providing environmental oversight of ISR operations. As we explained in the 2015 Proposal, "in 1983, EPA originally promulgated regulations at 40 CFR part 192, Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings, in response to the statutory requirements of the Atomic Energy Act [AEA] of 1954, as amended by the Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA)." [22] The 2015 Proposal further stated: "Requirements currently applicable to active uranium processing and disposal sites, including ISR sites (*i.e.*, Title II sites) can be found in subpart D of 40 CFR part 192 (hereafter "subpart D"). Subpart D contains provisions for managing uranium byproduct materials during and following the processing of uranium ores, and restoration of

[6] 82 FR at 7418.

[7] *Id.*

[8] *Id.*

[9] *Id.*

[10] *Id.*

[11] 82 FR 7405.

[12] EPA–HQ–OAR–2012–0788–0312 (comments of the Nuclear Regulatory Commission) at 11.

[13] EPA–HQ–OAR–2012–0788–0312, pp. 8–21.

[14] *Id.* at pg. 12.

[15] *Id.*

[16] *Id.* at pg. 13.

[17] *Id.* at pg. 14.

[18] EPA–HQ–OAR–2012–0788–0380 (comments of Uranium Producers of America) at 7.

[19] *Id.*

[20] EPA–HQ–OAR–2012–0788–0302 (comments of the TCEQ) at 3.

[21] *Id.* at 3–4.

[22] 80 FR 4161.

disposal sites following any such use of those sites." [23]

In the 2015 Proposal, under the heading "Why does EPA believe new standards are necessary?" the Agency stated: "We believe that ISR-specific standards are necessary because uranium ISR operations are very different from conventional uranium mills and the existing standards do not adequately address their unique aspects. In particular, we believe it is necessary to take a longer view of groundwater protection than has been typical of current ISR industry practices. Although the presence of significant uranium deposits typically diminishes groundwater quality, current industry practices for restoration and monitoring of the affected aquifer may not be adequate to prevent either the further degradation of water quality or the more widespread contamination of groundwater that is suitable for human consumption." [24]

In response to both proposals, the EPA has received numerous comments questioning the need or benefits of the rule. For example, in the 2017 Proposal the EPA noted that "Industry commenters and others say that there is no need for this rule because the EPA has not identified an instance in which an ISR operation has contaminated a source of drinking water." [25] In the 2017 Proposal, the EPA also said: "Focusing on the area of surrounding or adjacent aquifers, the EPA acknowledges that the Agency does not have sufficient information to document a specific instance of contamination of a public source of drinking water caused by an ISR . . . [however,] the Agency remains concerned that the lack of data does not demonstrate that no contamination is occurring . . . . The monitoring requirements in this proposal address the issue of lack of data." [26] (emphasis added). In its comments on the 2017 Proposal, UPA refers to the above statement: "EPA acknowledges there is *no evidence* of harm. . . . The EPA provides no evidence to contradict [NRC's findings]." By contrast, the Natural Resources Defense Council (NRDC) asserts that its comments "demonstrate impacts to ISL mined aquifers . . . such that the groundwater is substantially degraded and there will be long-term harm to crucial natural resources." [27] As is evidenced by the comments, the debate is nuanced and complicated and reflects differing views on the available data.

In addition to the public stakeholder comments mentioned above, most importantly, the NRC, the agency tasked with implementing the program, weighed in on the debate, stating in its public comments that "the NRC staff has concluded that its application of the 10 CFR part 40, Appendix A regulations to ISR facilities meets the AEA standard of 'adequate protection' of public health and safety and the environment. . . ." [28]

In considering these factors, as well as the presence of an existing program that the NRC (the implementing agency) believes is sufficient, and the lack of expected growth and status of the industry as described further in the next section of this withdrawal action, the EPA believes that the reasonably envisioned public health and environmental benefits of the proposed rulemaking are limited and do not warrant EPA proceeding with its proposed rulemaking. The existing regulatory structures, adequately address the current environmental concerns.

C. Current and Anticipated Market Conditions

Finally, the EPA believes that market forces themselves have lessened the need for such a rule. Initially, several factors, including the expected growth in this industry, led the EPA and the NRC to believe that regulation of ISR activities could be more workable and efficient if the EPA issued standards of general application specific to the ISR facilities that the NRC would incorporate into its own regulations and implement through its licensing activities.[29] When these efforts began, the NRC expected as many as 23 ISR license applications for new facilities, expansions, and restarts.[30] This expected influx of ISR license applications is no longer anticipated.

The NRC is currently reviewing license applications for only three expansions of ISR facilities and, for the next five years, the NRC expects only one license application for an expansion of one ISR facility and one license application for one new ISR facility.[31] Compared to the expected influx of ISR license applications, and the 15 ISR facilities owned by 10 companies at the time of the 2017 Proposal, at the end of 2017 only approximately six ISR facilities were operating,[32] with production down 17% compared to late 2016.[33] According to the U.S. Energy Information Administration (EIA), "Domestic Uranium Production Report," 4th Quarter 2017, there are no ISR facilities reported as operating in Texas, with Alta Mesa, Hobson, La Palangana reported as on "standby." Additional ISR facilities in New Mexico, Texas, and Wyoming have been licensed but have not operated and only one has undergone development.

The proposal of generally applicable national standards by EPA was driven partly by the expectation of a significant number of new facilities (which would have also applied to operating wellfields at existing facilities), making these proposed ISR-specific standards a more immediate prerequisite to achieving the efficiency across all regulatory programs that the NRC acknowledged could be gained by a "regulatory regime . . . specific to ISRs." [34] Today, the EPA questions whether this expected growth in operating ISR facilities is likely to be realized.

Given this change in circumstances, completion of this rule is no longer expected to achieve the regulatory efficiency that was sought when this rulemaking effort began. The NRC and the NRC Agreement States currently regulate, through existing licenses, the limited number of operating ISR facilities and such an approach has been workable in practice for this number of

[23] 80 FR 4163.

[24] 80 FR 4164.

[25] 82 FR 7404.

[26] 82 FR 7404.

[27] EPA–HQ–OAR–2012–0788–0380 at 2; EPA–HQ–OAR–2012–0788–0390 (comments of the NRDC) at 4.

[28] EPA–HQ–OAR–2012–0788–0312 at 1.

[29] EPA–HQ–OAR–2012–0788–0006 ("Regulation of Groundwater Protection at *In Situ* Leach Uranium Extraction Facilities," Nuclear Regulatory Commission Memorandum COMJSM–06–0001, January 17, 2006) at 2 (". . . the recent rapid rise in uranium prices and mining claims would indicate a significant future potential for new ISL facilities."); 80 FR at 4167 ("In recent years, NRC has recognized the desirability of ISR-specific regulations. . . . [T]he Commission determined in 2006 that the appropriate action was 'initiation of a rulemaking effort specifically tailored to groundwater protection programs at *in situ* leach (ISL) uranium recovery facilities.'"); 82 FR at 7420 ("In addition, the NRC acknowledges that efficiency could be gained by codifying its longstanding effective regulatory regime into regulations specific to ISRs. As described in the original proposal, this rulemaking was initially prompted by the NRC's conclusion that ISR-specific rules are needed to create a more workable and sustainable regulatory framework for this activity, and is not based on any specific instances of identified contamination.").

[30] EPA–HQ–OAR–2012–0788–0405 ("Uranium Recovery Licensing Activities," Presentation of the Nuclear Regulatory Commission) at 10.

[31] Expectations for number of future licenses based on NRC/EPA telephone conversation on November 28, 2017.

[32] U.S. Energy Information Administration: "Domestic Uranium Production Report." 4th Quarter 2017 (February 8, 2018). The operating facilities are Crow Butte in Nebraska and Lost Creek, Nichols Ranch, Ross, Smith Ranch-Highland and Willow Creek, all in Wyoming. Cameco subsequently curtailed production at the Crow Butte and Smith-Ranch Highland facilities (see *http://www.cameco.com*).

[33] World Nuclear News, 20 November 2017.

[34] 82 FR 7420. *See* footnote 29 for a more complete citation.

facilities. We do not see a need for the EPA to continue investing its resources to complete this rule to develop a "more workable and sustainable regulatory framework" as originally anticipated when we proposed these ISR-specific standards, especially where current production is reduced and little or no growth is expected in the near future. The statutory authorities providing for this ongoing regulatory and licensing function remain unchanged. Thus, the appropriate regulatory authorities may decide on a case-by-case basis to revise their own pre-existing regulations based on these authorities if they deem it necessary to assist with their management of ISR facilities in a particular state or local area.

In addition, we find support for our decision to withdraw the proposed rule in the NRC's comments on the 2017 Proposal. As explained above, the EPA developed the proposed standards partly based on its understanding, after consultation with the NRC, that the anticipated growth in the number of ISR facilities highlighted a need for standards specific to ISR facilities, rather than continuing to apply standards that were originally written to address surface disposal of uranium mill tailings.[35] However, the NRC expressed the following view in its public comments on the proposed rulemaking:

> The NRC's current regulations, at 10 CFR part 40, Appendix A, and those of the various Agreement States, as supplemented by site-specific license conditions, guidance documents (*e.g.*, NRC's "Standard Review Plan for In Situ Leach Uranium Extraction License Applications," NUREG–1569), and the operational experience and technical expertise of the regulatory agency staff, constitute a comprehensive and effective regulatory program for uranium in situ recovery operations (ISR) facilities.[36]

Considering the prevailing economic conditions affecting current and projected production, which leads the NRC now to expect significantly fewer future license applications, as opposed to the large increase that it expected at the time the rulemaking process was initiated (which was motivation for the proposal), we conclude that withdrawing this proposal is appropriate.

III. Statutory Authority

The statutory authority for this notice is provided by section 275 of the Atomic Energy Act (AEA), as added by section 206 of UMTRCA (42 U.S.C. 2022) and the Administrative Procedure Act (APA) (5 U.S.C. 551 *et seq.*).

IV. Impact Analysis

Because the EPA is not promulgating any regulatory requirements, there are no compliance costs or impacts associated with today's final action.

V. Statutory and Executive Order Reviews

Today's action does not establish new regulatory requirements. Hence, the requirements of other regulatory statutes and Executive Orders that generally apply to rulemakings (*e.g.*, the Unfunded Mandate Reform Act) do not apply to this action.

Dated: October 18, 2018.

Andrew R. Wheeler,

Acting Administrator.

[FR Doc. 2018–23583 Filed 10–29–18; 8:45 am]

BILLING CODE 6560–50–P

[35] 82 FR at 7402–3; 80 FR 4164–7.

[36] EPA–HQ–OAR–2012–0788–0312 at 1.

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Centers for Medicare & Medicaid Services

42 CFR Chapter IV

[CMS–5528–ANPRM]

RIN 0938–AT91

Medicare Program; International Pricing Index Model for Medicare Part B Drugs

AGENCY: Centers for Medicare & Medicaid Services (CMS), HHS.

ACTION: Advance notice of proposed rulemaking with comment.

SUMMARY: We are issuing this advance notice of proposed rulemaking (ANPRM) to solicit public comments on potential options we may consider for testing changes to payment for certain separately payable Part B drugs and biologicals (hereafter called "drugs"). Specifically, CMS intends to test whether phasing down the Medicare payment amount for selected Part B drugs to more closely align with international prices; allowing private-sector vendors to negotiate prices for drugs, take title to drugs, and compete for physician and hospital business; and changing the 4.3 percent (post-sequester) drug add-on payment in the model to reflect 6 percent of historical drug costs translated into a set payment amount, would lead to higher quality of care for beneficiaries and reduced expenditures to the Medicare program.

DATES: To be assured consideration, comments must be received at one of the addresses provided below, no later than 5 p.m. on December 31, 2018.

ADDRESSES: In commenting, please refer to file code CMS–5528–ANPRM. Because of staff and resource limitations, we cannot accept comments by facsimile (FAX) transmission.

Comments, including mass comment submissions, must be submitted in one of the following three ways (please choose only one of the ways listed):

1. *Electronically.* You may submit electronic comments on this regulation to *http://www.regulations.gov.* Follow the "Submit a comment" instructions.

2. *By regular mail.* You may mail written comments to the following address ONLY: Centers for Medicare & Medicaid Services, Department of Health and Human Services, Attention: CMS–5528–ANPRM, P.O. Box 8013, Baltimore, MD 21244–8013.

Please allow sufficient time for mailed comments to be received before the close of the comment period.

3. *By express or overnight mail.* You may send written comments to the following address ONLY: Centers for Medicare & Medicaid Services, Department of Health and Human Services, Attention: CMS–5528–ANPRM, Mail Stop C4–26–05, 7500 Security Boulevard, Baltimore, MD 21244–1850.

For information on viewing public comments, see the beginning of the **SUPPLEMENTARY INFORMATION** section.

FOR FURTHER INFORMATION CONTACT: Hillary Cavanagh, 410–786–6574 or the IPI Model Team at *IPIModel@cms.hhs.gov.*

SUPPLEMENTARY INFORMATION:

Inspection of Public Comments: All comments received before the close of the comment period are available for viewing by the public, including any personally identifiable or confidential business information that is included in a comment. We post all comments received before the close of the comment period on the following website as soon as possible after they have been received: *http://www.regulations.gov.* Follow the search instructions on that website to view public comments.