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April 3, 2008

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USDA Forest Service  
ATTN: Data Quality Official  
Mail Stop 1143  
1400 Independence Ave. SW  
Washington, DC 20250-1143

**Re: Petition to Correct Information Disseminated by the USDA Forest Service and  
USDOJ Bureau of Land Management**

Dear Data Quality Official:

Enclosed please find a Petition to Correct Information submitted pursuant to Public Law 106-554 § 515. This Petition is filed on behalf of the Greater Yellowstone Coalition and Natural Resources Defense Council.

If you have any questions about the enclosed Petition, please do not hesitate to contact me at 781-631-4119.

Thank you in advance for your attention to this matter.

Submitted respectfully by,

Lisa Evans  
Attorney

cc: Larry Timchak, USDA Forest Service

**Petition to Correct Information  
Disseminated by the  
US Department of Agriculture Forest Service  
and  
US Department of the Interior Bureau of Land Management**

April 4, 2008

**Petition Elements**

This Petition (Request for Correction of Information) is a formal request for the correction of information disseminated by the US Department of Agriculture Forest Service and US Department of Interior Bureau of Land Management. This petition is submitted pursuant to:

1. Public Law 106-554 § 515
2. Office of Management and Budget (OMB) Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility and Integrity of Information Disseminated by Federal Agencies
3. US Department of Agriculture's Information Quality Guidelines
4. Bureau of Land Management's Information Quality Guidelines

**Submitted to:**

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**By:**

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**REQUEST FOR CORRECTION OF INFORMATION CONTAINED IN THE  
FINAL ENVIRONMENTAL IMPACT STATEMENT FOR THE SMOKY  
CANYON MINE PANELS F AND G EXPANSION PROJECT**

**1. Request and Petitioners**

This Petition (Request for Correction) is a formal request for the correction of information disseminated by the United States Department of Agriculture (USDA) Forest Service and Department of the Interior Bureau of Land Management (BLM). This Request for Correction is made on behalf of petitioners **Greater Yellowstone Coalition** and **Natural Resource Defense Council**, and it is submitted under Public Law 106-554 § 515, Office of Management and Budget (OMB) Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility and Integrity of Information Disseminated by Federal Agencies, USDA's Information Quality Guidelines and BLM's Information Quality Guidelines.

**2. Requestor(s) Contact Information**

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### **3. Description of Information to Correct**

This request pertains to certain information contained in the Final Environmental Impact Statement (FEIS) for the Smoky Canyon Mine Panels F and G Expansion Project published on October 26, 2007. See 72 Fed. Reg. 60881. The request also pertains to the Final Modeling Report, Groundwater Flow and Solute Transport, Smoky Canyon Mine Panels F and G Extension Area, prepared for the Bureau of Land Management and U.S. Forest Service by JBR Environmental Consultants, Sandy, Utah. (JBR 2007), which is part of the FEIS. JBR 2007 is the groundwater flow and transport model used by the U.S. Forest Service and the Bureau of Land Management as a basis for water quality impact analysis in the FEIS. The information disseminated by the US Forest Service and the Bureau of Land Management in the FEIS, including in the JBR 2007, supported and provided justification for the Agencies' recommendation to permit the expansion of the Smoky Canyon Mine.

### **4. Explanation of Noncompliance with OMB, Forest Service and BLM Information Quality Guidelines**

The USDA and BLM have adopted the OMB's general Information Quality Guidelines, as well as more specific guidelines applying to environmental impact statements. OMB's Information Quality Guidelines set forth general criteria requiring that the dissemination of material by federal agencies meet minimum standards of objectivity, utility and integrity. More specifically, the USDA's Information Quality Guidelines, under "Regulatory Guidelines," set forth quality standards that must be met by the USDA's "environmental assessments, environmental impact statements and associated documents prepared under the National Environmental Policy Act (NEPA)." See [http://www.ocio.usda.gov/qi\\_guide/regulatory.html](http://www.ocio.usda.gov/qi_guide/regulatory.html), last checked March 8, 2008.

The following information quality criteria comprise the quality standards that USDA agencies and offices must follow in developing and reviewing regulatory information and disseminating it to the public. The guidelines provide standards for objectivity concerning both "regulatory information" and "influential regulatory information." These guidelines are set forth below.

#### **Guidelines for Objectivity of Regulatory information**

To ensure the objectivity of information disseminated by USDA agencies and offices in conjunction with their rulemaking activities, the agencies and offices will:

- Use sound analytical methods in carrying out scientific and economic analyses and in preparing risk assessments.
- Use reasonably reliable and reasonably timely data and information (e.g., collected data such as from surveys, compiled information, and/or expert opinion).

- When using the best available data obtained from or provided by third parties, ensure transparency in its dissemination by identifying known sources of error and limitations in the data.

- Evaluate data quality and, where practicable, validate the data against other information when using or combining data from different sources.

- Ensure transparency of the analysis, to the extent possible, consistent with confidentiality protections, by:

- Presenting a clear explanation of the analysis to the intended audience.

- Providing transparent documentation of data sources, methodology, assumptions, limitations, uncertainty, computations, and constraints.

- Explaining the rationale for using certain data over other data in the analysis.

- Presenting the model or analysis logically so that the conclusions and recommendations are well supported.

- Clearly identify sources of uncertainty affecting data quality.

- For quantitative assessments, clearly state the uncertainty of final estimates to the extent practicable. Data and data collection systems should, as far as possible, be of sufficient quality and precision that uncertainty in the final estimates is appropriately characterized.

- For qualitative assessments, provide an explanation of the nature of the uncertainty in the analysis.

- Where appropriate, subject the analysis to formal, independent, external peer review to ensure its objectivity. If analytic results have been subjected to such a review, the information may generally be presumed to be of acceptable objectivity. However, in accordance with the OMB standard, this presumption is rebuttable based on a persuasive showing by a petitioner in a particular instance, although the burden of proof is on the complainant.

- If agency-sponsored peer review of the analysis is employed to help satisfy the objectivity standard, the review process should, where appropriate, meet the general criteria for competent and credible peer review recommended by OMB. OMB recommends that (a) peer reviewers be selected primarily on the basis of necessary technical expertise, (b) peer reviewers be expected to disclose to agencies prior technical/policy positions they may have taken on issues at hand, (c) peer reviewers be expected to disclose to agencies their sources of personal and institutional funding (private or public sector), and (d) peer reviews be conducted in an open and rigorous manner.

With respect to “influential scientific information” disseminated by USDA regarding analysis of risks to human health, safety, and the environment, USDA has provided an additional set of guidelines that its agencies must follow. See [http://www.ocio.usda.gov/qi\\_guide/regulatory.html](http://www.ocio.usda.gov/qi_guide/regulatory.html). According to USDA guidelines, when “influential scientific information” is disseminated, agencies and offices will ensure, to the extent practicable, the objectivity of this information by adapting the quality principles found in the Safe Drinking Water Act Amendments of 1996 and the following “Guidelines for Objectivity of Influential Regulatory Information:”

### **Guidelines for Objectivity of *Influential* Regulatory Information**

The agencies and offices will:

- Use the best science and supporting studies conducted in accordance with sound and objective scientific practices, including peer-reviewed science and studies where available.

- Use data collected by accepted methods or best available methods (if the reliability of the method and the nature of the decision justifies the use of the data).

- In the dissemination of *influential* scientific information about risks, ensure that the presentation of information is comprehensive, informative, and understandable. In a document made available to the public, specify, to the extent practicable:

- Each population addressed by any estimate of applicable effects.
- The expected risk or central estimate of risk for the specific populations affected
- Each appropriate upper bound or lower-bound estimate of risk.
- Each significant uncertainty identified in the process of the risk assessment and studies that would assist in reducing the uncertainty.

°Any additional studies, including peer-reviewed studies, known to the agency that support, are directly relevant to, or fail to support the findings of the assessment and the methodology used to reconcile inconsistencies in the scientific data.

According to the USDA's definition of "influential scientific information," the Smoky Canyon FEIS would be subject to the heightened standards set forth in the above Guidelines for Objectivity of Influential Regulatory Information. The definition of influential scientific information is found in the USDA Peer Review Guidelines at [www.ocio.usda.gov](http://www.ocio.usda.gov). The definition states in part:

**Influential scientific information** means scientific information the agency reasonably can determine will have or does have a clear and substantial impact on important public policies or private sector decisions. Executive Order 12866 defines an economically significant rulemaking as one that is likely to result in a rule that may have an annual effect on the economy of \$100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities.

See [http://www.ars.usda.gov/Main/docs.htm?docid=8041&pf=1&cg\\_id=0](http://www.ars.usda.gov/Main/docs.htm?docid=8041&pf=1&cg_id=0) (last checked March 8, 2008). Because the FEIS is likely to adversely affect the environment in a material way, the agencies should be held to the information quality standards applicable to influential scientific information.

## 5. Specific Noncompliance with the Information Quality Guidelines

This section demonstrates how the information disseminated by the Forest Service and BLM in the FEIS fails to comply with specific OSM, USDA Forest Service and BLM Information Quality Guidelines. The specific agency guideline is reiterated below, followed by an explanation of the failure of the FEIS to comply with the guideline.

(a) The Guidelines require use of sound analytical methods in carrying out scientific and economic analyses and in preparing risk assessments.

The FEIS fails to "use sound analytical methods in carrying out scientific ... analyses" by not incorporating the findings of a memorandum that presents information on an issue fundamental to the scientific underpinnings of the document. Specifically, the FEIS fails to include key findings contained in the memorandum from Brian Buck and Alan Mayo, PhD of JBR Environmental Consultants, Inc. to James Blair (BLM), Scott Gerwe (USFS) and Lori Hamann (J.R. Simplot) entitled "Evaluation of the Potential for Cadmium and Selenium Attenuation – F and G Panels, Smoky Canyon Mine," dated January 20, 2005 (hereinafter Buck/Mayo memorandum).

Petitioners received the Buck/Mayo memorandum from the BLM on February 14, 2008. This 11-page document was among hundreds of other documents, totaling more than 3,100 pages, that GYC received in response to a Freedom of Information Act request submitted to the BLM on November 19, 2007. The document concerns a critical issue posed by the proposed expansion of the Smoky Canyon Mine into Panels F and G – specifically whether selenium contamination caused by mining chemically attenuates in groundwater at the mine. While the FEIS concludes that chemical attenuation plays a substantial role in lowering concentrations of selenium in groundwater at the Smoky Canyon Mine, the Buck/Mayo memorandum directly contradicts that proposition. The FEIS’ finding that chemical attenuation of selenium will occur is absolutely essential to the proposed expansion. Only through chemical attenuation can the proposed mining expansion avoid violating Idaho water quality standards. Without chemical attenuation of selenium in groundwater, all action alternatives in the FEIS would be illegal.

The Buck/Mayo memorandum asserts that the preliminary modeling for Panels F and G showed that surface and groundwater quality could indeed exceed water quality standards (Buck/Mayo memorandum, page 1). Because this finding would likely prevent the expansion of the mine into Panels F and G, Buck and Mayo considered the evidence for chemical attenuation of selenium. At the request of GYC and NRDC, expert hydrologist Dr. Tom Myers assessed the Buck/Mayo memorandum, as well as the FEIS, and describes the Buck/Mayo findings as follows:

The Buck/Mayo memo discussed several analyses and concluded that chemical attenuation should not be considered in the modeling for the FEIS (Buck/Mayo memorandum, page 10). However, the FEIS and JBR (2007), which were completed after the Buck/Mayo memorandum was written, justified and included attenuation. In fact, the FEIS and JBR (2007) used the same data and either ignored or misinterpreted it by concluding that chemical attenuation should be included in the model. Neither the FEIS nor JBR (2007) attempted to reconcile the conclusions set forth in this memorandum with the methods used for the model or reported in the FEIS. In fact, neither JBR (2007) nor the FEIS even mention the existence of this memorandum, which presents results that prove the modeling completed by JBR (2007) for the FEIS relies on a faulty conceptual model. It follows then that any decision based on the transport analysis in JBR (2007) and the FEIS are not completely informed and are also flawed.

Excerpted from the Supplemental Comments on Smoky Canyon Mine Panels F&G Proposed Mine Expansion/Final Environmental Impact Statement, March 6, 2008, Technical Memorandum from Dr. Tom Myers, submitted by GYC and NRDC (hereinafter, “Myers 2008 Technical Memorandum”). (Emphasis added.)

In his Technical Memorandum, Myers notes that, in particular, the following three points from the Buck/Mayo memorandum were not included in the FEIS modeling. First, the Buck/Mayo memorandum points out that the fact that the selenium load decreases between Pole Canyon and Hoopes Spring does not prove or even suggest chemical attenuation. In fact, the Buck/Mayo memorandum concluded that it is impossible to



distinguish between dilution due to groundwater inflow to the pathway and any chemical attenuation, but noted that it “is noteworthy that the Se concentration in the groundwater plume, which begins at about 0.46 mg/l at GW-16, remains above the surface water standard at a concentration of 0.01 mg/l at Hoopes Spring after a total flow path of about 2.3 miles and significant dilution.” (Buck/Mayo memorandum, page 7). The memorandum also opined that the selenium concentrations at GW-18 are much lower than at Hoopes Spring, not due to chemical attenuation, but because GW-18 is likely not on the same pathway as flow from Pole Canyon to Hoopes Spring (*Id.*). Nevertheless, JBR (2007) concluded that the decrease in Se load from Pole Canyon to Hoopes Spring is evidence of chemical attenuation and that dubious sulfate loading and flow path analysis shows that attenuation is about 50%.

Second, Myers observes that

the Buck/Mayo memorandum questions the concentration data used for seepage in the transport model. Noting the pore volume calculations for input concentrations (Maxim 2004, JBR 2007); the Buck/Mayo memorandum implies the initial concentration is too low by referencing data collected from monitoring well GW-11. Observed Se concentrations in October 2003 and May 2004 were 2.44 and 4.7 mg/l, respectively (Buck/Mayo memorandum, page 8), which are much higher than the initial values used by JBR (2007) (0.52, 0.64, and 0.73 mg/l for Panel F, Panel G and Panel G East Dump, respectively (JBR 2007, Input Table in Appendix)). Further support for using the higher value observed in GW-11 is that the amount of oxygen in the seepage water and the positive eH value indicates the Se species is likely to be selenate, which should be mobile in the “overburden matrix” (Buck/Mayo memorandum, page 10).

Myers 2008 Technical Memorandum.

Third, Myers observes that

the Buck/Mayo memorandum notes that earlier transport modeling of Se transport near the culinary well had been calibrated successfully with just dilution and dispersion. As pointed out by Myers (2007a) the new JBR (2007) model for Panels F and G did not use any existing data for calibration.

Myers 2008 Technical Memorandum.

In sum, Myers stated

The Buck/Mayo memorandum demonstrates that the agencies chose to ignore sound analytical methods in carrying out scientific analyses and in preparing risk assessments and ignored the conclusions of their own experts. The surface and groundwater quality estimates in the FEIS,

because they are based on chemical attenuation of Se, are incorrect.

Myers 2008 Technical Memorandum.

(b) The Guidelines require use of reasonably reliable and reasonably timely data and information (e.g., collected data such as from surveys, compiled information, and/or expert opinion).

The FEIS and JBR (2007) failed to “use reasonably reliable and reasonably timely data and information” by justifying and including attenuation, in direct contradiction of the data and information in the Buck/Mayo memorandum. As described in the previous section (see (a), above), the Buck/Mayo memorandum presents results that prove the modeling completed by JBR (2007) for the FEIS includes unreliable data. In particular, the Buck/Mayo memorandum discussed several analyses and concluded that chemical attenuation should not be considered in the modeling for the FEIS (Buck/Mayo memorandum, page 10).

In addition, the following points from the Buck/Mayo memorandum prove that some crucial and “reasonably reliable data and information” were not included in the FEIS modeling. First, the Buck/Mayo memorandum reviews the data regarding transport between the Pole Canyon waste rock dump and wells GW-15 and GW-16 and concludes that they provide evidence of little or no attenuation. Neither JBR (2007) nor the FEIS disclosed or discussed this information. Myers notes:

In contrast, dissolved Se concentrations in the Pole Canyon monitoring wells greatly exceed groundwater and surface water standards. Dissolved Se concentrations in the deep monitoring well, GW-16 ... remained relatively constant for 2003-2004 with an average of 0.49 mg/l, whereas Se in the shallow alluvial well GW-15, varied greatly. The average total Se concentration in LP samples since May 1986 is 0.389 mg/l and the average Se concentration in alluvial groundwater at this site in 2003 and 2004 ... was 0.463 mg/l. The Se values are comparable to the average concentration in GW-16, suggesting there is minimal Se chemical attenuation occurring along this relatively short and shallow groundwater flow path in the upper Wells Formation at this location.  
(Buck/Mayo Memorandum, page 6)

Myers 2008 Technical Memorandum. Myers (2007a and 2007b) used the same data that were contained in the Buck/Mayo memorandum as evidence that attenuation should not be considered in the groundwater modeling for the FEIS. However, the FEIS failed to consider these data and its own experts' opinions about selenium attenuation.

Second, Myers notes that the fact that the Se load decreases, between Pole Canyon and Hoopes Spring, does not prove or even suggest chemical attenuation. The Buck/Mayo memorandum concluded that it is impossible to distinguish between dilution due to groundwater inflow to the pathway and any chemical attenuation. They also opined that the Se concentrations at GW-18 are much less than at Hoopes Spring because

GW-18 is likely not on the same pathway as flow from Pole Canyon to Hoopes Spring (*Id.*). Nevertheless JBR (2007) concluded that the decrease in Se load from Pole Canyon to Hoopes Spring is evidence of chemical attenuation and that dubious sulfate loading and flow path analysis shows that attenuation is about 50%. Again, the FEIS failed to consider these data and its own experts' opinions about selenium attenuation.

Myers also notes in his 2008 Technical Memorandum that

Data from seven monitoring wells, all of the springs, and theoretical geochemical considerations all lead to the conclusion that chemical attenuation of Se at the Smoky Canyon mine has not been demonstrated and attenuation should not have been included in the transport model (Buck/Mayo memorandum, page 10). JBR (2007) modeled attenuation and ignored this empirical data. Clearly JBR utilized a faulty and incorrect conceptual model for transport, which as noted above, lead to flawed analysis and unreliable predictions of impacts. The Buck/Mayo memorandum demonstrates that the agencies chose to ignore "reasonably reliable and reasonably timely data and information (e.g., collected data such as from surveys, compiled information, and/or expert opinion)."

Myers 2008 Technical Memorandum. Thus the surface and groundwater quality estimates in the FEIS, because they are based on chemical attenuation of Se that is not supported by "reasonably reliable data," are inaccurate and must be corrected.

(c) Use the best science and supporting studies conducted in accordance with sound and objective scientific practices, including peer-reviewed science and studies where available.

Failure to include the Buck/Mayo memorandum's analyses and its conclusion that chemical attenuation should not be considered in the modeling for the FEIS is a blatant failure to use the best science and supporting studies conducted in accordance with sound and objective scientific practices. The FEIS and JBR (2007) justified and included attenuation, in direct contradiction of the data and analysis in the Buck/Mayo memorandum. No attempt was made to reconcile the conclusions in this memo with the conclusions reached in the FEIS. Neither JBR (2007) nor the FEIS mention the existence of this memo. Yet the Buck/Mayo memorandum presents results that prove the modeling completed by JBR (2007) for the FEIS includes faulty conceptualization and is flawed. It follows then that all decisions based on JBR (2007) and the FEIS are not completely informed and are also flawed.

All information presented in this Request for Correction is relevant to this section of the applicable guidelines and represents a failure to ensure the objectivity of information disseminated by USDA and BLM agencies and offices in conjunction with their rulemaking activities. The information drawn from the Buck/Mayo memorandum, described above in sections (a) and (b), indicates a failure of the FEIS to use "the best

science and supporting studies conducted in accordance with sound and objective scientific practices, including peer-reviewed science and studies where available.”

(d) Use data collected by accepted methods or best available methods (if the reliability of the method and the nature of the decision justifies the use of the data).

Again, the Myers 2008 Technical memorandum points out that

the Buck/Mayo memo discussed several analyses and concluded that chemical attenuation should not be considered in the modeling for the FEIS (Buck/Mayo memorandum, page 10). It can be assumed that the memo was prepared by the agencies own experts based on the best available information using the best available methods. However, the FEIS and JBR (2007), which were completed after the Buck/Mayo memorandum, justified and included attenuation. In fact, the FEIS and JBR (2007) used the same data and either ignored or misinterpreted it by concluding that chemical attenuation should be included in the model. They did not attempt to reconcile the conclusions in this memorandum with the methods used for their model or reported in the FEIS. In fact, neither JBR (2007) nor the FEIS even mention the existence of this memorandum, which presents results that prove the modeling completed by JBR (2007) for the FEIS relies on a faulty conceptual model.

Myers 2008 Technical Memorandum. It follows then that any decision based on the transport analysis in JBR (2007) and the FEIS are not completely informed and are also flawed.

e. In the dissemination of *influential* scientific information about risks, ensure that the presentation of information is comprehensive, informative, and understandable. In a document made available to the public, specify, to the extent practicable, Any additional studies, including peer-reviewed studies, known to the agency that support, are directly relevant to, or fail to support the findings of the assessment and the methodology used to reconcile inconsistencies in the scientific data.

As explained above, the Buck/Mayo memorandum discussed several analyses and concluded that chemical attenuation should not be considered in the modeling for the FEIS (Buck/Mayo memorandum, page 10). It can be assumed that the memorandum was prepared by the agencies' own experts, based on the best available information using the best available methods. However, the FEIS and JBR (2007), which were completed after the Buck/Mayo memorandum, justified and included chemical attenuation. In fact, the FEIS and JBR (2007) used the same data and either ignored or misinterpreted them by concluding that chemical attenuation should be included in the model. Although directed by OMB's Guidelines to use "any additional studies, including peer-reviewed studies, known to the agency that support, are directly relevant to, or fail to support the findings of the assessment and the methodology used to reconcile inconsistencies in the scientific

data,” the agencies did not attempt to reconcile the conclusions in this memorandum with the methods used for their model or reported in the FEIS. (Emphasis added.) In fact, neither JBR (2007) nor the FEIS even mention the existence of this memorandum, which contains results that prove the modeling completed by JBR (2007) for the FEIS relies on a faulty conceptual model. It follows then that any decision based on the transport analysis in JBR (2007) and the FEIS are not completely informed and are also flawed.

## **6. Explanation of the Effect of the Alleged Error**

The effect of the failure to include the Buck/Mayo memorandum into the development of the recent Smoky Canyon Panels F and G FEIS and JBR’s groundwater model (JBR 2007), upon which the FEIS depends, is that all action alternatives in the FEIS would be illegal and therefore any decision to permit the mine expansion would be in violation of federal statute.

The agencies added an updated groundwater modeling and transport report (JBR 2007) to the FEIS in an effort to shore up their argument that the proposed expansion will not lead to violations of both groundwater and surface water standards. Petitioners provided detailed comments on the FEIS that included an exhaustive analysis by Dr. Tom Myers that demonstrated that the agencies’ groundwater modeling report is fatally flawed.<sup>1</sup> Subsequently, we learned, from information in the Buck Mayo that the principle that underpins the agencies’ groundwater model, chemical attenuation of selenium in groundwater at the Smoky Canyon Mine, is not based on fact or science. To be precise, the Forest Service and BLM “hung their hats” on chemical attenuation of selenium in groundwater in order to be in a position to approve the proposed mine expansion. The truth is that the agencies were aware as early as January 2005 “that chemical attenuation of Se has not been demonstrated for flow pathways through the upper Wells Formation aquifer at the Smoky Canyon Mine.” (Buck Mayo memorandum)

Chemical attenuation of selenium in groundwater at the Smoky Canyon Mine became one of the three lynchpins for the expansion of the mine. The other two underpinnings of mine expansion approval are the new and untested “store and release” cover design and the assumption that the future clean up of existing selenium contamination at the Smoky Canyon Mine under CERCLA will take place and work as predicted. Without chemical attenuation, all of the predictions for selenium contamination of groundwater, hence surface water from the mine expansion, fly out the window. As we noted in our comments on the FEIS, “The transport modeling used by JBR assumed there would be Se attenuation, but none of the bases for assuming attenuation were correct.”<sup>2</sup>

In fact, as stated above, Dr. Myers developed a groundwater and transport model for the Smoky Canyon Mine. He then demonstrated with his model and documented in his groundwater modeling report for the FEIS (using the same data that JBR 2007 used as evidence) that attenuation should not be considered in the groundwater modeling for the FEIS. Myers

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<sup>1</sup> Myers, T., December 11, 2007. Groundwater model and transport at the Smoky Canyon Mine Proposed Panels F and G, pg. 39. This report was included in Appendix E to the comments of GYC, NRDC and other groups on the Smoky Canyon Mine FEIS.

<sup>2</sup> Greater Yellowstone Coalition, Natural Resources Defense Council, December 21, 2007, pg. 32.

details this in his review of the Buck/Mayo Memorandum. We reiterate below the principal points of the Myers 2008 Technical Memorandum:

The following discussion presents four results from the Buck/Mayo memorandum that they used to conclude that chemical attenuation should not be included. This discussion also explains how the Buck/Mayo memorandum supports previous analyses and reviews of the FEIS and JBR (2007) by Myers (2007a and 2007b).

First, the Buck/Mayo memorandum reviews the transport between the Pole Canyon waste rock dump and wells GW-15 and GW-16 as evidence of little or no attenuation. Neither JBR (2007) nor the FEIS disclosed or discussed this information.

In contrast, dissolved Se concentrations in the Pole Canyon monitoring wells greatly exceed groundwater and surface water standards. Dissolved Se concentrations in the deep monitoring well, GW-16 ... remained relatively constant for 2003-2004 with an average of 0.49 mg/l., whereas Se in the shallow alluvial well GW-15, varied greatly. The average total Se concentration in LP samples since May 1986 is 0.389 mg/l and the average Se concentration in alluvial groundwater at this site in 2003 and 2004 ... was 0.463 mg/l. the Se values are comparable to the average concentration in GW-16, suggesting there is minimal Se chemical attenuation occurring along this relatively short and shallow groundwater flow path in the upper Wells Formation at this location. (Buck/Mayo Memorandum, page 6, emphasis added)

Also, Myers (2007a and 2007b) used the same data from GW-15 and GW-16 as evidence that attenuation should not be considered in the groundwater modeling for the FEIS.

Second, the fact that the Se load decreases, between Pole Canyon and Hoopes Spring, does not prove or even suggest chemical attenuation. In fact the Buck/Mayo memorandum concluded that it is impossible to distinguish between dilution due to groundwater inflow to the pathway and any chemical attenuation, but noted that it "is noteworthy that the Se concentration in the groundwater plume, which begins at about 0.46 mg/l at GW-16, remains above the surface water standard at a concentration of 0.01 mg/l at Hoopes spring after a total flow path of about 2.3 miles and significant dilution." (Buck/Mayo memorandum, page 7). They also opined that the Se concentrations at GW-18 are much less than at Hoopes Spring because GW-18 is likely not on the same pathway as flow from Pole Canyon to Hoopes Spring (*Id.*). Myers (2007b) also discussed that the change in load and concentration is mostly due to dilution from other water sources, the fact that transport from Pole Canyon to Hoopes Spring has not reached steady state, and that not all of the Pole Canyon Se actually discharges at Hoopes Spring. Nevertheless JBR (2007) concluded that the decrease in Se load from Pole Canyon to Hoopes Spring is evidence of chemical attenuation and that

dubious sulfate loading and flow path analysis shows that attenuation is about 50%.

Third, the Buck/Mayo memorandum questions the Se concentration data used for seepage in the transport model. Noting the pore volume calculations for input concentrations (Maxim 2004, JBR 2007), the Buck/Mayo memorandum implies the initial concentration is too low by referencing data collected from monitoring well GW-11. Observed Se concentrations in October 2003 and May 2004 were 2.44 and 4.7 mg/l, respectively (Buck/Mayo memorandum, page 8), which are much higher than the initial values used by JBR (2007) (0.52, 0.64, and 0.73 mg/l for Panel F, Panel G and Panel G East Dump, respectively (JBR 2007, Input Table in Appendix)). Myers (2007a) used observations from GW-11 and the E panel seep to support his use of higher initial Se concentrations in the modeled seepage from the proposed panels. Further support for using the higher value observed in GW-11 is that the amount of oxygen in the seepage water and the positive eH value indicates the Se species is likely to be selenate which should be mobile in the “overburden matrix” (Buck/Mayo memorandum, page 10).

Fourth, the Buck/Mayo memorandum notes that earlier transport modeling of Se transport near the culinary well had been calibrated successfully with just dilution and dispersion. Myers (2007a) used data at this well also, with just dilution and dispersion, for calibration. As pointed out by Myers (2007a) the new JBR (2007) model for Panels F and G did not use any existing data for calibration.

Data from seven monitoring wells, all of the springs, and theoretical geochemical considerations all lead to the conclusion that chemical attenuation of Se at the Smoky Canyon mine has not been demonstrated and attenuation should not have been included in the transport model (Buck/Mayo memorandum, page 10). JBR (2007) modeled attenuation and ignored this empirical data. Clearly JBR utilized a faulty and incorrect conceptual model for transport, which as noted above, lead to flawed analysis and unreliable predictions of impacts. The Buck/Mayo memorandum demonstrates that the agencies chose to ignore the plethora of evidence that attenuation will not occur, and, indeed, ignored the conclusions of their own experts. The surface and groundwater quality estimates in the FEIS, because they are based on chemical attenuation of Se are simply wrong.<sup>3</sup>

In sum, the memorandum’s conclusions about attenuation are in direct conflict with the conclusions represented in the FEIS. And as noted above, the last paragraph of the memorandum states that no mechanism to support chemical attenuation has been found. The effect of this error is that all action alternatives in the FEIS would be illegal and therefore any decision to permit the mine expansion would be in violation of federal statute.

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<sup>3</sup> Myers 2008 Technical Memorandum.

## **7. Recommendation and Justification for How the Information Should Be Corrected**

The Smoky Canyon Mine Panels F and G Expansion FEIS should be withdrawn, and the inputs to the groundwater model should be changed to reflect that no chemical attenuation occurs at the Smoky Canyon Mine. The groundwater and transport model should then be rerun to provide more accurate predictions of selenium contamination of both groundwater and surface water. The results of this improved groundwater modeling should then be used to portray accurately the effects on water quality should the Smoky Canyon Mine Expansion go forward as described in the Agency Preferred Alternative.

Respectfully submitted for Petitioners,

/s/ Lisa Evans

Lisa Evans  
Attorney  
Earthjustice

### **References**

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- Myers, T., 2007a. Groundwater Flow and Contaminant Transport at the Smoky Canyon Mine, Proposed Panels F and G. Prepared for Natural Resources Defense Council and Greater Yellowstone Coalition.
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