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## BLACKFOOT BRIDGE MINE COMMENTS

Issues and concerns with P4's (Monsanto) Proposed Blackfoot Bridge Mine Draft Environmental Impact Statement

Overall, the Draft Environmental Impact Statement (“DEIS”) for the proposed Blackfoot Bridge Mine is lacking. It fails to ensure adequate environmental protections on many fronts. Preventing the creation of another Superfund site in southeast Idaho should be of the utmost importance in evaluating this proposal. The DEIS falls far short. After a thorough analysis we have identified the following deficiencies with the proposal as now conceived.

- \* The DEIS improperly seeks to minimize the environmental and social impacts of selenium contamination.
- \* The Purpose and Need Statement has been fails to place environmental protection on equal footing with ore recovery.
- \* The DEIS authors failed to consider an adequate range of alternatives.
- \* The ground water modeling upon which success for the project is hinged, is seriously flawed and needs to be redone before it can be properly relied on.
- \* The proposal will violate the Clean Water Act.
- \* The mine would violate the Migratory Bird Treaty Act.
- \* The monitoring plan will only provide the agencies a record of environmental degradation resulting from the proposal, rather than preventing that degradation.

The DEIS improperly downplays the environmental and social impacts of selenium contamination.

Selenium causes particularly egregious environmental harm when released from an inert state through activities like phosphate mining. Selenium readily accumulates in the aquatic and terrestrial food webs, reaching much higher concentrations in plants, animals, and fish than concentrations in the surrounding environment would suggest. This bioaccumulation exacerbates the variety of toxic effects caused by selenium, which include teratogenicity and death.

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Unfortunately, selenium is prevalent throughout southeast Idaho, posing particularly difficult problems for mine construction and remediation. The economic and environmental costs of selenium bioaccumulation are difficult to understate. For example, past and on-going phosphate mining in the Blackfoot River watershed have caused significant selenium contamination that will cost hundreds of millions of dollars in remediation efforts, and the cleanup has only started. P4 itself is already liable for cleanup of its past and existing mining operations in the Blackfoot River watershed. With this new mine proposal, P4 will have to spend tens of millions of dollars on the geosynthetic laminated cover (referred to as a GCLL cover) proposed in the DEIS. Despite this high price tag, selenium contamination may still occur, causing additional mitigation and cleanup costs.

Clearly, selenium contamination poses serious economic risks to the mining companies, agencies, and society as a whole. Therefore, any review of the potential environmental impacts of a project like the proposed Blackfoot Bridge Mine must thoroughly and carefully address the serious consequences of selenium bioaccumulation. The DEIS admits the proposal will release selenium into the water, soils, sediments, and other components of the ecosystem. However, the DEIS improperly downplays the effects of selenium by (1) suggesting selenium discharges into the Blackfoot River system are only a mere possibility; (2) implying seasonal fluctuations in selenium concentrations is legally relevant; (3) citing an outdated § 303(d) list; (4) misrepresenting available scientific research; (5) failing to disclose selenium that may leach from plant mediums used in remediation; (6) misusing the term “historic mining;” and (7) assuming selenium off-sets from other cleanup efforts.

The Purpose and Need Statement for the DEIS is inappropriately constrained.

NEPA requires the statement of purpose and need in an EIS to reflect the true purpose and need “to which the agency is responding in proposing the alternatives including the proposed action.” The purpose and need cannot be defined so narrowly that only one alternative will work. “An agency may not define the objectives of its action in terms so unreasonably narrow that only one alternative...would accomplish the goals of the agency’s action, and the EIS would become a foreordained formality.” Here, the BLM has inappropriately constrained its purpose and need, stating:

The purpose and need for the BLM is to evaluate and respond to the 2008 Revised Plan (Proposed Action) from P4 that proposes the recovery of phosphate ore reserves contained within the Blackfoot Bridge Federal Phosphate Leases I-05613 and I-013709, as directed by the Mineral Leasing Act of 1920.

Yet, ore recovery is not the only relevant metric. Rather, the proposal must also “comply with all laws and regulations for mining on public lands.” The statement of purpose and need should reflect this and explicitly put such compliance on equal footing with the recovery of ore.

While such compliance may be seen as a “given,” phosphate mining has so impacted the Blackfoot River that one can only conclude that such single-minded purpose statements, focused only on recovering phosphate ore, have failed the Blackfoot, the surrounding environment, and the public at large. The entire Blackfoot River and more than 90 miles of its tributaries are on Idaho’s § 303(d) list due to selenium contamination from phosphate mining. Given the extent

tion, any new mining proposal in the basin should no longer have as its sole purpose the “recovery of phosphate ore reserves.” Rather, the purpose should clearly reflect the importance of protecting and restoring water quality in the Blackfoot River.

The constrained scope of the purpose and need statement has resulted in less than protective measures being advanced in the DEIS for the lands, waters, and wildlife that will be affected by the proposal. The BLM’s facilitation—rather than oversight and regulation—of phosphate mining is largely responsible for the significant selenium contamination of the Blackfoot River watershed. The BLM should re-establish its role as overseer and regulator by placing water quality protection on equal footing with the recovery of phosphate ore.

The DEIS fails to adequately evaluate a reasonable range of alternatives.

An EIS must discuss alternatives to the proposed action to “provid[e] a clear basis for choice among options by the decisionmaker and the public.” The Council on Environmental Quality, which wrote the NEPA regulations, describes the alternatives requirement as the “heart” of the environmental impact statement. The purpose of this requirement is “to insist that no major federal project should be undertaken without intense consideration of other more ecologically sound courses of action, including shelving the entire project, or of accomplishing the same result by entirely different means.” “The existence of a viable but unexamined alternative renders an environmental impact statement inadequate.” “Consideration of alternatives which lead to similar results is not sufficient under NEPA.”

The Blackfoot Bridge Mine DEIS fails to adequately evaluate a reasonable range of practicable alternatives, especially those with a less adverse impact on the aquatic ecosystem. The DEIS authors justify this by citing the improperly constrained statement of purpose and need. However, simply developing and analyzing variations of what is essentially a single action alternative ignores the requirements of NEPA. Additionally, the DEIS authors prematurely dismiss the alternatives listed in section 2.7 without the benefit of detailed analysis. The reasons for doing so ring hollow and fail to recognize each alternative’s validity.

### Ground Water Modeling

The groundwater modeling presented in the DEIS is inadequate and needs serious revision before any decisions can be based on its results. The modeling should be redone before the proposal goes forward.

Dr. Tom Myers has reviewed all aspects of the water resources and hydrologic aspects of the DEIS, including an exhaustive review and critic of the groundwater model, as well as all of the supporting documents relevant to water resources, hydrology and groundwater modeling used in preparation of the DEIS. More specifically, Dr. Myers reviewed:

- \* mine dewatering,
- \* groundwater modeling,
- \* contaminant transport with an emphasis on selenium,
- \* fate and transport modeling,
- \* water balance,
- \* best management practices for surface water runoff and sediment, and
- \* surface water monitoring.

Myers used this review to identify the major impacts the proposal would have on water resources. First, the pits would be excavated below the local and regional water table. The required dewatering would need to lower the water table to prevent groundwater from seeping into the open pits. Second, potential sources of contaminants to the Blackfoot River watershed include overburden and waste rock, the proposed pits themselves, and the overburden piles. Some of these would be only one thousand feet from the Blackfoot River. Third, surface runoff from the backfill and overburden piles may leach sediment and contaminants into wetlands, streams, and the Blackfoot River. These impacts are significant and the modeling used to predict the efficacy of mitigation measures and other “best management practices” needs to be accurate and scientifically valid.

Unfortunately, the modeling presented in the DEIS does not fulfill this need. Based on our review and our understanding of Myers report, we support his key observations and recommendations:

- \* The groundwater model used to predict dewatering and flow to drive the contaminants is poorly conceptualized.
- \* The calibration of the groundwater model is biased.
- \* The description of the dewatering requirements in the DEIS is incomplete.
- \* Groundwater modeling of the mine excavation below the water table, pit dewatering, backfill, and temporary pit lakes is incorrect. The model does not simulate the changing properties in the pit below the groundwater table, from in situ formations to open pit to backfill. The model allows the faults, which when intact control much flow through the pit, to remain even after they have been excavated.
- \* The water balance of the model, inflow and outflow through the aquifers, is not constrained with a priori estimates.
- \* Recharge to the model is poorly estimated and improperly distributed around the project area.
- \* Groundwater head levels in the mountains are far below the model layer bottoms and at the base of the mountain are hundreds of feet above the ground surface. This shows the conceptual flow model for the project is poor.
- \* The input of the contaminant loads to the transport portion of the model is underestimated.
- \* The concentrations of selenium for both unsaturated and saturated overburden are too low because of the way the input relies on pore volumes in the column test to represent time for flow through backfill.
- \* The DEIS assumes that backfilled waste under the water table will seep only at saturated rates. This is wrong because (1) seasonal and interannual changes of water level in the pit backfill will allow contaminants to leach, and (2) there will be interflow into the backfill below the cover.
- \* The DEIS relies on the GCLL cover to minimize seepage through overburden piles or backfill that would leach selenium and other contaminants to surface water.
- \* The transport portion of the model is improperly parameterized.
- \* The BLM relies on unpublished manufacturer data for the properties of the cover system.

## Clean Water Act

The proposed action fails to comply with the Clean Water Act (“CWA”). The purpose of the CWA is “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” The CWA establishes numerous programs and provisions to achieve this goal. The proposed action will violate many of these, including the provisions regarding water quality standards, the federal facilities provision, and the § 404 guidelines. Additionally, compliance with § 402 is unclear at best.

The proposed action will violate Water Quality Standards.

Idaho law provides that “existing instream water uses and the level of water quality necessary to pro-

tect the existing uses shall be maintained and protected.” For impaired water bodies, “TMDLs or their equivalents” must be developed before further impairment is allowed. IDEQ has not prepared a TMDL for selenium for the Blackfoot River. The DEIS fails to include any discussion regarding the requirements of § 303(d) outside of the hoped for dilution of selenium discharges into the Blackfoot. This is entirely inadequate.

Idaho law also requires, at a minimum, that additional pollution be restricted “as necessary to prohibit further impairment of...designated or existing beneficial uses.” The beneficial uses for water bodies recognized by Idaho include:

- Special Resource Water
- Cold Water Aquatic Life
- Salmonid Spawning
- Primary Recreation
- Secondary Recreation
- Domestic Water Supply
- Agricultural Water Supply
- Industrial Water Supply
- Wildlife Habitat
- Aesthetic.

The Blackfoot River provides all beneficial uses except “Secondary Recreation.” State Land Creek and all the other water bodies affected by the mining proposal provide all beneficial uses except Special Resource Water, Salmonid Spawning, Primary Recreation, and Domestic Water Supply. Agencies must protect existing beneficial uses regardless of whether a stream is on the 303(d) list. Idaho’s anti-degradation policy directs that “existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected.”

The proposed action will degrade all the streams in the project area, in violation of these laws and regulations. In particular, the “unnamed tributary to Fish Pond” provides the same beneficial uses as State Land Creek. How can it continue to provide those uses if it is turned into a wastewater treatment facility (i.e., “degraded”)? The DEIS fails to adequately discuss these important issues.

The DEIS fails to assure compliance with the Migratory Bird Treaty Act.

The DEIS fails to assure, or even discuss, compliance with the Migratory Bird Treaty Act (“MBTA”). The MBTA protects birds flying across international boundaries and applies to any waters that attract migratory birds. The MBTA imposes fines up to \$15,000 and six months in jail for any unlawful taking or killing of migratory birds. Financial considerations are irrelevant. For example, U.S. Department of Interior officials faced with criminal charges under the MBTA closed Kesterson Reservoir to receipt of drain water from approximately 42,000 irrigated acres even though this reduced economic return from these private lands. Here, the DEIS fails to disclose or analyze how P4 will preclude avian species from the two large water management ponds. These two ponds will hold substantial amounts of selenium-contaminated water and will attract waterfowl. Compliance with the MBTA cannot be brushed aside or ignored given the high potential for these ponds to “take” migratory birds if no protective measures are implemented.

The proposed action lacks an adequate monitoring plan.

The proposed monitoring plan is little more than a detailed list of where and when various monitoring activities will take place and when the results will be submitted to the BLM. The plan is wholly inadequate to ensure protective measures are taken in response to unanticipated environmental contamination because (1) it contains no enforceable mitigation requirements, and (2) contains so many caveats as to be essentially meaningless.

## Recommendations

Following are our recommendations concerning the proposed Blackfoot Bridge Mine. They include: (1) use of Lemly's NEPA procedure, (2) fixing the groundwater modeling, (3) revising the purpose and need statement to emphasize environmental protection, (4) abandoning the proposal to turn the tributary of Fish Pond into a wastewater management system, (5) developing and providing better modeling data for the GCLL, (6) requiring cleanup of other phosphate mines in the watershed as a precondition to permitting this new mine, and (7) developing an adequate monitoring and mitigation plan.

The agencies should analyze the proposed Blackfoot Bridge Mine using Lemly's NEPA procedure.

The EIS process for Blackfoot Bridge Mine would greatly benefit from Dr. Lemly's NEPA Procedure. Dr. Lemly is a renowned expert on selenium and a senior scientist with the Forest Service. From his experience, he became convinced that the NEPA process itself repeatedly failed to protect aquatic resources from selenium threats. Dr. Lemly developed and published his procedure specifically to assist the Forest Service and others to accurately assess selenium hazards associated with mining.

Phosphate mining in southeastern Idaho is a prime example of the repeated and failed efforts to protect aquatic resources from selenium contamination. Previously, GYC and others have strongly urged the BLM (and Forest Service) to use this procedure. However, the agencies simply brushed our suggestion aside. The BLM should reconsider. NEPA requires agencies to ensure "that environmental information is available to public officials and citizens before decisions are made" and the "information must be of high quality. Accurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA." The use of high quality and accurate scientific analysis is at the heart of NEPA's requirement to take a "hard look" at the potential environmental impacts of their proposed actions...." Agencies must comply with NEPA procedures that are designed to ensure a complete and thorough environmental analysis. To take the required "hard look" at a proposed project's effects, an agency may not rely on incorrect assumptions in an EIS. The Lemly Procedure is unquestionably the best existing method for assessing the risk of selenium contamination from the proposal. As Imhoff notes:

Leading scientists with outstanding records in research and experience in dealing with selenium problems in the field have endorsed A. Dennis Lemly's "Procedure for NEPA Assessment of Selenium Hazards Associated with Mining." This procedure, which has been validated by field tests on data from two mines in the Blackfoot River Basin, the Dry Valley and Enoch Valley phosphate mines, should have been applied to the Blackfoot Bridge Mine. Without such an analysis, there is no useful and credible scale of reference for the selenium load calculations presented in the Blackfoot Bridge Mine DEIS.

Applying the procedure would ensure the agencies and the public have the best information to make informed decisions and meaningfully evaluate the mine proposal.

Application of the Lemly procedure is straightforward. It includes a geological assessment, a mine operation assessment, a hydrological assessment, a biological assessment, and a hazard assessment. The

The procedure incorporates decision points, which dictate next steps depending on the findings along the way. In the case of mine proposals that would result in high environmental hazards, the procedure would lead to a decision to not issue a permit.

Here, the agencies had ample opportunity to apply the procedure to analyze this project, yet failed to take advantage of it. This is a significant mistake. The agencies have set the stage for yet another failure, with more selenium pollution certain to be added to the Blackfoot River watershed. As stated by Imhoff:

Application of the Lemly procedure to the affected environment should have been an essential first step, given the bioaccumulative behavior of selenium and the high economic and environmental costs that result from selenium overload in biota and media.”

Importantly, application of the Lemly procedure is critical to the Agencies making decisions based on good science rather than the subjective “expectations” stated in the DEIS.

Not only will such an assessment better inform the agency and public about the risks of selenium contamination, mining interests will benefit as well. The assessment will identify the sources of contamination and receiving environments. This information can be used to design and implement more cost-effective monitoring and reclamation plans. In short, the agencies cannot make a decision on the best available science without first applying the Lemly procedure. The NEPA process should be suspended until the agencies conduct this analysis.

The problems with the groundwater model should be fixed so that the real impacts of the proposed action can be determined and assessed.

As reported by Myers, the DEIS relies on a deeply flawed groundwater model. These flaws must be fixed to accurately indicate the full extent of the selenium releases into ground and surface waters resulting from the mine so that the decisionmakers and the public have a clear and accurate estimate of the impacts the proposed action will have on the surrounding environment. In addition to fixing the errors and omissions discussed above, the BLM should complete an independent analysis of the GCLL liner system before making any decision. This analysis should comport with Dr. Myers’ recommendations.

The DEIS authors should revise the purpose statement and analyze more environmentally protective alternatives.

The BLM should redraft the DEIS with a purpose statement that places protection of water quality and other resource values on equal footing with the recovery of phosphate ore. Then, a full range of reasonable alternatives should be developed and analyzed. Doing anything less will only perpetuate, indeed aggravate, the selenium contamination of waters within the Blackfoot River watershed.

The following is a conceptual alternative developed by Edgar Imhoff that could provide better protections for surface water and groundwater, and the fish, wildlife and communities that depend on them. It should be included and fully analyzed as an alternative for this proposal. Mr. Imhoff is a professional geologist, hydrologist (retired, USGS), former Regional Director of the federal Office of Surface Mining (“OSM”), and the former manager of a federal/state team of scientists and engineers tasked

with investigating and preventing problems of selenium contamination in California.

#### Need for an Experimental Mine Panel:

As usual, in the case of the planning for opening a new phosphate mine, objectives conflict. BLM wants to maximize ore recovery; the mining company wants to assure itself of having a long-term supply of ore; and a wide spectrum of interests—which hopefully includes members of the mining community and BLM—want to prevent selenium contamination of biota, streams and ground water. The best chance of satisfying these objectives—to a reasonable degree—will require (a) designating an initial mine panel as a demonstration project and (b) monitoring every phase of that operation. A first essential step in the NEPA process is the development of a monitoring plan that will track and quantify selenium production from the experimental panel and rate, scientifically, the associated hazards experienced in the receiving environment.

The information that has been presented in the DEIS about the Mine and Reclamation Plan raises serious concerns, especially, about five specific problem areas:

- \* The environmental performance of the NW overburden pile, with only a Simple 1 cover, within 1,000 feet of the Blackfoot River;
- \* The high potential for mobilization of selenium from North Pit mining;
- \* The size and environmental performance of the East overburden pile in the headwaters of drainage areas;
- \* The potential that the mine pits will become a perpetual source of contamination for the regional ground water aquifer; and
- \* The water management ponds becoming a hazard to water birds or a sink of elevated levels of selenium to be pumped into mine pits, when design capacity of the ponds is exceeded.

The DEIS generally fails to acknowledge these as problem areas, and when it does recognize a problem area, the solution proposed is insufficient to protect the environment.

The mining sequence presented in the Mine and Reclamation Plan and the backfilling measures of the Preferred Alternative do not comprise the most practicable and environmentally protective way of mining and reclaiming Blackfoot Bridge Mine—if the overarching goal is to maximize ore recovery in balance with avoiding the creation of yet another Superfund Site in Southeast Idaho. In view of the unproven status, at field scale, of the proposed new cover systems and the extent of selenium hazards in the Blackfoot River Watershed, all potentially feasible concepts need to be examined. I recommend the concept outlined in the following comments as worthy of consideration and detailed analysis.

With respect to regulatory agencies, the starting point with this concept would be for BLM to permit the Mid-Pit as an initial panel in a new mining sequence. Based on success in environmental protection at this Mid-Pit panel, mining could then be permitted to advance into a South-Pit Panel—with decisions on a North-Pit panel deferred until and unless some major environmental issues at that site were resolved.

The starting point in the actual mining of a Mid-Pit panel would be an initial cut in the area of MP1 (Fig.2.3-2). Then, mining would advance directly south along the trend of the ore body with bench cutting ahead and backfilling behind. Overburden from the first cut in Mid-Pit panel would be placed on the site of the EOP now proposed in the DEIS, but under this different concept an external overburden

pile from Mid-Pit panel would not be larger than the amount of overburden removed to start the mine.

In open-pit mining along a trend of the ore, two problems arise in handling excavated material, or in approximating original contour with backfilling. There occurs what is termed in mine reclamation the “first cut lump” and the “last cut hole.” Let us assume that successful environmental performance from mining and reclamation at Mid-Pit panel would enhance timely permitting of a South-Pit panel. Mining could then progress continuously into the northern part of the South-Pit, with the first cut overburden from South-Pit panel being backfilled northward into the last cut made in Mid-Pit.

When the last cut was made in the South-Pit panel, because of its overburden having been backfilled into the next-to-last cut in South-Pit, a last cut hole would remain. Given an annual rainfall averaging 17 inches at the site and the floor of the South-Pit standing well above the regional water table, selenium contamination from the site could be minimized. The extent of the safety hazard of the last cut would depend on the size of the hole and whether or not some backfill material could be found nearby. (A basic principle of this time-tested method of mining and backfilling along the strike, of course, is to minimize double handling of spoil)

The application of this rather traditional concept of mining and reclamation should be given serious examination by the mining company and the Agencies. The Preferred Alternative of the Blackfoot Bridge DEIS fails to achieve the objective stated in section 2.3.4, viz, “the objective would be to maximize the pit backfill and minimize the external permanent overburden placement.” [emphasis added] The concept outlined above has a better chance of achieving that objective than the Preferred Alternative.

The monitoring plan under this alternative would concentrate on selenium occurrence, mobilization, mitigation, accumulation and distribution in environmental media and species related to one experimental mine panel, where the performance of the GCLL cover system and water management system are being tested.

The BLM should fully analyze this alternative to the proposed action. Failure to do so would violate NEPA’s requirement to evaluate all practicable alternatives.

The agencies and project proponent should abandon the proposal to turn the Fish Pond tributary into a wastewater treatment facility.

Selecting any alternative that includes plans to turn the Fish Pond tributary into a wastewater treatment facility will not protect the aquatic environment. P4 has not adequately evaluated all practicable alternatives and has failed to consider and evaluate the full range of practicable alternatives, including those that pose a less adverse impact to the aquatic ecosystem. The mining sequence presented in the Mine and Reclamation Plan and the reclamation measures of the Preferred Alternative do not comprise the most practicable and environmentally protective way of mining and reclaiming the Blackfoot Bridge Mine. This is especially true if the overarching goal is to maximize ore recovery in balance with avoiding the creation of yet another Superfund site in southeast Idaho. In short, the proposal to convert the unnamed tributary of Fish Pond into a wastewater treatment facility is unwarranted, unnecessary, and most likely illegal. It should be removed from any action alternative.

The agencies and project proponent should provide modeling data relevant to the GCLL rather than simply stating that it is “ten times better” than the GCL.

The BLM must complete an independent analysis of the liner and include that analysis in the EIS before making a decision to approve the Blackfoot Bridge Mine. Such an analysis should include the following:

- \* an evaluation of the liner’s conductivity;
- \* a rerun of the model using the appropriate conductivity values to consider higher seepage rates;
- \* a test with leachate from the column tests to determine whether cation exchange will occur and affect the GCLL properties; and
- \* a complete literature review of the use of GCL and GCLL liners with a focus on the effects of field conditions and construction control on the hydraulic properties.

Including this analysis will ensure the manufacturer’s data regarding its product are not blindly relied on and better ensure protection of water resources.

The agencies should precondition permitting of the proposed Blackfoot Bridge Mine on cleanup of the Ballard and South Rasmussen Ridge Mines.

Since P4 indicated that they could soon be reducing part of the selenium load to the Blackfoot River as an offset of the selenium load to the river resulting from this proposal we recommend that the BLM set aside this EIS and Record of Decision on permitting this proposal until P4 has carried out approved cleanup plans for both their South Rasmussen Ridge and Ballard mines, and provided sufficient monitoring data that indicates those cleanup efforts have been successful.

The agencies and project proponent should draft an adequate monitoring plan.

The monitoring plan contained in the DEIS is of no use to the public or the permitting agencies. Two significant changes should be made. First, a much more complete plan should be included in the FEIS (i.e., before the Record of Decision is signed). This will allow the public to have a clearer understanding of just what the monitoring plan is and permit the public an opportunity to comment prior to issuance of the ROD. Second, the plan should include specific, enforceable triggers requiring P4 to take corrective actions. Possible actions should include ceasing mining operations until the cause of any unanticipated impacts are determined and remedied or, in the case of illegal selenium discharges, those discharges cease. Requiring anything less will only cast further doubt in the public mind regarding the BLM’s interest in protecting water quality and other public resources.