American Rivers ♦ American Whitewater ♦ Audubon Washington ♦ Conservation Northwest ♦ Earthworks ♦ Gifford Pinchot Task Force ♦ Mazamas ♦ The Mountaineers ♦ National Environmental Trust ♦ Northwest Environmental Defense Center ♦ Oregon Council Trout Unlimited ♦ Washington Council Trout Unlimited ♦ Washington Environmental Council ♦ Washington Wilderness Coalition ♦ The Wilderness Society ♦ Wild Fish Conservancy ♦ Wild Steelhead Coalition

U.S. Department of Interior
Attn: Fred O'Ferrall
Chief of Lands & Mineral Resources
BLM, Oregon State Office
P.O. Box 2965
Portland, OR 97208

RE: "Margaret Deposit" Environmental Assessment of Hardrock Mineral Leasing

May 11th, 2007

Dear Mr. O'Ferrall,

We are writing on behalf of the Gifford Pinchot Task Force (GP Task Force), American Rivers, Conservation Northwest, Wild Fish Conservancy, Washington Wilderness Coalition, Northwest Environmental Defense Center, Mazamas, Washington Council Trout Unlimited, Earthworks, Oregon Council Trout Unlimited, The Mountaineers, American Whitewater, National Environmental Trust, Washington Environmental Council, Wild Steelhead Coalition, The Wilderness Society, Audubon Washington and the thousands of members and supporters whom our organizations represent to comment on the "Margaret Deposit" Environmental Assessment of Hardrock Mineral Leasing (EA).

Prior Comments

We are aware that the Bureau of Land Management (BLM) and U.S. Forest Service (USFS) received a considerable number of public comments on this issue in the two years prior to the public release of the EA. We request that these comments be accepted into the public record and weighed equally with comments received during the official public comment period. This includes, but is not limited to, comments previously submitted by the GP Task Force and the Western Mining Action Project (which submitted comments on behalf of GP Task Force). To avoid redundancy, these comments are adopted and incorporated by reference herein.

Summary

The EA failed to adequately assess the foreseeable future environmental impacts of granting a lease to Idaho General Mines for land in the Green River valley north of Mount St. Helens. Mine development of the Margaret Deposit is likely to result in a large open pit mine or underground mine that produces acid mine drainage, posing a significant risk to aquatic life, human health, and the region's agricultural economy. Such development in the seismically active Mount St. Helens area would also pose a significant risk of accidents, leaks, and tailings dam failure resulting in the release of potentially large quantities of toxic waste into the environment. Contamination and dewatering of nearby streams and lakes, toxic air pollution, the destruction of important wildlife habitat, and impacts to popular recreation destinations are additional potential and likely consequences of development. Any economic benefits gained by mine development will likely be far outweighed by the development's economic and environmental costs.

Moreover, federal law states that the BLM will not issue a permit or lease unless it conforms to the decisions, terms and conditions of an applicable comprehensive land use plan, and applicable environmental requirements.[1] Federal law also requires that the proposed lease be issued only if it is in the public interest.[2] The agency has full discretion to, and indeed under the law must, deny the lease application because it does not meet these criteria.

With thousands of individual and organizational letters, city resolutions, and letters from elected officials all opposing the granting of this lease, it is clear that the public interest is best served by denying this lease. Also, based on the information provided in this letter, it is clear that any modern mine developed at Goat Mountain as a result of granting this lease would not conform to applicable comprehensive land use plans or environmental requirements. We therefore recommend that the BLM and USFS deny the lease to Idaho General Mines (IGMI).

Background

Size & Extent of Mine Development

View of Green River Valley & Lease Area

The BLM and USFS have made a preliminary decision, as outlined in the EA, to grant a lease to IGMI to approximately 217 acres of Mineral Survey 708 on the south slope of Goat Mountain. IGMI's hardrock mineral lease application requests a lease for an additional approximately 682 acres of acquired land that consists of the rest of the Margaret Deposit. The agencies have postponed a decision on a lease to the remaining acquired land until IGMI provides the federal government with more substantive information for judging the qualification of the land for leasing.

IGMI President Robert Russell has stated in press reports, however, that he envisions mine development to encompass 3,000 acres.[3] IGMI may need a larger area to develop because the mineral reserves in the lease area may not be sufficient enough to allow for viable commercial development. This additional acreage could include IGMI's unpatented lode claims that lie north of the lease area. These claims are in the Margaret North and Red Bonanza areas. The EA failed to consider the cumulative impacts of a larger mine development that includes the larger lease area and IGMI's unpatented lode claims to the north.

Site Characteristics

The area for which IGMI applied for a lease (lease area), encompassing Mineral Surveys 708, 1330, 774, 1329, and 779, straddles the Green River south of Goat Mountain. The Green River is home to threatened populations of winter steelhead and fall chinook, and a coho population which is under federal review for possible threatened status. The Green River also supports a state fish hatchery.

A late successional forest stand, which is 276 years old according to the USFS' Geographic Information System (GIS) data, is located in the southwest corner of Mineral Survey 708.[4] This is much older than the maximum 160 years referenced in the EA (EA, pg. 13). While this forest stand is relatively small, it is biologically important. The area has been heavily impacted by the blast from the 1980 eruption of Mount St. Helens, resulting in a significant amount of the surrounding forest cover, especially in Mineral Surveys 1329 and 779, to be wiped out. The area has also been impacted by salvage logging following the 1980 eruption. As the surrounding forests regenerate and age, it will be the species from the old growth forest in Mineral Survey 708 that will help re-colonize the surrounding forest stands.

Forest stands that are hundreds of years old provide essential habitat that remains stable over time periods that are important for species with limited capacity to disperse. Remaining old growth forest stands are therefore of great importance because federal agencies estimate that of the 24.5 million acres covered by the Northwest Forest Plan, only 33 percent, or eight million acres, are comprised of late successional old growth forests.[5]

Mid successional forest stands exist in Mineral Surveys 708, 1330, and 774. These mature forest stands also provide important wildlife habitat and will obtain late successional characteristics within decades.

The Margaret North and Red Bonanza areas are within the Red Spring Creek, South Red Spring Creek, Big Tree, and Upper Goat Creek seventh field watersheds. Deep Lake and possibly Red Spring Creek contain a sensitive resident coastal cutthroat trout population. Most of the area, except for that which is in the Upper Goat Creek sub-watershed, lies within the Quartz Creek sixth field watershed. Quartz Creek contains sensitive coho and resident coastal cutthroat trout populations, as well as a threatened population of winter steelhead and a population of rainbow trout.[6]

Nearly all of the Margaret North and Red Bonanza areas contain either mid or late successional forest stands. Much larger old growth forest stands exist in these areas and all of the old growth provides nesting, roosting, and foraging habitat for the spotted owl.

Both lode claim areas also contain areas with wet or mesic soils. This is significant given the concern, to be discussed later, of toxic substances likely leaching into area water bodies.

Unstable soils exist in the northern portion of the Red Bonanza area and unstable ground with high risk of surface erosion exists in the lease area.[7] In February, 1996, several landslides and debris torrents occurred on ash-laden slopes in the Green River valley below Goat Mountain, demonstrating the ground instability in the lease area.[8]

I. Preliminary Lease Decision Fails To Adequately Comply with National Environmental Policy Act (NEPA)

Failure to develop and Environmantal Impact Statement (EIS)

Granting a lease to IGMI is the first step toward mine development at Goat Mountain that will adversely impact the environment, compromise public safety, harm the unique characteristics of the

project area, pose unknown risks to area fish, plants, and wildlife, have both direct and cumulatively significant environmental impacts, negatively impact threatened species, violate applicable land use plans and federal requirements protecting the environment, and is not in the public interest. These impacts and the high number of comments submitted before the EA was even released also make the project highly controversial.

Due to the severity of the potential cumulative impacts of this decision and the controversial nature of the project, the BLM and the USFS are therefore required by the National Environmental Policy Act (NEPA) to conduct an Environmental Impact Statement (EIS) to obtain and review additional information about the potential and likely impacts of exploration and mine development.[9]

An EIS should include, among other alternatives, a no action alternative and an alternative that requires a full No Surface Occupancy (NSO) Stipulation lease precluding surface disturbance from exploration and development. As held by numerous federal court decisions, especially in the Ninth Circuit, BLM cannot issue a mineral lease without completing an adequate EIS, especially for leases that are not fully covered by NSO Stipulations. "The sale of oil and gas leases is an irretrievable commitment of resources for which an EIS must be prepared. Conner v. Burford, 848 F.2d 1441 (9th Cir. 1988)." Montana Wilderness Association v. Fry, 310 F.Supp.2d 1127, 1145 (D. Mt. 2004). "As long as the leases are non-NSO (non-no-surface-occupancy) leases, which these are, their sale constitutes an irretrievable commitment of resources." Id. The "contingent rights stipulation" associated with the proposed lease does not change this requirement. *See* WMAP September, 7, 2005 comment letter to BLM and Forest Service. Overall, an EIS is needed at the leasing stage, with additional NEPA analysis (an EIS) needed to review future exploration proposals and then any subsequent development proposals.

Failure to adequately describe baseline conditions & cumulative impacts

The EA failed to adequately "describe the environment of the areas to be affected or created by the alternatives under consideration."[10] The establishment of the baseline conditions of the affected environment is a practical requirement of the NEPA process. In Half Moon Bay Fisherman's Marketing Ass'n v. Carlucci, 857 F.2d 505, 510 (9th Cir. 1988), the Ninth Circuit stated that "without establishing . . . baseline conditions . . . there is simply no way to determine what effect [an action] will have on the environment, and consequently, no way to comply with NEPA." Further, "[t]he concept of a baseline against which to compare predictions of the effects of the proposed action and reasonable alternatives is critical to the NEPA process."[11] Thus, the baseline conditions of the lease area, as well as any other area that might be affected by operations on the lease area such as exploration and/or development, must be fully described in the EA.

Impacts from the 1980 Volcanic Blast in the Green River Valley

It is important to emphasize that in addition to considering the numerous direct impacts of mining, federal agencies must also consider the cumulative impacts of mining in the Goat Mountain area.

BLM must "take a hard look at the environmental consequences of its proposed action," including cumulative impacts.[12] A project's "cumulative impact," is:

> the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of

> what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.[13]

NEPA requires that where several actions have a cumulative or synergistic effect, BLM must consider the consequences in the EIS.[14] As the Ninth Circuit has stated:

"[T]he general rule under NEPA is that, in assessing cumulative effects, the Environmental Impact Statement must give a sufficiently detailed catalogue of past, present, and future projects, and provide adequate analysis about how these projects, and differences between the projects, are thought to have impacted the environment. *See Neighbors of Cuddy Mountain v. United States Forest Serv.,* 137 F.3d 1372, 1379-80 (9th Cir.1998); *City of Carmel-By-The-Sea v. United States Dept. of Transp.,* 123 F.3d 1142, 1160-61 (9th Cir.1997)."[15]

Here, BLM and USFS must conduct a full cumulative impacts review of all past, present, and reasonably foreseeable actions/impacts. This includes the potential and likely impacts from exploration and mine development, including those outlined in these comments, as well as other nearby actions/impacts. The Goat Mountain area, for example, has been heavily impacted by the 1980 blast from the Mount St. Helens eruption, salvage logging, road building, recreation, and past mining such as the Polar Star mine. Federal agencies must also consider the likelihood that IGMI will develop a mine that encompasses an area far greater than the lease area. This area could include its unpatented lode claims to the north, and the possible future purchase of the Polar Star mine and other mine sites in the area. The EA failed to consider these cumulative impacts, which clearly include the reasonably foreseeable development of a mine and its related impacts that are documented throughout this letter.

Failure to adequately evaluate all alternatives

The EA also failed to provide a detailed evaluation of alternatives to the proposed action as required by NEPA.[16] This discussion of alternatives is essential to NEPA's statutory scheme and underlying purpose:

> The goal of the statute is to ensure "that federal agencies infuse in project planning a thorough consideration of environmental values." The consideration of alternatives requirement furthers that goal by guaranteeing that agency decision-makers "[have] before [them] and take[] into proper account all possible approaches to a particular project (including total abandonment of the project) which would alter the environmental impact and the cost-benefit balance." NEPA's requirement that alternatives be studied, developed, and described both guides the substance of environmental decision-making and provides evidence that the mandated decision-making process has actually taken place. Informed and meaningful consideration of alternatives -- including the no action alternative -- is thus an integral part of the statutory scheme.[17]

Indeed, NEPA's implementing regulations recognize that the consideration of alternatives is "the heart of the environmental impact statement."[18]

Accordingly, the regulations and cases set high standards for an agency's consideration of alternatives in a NEPA document and define the range of alternatives that must be considered. The agency must "[r]igorously explore and objectively evaluate **all reasonable alternatives**" to a proposed action.[19]

The Ninth Circuit has strictly enforced this requirement in numerous cases:

> To be adequate, an environmental impact statement must consider every reasonable alternative. An EIS is rendered inadequate by the existence of a viable but unexamined alternative. . . . Thus, the range of alternatives considered must be sufficient to permit a reasoned choice.[20]

NEPA requires agencies to "study, develop, and describe appropriate alternatives to recommended courses of action in any proposal that involves unresolved conflicts concerning alternative uses of available resources."[21] "An agency must look at every reasonable alternative, with the range dictated by the nature and scope of the proposed action."[22]

Here, BLM and USFS must fully consider alternatives for No Surface Occupancy (NSO) over all the leased lands, NSO stipulations over less than the full leased lands (in varying degrees/acreages), the no action/no-lease alternative, other alternatives with stipulations/conditions to protect wildlife, water quality, recreation, air quality, cultural/historical, and other resources, as well as other alternatives to protect the public interest. Although, as noted herein, we believe any leasing is illegal (as well as other issues), the inclusion of these alternatives does not necessarily mean that we would support such an alternative (especially any that involved leasing, exploration, or development). However, under NEPA, they must be reviewed. The EA clearly violates this requirement of NEPA by not considering a full range of alternatives.

II. Preliminary Lease Decision Does Not Comply with Other Applicable Management Plans and Environmental Laws

Wild & Scenic River Eligibility

The Green River valley south of Goat Mountain, in portions of Mineral Surveys 774, 1329, and 779, is managed as a Recreation River 6M under the Matrix allocation in the Land and Resource Management Plan for the Gifford Pinchot National Forest (LRMP). Recreation Rivers are managed for possible addition to the National Wild and Scenic Rivers System. Major mine development, such as that envisioned by IGMI, is not consistent with this land use allocation.

During revision of its 1990 LRMP, the U.S. Forest Service studied the Green River for potential inclusion in the national Wild and Scenic Rivers system. In its study, the Forest Service determined that the Green River is eligible for wild and scenic status, noting the "scientific, geologic, recreational and scenic resources of this area and the Green River are of national significance and have been determined to be 'outstandingly remarkable.'"

The upper ten miles of the Green River valley, in particular, "offer a remarkable opportunity for interpretation of the destructive forces associated with the 1980 eruption of Mt. St. Helens." Old-growth stands in close proximity to areas that were salvage logged and planted as well as areas that are recovering naturally create a unique laboratory. As the Forest Service notes, "This is the only area of the Monument that allows comparison of the three conditions in close juxtaposition."

Under the Wild and Scenic Rivers Act section 10(a), "Each component of the national wild and scenic rivers system shall be administered in such a manner as to protect and enhance the values which caused it to be included in said system without, insofar as is consistent therewith, limiting other uses that do not substantially interfere with public use and enjoyment of these values. In such administration primary emphasis shall be given to protecting its esthetic, scenic, historic, archaeologic and scientific features."

This protective management requirement does not only apply to designated rivers. As noted by the Interagency Wild and Scenic Rivers Coordinating Council, "Protective management of federal lands in the river area *begins at the time the river segment(s) has been found eligible."* (emphasis added). This protection is required until a suitability study is performed and a subsequent decision (either by the management agency of by Congress) has been rendered.

BLM policy, as described in *Manual 8351 Wild and Scenic Rivers – Policy and Program Direction for Identification, Evaluation, and Management*, confirms: "BLM shall afford protective management to all eligible river segments as necessary to ensure that the existing qualities upon which their eligibility is based are not degraded." Further noted in BLM's "Classification and Protective Management" guidance, section 8351.32, "When a river segment is determined eligible and given a tentative classification (wild, scenic, and/or recreational), its identified outstandingly remarkable values (ORVs) must be afforded adequate protection, subject to valid existing rights, and until the eligibility determination is superseded, management activities and authorized uses shall not be allowed to adversely affect either eligibility or the tentative classification…"

Clearly, a large copper mine in the river corridor would not protect or enhance the outstanding scenic, recreational, archaeological and scientific values of the Green River. It would very likely degrade the outstanding values to the point where the river would not be eligible for inclusion in the national Wild and Scenic Rivers system, which is expressly prohibited under the Wild and Scenic Rivers Act and BLM's own policies for managing eligible rivers. Additionally, it would "substantially interfere with public use and enjoyment of these values." The EA did not take this into consideration.

Endangered Species Act

At a minimum, the agency has failed to ensure that all requirements of the Endangered Species Act (ESA), including procedural consultation requirements and substantive species protective mandates, have been fully met. Most of the mature forest in the lease area, for example, is designated in the USFS' GIS data as spotted owl nesting, roosting, and foraging habitat. In fact, a spotted owl activity center has been located in the past down the Green River Trail beyond the end of the Ryan Lake Road #2612.036. Existing owl habitat is of great importance given the recent status review commissioned by the U.S. Fish & Wildlife Service which showed the southern Washington population of spotted owls in sharp decline, especially among adult owls.[23]

A portion of the Red Bonanza existing mineral claims area also lies within Owl Critical Habitat Unit WA 38, which is to be managed for the recovery of the spotted owl. A spotted owl activity center can be found within one mile of Red Spring Creek Road #2608.016. Modern mine development and associated infrastructure does not conform with the Critical Habitat Unit land use allocation and therefore should not be permitted to occur.

In addition, as previously mentioned, the Green River and Quartz Creek, two watersheds likely to be impacted by mine development, are home to a number of threatened and sensitive fish species.

In preparing the EA, federal agencies failed to consult with NOAA Fisheries and the U.S. Fish & Wildlife Service about potential, likely, and cumulative impacts to listed threatened, endangered, and sensitive species. This is a clear and flagrant violation of the Endangered Species Act.

Northwest Forest Plan & the Land & Resources Management Plan

The Northwest Forest Plan established the Aquatic Conservation Strategy (ACS) to "maintain and restore the productivity and resiliency of riparian and aquatic ecosystems." Under the ACS, riparian reserves are used to maintain "hydrologic, geomorphic, and ecological processes that directly affect standing and flowing waterbodies such as lakes and ponds, wetlands, streams, stream processes, and fish habitats." They are further used to "maintain and restore riparian structures and functions of intermittent streams, confer benefits to riparian-dependent and associated species other than fish, enhance habitat conservation for organisms that are dependent on the transition zone between upslope and riparian areas, improve travel and dispersal corridors for many terrestrial animals and plants, and provide for greater connectivity of the watershed."[24]

There are riparian reserves in each of the mineral surveys in the lease area. While the EA states that "these reservations in the area are currently not mapped," we refer the BLM and USFS to the map of such riparian reserves included in the attachments, which was produced using GIS data provided by the USFS.[25] Riparian reserves are also mapped in the USFS' Upper Toutle River Watershed Analysis, which is also attached.

It is unlikely that modern mine development, or even exploration in riparian reserves, could meet ACS standards, especially given the previously mentioned unstable slopes and soils present in the area. Failure to comply with the ACS standards, and all Forest Plan standards and Guidelines, is also a violation of the LRMP and the National Forest Management Act.

Mine development occurring to the north of the lease area in the Margaret North and Red Bonanza unpatented lode claim areas would also impact important ecological features. Both areas lie within the Quartz Late Successional Reserve. The Northwest Forest Plan established late successional reserves so as to provide a network of old growth forests that are "retained in their natural condition with natural processes…allowed to function to the extent possible" and that, "they will help ensure that late-successional species diversity will be conserved."[26]

Much of this area is also Administratively Withdrawn as an Unroaded Recreation Without Timber Harvest UD area under the LRMP. The purpose of an Unroaded Recreation area is to "provide a variety of dispersed recreation opportunities in a semi-primitive or undeveloped setting." Under the management allocation mine "exploration should be performed in a manner which does not alter the Semi-Primitive character of the land."[27] A modern 3,000 acre mine development is not capable of complying with the objectives or standards and guidelines of late successional reserves or unroaded recreation areas.

Other Applicable Management Designations and Plans

The December 15, 2004, Lower Columbia Salmon Recovery and Fish & Wildlife Subbasin Plan, which has been approved by the National Marine Fisheries Service, "describes a vision, strategy, and actions for recovery of listed salmon, steelhead, and trout species to healthy and harvestable levels." A key priority outlined in the plan for the Toutle River Basin, which includes the Green River, is to manage forest lands to protect and restore watershed processes. Likewise, several of the key priorities outlined in the plan for the Upper Cowlitz Basin, which includes Quartz Creek and Red Spring Creek in the Margaret North and Red Bonanza areas, are to protect intact forests in headwater basins and manage forest lands to protect and restore watershed processes. It is difficult to imagine how major mine

development, such as that envisioned by IGMI, would comply with the goals and objectives of the Lower Columbia Salmon Recovery and Fish & Wildlife Subbasin Plan.

In fact, the Gifford Pinchot National Forest's Upper Toutle River Watershed Analysis, which covers the Green River watershed, calls for the protection of all existing Large Tree stands due to their scarcity in the Upper Toutle River Watershed.[28] Such protection covers the old growth forest stand in Mineral Survey 708.

2001 Roadless Area Conservation Rule

The northern portions of Mineral Surveys 708, 1330, and 774, as well as both the Margaret North and Red Bonanza lode claim areas, lie within the Tumwater Inventoried Roadless Area. Roadless areas are important refuges for wildlife species and are valuable recreation destinations. Over 2.2 million Americans support full protection of our nation's remaining roadless areas and a March 2000 Ridder/Braden poll found 72% of Washingtonians support full protection of the state's roadless areas.[29]

While the EA stated that the 2001 Roadless Area Conservation Rule, recently reinstated by a federal court, prohibits new road construction or reconstruction, it failed to mention that the rule also prohibits timber harvest except when done for strictly ecological enhancement purposes.[30] Clearly this is relevant to the proposed project as it is possible that an eventual mine in the area would require removal of timber in a way that does not conform with the ecological enhancement criteria.

III. Leasing the "Margaret Deposit" Is Not In The Public Interest

History Of The Acquired Lands

The Trust for Public Land (TPL) obtained the rights to Mineral Surveys 774, 779, 1329, 1330, and half of 708 from the Duval Corporation in the early 1980's in order to protect the area from mining. In June of 1986, TPL donated Mineral Surveys 774, 779, and half of 708 to the USFS and the USFS purchased Mineral Surveys 1329 and 1330 for $53,300 using Land and Water Conservation Funds, which are appropriated by Congress with the intent of acquiring lands for conservation and recreation purposes.

As the EA points out, Forest Supervisors sent a letter to the Congressional Delegation and County Commissioners in February 1986 stating that the federal government's acquisition of this property "will aid in the preservation of the integrity of the Green River prior to its entering the National Volcanic Monument, and will also aid in the preservation of the scenic beauty of this area which is to become an important Monument portal".[31] The federal government even made attempts to acquire the remaining 50 percent mineral interest in MS-708 in order to protect it from mining. The EA admits that, given this history, "the explicit purpose of the USFS acquisition was to protect the Green River."[32]

While the EA states that "no restrictions or exceptions to land use were included by TPL," this is because the USFS refuses to accept or buy property that comes with any restrictions or exceptions, so TPL had no option to include such conditions.[33]

Given the history of how and why the federal government came to possess this property, it should not lease any portion of it to a mining company.

Adverse Impacts of Mine Development Which The EA Failed to Address

Open Pit Mine

If IGMI were to develop a mine on or near Goat Mountain it may be an open pit mine due to the low-grade nature of the ore deposit. This was confirmed by BLM and the IBLA in Vanderbilt Gold Corp., 126 IBLA 72, 75 (1993). IGMI has not submitted any evidence that mining a low grade copper porphyry deposit can be accomplished by anything but open pit methods. This is problematic because open pit mines produce 8 to 10 times as much waste as underground mines. The largest open pit mine in the world, the Bingham Canyon mine in Utah, is a mile deep and more than two miles wide.[34]

Molycorp Molybdenum Open Pit Mine in New Mexico

Due to the size of modern day mines, an open pit mine on or near Goat Mountain would likely result in, at the very least, the destruction of mature and old growth forests, the Green River Horse Camp, and portions of the Green River and Goat Mountain trails. An open pit mine could in fact level Goat Mountain itself but the EA failed to make any assessment as to the possible impacts of an open pit mine at Goat Mountain.

Underground Mine

IGMI has stated at public forums that they hope to development an underground mine using a block cave mining technique. Block caving is a mining technique which often times has impacts just as devastating as open pits. At many locations, such as the Questa Molybdenum Mine in New Mexico, which has both an open pit and underground block caving, the overall environmental impacts of the two techniques are slightly, if at all different, from each other. While some underground mining techniques typically have fewer impacts, the block caving technique may result in little or no improvement compared to open pit mining.

Block caving, moreover, can result in significant subsidence, which can affect both surface features and hydrological characteristics. A report titled, "Underground Hardrock Mining: Subsidence and Hydrologic Environmental Impacts" by Steve Blodgett, M.S. and James R. Kuipers, P.E. discusses how subsidence is always associated with underground hardrock mining and the hydrologic environmental impacts that are the result of the subsidence.[35] These hydrologic impacts are a particular concern given the risk for acid mine drainage at Goat Mountain.

Acid Mine Drainage

Mine development in the Green River Valley is highly likely to generate acid mine drainage, otherwise known as acid rock drainage or ARD, due to the presence of a sulfide ore body and abundant water.

Manganese, selenium, thallium, lead, copper, zinc, cadmium, aluminum, iron, and arsenic are all potential byproducts of acid mine drainage.[36] These toxic substances, together with sulfuric acid which can be 20 to 300 times more acidic than acid rain, can impact aquatic invertebrates, fish, mammals, riparian vegetation, and human health.[37] Acid mine drainage has contributed to the decimation of aquatic

life in approximately 12,000 miles of streams in the United States and once the chemical process has begun it can last for thousands of years and cost millions of dollars to manage.[38] There is evidence, for example, that acid mine drainage in the Rio Tinto mining district of southern Spain is coming from ancient Roman or even Phoenician mines.[39]

The 17.8 square kilometer Iron Mountain Mine in northern California, which closed in 1963, generates water 10,000 times more acidic than battery acid and is poisoning aquatic life in the Sacramento River and San Francisco Bay. Experts predict that Iron Mountain will poison its watershed for at least 3,000 years.[40]

While evaluating the environmental impacts of the Newmont Mining's Phoenix Project in Nevada, scientists have predicted the mine will generate acid drainage for over 20,000 years. The Environmental Protection Agency (EPA) predicts that a $33.5 million trust fund would be required to pay for water treatment in perpetuity.[41]

Mine development on or near Goat Mountain generating acid mine drainage could be devastating to area fish and wildlife, and to human health. The numerous salmon, steelhead, and trout populations in the area would likely be significantly harmed or destroyed by acid mine drainage. The Green River, furthermore, flows downstream through the National Volcanic Monument to the Toutle River, then into the Cowlitz River where it provides drinking water supplies for the communities of Kelso, Longview, and Castle Rock. Acid mine drainage could compromise the National Volcanic Monument's goal of protecting "geologic, ecologic, and cultural resources" and "allowing geologic and ecological succession to continue substantially unimpeded."[42] Acid mine drainage could also pose a serious risk to Kelso and Longview's drinking water supplies, as well as to water withdrawn from these rivers for agricultural purposes or to anyone fishing, swimming, or engaged in other forms of contact recreation in contaminated waters.

Section 313a of the Clean Water Act prohibits any activity on federal lands that violate state water quality standards. Any acid mine drainage that does not meet state water quality standards would therefore also be illegal under federal law.[43]

The copper porphyry ore deposits in the lease area are strongly associated with acid mine drainage problems found across the U.S. and throughout the world. Not only this, but a 2002 report by the Washington Department of Ecology, titled, "Second Screening Investigation of Water and Sediment Quality of Creeks in Ten Washington Mining Districts, with Emphasis on Metals," found acid mine drainage already occurring at the closed Polar Star mine adjacent to the lease area. Due to the significance of the data in this report, we will quote it at length:

Evidence of possible ARD in the Green River Valley

"Two water quality samples were collected from an unnamed stream that is tributary to the Green River near its headwaters. The sample sites were just outside the boundary of the Mount St. Helens Volcanic Monument in the vicinity of the Margaret copper deposit… An upstream sample site was located near the top of a mountain ridge above all known mine workings and was intended to represent background water quality. However, the results from the upstream sample suggest that either the entire mountain ridge is mineralized, or the sample should have been collected higher on the ridge. The downstream sample was obtained below all known mine workings along this particular stream. The two sample sites were less than half mile apart. General chemistry, field

parameters, and metals samples were obtained during August 2000, representing low-flow conditions, and during June 2001, representing high-flow conditions. Some pH and conductivity measurements were obtained at various mines in the area and in the Green River."

"Among the field parameters, pH was noted to drop by about one unit between the upstream and downstream sites during low flow. At high flow, pH was about the same between the two sites. The concentrations of the general chemistry parameters, hardness, TDS, and sulfate all increased more than 2-fold during low flow between the upstream and downstream sites. These parameters also increased during high flow, but somewhat less than 2-fold. Sulfate concentrations in the downstream samples during both high-flow and low-flow conditions were among the highest measured in any district during the project."

"Several adits driven near creek level that were discharging mine drainage to the creek were investigated with pH and conductivity measurements…Discharge from adit #2 was near neutral pH, but with about a 3-fold increase in conductivity over the adjacent stream. **The Polar Star Mine, a nearby mine not located in the sampled drainage, was also investigated with pH and conductivity measurements. The discharge from this mine had obvious ARD characteristics as reflected by the low pH and high conductivity measurements and presence of yellow-orange iron flocculant in the mine drainage. The pH measurement of 4.29 units was the lowest measured during this study, and the conductivity measurement of 1283 µmho/cm was the highest measured during this study. These values were similar to ARD – impacted mine drainage measurements made in the previous study**…" (emphasis added).

"Among the metals analyzed, copper was found to exceed the state water quality acute standard of 2.2 µg/L (low flow) and 2.6 µg/L (high flow) in both upstream and downstream samples, suggesting that the upstream sample was located within the mineralized zone of the mining district. The downstream sample exceeded the upstream sample by more than 6-fold for both high flow and low-flow conditions. These results were the highest found during this study. Aluminum showed a greater than 3-fold increase downstream during both low-flow and high-flow conditions. Cadmium and zinc were detected, but did not increase significantly downstream or between the high-flow and low-flow condition, although the downstream concentrations were the second highest in this study. Mercury increased during high flow by more than 2-fold over the low flow concentration…"

"Copper was present in the upstream and downstream sediment samples at concentrations that exceeded the National Consensus-Based guidelines. The upstream sample concentration was 251 mg/Kg while the probable effect guideline was 149 mg/Kg. The concentration of copper in the downstream sample was 844 mg/Kg, the highest reported in this study, and exceeded the guideline by more than 5-fold. Arsenic (downstream only) was present at a concentration of 28 mg/Kg which also exceeded the Consensus-Based threshold effect guideline of 9.8 mg/Kg…"

"Mercury increased by more than 20-fold in the downstream sample to 0.3 mg/Kg where it exceeded the Consensus-Based threshold effect guideline of 0.18 mg/Kg. The mercury concentration was the second highest found in this study. Manganese, lead, and selenium increased by more than 2-fold downstream. The sediment and water quality exceedences lead to the conclusion that the upstream sample location was still inside the mineralized area of the district, or that additional, undocumented mine workings further upstream were impacting water and sediment quality."[44]

These results are given added weight by the fact that drought conditions at the time of sampling "may have inhibited the formation of the efflorescent minerals by limiting the amount of water percolating through the rocks. Subsequent flushing by a small volume of infiltrating snowmelt and precipitation would result in a low volume of contaminated water that then would be mixed with a relatively larger volume of snowmelt in the receiving water. This would result in more dilution than might occur under normal snowpack conditions."[45]

The Lower Cispus Watershed Analysis also states that "there are subtle hints of acid rock drainage in the…Red Spring Creek of the Quartz Creek subwatershed."[46]

This data is significant both because it sheds light on the likely impacts of future mine development and because federal agencies must consider the cumulative impacts from previously operated mines in the area in the EA, which it failed to do.

We've included with these comments an Excel spreadsheet provided by the Washington Department of Ecology of all permitted water withdrawals from the Green River, Toutle River, and Cowlitz River. Federal agencies should notify these individuals, companies, and municipalities immediately of the potential risk to their water supply posed by major mine development of the Margaret Deposit.

Cyanide Use

IGMI intends to mine for copper, gold, molybdenum, and silver at the Margaret Deposit. In addition to other mining processes, mining for gold may require the use of a cyanide circuit. When cyanide is used in mining, it is used in massive quantities. For example, 2,681,256 pounds of cyanide are released per year by multinational mining corporations.[47]

Cyanide is a highly toxic substance. It is lethal to wildlife in doses of less than a fraction of an ounce, with one microgram (one-millionth of a gram) per liter of water being fatal to fish. A quantity of hydrogen cyanide about the size of a grain of rice, roughly 50 to 200 milligrams, ingested orally is fatal to humans. Moreover, after cyanide breaks down in nature the resulting compounds can bio-accumulate in the food chain and continue to have detrimental impacts.[48]

The high toxicity of cyanide is a great concern given the possibility of accidental leaks into the environment. Leaks and breaches of tailing ponds, as well as failures of leach pads can occur during cyanide leach mining. For example, six to seven tons of cyanide-laced tailings spilled from the Homestake Mine into Whitewood Creek in the Black Hills of South Dakota, resulting in a substantial fish kill. A 1995 spill of 40,000 gallons of cyanide from the New Gold Mine in Montana killed all the fish in Golconda Creek.[49] The use of cyanide near the salmon and steelhead spawning habitat of the Green River and Quartz Creek is an unacceptable risk and yet the EA failed to even consider the issue.

Metals Leaching & Waste

The hardrock mining industry produces twice as much toxic waste as all U.S. municipalities.[50] In 2001, according to the EPA, mines produced 1,300 tons of toxic waste, approximately 46 percent of the total for all US industries combined. This included 96 percent of all reported arsenic emissions, and 76 percent of all lead emissions.[51]

The numbers are just as shocking when considering specific metals. A single gold ring, for example, leaves in its wake at least 20 tons of mine waste.[52] And as a global average, one ton of copper results in 110 tons of waste ore and 200 tons of soil and surface rock.[53]

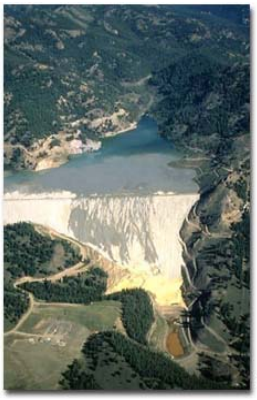
Waste Rock Pile at the Kennecott-Bingham Copper Mine in Utah

There is every reason to expect that mine development on or near Goat Mountain will generate huge amounts of toxic waste. In fact, Matt Russell of IGMI stated at a public forum in Longview that he expects a mine at Goat Mountain to move 80,000 tons of waste rock per day. Of course, all this toxic waste will need someplace to go.

Waste rock could be a significant source of toxic pollution. Waste rock piles, which are generally unlined, are often a source of leachate. For example, the Rio Tinto-Kennecott Bingham Canyon Copper mine near Salt Lake City, Utah lies on top of the largest known plume of contaminated groundwater in the world, due to contamination from materials leaching from the vast waste rock piles and tailings impoundment.[54]

The EA failed to consider the environmental impact of waste generated from a mine at Goat Mountain.

Tailings Dams



This 450-Acre Tailings Dam at Thompson Creek Mine Fills Bruno Creek Canyon 5 Miles from the Salmon River

Mine development on or near Goat Mountain would likely utilize tailings dams to store mining waste. Tailings dams have a long history of leaking and spilling toxic materials into surrounding water bodies. A report by Michael P. Davies titled, "Tailings Impoundment Failures: Are Geotechnical Engineers Listening?" demonstrates how common tailings dam failures are across the world.[55] Tailings dam failures, in fact, have accounted for three quarters of all major mining accidents over the past quarter century.[56]

In January, 2000, the tailings dam failed at the Baia Mare mine in Romania, releasing more than 100,000 tons of wastewater laden with cyanide and heavy metals into the Tisza River. As the toxic plume made its way down the Danube for hundreds of miles, it killed 1,240 tons of fish and contaminated the drinking water of 2.5 million people. To avoid the clean-up costs, Esmeralda Exploration, the Australian company that held the principle interest in the mine, declared bankruptcy.[57]

Likewise, in 1991 in Gila County, Arizona, a tailings dam failure at the BHP copper mine released 3.4 million gallons of heavy metal tainted water into Pinto Creek, which feeds Roosevelt Lake, one of the areas largest sources of drinking water.[58]

Tailings dam use would pose a significant and unacceptable risk to the salmon and steelhead spawning habitat of the Green River and Quartz Creek, and to humans using the water downstream for recreation, business, and drinking water supplies. Failure of these tailings dams is all the more likely due to the seismic activity on Mount St. Helens. According to the Pacific Northwest Seismograph network, the Mount St. Helens area has experienced continued seismic activity, with 30 notable earthquakes in 2005.[59] The EA failed to consider the risk posed by tailings dam failure and leakage in the Green River valley.

Spills & Accidents

Spills and accidents are a serious concern when considering any mine development. A report by the EPA, for example, listed 95 major release incidents from mines and mineral processing facilities into drinking water sources in eight states between 1990 and 1997.[60]

At the Kumtor gold mine in Kyrgyzstan, operated by the Canadian company Cameco, trucks delivering nitric acid, ammonium nitrate, and cyanide nitrate have on at least three occasions spilled part of their cargo into streams, poisoning more than 2,500 local residents.[61]

In Hurley, New Mexico, between 1991 and 1996, a series of pipeline ruptures at the Phelps Dodge copper/molybdenum mine led to a release of almost 250,000 gallons of tailings into Whitewater Creek.[62]

In press reports, IGMI President Robert Russell stated that the processing of extracted materials from the mine would likely occur at a smelter out of state, possibly overseas or in the southwest.[63] Federal agencies must therefore not only consider the potential impacts of spills and accidents occurring at the mine site and at the processing site, but also along any point of the transportation route from the proposed mine site to the processing smelter.

Groundwater Contamination & Depletion

Mine pits can be so deep that they reach the groundwater table, resulting in the need to continually pump water out to keep from flooding the mining operation. The pumped water may be released into surface water or re-injected into the groundwater aquifer. The pumped water may be mineralized and contain pollutants such as copper, zinc, and other heavy metals, which could result in water quality degradation.[64]

Water removed from the mining operation and released into streams or ground water must meet water quality standards under the Clean Water Act.[65] It is unlikely, given the high risk of acid mine drainage, that a mine at this location will meet such standards.

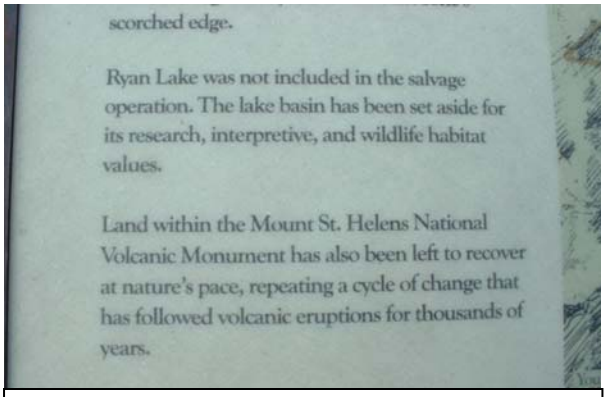
The U.S. Geological Survey found a decline in water tables in Nevada by as much as 300 meters around some of the state's largest open-pit gold mines. One of these mines, Barrick Betze mine, pumps out 380,000 cubic meters, or 100 million gallons, of groundwater per day.[66]

A BLM study in 1999 found, moreover, that impacts to groundwater from the Barrick Goldstrike mine in Nevada occurred within 10 years and were severe. Sink holes occurred up to ten miles from the mine site and the groundwater table was lowered by as much as 1500 feet.[67]

After the mine closes, it acts as a water drain of the surrounding area as water fills a big hole that did not exist before. This can dewater surrounding springs, lakes, and streams.[68] It can also result in the formation of a pit lake, which may contain poor to severely toxic water quality. The pit lake may therefore pose a serious hazard to wildlife in the region.

There is every reason to believe that this will be a serious problem with mine development on or near Goat Mountain. In fact, because the Margaret Deposit is a very deep and narrow ore body, any open pits in the lease area would have to be relatively deep in order to access the bulk of the ore.

A deep pit in the Goat Mountain area which reaches the groundwater table could alter the surrounding hydrology, and potentially dewater nearby streams, rivers, and lakes such as Ryan Lake, Deadmans Lake, Deep Lake, the lakes in the Mt. Margaret Backcountry, and the streams feeding the Green River and Quartz Creek. The dewatering of these water bodies would have serious impacts on fish, wildlife, and humans and could compromise the National Volcanic Monument's goal of protecting ecological resources and allowing ecological succession to continue substantially unimpeded. Yet the EA failed to consider this potential impact.



Interpretive Sign at Ryan Lake

Air Quality

While impacts to water resources is a serious concern, air quality is also impacted by major mine development. The crushing of rock ore and the continuous traffic of heavy equipment kicks up clouds of dust that compromise the air quality of the surrounding area.[69] Mine tailings, which may contain finely ground toxic waste, can also become airborne.[70] Dust and waste stemming from transportation of mined ore and concentrate can create contamination corridors along transportation routes.[71] Mercury contamination is of special concern. Overall, air contamination can have significant impacts on human health, wildlife, and pollution sensitive plant species, yet the EA failed to consider this potential impact.

Impacts on Human Health

As we've already made apparent, mine development would pose a serious risk to human health, but the federal government failed to consider human health impacts in the EA. Acid from acid mine drainage, for example, can burn human skin.[72] Overexposure to selenium, one of many toxics that may be generated in massive quantities at hardrock sites, can cause loss of hair, tooth decay and discoloration, fatigue, liver damage, spleen damage and loss of feeling and control in arms and legs.[73] More than 3 million pounds of selenium were released by mines in 2001, according to the EPA's latest data.[74]

Hardrock mining also emits more cadmium than any other industry, 6.9 million pounds in 2001, according to the industry's own figures. A toxic heavy metal that builds up in human tissue over time, cadmium causes lung damage, kidney disease, fragile bones, digestive tract distress, and may cause breast cancer.[75]

The EPA reports that in 2000, mining for minerals such as gold, silver and copper released 454 million pounds of arsenic. Arsenic, when consumed by humans, can cause cancer of the bladder, liver, and skin, according to the National Academy of Sciences. Arsenic is also associated with birth defects, as well as damage to the human heart, blood vessels and nervous system.[76]


Fishing the Green River

Lead, which is also commonly released during hardrock mining, causes growth retardation in children.[77]

Humans are exposed to such toxins when fishing, boating, swimming, and drinking contaminated water or breathing contaminated air. In Okanogan County, Washington there are more than 150 mine sites that are a threat to human and environmental health according to University of Washington's Center for Water and Watershed Studies.[78]

In the Clark Fork Basin near Butte, Montana, an area of intensive mining and smelting for over a hundred years, the death rate from serious disease has been unusually high. Areas of the Clark Fork Basin where mining has occurred show elevated death rates from cancer, particularly lung, bronchial, and trachea cancer. Cancer mortality rates in these areas have been much higher than in other areas in Montana and neighboring states where mining has not occurred. The Clark Fork Basin also contains the most extensive area of Superfund sites in the U.S.[79]

Sometimes, however, the health risks from mining are totally unknown. In Libby, Montana, for example, a naturally occurring form of asbestos was associated with the vermiculite being mined in the area, unbeknownst to area residents. The asbestos has wound up killing hundreds of Libby residents over the course of several decades.[80]

While we know that mining has numerous and serious health impacts, more community health effects of major modern mines may exist because there has been so little research on the topic.[81]

Impacts on Fish, Wildlife, & Vegetation

Old Growth Stand In Lease Area

Data compiled by Dan Peplow for the University of Washington's Center for Water and Watershed Studies regarding the impacts of mining in eastern Washington provides useful information about potential impacts of mining in the Goat Mountain area on fish, wildlife, and vegetation. Peplow found that mining pollution reduced species diversity and abundance in aquatic invertebrate communities. Rainbow and resident trout were found with concentrations of cadmium and zinc, and mammals in mine contaminated areas have been found with concentrations of arsenic, nickel, selenium, and zinc in their milk. Doug fir trees in the area, moreover, have been found with concentrations of manganese, zinc, iron, and aluminum in their needles.[82]

In addition, the average modern mine disturbs over a thousand acres of land with waste piles, open pits, and tailings, pushing wildlife out of their natural habitat.[83] The proposed mine at Goat Mountain, as previously mentioned, is likely to be 3,000 acres in size. Acid mine drainage, leaks and failures of tailings dams, and spills and accidents can each kill miles of aquatic life in area streams and rivers. Mining also causes erosion and sedimentation, which can bury gravel beds important to salmon spawning and damaging habitat for trout and other species that depend on clear, cold, oxygen-rich water.[84]

Migratory birds can also be impacted. Hundreds of migratory birds have been poisoned after landing in mine pit lakes in California and Nevada.[85] In 1995, 340 migrating geese were found dead in the abandoned Berkeley Pit copper mine in Butte, Montana.[86] The EA failed to consider any of these potential impacts.

Impacts on Recreational Use

Backcountry horse riders on Goat Mountain looking south
Photo by Jim Thode

The lease area also includes popular recreation destinations. The Green River Horse Camp lies within Mineral Survey 1329 and the Green River Trail (# 213) traverses through the same area. A number of other recreation destinations such as the Goat Mountain Trail, the Ryan Lake Picnic Area and Viewpoint, Deadmans and Deep Lakes, the Mt. Margaret Backcountry, the western portion of the Green River Trail, the Quartz Creek Big Trees Loop Trail, and the Tumwater Mountain Trail are all in close enough proximity to be impacted by mine development in the lease area or in the Margaret North and Red Bonanza unpatented lode claim areas. In addition, the Green River is a popular destination for kayakers during the fall and is widely regarded as an excellent whitewater river with approximately 12 miles of intermediate whitewater.[87]

Smelter

IGMI President, Robert Russell, stated in press reports that the processing of extracted materials from the mine would likely occur at a smelter out of state, possibly overseas or in the southwest.[88] Smelters consume large amounts of energy and emit large amounts of pollution, including lead, mercury, and other toxic substances that can be carried hundreds of miles by wind or water.[89] Worldwide smelting adds about 142 million tons of sulfur dioxide to the atmosphere every year, which is 13% of total global emissions.[90]

The Phelps Dodge Douglas Reduction Works was a former copper smelting operation located in Douglas, Arizona. Air samples of outdoor air in Douglas showed elevated levels of sulfates, arsenic, and lead particulates. Soil samples collected on site revealed high levels of arsenic, cadmium, chromium, lead, copper, and mercury. Municipal groundwater wells in Douglas have elevated levels of arsenic. In 1975, the CDC collected and tested hair samples and found that children in Douglas had increased exposure to lead, arsenic, and cadmium when compared to Arizona children in non-smelter communities. A follow up study in 1985 found the average blood lead levels of children living near the smelter to be double the CDC recommended level of 10 ug/dl.[91]

According to the EPA, pollution from the ASARCO lead and zinc smelter in East Helena, Montana has contaminated a 100 square mile area around the site. The smelter was responsible for 16,000 pounds of airborne lead emissions in 2000 alone. The smelter also violated arsenic water quality standards numerous times in Prickly Pear Creek. Homeowners near the site were recommended not to use their residential wells by the Agency for Toxic Substances and Disease Registry. The site became a Superfund site in 1983.[92]

A nickel and copper smelter near Sudbury, Canada has rendered the soil practically lifeless within 3 kilometers of the site and has badly damaged forests, lakes, and wetlands up to 30 kilometers away. Inco's Central Mills' smelter in the same area released nearly 622 tons of sulfur dioxide and other toxic pollutants in 2001.[93]

While a smelter associated with mine development in the Goat Mountain area may operate out of the region, federal agencies failed to account for the impacts of such a smelter in the EA.

Energy & Water Use

The mining sector is believed to consume 7 to 10 percent of annual global energy production. In the U.S., mining uses 2.3 quadrillion BTUs of energy per year, enough to power 25 million single family households. The mining industry also uses huge amounts of fresh water, though estimates of the total amount are unavailable.[94]

There is every reason to believe that mine development in the Goat Mountain area will consume huge amounts of energy and fresh water. This will have impacts on the environment that must be taken into account. Several questions on this topic exist, such as where does IGMI plan to get their fresh water? Do they have water rights in the area? How will large amounts of energy be transmitted to the mine site? Where will this energy come from? The EA failed to address these critical issues.

Infrastructure

Closed Road in Lease Area

Mine development in the Goat Mountain area will require a significant amount of new infrastructure. It would require the reconstruction of at least 20 miles of road which would have impacts on area fish and wildlife. There is speculation that mine development may also require the construction of a new road or railroad line and power lines between the community of Randle and the mine or a road south of Goat Mountain through the Mount St. Helens National Volcanic Monument. Such infrastructure would have impacts on forest and aquatic habitat beyond the areas previously discussed in these comments. If diesel generators are used to provide power, then trucks transporting diesel to the mine site risk spills into area streams and rivers.

IGMI President, Robert Russell, stated in press reports that he envisions the proposed mine employing 400 people.[95] A sewage treatment plant would likely need to be constructed to cope with so many employees. Nearby communities such as Randle would also need to construct housing, schools, and other infrastructure to cope with the influx of laborers and their families to the area. The EA failed to consider the impacts from such infrastructure.

Noise Pollution

With the heavy equipment, constant movement of large vehicles, and hundreds of workers, mine developments can be very loud. This noise can impact both wildlife and recreationists. In the late seventies, for example, recreationists in the Mt. Margaret Backcountry reportedly heard the exploration occurring at the Margaret Deposit. Noise may also impact the nesting behavior of wildlife in the area, such as the spotted owl. The EA failed to assess the impact of noise on recreationists and wildlife.

Cleanup Costs

There are more than 557,000 abandoned hardrock mines littering the U.S. as of 1995.[96] Of these, there are 78 which are superfund sites.[97] A 1992 EPA report to Congress found that mining practices that resulted in many of the Superfund listings represent methods still used by the mining industry today.[98]

The U.S. Forest Service, moreover, estimated in the mid 1990s that there are 38,000 abandoned mines on land it manages and an estimated 5 to 10 percent of the mines have water quality or hazardous substances problems.[99] According to the Washington Department of Ecology, the state of Washington has 3,800 non-coal abandoned mines, three of these are Superfund sites.[100]

These abandoned mines often continue to pollute after closure and require millions of dollars for management and cleanup. At least 40 percent of stream reaches in the headwaters of western watersheds, for example, are contaminated by mine waste according to the EPA.[101] Total clean-up costs are estimated to range from $32 billion to $72 billion, but little progress has been made because the operators of these mines are often no longer in business and there is no program dedicated to funding the cleanup of abandoned hardrock mines.[102] What little money is available is often used to fund inventories and site closures, but not water quality remediation.[103] Washington State has no program dedicated to the cleanup of abandoned mines.[104]

Mining companies in the U.S., when setting aside deposits for clean up costs, have thus far underestimated the costs of closing their operations by as much as $12 billion according to a 2003 estimate.[105] And according to a June, 2005 report from the Government Accountability Office, the BLM needs to better manage financial assurances to guarantee coverage of hardrock mining reclamation costs.[106]

When the deposits dry up, taxpayers pick up the cost. State agency representatives in New Mexico, for example, estimated cleanup for two large open pit copper mines at more than $800 million.[107]

A report, "Hardrock Reclamation Bonding Practices in the Western United States" by Jim Kuipers, outlines the many problems associated with current reclamation bonding practices.[108]

Abandoned mines also pose a safety hazard. At least 120 people have died at abandoned mine sites over the course of four years due to falling, drowning and gas poisoning, according to the BLM. Open shafts, unstable rock, decayed support structures, deadly gasses, lack of oxygen, exposure to explosives and toxic chemicals comprise the BLM's official list of major abandoned mine dangers.[109]

The EA failed to consider what will occur after the proposed mine at Goat Mountain closes. If they choose to grant a lease and eventually permit mine development, federal agencies must require a reclamation bond that is sufficient to cover clean up costs. Such a bond could be upwards of hundreds of millions of dollars.

Labor & Economics

Robert Russell stated in press reports that mine development in the Goat Mountain area would serve as a significant influx of jobs and money to a "very depressed area that's lost a lot of logging and lumber jobs."[110] Mr. Russell failed to mention, however, several important facts about the economics of major mine development. Mines often provide few local jobs, usually hiring a skilled workforce from

outside the region.[111] Once the mine closes, usually after being in operation for 5 to 30 years, miners brought in from elsewhere are unemployed in the community with few job skills outside of the mining industry. Communities which invested in facilities to cope with the influx of workers are left stuck without the resources to maintain those facilities. It is no wonder than that mining areas exhibit some of the highest poverty and unemployment rates in the country.[112]

The Anaconda Molybdenum Project, for example, was one of Nevada's last experiences with molybdenum mining. The town's unemployment rate went from two percent in 1978 when the mine opened to eight percent in 1982, when the mine shut down. During the same period, the town made a 226 percent increase in infrastructure expenditures to support the industry. Despite such efforts, the mining company gave hiring preferences to employees from its other operations out of state.[113]

Mining is also among the most dangerous jobs in the world, with 15,000 people dying every year from mine accidents such as rockfalls, tunnel collapses, fires, and heat exhaustion. Possibly hundreds of thousands of workers are injured every year. According to the International Labour Organization, deaths within the mining sector as a whole account for five percent of all worker deaths on the job, even though the sector employs just under one percent of all workers worldwide, and these are just the reported deaths, a number go unreported.[114]

Workers also often suffer from a respiratory problem called silicosis, caused by the inhalation of crystalline silica dust. Silicosis can develop after only seven months of exposure to the dust, and can lead to a complete loss of lung function. It also greatly increases its victim's susceptibility to other lung diseases, such as tuberculosis, bronchitis, and lung cancer.[115]

Some of the safety problems can be attributed to corporate malfeasance. On October 9, 2003, for example, the south face of Freeport McMoran's Grasberg gold mine in Indonesia collapsed. Eight workers died and five others were injured. Government investigators turned up evidence that in the days leading up to the accident, seismic data had led mine operators to suspect that slippage was imminent, and that key machinery, but not workers, had been moved from below the unstable zone.[116] Given that Mt. St. Helens is clearly a highly active seismic area, this instability is a significant threat that must be analyzed.

The EA failed to consider what economic costs might result from mine development in the Goat Mountain area. The lease area lies just north and east of the Mount St. Helens National Volcanic Monument, one of the state's most popular tourist destinations with well over 200,000 visitors a year. In 2004, 376 people purchased backcountry camping permits for areas that would likely be within visual or hearing distance of the proposed mine. Such recreational users of national forests spend anywhere between $30 to $224 per party per trip depending on varying factors.[117] How many people will chose not to recreate in the Mount St. Helens National Volcanic Monument and surrounding area due to the presence of a major mine development on or near Goat Mountain? And what economic impact will that have?

The Northwest fishing industry, moreover, is a significant contributor to the region's economy. As recently as 1988 there were an estimated 62,750 salmon-dependent jobs in the Pacific Northwest in the commercial, recreational and tribal fisheries combined, all of which generated about $1.25 billion to the regional economy. With each sport fishing trip averaging about $103 to the economy, according to the Northwest Sportfishing Industry Association, mining impacts to salmon, steelhead, and trout populations of the Green River and Quartz Creek could have economic consequences for the region.[118]

Impacts to the agricultural businesses along the Green, Toutle, and Cowlitz Rivers are also a concern. Toxic waste, for example, killed more than 300 sheep grazing near a mine site in Idaho. After only six days of eating near the mine, the sheep died from selenium poisoning. And it's not the first time, horses and even more sheep fell victim to selenium poisoning at the same site in 2001.[119] The Center for Water and Watershed Studies found that in eastern Washington lactating beef cows drinking from creeks contaminated by acid mine drainage concentrate heavy metals in their milk. Arsenic, nickel, selenium, and zinc were found at concentrations that exceeded Washington's biological and drinking water criteria.[120] This is another critical impact that was not addressed in the EA.

Track Record of IGMI & Its Associates

One way to assess the potential impacts of mine development is to review the track record of IGMI and its associates. Unfortunately their track record does not give much reason for optimism.

IGMI's President, Robert Russell, was the General Manager of Freeport McMoran's Indonesian operations from 1988 to 1995. Freeport McMoran's Indonesian operations include the Grasberg Mine which is the largest gold mine in the world and is responsible for dumping 110,000 tons of mining waste per day directly into the Ajkwa River system, contaminating it with metals and sediments and impacting the local fishery and communities along the river who depend upon the fishery.[121]

Furthermore, during 1994 and 1995, according to Australian Council on Overseas Aid, the Indonesian military, with the assistance of the Grasberg mine's own security forces, "disappeared" or killed 22 civilians and 15 other people they alleged were "guerillas". While there is no evidence that ties Freeport McMoran directly to those events, indirect evidence suggests complicity. In 2003, a document requested by Freeport's shareholders confirmed that the company paid the Indonesian military $4.7 million in 2001 and $5.6 million in 2002. In August of 2002, the military shot and killed two American schoolteachers working near the mine, and one Indonesian mine employee.[122]

The New York Times did an expose of the troubles at Freeport McMoran's Grasberg Mine on December 27th, 2005 in a series of articles titled, "The Cost of Gold / The Hidden Payroll / Below a Mountain of Wealth, a River of Waste."[123]

Mr. Russell also worked for Sunshine Mining which has been sued due to lead impacts on children from its project in Idaho's Silver Valley (see case studies). The company filed for bankruptcy in 2000 and emerged minus debt in 2001.[124]

Three people on Idaho General Mines' Board of Directors; R. David Russell, Richard Nanna, and R. Llee Chapman; work for Apollo Gold Corp. Resource Investor, a financial investment magazine, stated that "There is literally nothing good to say about Apollo Gold's recent history."[125] Apollo Gold Corp., which is on the verge of bankruptcy itself, was formed with the remaining profitable assets of Pegasus Gold, which went bankrupt in 1998. Pegasus Gold owned the Zortman-Landusky Gold Mine in Montana (see case studies).[126]

Exploration

We believe that additional data obtained through new exploratory drilling is not needed to conclude that major mine development is not appropriate on or near Goat Mountain. If federal agencies consider permitting exploration, however, they must take full account of the possible environmental impacts from such activity. The impacts include but are not limited to the reconstruction of roads in the

area and the subsequent impacts on water quality and wildlife habitat, the disturbance of forest habitat at and near drill sites, noise disturbance both to wildlife and recreationists in the area, the possible generation of acid mine drainage, and cumulative impacts.

Case Studies

A review of the experience with mines elsewhere in the country highlights many of the issues already addressed and serves as a warning about the pitfalls of granting a lease to IGMI without careful consideration of all the potential and likely consequences. Below are several case studies which highlight our concerns.

The **Grouse Creek mine, an open pit gold mine in Idaho,** began operations in 1994 and shut down after only three years and without making a profit. In 1992, when the U.S. Forest Service permitted the mine, they said "the tailings impoundment is a zero discharge facility" and "no significant impacts on water quality are expected to occur from the proposed project." Between May, 1994 and June, 1996, the EPA cited Hecla Mining Company for 258 violations of its discharge permit, including cyanide and mercury spills and leaks into Jordan Creek, a tributary of the Salmon River and habitat for salmon, steelhead, and bull trout, and fined them for $85,000. Discharges exceeded the limits by more than five times the allowable levels over a period of 13 months. A 40-minute cyanide spill at the mine resulted in the contamination of a nearby creek at 1.31 parts per million, 60 times higher than levels toxic to fish. In 1994, a major landslide at the mine buried nearby Jordan Creek. In 1997, Hecla suspended operations citing low gold prices. Hecla continued to violate water quality standards for another 210 straight days by releasing cyanide into Jordan Creek at over 12 times the levels at which chronic exposure to the chemical negatively affects fish and other aquatic organisms. The Forest Service posted signs reading "Caution, do not drink this water" and used Superfund authorities to dewater the threatening tailings impoundment.[127]

Lead and arsenic from abandoned silver, lead, and zinc mines in **Idaho's Silver Valley/Bunker Hill area** poisoned the Spokane River in Washington nearly 50 miles away. The Spokane Regional Health District has posted signs along the river warning that "swallowing or breathing loose shoreline soils may be an increased health risk to people, especially infants, small children and pregnant women." Residents of Silver Valley, Idaho have been forced to leave their homes due to mining waste contamination. In the early 1970s a fire in one of the smelters released high emissions of lead in the area, and in 1974 22% of children tested in the area had blood lead levels higher than 80 micrograms per deciliter. Ten micrograms per deciliter is considered the "level of concern" by the CDC. Up to 29% of Silver Valley children still have blood lead levels greater than the level of concern, whereas the national average is about 2.2%. This is one of the highest blood lead levels in children in the U.S. Lead exposure can cause elevated blood pressure, damage to organs, damage to children's developing brains, behavioral disorders, learning deficits, etc. The Silver Valley site is now a Superfund site.[128]

The Gilt Edge (or Brohm) mine, **located near Deadwood, South Dakota** and the headwaters of municipal water supplies for the northern Black Hills, operated from 1988-1996. When the mine was permitted, acid mine drainage was not considered an issue, but in 1992 the mine began generating acid mine drainage and has since left streams unable to support a viable fish population. Dakota Mining, the parent company, was cited several times for environmental violations and lack of compliance with pollution limits. Numerous cyanide spills occurred and cyanide was detected in groundwater and nearby creeks. In 1998, the Brohm mining company threatened to abandon costly water treatment after its parent company, Dakota Mining, declared bankruptcy, but the Governor of South Dakota sued to keep the company from abandoning the site. The company's $6 million reclamation bond would not even

cover water treatment costs for one year. Clean up costs are estimated to be $15 million. The mine is now a Superfund site.[129]

Residential drinking water was compromised by the spill of 52,000 gallons of cyanide from the **Zortman-Landusky Gold Mine in Montana**. The mine also contributed acid mine drainage to surface and groundwater sources. Half of all streams emanating from the mine area have been seriously polluted with acid and heavy metals. Federal and State agencies predicted no adverse impacts to water quality when permitting the mine. Pegasus Gold Inc., the owner of the mine, declared bankruptcy in 1998, passing the cleanup bill onto taxpayers. Just before declaring bankruptcy, the board of directors voted to give themselves $5 million worth of bonuses. The company had $60 million in cleanup bonds, but that could be short by as much as another $60 million to adequately clean up the site. State and federal authorities have determined that acid runoff from the mine will have to be collected and treated in perpetuity. Since 1999, over a billion gallons of acid runoff have been intercepted. In 2003, nearby tribes filed suit for ongoing water quality violations. The state's voters banned open pit cyanide leach mining in a statewide initiative in 1998 as a result of this experience.[130]

At **Summitville gold mine** in **southern Colorado**, which was in operation from 1986-1991, a bankrupt Canadian company, Galactic Resources, has left the nation's most costly mine cleanup. It will take 100 years and cost $235 million to clean up the release of cyanide and acid mine drainage that has left 17 miles of the Alamosa River devoid of fish and other aquatic life. The Alamosa is also a water source for irrigated crops downstream. The abandoned mine is now a Superfund site. The company mined a total of $130 million worth of metals at Summitville and was permitted as a "zero discharge" mine.[131]

The Molycorp Molybdenum Mine in Questa, New Mexico began operations in 1964 and has had over 100 tailings slurry spills into the Red River in a five year period. Acid mine drainage from the site has killed all aquatic life in an eight mile stretch of the Red River, which is in the Rio Grande watershed and was once habitat for a blue ribbon trout fishery. Heavy metals such as copper, silver, lead, zinc, and cadmium have been detected at both acute and chronic levels in a 20 mile stretch of the Red River. Toxic dust containing lead from the enormous tailings ponds often blew into Questa, forcing the relocation of the local high school. The local Junior High School later moved into the abandoned high school.[132]

The **Thompson Creek Mine** is a molybdenum mine near **Clayton, Idaho** which produces acid mine drainage despite it not being considered an acid mine drainage risk when the mine was permitted by the Forest Service. The mine has one of the largest tailings dams in the world, which is expected to hold 200 million tons of tailings with a 700 feet high dam. The mine is only 30 miles from the epicenter of the 1983 Mt. Borah earthquake and the region is subject to harsh winters and intense summer storms, so the threat of dam failure is real. The mine is located 2,000 feet above and 5 miles away from the Salmon River with its salmon runs and recreation use.[133]

Greens Creek Mine, located in the **Admiralty Island National Monument in Alaska**, produces eight times the amount of waste generated by Anchorage each year. The mine produces acid mine drainage, despite assurances from the U.S. Forest Service and the company that acid mine drainage would not be a problem. It is Alaska's largest discharger of persistent bio-accumulative and toxic chemicals at 15 thousand pounds a year. The mine has violated the Clean Water Act 391 times by releasing illegal levels of copper, zinc, cyanide, and acids. The state environmental agency fined the mine for violations of its state air quality permit due to its use of an unauthorized diesel generator that released 148 tons of nitrogen oxide over two years.[134]

The **Leviathan Mine in Markleeville, California** was originally mined for copper sulfate in the 1860s and in the 1940s & 50s it was developed into an open pit sulfur ore strip mine. At least 22 million tons of high sulfur waste rock has been distributed throughout the site and exposed to the elements. Acid mine drainage has affected Leviathan, Aspen and Bryant Creeks, as well as the River Ranch Irrigation Channel. Aluminum, arsenic, cadmium, iron, manganese, nickel, and thallium have all been found at elevated levels in surface water and sediments downstream of the site. In 1959, there was a massive fish kill in the East Fork of the Carson River after a dike failed and dumped acid mine drainage into Leviathan Creek. A survey of Bryant Creek in 1969 showed that it was completely toxic to aquatic life and no longer supported a fishery. Multiple cattle deaths related to the consumption of water in the area have also been reported. Exposure to arsenic from swimming or wading in affected waters increased cancer risk in humans and exposure to arsenic, manganese, and thallium caused non-cancerous effects to humans. The Agency for Toxic Substances and Disease Registry recommended avoidance of all surface water at the site and in Leviathan and Aspen Creeks.[135]

The **Rain Gold Mine, near Elko, Nevada**, was not supposed to generate acid according to Newmont Mining because acid based accounting tests on rock samples indicated that it would not be a problem, but acid mine drainage has been a problem since 1990, contaminating two miles of nearby Dixie Creek.[136]

Lessons From Case Studies

There are several important lessons to be learned from these case studies. Perhaps the most troubling is the repeated failure of federal agencies to predict and control for the impacts caused by the mines. This is especially notable for the failure to predict the likelihood of acid mine drainage.

Recent scientific research by Jim Kuipers, P.E. and geochemist Ann Maest, Ph.D. highlights this point, finding that government and mining company predictions about water quality impacts from proposed mines usually do not match the actual level of water pollution that results from the new mine. Despite assurances from government regulators and mine proponents that mines would not pollute clean water, the researchers found that 76 percent of studied mines exceeded water quality standards - polluting rivers and groundwater with toxic contaminants such as lead, mercury, arsenic and cyanide, and exposing taxpayers to huge cleanup liabilities.[137]

The report analyzed water quality predictions and outcomes at 25 representative metal mines permitted in the United States during the last 25 years. The scientists found that predictions of mining's impact on clean water were made without checking the results of past predictions. They also found that predictions were often made using inadequate information, incorrectly applied. Not surprisingly, mitigation measures based on the inaccurate predictions also typically failed to protect clean water.

Among the report's findings for the 25 mines examined in depth:

- 76 percent of mines exceed groundwater or surface water quality standards
- 93 percent of mines that are near groundwater and have elevated potential for acid drainage or contaminant leaching exceeded water quality standards
- **For mines with characteristics similar to that of the proposed Mount St. Helens mine (i.e. near surface streams and having an elevated risk for acid drainage), water quality standards were exceeded at 85 percent of the mines.**
- Mitigation measures predicted to protect clean water failed at 64 percent of the mines.

Another important lesson learned from the case studies is that the impacts that occurred were very significant, in many cases the decimation of all aquatic life for miles. Another common theme was the mining companies repeated violations of state and federal regulations. A final lesson is that reclamation bonds were often set way too low to cover the eventual costs of environmental cleanup. The EA failed to consider the history of the mining industry in the United States in evaluating whether or not to grant IGMI a lease to land and minerals at Goat Mountain.

Conclusion

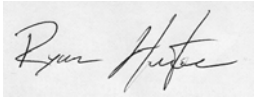
The EPA, according to its Toxic Release Inventory, has rated hardrock mining as the nation's top toxic polluter. Based on pollution levels reported by the industry itself, the industry released 3.9 billion pounds of toxic chemicals in 1999 and 2.8 billion pounds of toxic waste in 2001, more than any other industry.[138] The Environmental Working Group, furthermore, has identified 374 U.S. watersheds used for drinking water that were impaired or threatened by metal pollution from mining.[139] The very significant impacts of mine development cannot and should not be ignored.

It is clear from the information presented in these comments that a major mine, such as the one envisioned by IGMI, is not appropriate on or near Goat Mountain. Mine development of the Margaret Deposit is likely to result in a large open pit mine or underground mine that produces acid mine drainage, posing a significant risk to aquatic life, human health, and the region's agricultural economy. Such development in the seismically active Mount St. Helens area would also pose a significant risk of accidents, leaks, and tailings dam failure resulting in the release of potentially large quantities of toxic waste into the environment. Contamination and dewatering of nearby streams and lakes, toxic air pollution, the destruction of important wildlife habitat, and impacts to popular recreation destinations are additional potential and likely consequences of development. Any economic benefits gained by mine development will likely be far outweighed by development's economic, human health, and environmental costs.

Federal law states that the BLM will not issue a permit or lease unless it conforms to the decisions, terms and conditions of an applicable comprehensive land use plan, and applicable environmental requirements.[140] Federal law also requires that the proposed lease be issued only if it is in the public interest.[141] Based on the information provided in this letter, it is clear that any modern mine developed at Goat Mountain as a result of granting this lease would not meet these criteria. We therefore recommend that the BLM and USFS deny IGMI's lease application at this time.

Thank you for taking the time to consider our thoughts and concerns on this issue. If you have any questions about these comments, please contact the GP Task Force at 503-221-2102 ext. 101 or 917 SW Oak St., Suite 410, Portland, OR, 97205.

Sincerely,



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Appendices:

A: Maps detailing site characteristics of the Goat Mountain area

B: Watershed Analysis for the Upper Toutle River Watershed and Lower Cispus Watershed

C: Sustainable Ecosystems Institute's "Scientific evaluation of the status of the Northern Spotted Owl"

D: Articles and Editorials on proposed mine

E: Underground Hardrock Mining: Subsidence and Hydrologic Environmental Impacts by Steve Blodgett, M.S. and Jim Kuipers, P.E.

F: Washington Department of Ecology's "Second Screening Investigation of Water and Sediment Quality of Creeks in Ten Washington Mining Districts, with Emphasis on Metals"

G: Washington Department of Ecology's Water Rights Table

H: Tailings Impoundment Failures: Are Geotechnical Engineers Listening? by Michael P. Davies

I: Pacific Northwest Seismograph Network's Earthquake counts & RMS amplitude at Mount St. Helens

J: Hardrock Reclamation Bonding Practices in the Western United States by Jim Kuipers

K: Mount St. Helens NVM's Visitor Counts and Mt. Margaret Backcountry Visitation Counts

L: Comparison of Predicted and Actual Water Quality at Hardrock Mines & Predicting Water Quality at Hardrock Mines, both by Jim Kuipers, P.E. and Ann Maest, Ph.D.

M: Prior legal comments from the Western Mining Action Project on behalf of the GP Task Force & Earthworks

N: GP Task Force Response to IGMI's Public Statements

O: Lower Columbia Salmon Recovery and Fish & Wildlife Subbasin Plan

P: New York Times article on Freeport-McMoRan's Grasberg Mine

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