

CHAPTER 2: ALTERNATIVES

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CHAPTER 2: ALTERNATIVES

INTRODUCTION

This chapter describes and compares the alternatives considered for the Granite Mining Draft EIS. It includes a description of each alternative considered and presents them in a comparative form, displaying the differences between each alternative and providing a clear basis for choice among options by the decision maker and the public. Topics discussed in this chapter include:

- ❖ the process used to formulate alternatives;
- ❖ alternatives considered but eliminated from detailed study (including the rationale for elimination);
- ❖ alternatives considered in detail;
- ❖ management requirements common to all action alternatives;
- ❖ specific mitigation and monitoring proposed for the project;
- ❖ alternative comparison; and
- ❖ a discussion of how each alternative addresses the significant issues identified for the project.



ALTERNATIVE DEVELOPMENT

Operators of the mining claims included in the analysis were contacted by the Forest Service in March of 2000 and asked to update their Plans of Operation. In some cases, the operators provided a revised plan and in other cases, they simply stated they intended to continue with the operations outlined in their existing plan. Two claims included in the analysis had been recently purchased by new owners and/or reclaimed and new plans submitted for these operations (PBGF and East Ten Cent). Several of the miners contacted indicated that they were only going to do assessment work in the foreseeable future and it was determined that the work did not require a plan of operation. These claims were dropped from the project. The Forest Mining Technician then reviewed each of the remaining plans and added the standard measures necessary to make the Plans legal. This included the addition of standard management requirements applicable to every claim, a reclamation plan and a calculation of a bond. The plans as submitted have been combined to form Alternative 2.

Next, the interdisciplinary team reviewed the updated plans. Using the key issues as a guide, they identified additional mitigation that could be added to the plans to reduce adverse environmental effects. The options were then reviewed by the team to determine if they were feasible and reasonable for the operator to implement. The additional selected mitigation was added to the plans to develop Alternative 3.

ALTERNATIVES ELIMINATED FROM DETAILED STUDY

Federal agencies are required by NEPA to rigorously explore and objectively evaluate all reasonable alternatives and to briefly discuss the reasons for eliminating any alternatives that were not developed in detail (40 CFR 1502.14). Public comments received in response to the Proposed Action provided suggestions for alternative methods for achieving the purpose and need. Some of these alternatives may have been outside the scope of establishing terms and conditions supporting approval of plans of operation, duplicative of the alternatives considered in detail, or determined to be in conflict with state or federal law. Therefore, a number of alternatives were considered, but dismissed from detailed consideration for reasons summarized below.

Mining should be prohibited within the North Fork John Day River Basin due to the critical importance of the river as essential habitat for imperiled salmon, steelhead and bull trout. Forest Service regulations do not provide for denying a reasonable Plan of Operations. Thus, not responding to the need to act on the proposed Plans of Operation or denying them is not a viable option under the mining regulations. Denying the Plans of Operation would require a Congressional change in the current law, and is outside the scope of this proposal.

An alternative should be developed that requires an examination on each claim to assure the claim is valid before the Plan of Operation is approved. Many of the small-scale placer operations in the proposal were mined out long ago and are no longer economically profitable. There is no provision or direction in 36 Code of Federal Regulations (CFR) 228 A requiring that a discovery and valid existing rights be established on a claim prior to analysis and approval of a proposed Plan of Operations, with the exception of mining proposals in wilderness and other areas withdrawn from mineral entry (36 CFR 228.15). Other areas usually withdrawn from mineral entry include, but are not limited to, wild river corridors, Research Natural Areas, and municipal watersheds. The public laws that withdraw these areas from mineral entry include the provision that appropriation under the Mining Law will be subject to valid existing rights. The presence of a discovery of a valuable mineral, as defined in the 1872 Mining Law and subsequent 130 years of court cases, within the bounds of an unpatented mining claim is required to establish valid existing rights.

Although the statutes require the discovery of a valuable mineral deposit prior to the location of a claim, the courts and the Department of Interior have recognized a right of possession, in the absence of the discovery required by statute, if the claimant is diligently prospecting. The Forest Service recognizes this principle, and in keeping with the policy of encouraging bona fide prospecting and mining, will not discourage or unduly hamper these activities. Rather, the Forest Service will aid the legitimate activities of a prospector making bona fide efforts to obtain a discovery on a good prospect. On the other hand, the Forest Service will oppose attempts by prospectors to build permanent structures, cut timber, or build or maintain roads, unless authorized by

special use permit or approved operating plan. A mining claim may lack the elements of validity and be invalid in fact, but it must be recognized as a claim until it has been finally declared invalid by the Department of the Interior or Federal courts (FSM 2811.5).

Therefore, valid existing rights determinations are not required prior to approving mining operations on claims in areas opened to mineral entry under the Mining Law.

An alternative should be developed that not only includes the approval of Plans of Operations, but takes a holistic approach to improving degraded water quality in the Granite Watershed. The alternative needs to include a significant restoration component to address high temperatures and habitat modification presently found in the streams located in the watershed. This alternative is outside the scope of the project. Alternatives need to respond to the Purpose and Need identified for the project, which is to either: (1) respond to modify existing Plans of Operation to address listing of bull trout and steelhead trout as threatened under the Endangered Species Act 36 CFR 228.4(e), or (2) Approve Plans of Operations on other claims located within the watershed determined to likely cause significant disturbance 36 CFR 228.4(a). All activities incidental to the proposed mining activity are included in the analysis and management requirements and mitigations will be included to minimize adverse environmental impacts 36 CFR 228.8. However restoration activities not directly associated with the Plans of Operations being considered were not included because they do not meet the Purpose and Need established for the project.

A focused Water Quality Restoration Plan is being developed for the project area. The plan will address strategies and activities need for attainment of water quality standards. The plan will be completed before the Record of Decision for the Granite project is signed. The plan will be utilized by the State of Oregon when developing the Total Maximum Daily Load for the parameters causing beneficial use impairment. Specific restoration projects identified in the Water Quality Restoration Plan will be implemented under separate NEPA analyses when funding becomes available.

ALTERNATIVES CONSIDERED IN DETAIL

Three alternatives are considered in detail: the No Action, the Proposed Action, and one alternative to the Proposed Action. A map showing the location of the claims being considered in the analysis is provided at the end of chapter 1. Since the location of the claims will not change between alternatives, the same map is applicable to all alternatives.

Alternative 1 – No Action

The Interdisciplinary Team considered various approaches to meeting the legal requirements for a No Action Alternative. The 40 CFR regulations, which were developed to implement the National Environmental Policy Act, require that a No Action Alternative be analyzed to establish a baseline for the effects of alternatives. No mining was considered for the No Action Alternative, but the Team determined that no mining was an action, since it would represent a change from the current situation.

The No Action Alternative is defined as no change from the current situation. The Plans of Operation for the 16 operations included in the analysis would not change. This alternative maintains the current situation; it allows currently approved Plans of Operation to continue. No revised modifications to existing plans or proposed new plans would be implemented. This alternative cannot be implemented, since Forest Service Regulations in 36 CFR 228, subpart A, does not provide for denying a reasonable Plan of Operations.

Table 2.1, a summary of Alternative Descriptions, located at the end of this chapter includes a list of the operations included in this analysis and the activities proposed in Alternative 1.

Alternative 2 – Proposed Action

Alternative 2 is the Plans of Operation as submitted by the claimants. In some cases revised plans were submitted, but in most cases the proposed action includes the plan currently on file with the Forest Service. In addition to the Plan submitted by the claimant, applicable Management Requirements as well as reclamation plans and where necessary a reclamation bond were added to the Plan. The same requirements are incorporated in Alternative 3. Table 2.1 lists the changes between Alternative 1 and 2. A more detailed narrative description and outline of the activities proposed in Alternative 2, is located under Proposed Action on pages 1-5 thru 1-17 in chapter one.

Alternative 3 – Proposed Action with mitigations

The intent of alternative 3 is to minimize adverse environmental impacts on National Forest surface resources [36 CFR 228.8]. In addition to the management requirements identified for Alternative 2, mitigation will be added to individual Plans of Operation to address specific resource concerns related to those operations. A summary of this additional mitigation can be found in table 2.1 at the end of this chapter. In addition to this mitigation, the following other actions are incorporated into Alternative 3:

1. Forest Service Road 1035012 and the access road to Hopeful 2&3 will be gated and motorized access will only be available to the miners with claims along these roads. Although designated and signed as a closed road on the District Access and Travel Management Plan, the 1035012 road currently is not gated and has unauthorized use.
2. A focused Roads Analysis was completed for the area in and adjacent to the 16 mining operations in this analysis. The need for each existing road in the area was reviewed and because of that analysis the obliteration/decommissioning of 3 segments of roads, totaling 2.25 miles, will be included in Alternative 3.

Management Requirements Common to the Plans of Operations in Alternatives 2 and 3

Management Requirements are standard management practices that are designed to reduce the adverse effects on mining and associated activities. These measures will be included in all Plans of Operations.

General Requirements

- Operations where mechanized equipment is used will have reclamation bonds, operating plans and reclamation plans as required by PACFISH/INFISH.
- Sites are kept neat and orderly and garbage is regularly removed from the National Forest.

Hazardous Materials

- No waste storage occurs in riparian areas, floodplains, or spring areas.
- Hazardous materials are stored out of the floodplain.
- No chemicals are used in the operations.
- If on-site fuel storage is approved, operators are required to have a lined containment vat and a spill prevention plan will be made a part of the operating plan.
- All equipment will be checked for fluid leaks.
- Fuel for pumps will be stored off the ground in the bed of the pickup or on a trailer. Pumps will be refueled to prevent spillage. A funnel will be used to ensure fuel does not leak into the stream. Waste oil or other petroleum products may not be disposed of at the site and must be removed from National Forest.
- No fueling of equipment or routine maintenance will take place near streams, springs or wetlands.
- If there is a spill of petroleum products, the contaminated soil will be removed from the National Forest.

Noxious Weed Control

- All seed and straw used is certified free of noxious weeds.
- Areas of bare soil created by the operation are seeded using a Forest Service approved seed mix.

- Reclamation of excavations will be ongoing so only a minimum amount of ground is open at a given time.
- Forest Service will provide the minerals operator with weed identification material so that they might be better able to recognize the presence of noxious weeds.
- A copy of the known noxious weed infestations map will be included in the approved plan of operations for this project.
- All equipment to be operated on the project area will be cleaned in a manner sufficient to prevent noxious weeds from being carried on to the project area. This requirement does not apply to passenger vehicles or other equipment used exclusively on roads. Cleaning, if needed, will occur off National Forest System lands. Cleaning will be inspected and approved by the Forest Officer in charge of administering the project.
- Machinery moved into the mining area for testing will use one route in and the same route out. In this way, the disturbance of existing vegetation is limited, providing a smaller area, which is at a higher risk to infestation from noxious weeds, and providing a smaller area for noxious weed dispersal by equipment (even though the equipment is to be cleaned).

Erosion Control

- During ongoing mining activities all disturbed sites (road cut and fill slopes, camp site, ponds, dumps and stockpiles) are maintained in a stable condition.
- Roads are treated to prevent significant soil movement, rutting and sedimentation. Treatment may include spot rocking, installation of water bars, ditching and out-sloping of road surfaces where possible. The Forest Service will be contacted if work with mechanized equipment is needed to stabilize the road.
- Forest Service roads are protected from damage. Driving native surface roads during wet weather will be avoided where possible.
- If dust or rutting is a problem, roads will be rocked.
- Topsoil is scraped off the test/mining locations and replaced after testing/mining is complete. Washed gravel is returned to the mining excavation before topsoil is replaced.
- Where tree removal is approved, trees are spread over the reclaimed ground after reclamation.
- Grass, brush and trees are replanted to the current or greater densities.
- All mined areas are returned to normal or near normal contours.

- All mined areas are stabilized prior to seasonal shutdowns or extended equipment maintenance and before equipment removal.
- All stockpiled topsoil and/or other suitable fines such as silt from the settling ponds, are evenly spread back over disturbed areas on completion of the operation and/or in an ongoing restoration program. Areas are reclaimed to the pre-mining condition or better.
- Piles of wood or straw bales are available in case of erosion caused by storm events.
- Water will be contained in ponds with no discharge allowed. All ponds are left dry or at the normal water table during seasonal shutdowns.
- All mining excavations in the annual floodplain will be reclaimed before winter shutdown.
- Restoration activities, if approved in plan, take place throughout the mining season.
- If sediment is visible in the stream below the mining site, the operation will cease work, the cause of the sediment determined and the problem corrected before further mining or processing takes place.
- Process water will not be discharged.
- Vegetation providing essential shade and or bank stability to the stream will not be removed (includes brush and trees), unless approved by the Forest Service.
- The streams will not be dried up when make-up water is taken from the creek.
- There will be no damming of water in the streams.
- A zero discharge settling/recycling system is utilized.
- Surface run-off water is ditched around the operating site to ensure this run-off water does not become process water.
- The operator will avoid and/or protect any known or discovered threatened and endangered plants.
- All ground disturbing operations outside this plan will have prior written approval of the Forest Service. Proposals not in this plan will be submitted in writing and will be made an addendum to this plan.
- During close out reclamation, mine access roads are seeded, covered with wood and closed to vehicles.

- At the close of operations, all vehicles, trailers, structures and associated mining equipment are removed from National Forest system lands.
- For Pick & Shovel type work a site specific buffer at least three feet wide, measured horizontally from the annual bank full width of the stream, of vegetated ground, rock, or tailings will exist between the test site and the stream.
- Wood and straw bales certified free of noxious weeds may be used to establish a barrier along the banks to control sediment movement toward the creek.
- Placer gravel exposed in stream banks will not be sampled. Stream banks above the water line will not be impacted in any way that could destabilize the banks or cause sediment to be introduced into an adjacent stream.
- Highbankers, sluice boxes, and other small processing plants will be set up at least 20 feet from the stream or as determined on a site specific basis. Muddy water will be allowed to seep into rocky areas or ponds and depressions. The Forest Service will approve the area before process water is discharged. There will be no discharge into the stream.
- Straw bales and filter cloth may be used to provide an additional buffer agent along the stream (use in areas where vegetation is sparse or banks slope toward the creek).
- Forest Service personnel will check areas proposed for work at the beginning of each operating season. They will ensure stream buffers, straw bales, filter cloth, and other protective measures are being utilized as required for each site.
- For Pick & Shovel type work new areas of disturbance will not be contiguous in one season. If the first area is reclaimed during one season, an area at least 20 foot long running parallel with the stream will be skipped before a new area is opened up. Once vegetative cover is established on the first reclaimed area, the second area contiguous to the first may be opened up.
- Areas of disturbance in the annual floodplain will be reclaimed annually or as determined on a site-specific basis.
- Reclamation of disturbed areas will be ongoing within the RHCA. This will include refilling test holes, planting grass, brush, and trees to the original densities, and mulching with wood or straw certified free of noxious weeds.

Cultural Resources

The operator must protect all cultural resources identified by the Forest Service during the cultural resource compliance process.

This means the operator shall protect, in place, all cultural resources including, but not limited to:

- (1) historic sites, buildings, ruins of buildings or cabins, and other structures such as corrals, water troughs and fences
- (2) historic artifacts or relics such as coins, cans, bottles, tools and all other historic items
- (3) prehistoric sites, burial sites, rock art, Indian middens and all other evidences of prehistoric Indians
- (4) Indian artifacts or relics such as arrowheads, spear points, stone tools, beads, and all other prehistoric items. This responsibility includes the obligation to prevent operators' employees and guests from disturbing, injuring, destroying, looting or collecting any cultural resource.

In order to assist the mining operator, before approval of this operating plan, the Forest Service has obtained adequate cultural resource inventory data to insure compliance with Section 106 of the National Historic Preservation Act of 1966 as amended.

Camping

- Campsites will be located at least 300 feet from the stream wherever possible. Industrial camping will occur only during the time mining is taking place.
- Outhouses will be located at least 300 feet from the stream and will be constructed to DEQ regulations. Chemical outhouses may also be utilized and may be located closer to streams.
- Showers and all gray water will be disposed of outside the RHCA.
- All garbage will be removed regularly from the National Forest.
- Trailers will be removed from the National Forest seasonally.

Additional Management Requirements common to claims in Alternatives 2 and 3 where suction dredging is included in the Plan of Operation.

Some Plans of Operation include suction dredging as part of the proposed activities. The following measures will be added to all Plans of Operation where suction dredging is proposed.

Suction Dredging

- Dredging is not permitted during the periods of fish spawning or egg incubation. Therefore, operations are restricted to the following periods:

All Anadromous Watersheds

July 15 - Aug 15

- Dredging is permitted only within the wetted area of the active stream channel where the dredging spoils are relatively clean and will cause minimum turbidity when returned to

the stream. Mining of stream banks or upland areas is not authorized. Dredges will not be used in the dry gravel bars beside the stream.

- Dredging shall be performed such that in-stream turbidity will be minimized and localized to the general area of the dredge activity. If turbidity is visible 300 feet downstream from one or more working suction dredges, then turbidity exceeds allowable in-stream water quality standards and dredging must stop. Tailings shall not be discharged into any naturally occurring pool in the work area if it will reduce the volume or depth of the pool.
- Removal or disturbance of rooted or embedded woody plants in the stream including trees and shrubs is prohibited.
- Suction dredging shall be performed such that undercutting of stream banks and riparian vegetation does not occur.
- Care shall be taken by the operator during refueling of the dredge to prevent spillage. The suction dredge shall be checked for leaks prior to start of operation. The gas can used for refueling will contain slightly less fuel than the amount needed to fill the tank. A funnel will be used to ensure fuel does not leak into the stream. Waste oil or other petroleum products may not be disposed of at the site, and must be removed from the National Forest.

Spill kits (reabsorbing matter) must be available in case of an accidental fuel spill.

Fuel will be stored out of the floodplain so that spills into streams or rivers do not occur.

In the event soil is contaminated with spilled petroleum products, the soil will be excavated to the depth of saturation and will be removed from the National Forest.

- The operator shall provide a safe passage for fish around and through the active mining area.
- The suction dredging activity shall be conducted such that it will not result in the formation of a dam within the stream or divert a waterway.
- No suction dredging shall be allowed in streams designated by the State of Oregon, Department of Environmental Quality, as water quality limited for temperature if the activity would result in a measurable increase in temperature.
- When layers of clay, ash, or areas of heavy sediment are uncovered during dredging activities, causing visible sediment 300 feet downstream from the operation, activities will cease and the dredge will be moved.

- Rocks that are placed downstream from the dredge, which might stop fish passage during low flows, will be removed from the stream following dredging or spread around near the banks where they will not be barriers to fish passage.
- Whenever possible woody debris will be left in the stream and along the banks. If it is necessary to remove the wood to get the dredge into the stream, the wood will be replaced when dredging is finished.
- Riparian shrubs along stream banks will not be disturbed unless necessary. Ideally, dredges will be unloaded into streams where no vegetation exists and will be floated into place. However, if brush must be removed, it will be planted back to approximate current densities. A maximum five-foot opening will be cut in the riparian shrubs along the stream banks leaving the roots in place.
- If areas of bare soil result from camping or other incidental activities associated with this operation, these will be re-vegetated with a seed mixture which is certified free of noxious weeds.
- A site specific reclamation bond may be required to ensure reclamation takes place when surface disturbance results from the suction dredge operation (i.e. brush removal, areas of bare soil beside the stream, rocks placed in riparian areas, damage to stream banks).

MONITORING

The following monitoring activities will be implemented for both action alternatives. Activities and their effects, including adequacy of Management Requirements and specific mitigation measures, will be monitored for each specific Plan of Operations.

Mining Claim Administration

The Forest Minerals Technician is responsible for completing minerals inspections and review to determine if Forest Plan standards and guides, as well as the requirements in the Plans of Operation are being met. All active operations are visited weekly when operating to assure compliance. If operations are found not to be in compliance, the Minerals Technician is responsible for assuring corrective action is taken. The Minerals Technician is also responsible for reclamation reviews. These review assure that requirements in the reclamation plans are being properly implemented and completed in a timely manner.

The periodic inspections by the Minerals Technician also include monitoring for any new noxious weed infestation. Claimants are taught to recognize the most troublesome noxious weeds and with their help, newly established infestations can be controlled before they have a chance to grow or spread.

Information from the mineral inspections is summarized yearly in the “Monitoring and Evaluation Report for National Forests of the Blue Mountains”.

PACFISH/INFISH Implementation Monitoring of Minerals

In FY 2001, the Interagency Implementation Team (ITT) developed four new implementation monitoring modules to be tested in FY 2001. One of the modules included mineral activities. The modules have been designed to meet the implementation monitoring needs of the Forest Service PACFISH and INFISH and the legal requirements of the Biological Opinions for salmon (March 1, 1995) and steelhead (June 19, 1998) issued by the National Marine Fisheries Service, and for bull trout (August 14, 1998) issued by the U.S. Fish and Wildlife Service. This monitoring will continue to be expanded in the upcoming years.

All mineral activities areas are assigned to a Module Category. There are three categories: I includes activities within Riparian Habitat Conservation Areas (RHCA's) in subwatersheds having ESA-listed fish species; II includes activities within RHCA's in subwatersheds with no ESA-listed fish species; and III includes activities not within RHCA's. Most claims being analyzed in this project fall into Category I.

Currently, monitoring is focusing on whether or not PACFISH/INFISH direction has been included in minerals management activities. The initial screening is designed to determine:

- ❖ If applicable standards and guides and other regulations have been incorporated into plans of operation.
- ❖ If requirements developed during project specific consultation have been incorporated into plans.
- ❖ If the plans contain stipulations for modification including reclamation requirements and bond amounts.
- ❖ For surface disturbing activities, are reclamation requirements included, and is a bond in place.
- ❖ If reclamation requirements in the permit provide for needed short, or long-term monitoring and maintenance of the reclaimed project site
- ❖ If operations under this plan meet the PACFISH/INFISH riparian management goals and objectives and avoid adverse impacts to listed species and their habitat.

During the 2001 field season the draft-monitoring module for minerals was tested. Results of tests are being evaluated and a final protocol is expected in 2002. When finalized, this monitoring will be helpful in determining if PACFISH/INFISH requirements are being implemented properly on the District.

Water Quality

Mining and suction dredging, by their natures, mobilize sediment from stream channels, banks, floodplains, and possibly adjacent slopes. If funding is available, it will be necessary to establish a channel reference site downstream of activity in order to quantify this sediment. This site will be accessible by road before, during, and after the operating season, but does not need to be open all year. At this site, a valley and a channel cross section will be established. The channel cross section will be resurveyed after 1 year, then after 5 years, and then every 10 years, or as needed. A Wohlman pebble count and a discharge measurement will be conducted when the site is

established, and every year thereafter. The location of this site and timing of measurements may be adjusted to obtain an adequate scale to detect changes. Bedload sampling and turbidity sampling may also be employed. The Mining EIS project is adjacent to the Buck Creek Prescribed Fire project, and it may be necessary to locate the site downstream of both projects. If there are large or quick changes in cross section, sediment, or flow, wading surveys will be conducted to identify sources of sediment or diversions of water. The goal of this monitoring is to determine if the channel geometry of these streams changes and the quantity of sediment above baseline that is mobilized and re-deposited. If necessary, monitoring needs to identify the source of the sediment.

Fisheries

Current monitoring within the watershed includes redd counts by Oregon Department of Fish and Wildlife which is done each year. The Umatilla surveys all watersheds within the forest on a 10-year rotational basis. Current funding has reduced the amount of streams surveyed. Water temperature is taken on an annual basis from several locations within the watershed. Fishery and Hydrology specialists will accompany the Mineral Tech during site visits at least once a year to determine the effectiveness of management requirements. Information gathered during these visits will be documented.

OTHER ACTIVITIES IN THE AREA

A number of activities that occurred in the past still have residual effects on the resources in the Granite watershed. There are also a number of ongoing and foreseeable future activities within this area. A potential exists that any of the activities, together with the mining operations occurring in the area could result in an incremental increase in overall effects to resources. Such cumulative effects are discussed in Chapter 4 of this document. The past, ongoing, and foreseeable future activities that could contribute to cumulative effects are summarized here, with a more detailed description in Appendix A.

Past Activities

- ◆ dredge mining in Clear Creek and Granite Creek and some tributaries
- ◆ Fremont Powerhouse operation and restoration
- ◆ 477 miles of existing roads (Forest Service, State, County, Private) currently within the analysis area, of which 413 miles are open for public use
- ◆ 9,590 acres of commercial harvest (commercial thinning, clearcut, salvage)
- ◆ unknown acres of harvest on private lands within the analysis area
- ◆ 9,941 acres of re-planting in old harvest units and burned areas
- ◆ grazing of livestock on 7,559 acres within the watershed
- ◆ installation of numerous instream log weir aquatic habitat structures in Clear and Granite creeks
- ◆ planting of riparian shrubs and trees on portions of Clear and Granite creeks

- ◆ development of the Olive Lake Campground and trail, two individual trailheads

Ongoing Activities

- ◆ 61 placer mining operations, 31 lode operations, 6 combination Placer and Lode operations
- ◆ firewood gathering along open roads
- ◆ maintenance of system roads
- ◆ restoration of the Fremont Powerhouse Complex
- ◆ Fremont Powerhouse complex Cabin Rental Program
- ◆ recreational use equal to an estimated 8,100 recreation visitor days within the watershed (hunting, hiking and snowmobile use are the most frequent activities)
- ◆ operation and maintenance of trails, campgrounds, and trailheads
- ◆ restoration of the Clear Creek Dredge Tailings
- ◆ Greenhorn water use permit
- ◆ Pete Mann Ditch water diversion
- ◆ Powerline permit from Granite to Fremont

Foreseeable Future Activities in Addition to Proposed Actions

- ◆ new Plans Of Operation for 4 placer mines and 2 Lode mine are proposed
- ◆ pre-commercially thin 3,500 acres
- ◆ plant within the reclaimed flood plains of Clear Creek and Granite Creek
- ◆ harvest by commercially thinning 844 acres on the Umatilla and Wallowa-Whitman to reduce overstocking and move species composition toward a more historic mix
- ◆ understory burn about 5,280 acres (Buck Creek EIS) to reduce accumulated dead and down fuels, overstocking and move species composition toward a more historic mix
- ◆ restoration of a headcut on Bull Creek
- ◆ reconstruction of the water system for the town of Granite
- ◆ extension of the fiber optic telephone line from Buffalo mine to the Crane Flats area
- ◆ Maintenance and repair of the Pete Mann Ditch
- ◆ Replacement of pipes currently draining Bluebird and Blackjack Mines

COMPARISON OF ALTERNATIVES BY ISSUE

Chapter 1 presents in detail the Key Issues that are the focus of this DEIS. This section compares the alternatives in terms of these issues.

Key Issue 1: Water Quality

Mining operations can have a negative effect of water quality. Roads, placer mining, and vegetation removal in riparian Habitat Conservation Areas (RHCA) may reduce stream shade, resulting in higher water temperatures, while erosion of exposed and disturbed upland soils and stream bank can increase sediment load. Drainage from lode mines and mill tailings can introduce metals potentially toxic to aquatic biota into stream waters. The nature of the proposed action (mining) and the physical location of many of the mines in or adjacent to local creeks will in some cases introduce sediment into creeks. Suction dredging can adversely impact aquatic resources by destabilizing channels, at least locally, and by mobilizing sediments. Other impacts can include noise, competition for use of riparian areas, and chemical pollution by petroleum hydrocarbon fuels, lubricants, and remobilizing chemical contaminants (such as mercury) sequestered in bed sediments.

All action alternatives include a similar level of mining activities, so effects to water quality will not differ greatly between each alternative. In Alternative 1, six claimants propose to use suction dredging as well as various other mining activities. In Alternative 2 and 3, an additional two placer claims will have suction dredges operating in streams. However, a comprehensive set of management requirements will be added to each POO under Alternative 2 and 3. In addition, Alternative 3 will include additional mitigations as well as other restoration activities. Overall, the least effects to water quality will occur under Alternative 3.

Key Issue 2: Fish and Aquatic Habitat

Adverse impacts to fish habitat can be directly related to mining operations, including negative effects on water quality (see Key Issue 1: Water Quality). Mining operations have the potential to affect several sensitive and threatened fish species occurring in the watershed including steelhead trout, bull trout, westslope cutthroat trout, interior redband trout and chinook salmon.

Suction dredging can affect aquatic resources such as aquatic and riparian organisms. It can greatly alter stream channels and mobilize fine sediments. Other mining operations could diminish the quality of the fish habitat by removing streamside vegetation, which shields water from solar radiation, provides hiding cover and food sources for fish, and entraps low levels of sediment. Also, mining activities could result in increased erosion and sedimentation due to loss of soil cover and cohesion, and increase runoff and peak stream flows. Fry emergence and insects that provide food for fish could be reduced by an increase in fine sediment, further impacting fish populations. Differences in effects to the fishery resource by alternative, will be similar to those disclosed for water quality (see above).

COMPARISON OF ALTERNATIVES BY KEY ISSUES AND INDICATORS OF RESPONSE

Table 2.1. Response to Key Issues

Indicator of Response	Alternative		
	1	2	3
Key Issue 1 Water Quality			
No. of Plans with suction dredging	6	8	8
Total Acres of disturbance per year	<7	<7	<7
Miles of road decommissioning	0	0	2.25
Key Issue 2 Aquatic Habitat			
1) Risk of contamination from suction dredging	low	very low	very low
2) Risk to fish from project related sediment yields	low	low	very low

1) The use of modern equipment powered by internal combustion engines poses a risk of contamination by petroleum hydrocarbon fuels and lubricants. Alternative 1 has the lowest risk, since only six Plans include suction dredging. Alternatives 2 and 3 have two more operations that include suction dredging, however there are additional management requirements in these two alternatives to reduce the risk of contamination, so the risk is very low.

2) Overall, the management practice with the greatest potential for generating sediment is suction dredging. Other proposed mining activities also have potential for mobilizing sediment. Alternatives 1 and 2 will have similar outputs while Alternative 3 (with additional mitigation) will have the lowest output.

COMPARISON OF ALTERNATIVES

Table 2.2. Summary of the alternative descriptions

Project Name	Legal	Stream	Water Source	Equipment	ALTERNATIVE 1 (current POO)	ALTERNATIVE 2 (proposed POO)	ALTERNATIVE 3 (added mitigation)
Brice 1-3 (U-42)	T08S, R35E. Sec21	East Ten Cent Creek	East Ten Cent Creek	Suction dredge, hand tools, pickup, wash plant, pumps, sluice	Suction dredge and Pick & Shovel work	Same as described in Alternative 1 plus Management Requirements.	Same as Alternative 2
Bunch Bucket (U-51)	T09S, R35E. Sec22	Clear Creek	Clear Creek and existing hole	Backhoe, trommel, crawler, pickups, pumps, handtools	Excavating and processing from test trenches with heavy equipment	Same as described in Alternative 1 plus Management Requirements.	Same as Alternative 2 plus silt fence along creek. No direct discharge into creek. Access to claim kept closed. Cabin for equipment storage only.
East Ten Cent Cr (U-32)	T09S, R35E. Sec22	East Ten Cent Creek	East Ten Cent Creek and existing hole	Backhoe, trommel, pumps, hand tools, pickups, suction dredge	Excavating and processing with heavy equipment. Including working stream bank. Cabin on claim near stream.	Same as described in Alternative 1 with the addition of suction dredging plus Management Requirements.	Same as Alternative 2 plus silt fence along creek.
Grubstake Placer (U-33)	T09S, R35E. Sec14	Clear Creek	Existing hole on claim	Trommel, high banker, backhoe, pickups, pumps, handtools	Excavation and processing using a trommel, high banker, and small tractor/backhoe. Working within about 50 feet of Clear Creek and progressing away from stream. Also includes suction dredging in Clear Creek.	Same as described in Alternative 1 plus Management Requirements.	Same as Alternative 2
Hopeful 2&3 (U-14)	T08S, R35E. Sec28	Granite Creek	Granite Creek	Backhoe, crawler, trommel, pickup, pumps, grader, handtools	A backhoe, crawler, trommel, truck, and devices for filtering water are used to excavate and process up to 300 cubic yards of material per year. Operators are exploring ideas on how to extract gold from spring water. The claim has two fords to cross Granite Creek. Claimant uses a grader to maintain their road.	Same as described in Alternative 1 plus Management Requirements.	Same as Alternative 2 plus no direct discharge into creek. Improve function of settling pond on claim. Main access road to claim kept closed.
Hopeful Claim (U-40)	T08S, R35E. Sec29	Granite Creek	Granite Creek	Backhoe, trommel, handtools, pumps, pickup	Excavation and processing in a 30 by 30 foot hole. Equipment used is small tractor backhoe, wash plant and pump.	Same as described in Alternative 1 plus Management Requirements.	Same as Alternative 2
Lucky Strike (U-54)	T10S, R35E. Sec3	Lightning Creek	none	Backhoe, hand tools, pickups	Tunnel extension and exploratory work with heavy equipment plus pick & shovel and continued restoration of the mill building.	Same as described in Alternative 1 plus Management Requirements.	Same as Alternative 2 plus waste material from tunnel cleanout will be dispersed in such a manner that sediment will not reach Lightning Creek.
Magnolia Mine (U-38)	T08S, R36E. Sec22	Lucas Gulch	none	Backhoe, dozer, dump truck, crawler	Work in existing tunnel with a backhoe, small cat, and hand tools. Granite creek is forded to access the claim. There are ponds on the claim; they are located about 15 feet from Lucas Gulch and eight feet higher than the creek.	Same as described in Alternative 1 plus Management Requirements.	Same as Alternative 2 plus waste material from tunnel cleanout will be dispersed in such a manner that sediment will not reach Lucas Gulch. Improve function of settling ponds on claim.

Project Name	Legal	Stream	Water Source	Equipment	ALTERNATIVE 1 (current POO)	ALTERNATIVE 2 (proposed POO)	ALTERNATIVE 3 (added mitigation)
Old Eric 1&2 (U-47)	T0S, R351/2E. Sec4	Granite Creek	Existing hole on claim	Handtools, pickups, sluice plant, suction dredge	Excavation and processing by hand. Mining 100 feet from Granite Creek, processing 50 feet from creek.	Same as described in Alternative 1 with the addition of suction dredge work in Granite Creek, backhoe to deepen prospect hole plus Management Requirements.	Same as Alternative 2 plus move pond as far away from creek as possible. Improve function of pond used for processing water.
PBGF Placer 1-3 (U-22)	T08S, R35E. Sec25; T08S, R351/2E, Sec28	East Ten Cent Creek	Settling ponds	Wash plant, backhoe, pumps, generator, pickups, dump truck, ATV, hand tools, suction dredge, trommel, rock crusher, camp trailer	Excavation and processing of material from test holes. Water from existing ponds is used for processing. Suction dredge work during dredging season.	Same as described in Alternative 1 plus Management Requirements.	Same as Alternative 2 plus silt fence and straw bales along creek. 10 foot undisturbed buffer along creek.
Republic Comeback #7 (U-08)	T08S, R35E. Sec29	Rabbit and Granite Creeks	Rabbit Creek	Backhoe, trommel, pumps, hand tools, pickups, suction dredge,	Equipment used on this claim is a backhoe, trommel, pumps, and pick & shovel type work. Some dredging could occur along with some hand panning. There is a ford on Granite and Rabbit creeks.	Same as described in Alternative 1 plus Management Requirements.	Same as Alternative 2 plus improve drainage from existing ponds so no direct discharge into Rabbit and Granite Creeks occur.
Republic Comeback #10 (U-13) & Republic Comeback #11 (U-39)	T08S, R35E. Sec 19 S1/2 Sec 30 N1/2	Granite and Indian Creeks	Existing hole in dredge tailings	Backhoe, trommel, pumps, hand tools, pickups, suction dredge	Suction dredging, excavation and processing on site with heavy equipment. Granite and Indian creeks will be forded.	Same as described in Alternative 1 plus Management Requirements.	Same as Alternative 2 plus move trailer to north side of Granite creek.
Rosebud 1-4 (U-49)	T09S, R35E. Secs 1&4	Granite Creek	Seeps	Hand tools, backhoe, pickups	Excavation by hand and backhoe in existing hole about 660 feet from Granite Creek.	Same as described in Alternative 1 with the addition of prospect work for rest of claim plus Management Requirements.	Same as Alternative 2.
SW St. Paul Claim (U-25)	T08S, R36E. Sec27	Granite Creek	none	Hand tools, pickups, backhoe	Pick and Shovel in established tunnels.	Same as described in Alternative 1 with the addition of backhoe use plus Management Requirements.	Same as Alternative 2 plus tailing pile location approved by FS. If affluent from adit appears a settling pond will need to be constructed.
Tar Hill/Ten Cent (U-46)	T08S, R35E. Sec19	East Ten Cent Creek	East Ten Cent spring flows (diverted into pond for later use)	Dozer, backhoe, dump truck, trommel, pumps, pickups, handtools	Excavate and process up to 10 cubic yards of gravel daily on up to one acre per operating season (June to October). Heavy equipment is used to excavate and transport material to an on-site processing area. Fines in settling ponds are reprocessed with a suction dredge.	Same as described in Alternative 1 plus Management Requirements.	Same as Alternative 2 plus silt fence and straw bales along creek. 10 foot undisturbed buffer along creek.
Troy D proposed (WW-104)	T09S, R35E. Sec9; T09S, R351/2E, Sec 1	Granite Creek	Existing ponds	Backhoe, pickups, pumps, hand tools, crawler	Excavation and processing of test holes and tailing piles. Water from existing ponds is used for processing.	Same as described in Alternative 1 plus Management Requirements.	Same as Alternative 2.