

## Pandora Mine Vent Holes Project

### Wetlands, Floodplains, Municipal Supply Watersheds, Impaired Waters

- There are no wetlands in the project area.
- There are wetlands in the project area, but no adverse effects are anticipated.
- There are wetlands in the project area, adverse effects are possible.
- There are no floodplains or flood-prone areas in the project area.
- There are floodplains or flood-prone areas in the project area, but no adverse effects are anticipated.
- There are floodplains or flood-prone areas in the project area, adverse effects are possible.

Municipal supply watersheds (*FSM 2542*) include surface supply watersheds, sole source aquifers, and the protection zones around well and springs.

- There are no municipal supply watersheds or drinking water source areas in the project area.
- There are municipal supply watersheds or drinking water source areas in the project area, but no adverse effects are anticipated.
- There are municipal supply watersheds or drinking water source areas in the project area, adverse effects are possible.

Is it likely that the degree of potential effect of the proposed action on wetlands, floodplains, or municipal supply watersheds constitutes an extraordinary circumstance.

- NO  YES

Is the project area adjacent to or tributary to a water quality limited stream segment or lake (*from current 303(d) list or a TMDL*)?

- NO  YES – complete Clean Water Act Worksheet.

- The proposal complies with Executive Order 11988 (Floodplain Management).
- The proposal complies with Executive Order 11990 (Protection of Wetlands).
- The proposal complies with the Clean Water Act.
- The proposal complies with the Safe Drinking Water Act.
- The proposal complies with Forest Plan management direction.

**Hydrologist, Soil Scientist, and/or District Watershed Staff signature:** /s/ Joni Vanderbilt

**Date:** 6/27/07

**COMMENTS:** see following report for soil/water conservation practices.

## **Pandora Mine Vent Holes Project Proposal:**

Denison Mines Corp. is proposing to add two vent holes to the Pandora Mine site located in the northeast quarter of Section 5, Township 29 South, Range 25 East, Salt Lake Base Meridian, San Juan County, Utah. The vent holes will be located in the northeast quarter of Section 5.

The vent holes are expected to be approximately 6 feet in diameter, similar to existing vent holes in the area. The surface disturbance associated with the proposed vent holes alone will be approximately ¼ acre per vent hole. The total surface disturbance associated with the vent hole roads will vary based on the proximity of each vent hole to existing roads. Metal diffusers will be installed above the proposed opening. The diffusers will be approximately 4 to 5 feet tall and screened on top to prevent entry. Power will be supplied to the vent hole sites from underground; therefore, overhead electric power will not need to be run to the vent hole locations or generators will not be used at the vent hole locations. The access to the vent holes are off of the main road on an unclassified road. The access road is on a relatively flat area that does not have any significant cuts or fills.

### **Analysis Methods and Consideration of Available Science**

The relevant science considered for this analysis consists of several key elements:

- On-site reconnaissance of the project area. I visited the project area on June 19, 2007.
- GIS information on soils, streams and wetlands.
- Integration of the professional knowledge on the part of the Hydrologist with the collective knowledge of the project area by ID Team members.

### **Rationale in Support of Categorical Exclusion**

#### **Executive Order 11988 of May, 1977**

This requires the Forest Service to provide leadership and take action to 1) minimize adverse impacts associated with occupation and modification of floodplains and reduce risk of flood loss; 2) minimize impacts of floods on human safety, health, and welfare; and 3) restore and preserve the natural and beneficial values served by floodplains.

Floodplains have not been mapped in this project area. The site for the vent holes is located on top of a ridge although the unclassified road proposed to be used for access is routed along a first order, ephemeral drainage for part of its length. Application of the attached SWCPs would ensure that the proposed activities would not result in occupation or modification of flood-prone areas.

The proposal meets the intent of the Executive Order.

#### **Executive Order 11990 of May, 1977 and Clean Water Act**

This requires the Forest Service to take action to minimize destruction, loss, or degradation of wetlands and to preserve the natural and beneficial values of wetlands.

There are no wetlands in the project area. The proposal meets the intent of the Executive Order and the relevant sections of the Clean Water Act.

#### **Municipal Water / Drinking Water Source Area**

FSM 2542.05 defines a municipal supply watershed as one that serves a public water system as defined in Public Law 93-523 (Safe Drinking Water Act); or as defined in State safe drinking water regulations. The definition does not include communities served by a well or confined ground water unaffected by Forest Service activities. The 1996 Safe Drinking Water Act (SDWA) Amendments established a new emphasis on preventing contamination problems through source water protection and enhanced water system management. Formal agreements approved by the Chief of the Forest

Service are appropriate only when intensified multiple-use management fails to meet the needs of the water user and use restrictions are necessary. Drinking water is not one of the beneficial uses of the waters in the project area designated by the State. There are no municipal water/drinking water source areas in, or downstream from, the project area.

## **Consistency with Regulatory Framework**

### **Forest Plan**

Applicable Forest Plan Direction for Soil and Water (USDA Forest Service 1986, p. III-4) includes the following: maintain satisfactory watershed conditions; provide favorable conditions of water flow (quality, quantity and timing); protect soil and water productivity so that neither will be significantly or permanently impaired; and protect and enhance riparian areas including dependent resources. This report documents how the design criteria and SWCPs associated with this project ensure that these goals will be met.

#### **Interpretation / Recommendations:**

- ✓ Reclamation of vent hole sites would include:
  - Weed control over the lifetime of the facility
- ✓ Reclamation of unclassified road used to access vent hole sites would depend on the amount of use the road receives during construction of the vent holes. If the vegetation currently present on the road bed appears to retain the ability to recover, ripping and seeding would not be necessary. If the vegetation is beyond recovery and compaction of the road bed has occurred, then the following would be necessary:
  - Re-grading any cuts and fills to re-establish the original ground contours and drainages.
  - Ripping the roads to a depth of 12 to 18 inches.
  - Placing 6 inches of loose topsoil in locations where topsoil was removed (if applicable).
  - Seeding the soil with a Forest Service approved seed mix.
- ✓ In either case, the first one hundred feet or so of the access road would be ripped, seeded and blocked.

### **Clean Water Act**

The project is proposed in the headwaters of the East Coyote Wash Watershed. East Coyote Wash is a tributary of the Dolores River System. The Clean Water Act requires each state to implement its own water quality standards. The State of Utah has identified the following beneficial uses for tributaries to the Dolores River:

- 2B – protected for secondary-contact recreation, such as boating, wading, or similar uses;
- 3C – protected for nongame fish and other aquatic life, including the necessary aquatic organisms in their food chain.
- 4 – protected for agricultural uses, including irrigation of crops and stock watering.

This river segment has been determined to be fully meeting water quality standards for the classified beneficial uses.

The State anti-degradation policy applies to all waters located within the boundary of the National Forest. The proposed action with the specified design features, SWCP's and other requirements designed to minimize impacts to soils, the potential for erosion, and impacts to water quality complies with the Clean Water Act and the State anti-degradation policy.

In addition to the beneficial use classifications, all surface waters, irrespective of ownership, that are geographically located within the outer boundary of a National Forest are designated as High Quality Waters – Category 1 (UT DEQ/DWQ, 2000a). Best management practices must be designed to

maintain the current, high level of water quality (UT DEQ, 2000). The Forest Service is the designated Water Quality Management Agency for National Forest System lands in Utah. A 1993 memorandum of understanding (MOU) between the Forest Service and the Utah Division of Water Quality defines the roles and responsibilities of each agency relative to water quality management on National Forest System lands (MOU, 1993; UT NPS, 1998).

To comply with the antidegradation policy and State water quality standards, the Forest Service must implement or ensure the implementation of practices that maintain the current, high level of water quality. These include practices in Forest Service Handbook 2509.22, *Soil And Water Conservation Practices*; State best management practices; or specialized, site-specific practices. All these types of practices are designed to fully protect and maintain water-related beneficial uses, and to prevent or minimize nonpoint source pollution (UT NPS, 1998).

### Soil and Water Conservation Practices (SWCP's) and Best Management Practices (BMP's)

#### ***SWCP's applicable to the planning phase of the proposed project include:***

SWCP	SWCP OBJECTIVE	CONSIDERATIONS FOR IMPLEMENTATION
11.04	FLOODPLAIN ANALYSIS AND EVALUATION – To protect floodplain values and avoid, where possible, the long and short-term adverse impacts to soil and water resources associated with the occupancy and modification of floodplains.	<i>The SWCP states that a floodplain analysis and evaluation will be made when sites within floodplains are being considered for structures, developments, or management activities. Environmental quality, ecological effects, and individual safety and health will be considered.</i> Drainages and streams will be avoided.
11.05	WETLANDS ANALYSIS AND EVALUATION – To maintain wetlands function and avoid adverse soil and water resource impacts associated with the destruction or modification of wetlands.	<i>The SWCP states that the Forest Service does not permit the implementation of activities and new construction in wetlands whenever there is a practical alternative. A wetland analysis and evaluation will be made prior to acquisition or exchange of wetlands. Evaluation of proposed actions in wetlands will consider factors relevant to the proposal's effect on the survival and quality of the wetlands.</i> Wetlands will be avoided.
11.07	OIL AND HAZARDOUS SUBSTANCE SPILL CONTINGENCY PLANNING - To minimize contamination of water from accidental spills by prior planning and development of Spill Prevention Control and Countermeasure Plans	A SPCC Plan will be prepared by the proponent and approved by the Forest Service and BLM before construction starts.

#### ***SWCP's applicable to the implementation phase of the proposed project include:***

SWCP	SWCP OBJECTIVE	CONSIDERATIONS FOR IMPLEMENTATION
13.04	REVEGETATION OF SURFACE DISTURBED AREAS - To protect soil productivity and water quality by minimizing soil erosion	All disturbed areas will be seeded with seed mixtures developed for the project. The seed will be certified weed and noxious weed free. Seed all disturbed soils within 6 working days of final grading, weather and soil conditions permitting. If the soil surface is crusted, take appropriate measure to break up the crusted areas prior to seeding. Mulch will be applied on areas with highly erodible or droughty soils, slopes greater than 40 percent, visually sensitive areas, 100' on both sides of waterbodies, and other areas as specified by the agency project administrator.

SWCP	SWCP OBJECTIVE	CONSIDERATIONS FOR IMPLEMENTATION
13.05	<p>SOIL PROTECTION DURING AND FOLLOWING SLASH WINDROWING - To prevent removal or severe disruption of the productive surface soil and to minimize losses from erosion</p> <p><i>Note that this SWCP applies to all ground-clearing operations where woody material is windrowed or stockpiled.</i></p>	<p>Material should be windrowed on contour. Little to no soil should be incorporated in the piles. Stockpiled material will be randomly scattered over areas of soil disturbance with preference given to those areas where topsoil was replaced.</p>
13.06	<p>SOIL MOISTURE LIMITATIONS FOR TRACTOR OPERATION - To minimize soil compaction, puddling, rutting, and gulying with resultant sediment production and loss of soil productivity.</p> <p><i>Note that this SWCP applies to all heavy equipment operations.</i></p>	<p>The normal operating season on National Forest land in this area is from May 15<sup>th</sup> to October 30<sup>th</sup>. Construction and other activities outside the normal operating season may require supplemental plans addressing temporary shutdown and erosion control measures. If temporary erosion control measures are not effective, activities will be suspended until conditions improve.</p> <p>Rutting will be used as an indicator of wet conditions. Vehicle traffic and equipment operation will be restricted to prevent rutting in excess of one inch on gravel roads, 2 inches on native surface roads and 4-6 inches in other work areas. Proponent(s) will provide maintenance equipment to repair rutting as soon as ground conditions permit.</p> <p>During extended periods of dry weather, additional measures, including vehicle and equipment restrictions, may be necessary to prevent powdering of soils, to maintain firm working surfaces, to limit fugitive dust, and to maintain appropriate moisture conditions to protect topsoils during reclamation.</p>
14.06	<p>RIPARIAN AREA DESIGNATION - To minimize the adverse effects on riparian areas with prescriptions that manage nearby logging and related land disturbance activities.</p> <p><i>Note that this SWCP applies to all heavy equipment operations.</i></p>	<p>The minimum buffer zone will be 100 feet around seeps and springs, 100 feet from lake or reservoir high water lines, 100 feet from each perennial stream bank, 100 feet from the outer perimeter of a wetland, and 50 feet from the top of each intermittent stream bank. Operation of heavy equipment in these buffer zones is prohibited unless specifically authorized by an agency representation.</p>
15.04	<p>TIMING OF CONSTRUCTION ACTIVITIES - To minimize erosion by conducting operations during minimal runoff periods.</p>	<p>The proponent should schedule and conduct most operations within the normal operating season. The normal operating season includes the time period that typically has suitable soil moisture and runoff conditions for most Forest activities and operations.</p>
15.06	<p>MITIGATION OF SURFACE EROSION AND STABILIZATION OF SLOPES - To minimize soil erosion from road cut slopes, fill slopes, and travel ways.</p>	<p>The proponent shall conduct all activities to prevent erosion and sedimentation. Temporary erosion control measures may be required to prevent, control, and mitigate erosion and sedimentation. Temporary and permanent erosion control work must be kept current with ongoing operations, especially when construction occurs outside of the normal operating season. See SWCP 13.06 for soil moisture criteria.</p>
15.08	<p>PIONEER ROAD CONSTRUCTION - To minimize sediment production and mass wasting associated with pioneer road construction.</p> <p><i>Note that this SWCP applies to all travelways, temporary and permanent.</i></p>	<p><i>The SWCP states that construction of pioneer roads will be confined to the roadway construction limits unless otherwise approved by the agency project administrator or engineering representative. Construction will be conducted to prevent undercutting of final cut slope, prevent deposition of materials outside the designated roadway limits, and accommodate drainage with temporary culverts or log crossings unless otherwise approved. Erosion control work will be completed concurrent with construction activity.</i></p> <p>The proponent is responsible for submitting an operating plan that includes erosion control measures and stormwater management.</p>
15.09	<p>TIMELY EROSION CONTROL MEASURES ON INCOMPLETE ROADS AND STREAM CROSSING PROJECTS - To minimize erosion of and sedimentation from disturbed ground on incomplete projects.</p>	<p><i>The SWCP states that temporary erosion control and other protective measures will be kept current on all disturbed areas. Areas must not be abandoned for the winter with remedial measures incomplete.</i></p>

SWCP	SWCP OBJECTIVE	CONSIDERATIONS FOR IMPLEMENTATION
15.11	<p>SERVICING AND REFUELING EQUIPMENT - To prevent contamination of waters from accidental spills of fuels, lubricants, bitumens, and other harmful materials.</p> <p><i>Note that this SWCP applies in all areas where heavy equipment is operated.</i></p>	<p>Refueling areas will be a minimum of 300 feet from perennial and intermittent stream channels, seeps and springs, wetlands, lakes and reservoirs, stock water developments, and other water features.</p> <p>All heavy equipment and service vehicles will have a supply of absorbent and other cleanup materials on hand for initial containment of spills.</p> <p>All projects will adhere to the Hazardous Substance Spill Plan in case of accidents.</p>
15.17	<p>REGULATION OF BORROW PITS, GRAVEL SOURCES, AND QUARRIES - To minimize sediment production from borrow pits, gravel sources, and quarries, and limit channel disturbance in those gravel sources suitable for development in floodplains.</p>	<p>The borrow areas and gravel sources associated with this project will be in upland locations. Where possible, topsoil should be removed and stockpiled for use as surface dressing during reclamation. Rehabilitate both the pit area and access roads to control runoff into and from the area and to control erosion.</p>
15.18	<p>DISPOSAL OF RIGHT-OF-WAY AND ROADSIDE DEBRIS - To insure debris generated during road construction is kept out of streams and prevent slash and debris from subsequently obstructing channels.</p>	<p>Debris will not be placed in the stream channel or floodplain; incidental debris from tree felling will be removed. Streamside willows may be removed in clumps, set aside, and replaced during cleanup/shaping of the disturbed area. Other debris should be used in reclamation.</p>
15.21	<p>MAINTENANCE OF ROADS - To maintain all roads in a manner which provides for soil and water protection by minimizing rutting, failures, side-cast, and blocking of drainage facilities.</p>	<p>See rutting standards.</p> <p>All travelways must be waterbarred at an interval that prevents erosion between waterbars. Waterbars on permanent access routes must be designed to support the anticipated traffic and class of vehicles and remain functional.</p>
15.23	<p>TRAFFIC CONTROL DURING WET PERIODS - To reduce the potential for road surface disturbance during wet weather and reduce sedimentation.</p>	<p><i>The SWCP states that roads that must be used during wet periods should have a stable surface and sufficient drainage to allow such use with a minimum of resource impact. Road not constructed for all weather use should be closed during the wet season. Where winter operations are planned, roads may need to be upgraded and maintenance intensified to handle the traffic without creating excessive erosion and damage to the road surfaces. Road closures and traffic control measures should be implemented on all roads when damage would occur as a result of use during wet weather.</i></p> <p>Road restrictions and traffic control measures will be implemented on all roads when damage occurs. The decision to restrict a road is made by the agency project administrator or engineering representative</p> <p>During the normal operating period, vehicle traffic and equipment operation will be restricted to prevent rutting in excess of one inch on gravel roads, 2 inches on native surface roads and 4-6 inches in other work areas. Proponent(s) will provide maintenance equipment to repair rutting as soon as ground conditions permit. Road restrictions and traffic control measures will be implemented on all roads when damage occurs. The decision to restrict a road is made by the agency project administrator or engineering representative.</p> <p>Outside the normal operating period, vehicle traffic and equipment operation will be restricted to dry or frozen conditions. For roads initially proposed as access but not requiring improvement, continued use which extends beyond the normal operating season or during extended wet conditions may require improvement, such as gravel, or other measures.</p> <p>During extremely dry conditions, vehicle traffic and equipment operation may be restricted if native surface roads or other work areas become powdered.</p>
15.24	<p>SNOW REMOVAL CONTROLS - To minimize the impact of snow melt on road surfaces and embankments and reduce the probability of sediment production resulting from snow removal operations.</p>	<p>Snow removal will be kept current on all roads used for winter logging operations. During snow removal, a minimum of 4 inches of snow will be left on the roadway. Cut banks shall not be undercut nor shall gravel be bladed off the roadway. Ditches and culverts shall be kept functional. Snow berms should be removed or breached at a spacing to provide surface drainage without discharge over erodible fills. Deicing agents will not be used without special authorization from the agency project administrator.</p>

SWCP	SWCP OBJECTIVE	CONSIDERATIONS FOR IMPLEMENTATION
15.25	OBLITERATION OF TEMPORARY ROADS - To reduce sediment generated from temporary roads by obliterating them at the completion of their intended use.	All temporary roads or travelways will be obliterated. Obliteration will include removing culverts and reestablishing stream channel configuration, recontouring or reshaping of sideslopes and/or construction of waterbars, construction of access controls, application of salvaged woody debris, and revegetation.