REMOVAL ACTION WORKPLAN & 50% DRAWINGS
Bluebird Mine Removal Action (Portal Closure)
Wallowa-Whitman National Forest
Baker County, Oregon

September 2005

REMOVAL ACTION WORKPLAN &
50% DRAWINGS AND SPECIFICATIONS
Bluebird Mine Removal Action (Portal Closure)
Wallowa-Whitman National Forest
Baker County, Oregon

Principal Authors: *Robert H. Lambeth, PE, Senior Engineer*

Reviewed By: *Dustin G. Wasley, PE, Managing Engineer*

Prepared for: U.S. Forest Service

Prepared by: Cascade Earth Sciences
P.O. Box 14725
Spokane, Washington 99216
509-921-0290

PN: 2423011 / September 2005

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1.0 INTRODUCTION

The United States Forest Service (USFS) has retained Cascade Earth Sciences (CES) to perform a Removal Action (RA) at the Bluebird Mine. The RA will constitute a portal closure safety and environmental controls. The objectives of this project are to replace an existing portal dam/water diversion system with more permanent construction, install a lockable bat gate, and construct an entrance that precludes covering of the portal by hillside slough.

This document comprises the RA Workplan, and a stand-alone site-specific Health and Safety Plan (HASP) has also been prepared for planned field activities and is included in Appendix A.

1.1 Scope of Work

The Site is located in Baker County, Oregon, in Section 11, Township 9 South, Range 35 East of the Willamette Meridian. The Site is accessed from Baker City, Oregon by taking State Highway 7 southwest approximately 25 miles to the junction with State Highway 220, then turning west and flowing State Highway 220 through Sumpter, Oregon to Granite, Oregon for 19 miles. The segment becomes County Road 24, then Forest Service Primary Road 73 prior to arriving at Granite. At Granite, turn left on Forest Service Primary Road 10 for approximately 2 miles west to the intersection with Forest Service Primary Road 13. Turn right and follow Primary Road 13 for 2.7 miles. The Bluebird Mine is across Clear Creek from this location at the intersection of Clear Creek and Congo Gulch.

The work will consist of, but not be limited to, providing all labor, materials, earthwork, and incidentals necessary to complete a portal closure and discharge barrier dam at the mine. The initial construction will involve mobilizing mining and surface excavation equipment to the site, crossing Clear Creek with a minimal amount of heavy equipment, excavating slough from the Bluebird portal, establishing a level staging area at minimal size, ensuring that the emergency drainage ditch is maintained, and notching the portal eyebrow and ribs for installation of worker protection timber sets into and external to the portal. The depth of the notch will be determined by inspection of the workings to ensure stable ground conditions. A coffer dam will then be constructed an adequate distance into the adit for temporary dewatering and construction of a new dam to replace the existing wood dam. Dewatering will commence with either pumps or by connecting the coffer dam to the existing gravity drain plumbing. The area between the dams will be dewatered by pumps and the existing dam will be removed. A notch for a new concrete dam will be drilled and blasted into the ribs and sill at a selected location, forms with a new discharge pipe will be constructed, and concrete will be placed into the forms. A valve will be installed and the new discharge will be connected to the existing system. A bat gate will be installed, additional timber sets added as needed, the site will be re-contoured, and the emergency drainage overflow ditch will be replaced. All timber sets will be covered with soil for rockfall protection and camouflage. Worker protection will be ensured by proper barring down, inspection, and installation of rockbolts as needed. Internal and external rock/slope stability will be carefully monitored.

Logistical difficulties associated with the performance of this removal action project include the remoteness of the area and generally steep slopes located throughout the area and a stream crossing, which will require extra caution to prevent erosion. The remote location may cause mobilization difficulties, and may also complicate delivery of the required materials.

2.0 REMOVAL DESIGN AND IMPLEMENTATION

2.1 Schedule and Key Personnel

Construction activities are planned to begin the weeks of September 18 and 25, 2005. Mobilization is scheduled for September 15 with site preparation starting September 19. Twelve working days may be required, but we anticipate that the RA will be completed in less time. The field team scheduled to perform work during field operations include:

Bob Lambeth, PE - CES	Project Manager / Engineer of Record
Dustin Wasley, PE - CES	Managing Engineer II
Arne Widman – Widman Contractors, Inc.	Construction Manager

All personnel who will be performing invasive activities (i.e. sampling, construction work, etc.) during the field investigation are trained to work in hazardous environments as defined by the Occupational Safety and Health Act (OSHA) 1910.120 and/or Mine Safety & Health Administration (MSHA) training requirements outlined in Public Laws 91-173 and 95-164. Other personnel who will periodically be on site may include:

Dennis Boles, PE – USFS	Contracting Officers Representative / On-Scene Coordinator
Greg Visconty – USFS	Forest Geologist

In addition to their presence on the site, key personnel will be kept informed regarding project activities, plans, schedules, budget/invoicing, and other issues through monthly phone meetings and correspondence.

2.2 Removal Action Activities

As per the Scope of Work and to maintain quality assurance of the implementation of the RA, CES will establish an Independent Quality Assurance Team (IQAT) consisting of John Martin, RG (Principal Geologist), Jay Williams, PE (Managing Engineer), and Mary Bates (Senior Administrative Coordinator).

The following items are the main components of the RA and are listed in order of sequence. Some components may be completed at the same time at the approval of the engineer. Complete construction specifications are not provided, because the final design and specification will be made in the field in response to specific site construction, dewatering, and safety needs. The conceptual 50% design is presented in Figure 1, attached. Standard construction and mine safety protocol will be followed. Ground support structures, rockbolts, and grout will be used as necessary. The scheduled activities are presented in the following sections.

All "field engineering" procedures, plans, and designs will be discussed with and approved by the USFS prior to implementation.

2.2.1 Mobilization

Initial mobilization will start on September 19, 2005 in preparation to start portal staging area on September 20.

2.2.2 Site Preparation

- Install siltation/erosion control systems to prevent discharge of silt to Clear Creek.
- Silt fences, water bars, and straw will be used as needed.
- Minimize the amount of equipment mobilized across Clear Creek, as well as the number of trips across the creek.
- Level a staging area at the portal at adit sill height using an excavator. The area will be large enough for a small scoop tram to maneuver. The existing emergency drainage ditch will be maintained to handle any additional flows from the adit.
- Breast down the portal eyebrow and slab the ribs to key in one or two 7 foot wide by 8 foot high by 6 foot long timber set for worker protection. (Size may be modified as needed.)

2.2.3 Adit Discharge Control

- If necessary, an emergency coffer dam will be constructed at approximately 30 feet and connected to the existing line with flex-pipe to allow easy maneuvering of the discharge line. A valve will be installed to allow short-term disconnection of the pipe during blasting and mucking.
- Slab out the existing adit at 6 foot wide x 7 foot high for approximately 20 feet **only** if absolutely necessary.
- Install bagline for ventilation.
- Dewater the mine by pumps as needed for surge capacity during blasting and mucking or other work. In order to prevent the discharge line from plugging with sludge, it may be necessary to augment the discharge by pumping from Clear Creek to the upper cleanout.
- Maintain availability of a de-sliming system in the event it is needed to prevent buildup of sludge at the outlet. This system may require diversion of discharge from the active pipeline near the portal directly to the equipment.
- Ensure that the emergency containment basin and ditch is open and will provide accessible sludge storage for later removal, if absolutely required.

2.2.4 Dam And Discharge Line Construction

- At approximately 20 feet inside the portal, “notch” the adit ribs and sill for installation of a 2.5 foot high by 8 inch wide dam.
- Place an 8 inch HDPE line with Teflon ball valve through the forms at a top height of 2 feet and connect to the existing line.
- The formed notch will be vacuumed, seal-coated, and filled to height with a non-shrinking, acid-resistant concrete.
- Shotcrete the margins of the dam for sealing conservancy following form removal. (Optional only as necessary!)

2.2.5 Portal Construction

- A bat gate will be installed in rock about 5 feet from the portal. Figure 2 provides a conceptual layout of the bat gate, although a simpler design may be adequate. The actual design and construction will be determined in the field based on discussions between CES and the USFS. The USFS will provide an approved lock mechanism.
- At least 1 additional 6 foot long timber set will be added to bring the timbered portal to near the original slope, the probable terminus of any future sloughing.
- An excavator will be used to re-grade the staging area to a minimal size. The material will be used to cover the timber sets for physical protection as well as some camouflage.
- The existing emergency spill diversion ditch will be reconstructed.

2.2.6 Demobilization

- All equipment access roads will be removed.
- Water bars will be constructed for erosion control.
- All disturbed areas will be seeded, fertilized and mulched. The seed mix will be determined by CES and the USFS after consultation in the field.

2.3 Construction Report

Following completion of the construction activities, CES will prepare a construction report, which will include as-builts, photographs, and documentation that performance standards are met.

3.0 HEALTH AND SAFETY PLAN

The health and safety plan has been prepared as a separate document, and is included as Appendix A.

FIGURES

— Cross Section —

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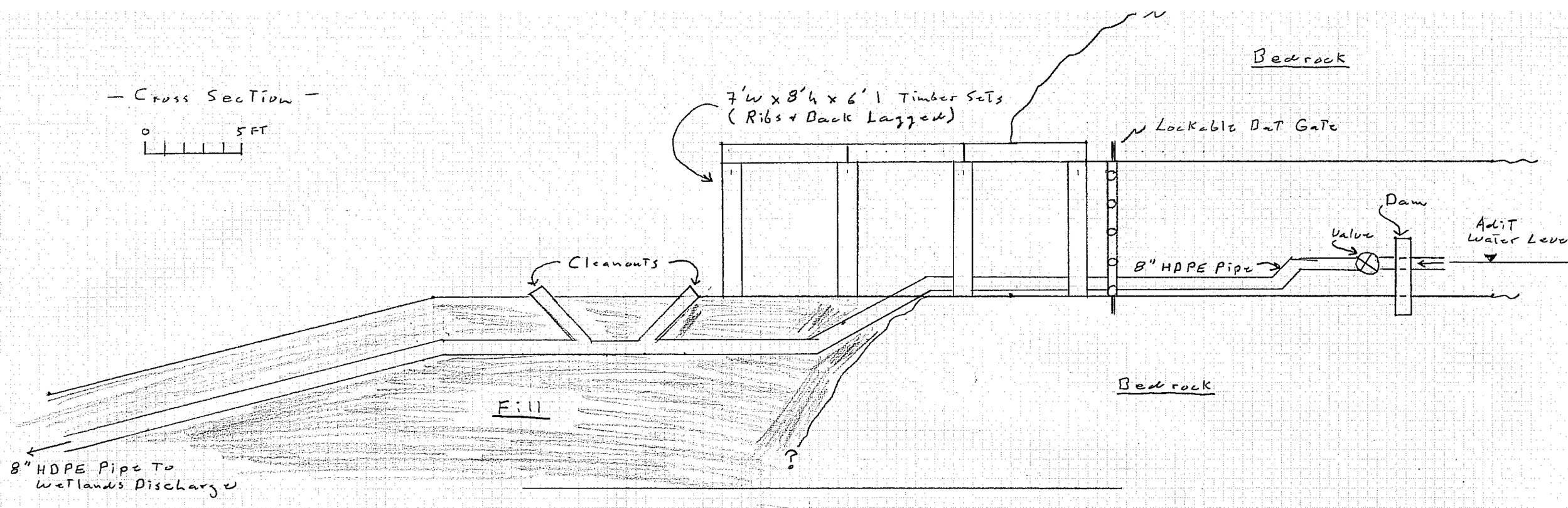

— Plan View —

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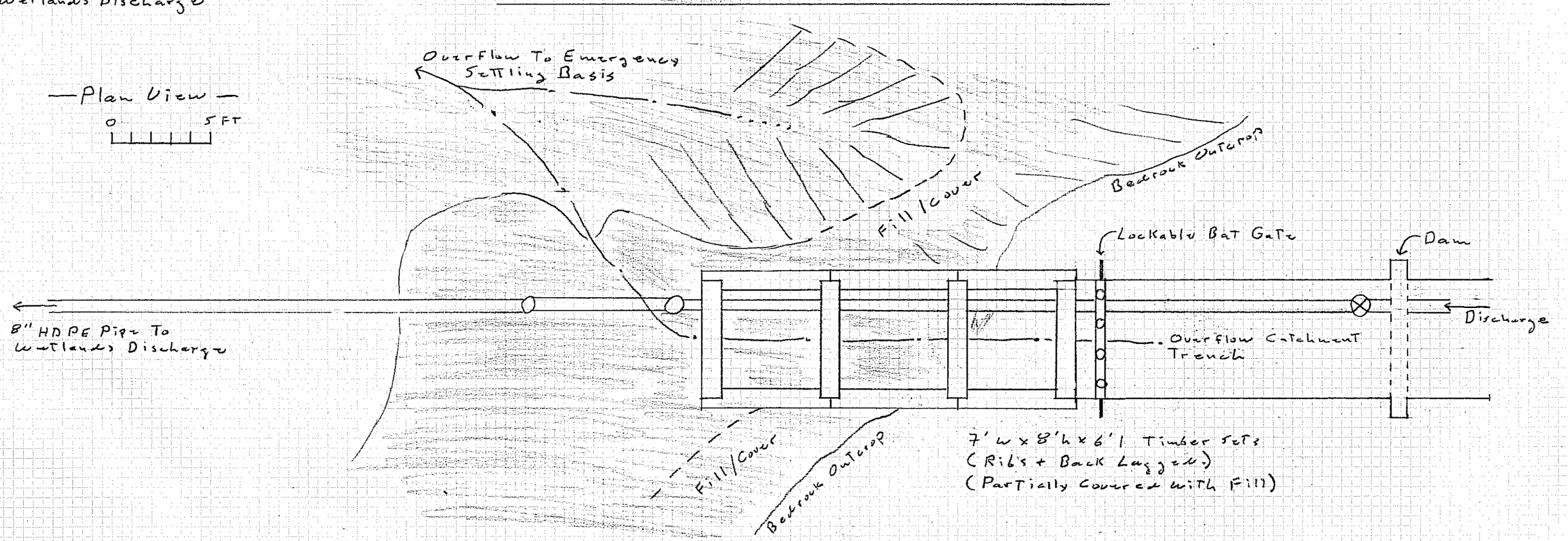
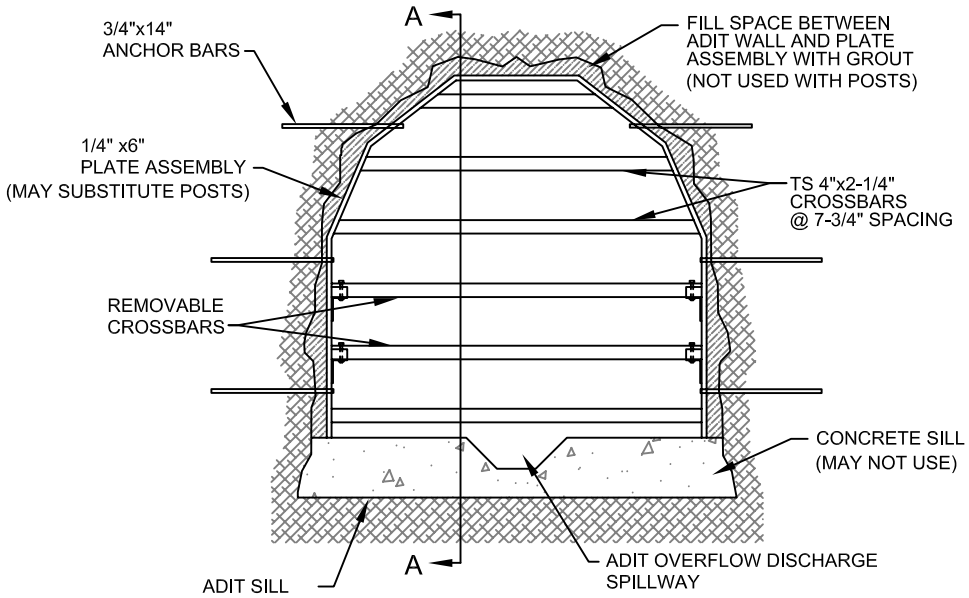
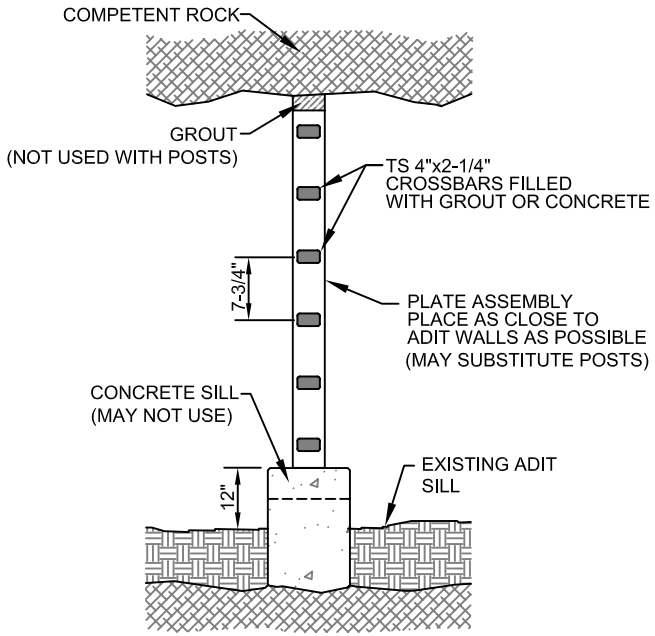




BAT GATE ELEVATION

NOT TO SCALE



SECTION A-A

NOT TO SCALE

PROJECT NUMBER: 2423011	Figure 2. Bat Gat Details
DATE: 09/06/05	
DWG. DEO / DWG NO: 2423011F2.dwg	BLUEBIRD MINE WALLOWA WHITMAN NATIONAL FOREST BAKER COUNTY, OREGON
PROJECT MANAGER: RHL	
REVISED:	CASCADE EARTH SCIENCES A Valmont Industries Company

David Odell, Cascade Earth Sciences 12/6/02 10:46 AM TB1-L.dwg

APPENDIX

Appendix A. Health and Safety Plan

Appendix A.

Site Specific Health and Safety Plan (HASP)

SITE-SPECIFIC HEALTH & SAFETY PLAN (HASP)

Prepared by:

CASCADE EARTH SCIENCES (CES)

I. GENERAL PROJECT INFORMATION

Name of Site: Bluebird Mine **Project No.:** 2423011

Address of Site: T9S, R35E, Section 11, Wallowa-Whitman N.F., Baker County, OR

Client Name: Wallowa Whitman National Forest **CES Project Manager:** Bob Lambeth

Client Address: 1150 Dewey Ave., Baker City, OR 97814

Client Health & Safety Contact: Greg Visconty (541) 523-6391
(Name, Phone Number)

Site Contact Name and Phone Number: Dennis Boles (541) 923-0393

Plan Prepared By: Robert H. Lambeth, P.E., Project Manager **Date:** 08/31/05

Reviewed By: Dustin G. Wasley, PE, Managing Engineer II **Date:** 09/06/05

Overall Objective of Project: The initial construction will involve mobilizing mining and surface excavation equipment to the Site, crossing Clear Creek with a minimal amount of heavy equipment, excavating slough from the Bluebird portal, establishing a level staging area at minimal size, ensuring that the emergency drainage ditch is maintained, and notching the portal eyebrow and ribs for installation of worker protection timber sets into and external to the portal. The depth of the notch will be determined by inspection of the workings to ensure stable ground conditions. A coffer dam will then be constructed an adequate distance into the adit for temporary dewatering and construction of a new dam to replace the existing wood dam. Dewatering will commence with either pumps or by connecting the coffer dam to the existing gravity drain plumbing. The area between the dams will be dewatered by pumps and the existing dam will be removed. A notch for a new concrete dam will be drilled and blasted into the ribs and sill at a selected location, forms with a new discharge pipe will be constructed, and concrete will be placed into the forms. A valve will be installed and the new discharge will be connected to the existing system. A bat gate will be installed, additional timber sets added as needed, the site will be re-contoured, and the emergency drainage overflow ditch will be replaced. All timber sets will be covered with soil for rock fall protection and camouflage. Worker protection will be ensured by proper barring down, inspection, and installation of rockbolts as needed. Internal and external rock/slope stability will be carefully monitored.

The following site personnel have read this plan and are familiar with its provisions:

NAME	SIGNATURE	DATE
Client H&S Contact (WWNF): Greg Visconty		
Site Contact (WWNF): Dennis Boles		
Project Team Leader (CES): Bob Lambeth		
Other Site Personnel:		
Site Safety Officer (CES): Bob Lambeth		
Subcontractor (Widman Contractors, Inc.): Arne Widman		

II. EMERGENCY INFORMATION

The SSO will coordinate response personnel during an emergency. No cell phone service is available; all calls must be placed from Granite, Oregon (a road distance of 4 miles).

NAME	PHONE NUMBERS
Local Police	911
Local Ambulance	911
Local Fire Department	911
Local Hospital: St. Elizabeth Health Services	911 / (541) 523-6461
Local Airport: Baker City Municipal Airport	(541) 523-5663
National Response Center (all spills)	(800) 424-8802
OR Emergency Response	(800) 452-0311
OR OSHA	(800) 922-2689
Oregon DEQ	(800) 452-4011

After immediate notifications are made, also notify:

NAME	PHONE NUMBERS
Project Manager (CES) – Bob Lambeth (If absent)	(509) 921-0290
Contracting Officers Representative (COR) / On-Scene Coordinator (OSC) (USFS) – Dennis Boles	(541) 923-0393
Forest Geologist (USFS) – Greg Visconty	(541) 523-1251
Subcontractor: Widman Contractors, Inc.	(541) 523-4627

EMERGENCY PROCEDURES – IMMEDIATE

1. ***ASSESS SITUATION:*** What is the Hazard? Can the Site be entered? Does the hazard still exist?

2. ***MAKE THE SITE SAFE:*** Safe for others to enter?

3. ***ASSESS THE VICTIM:*** 1) Breathing? 2) Heartbeat? 3) Other life threatening?

4. ***CALL 911:*** Follow Oral Reporting Procedures below. If life threatening, request instructions from dispatcher; if not life threatening remove, from contamination zone and consider the need for decontamination prior to transport.

   - Name, location, and phone number of person reporting;
   - Location of accident/incident, i.e., building number, facility name, etc.;
   - How many persons need help;
   - Description of injuries;
   - Details of any chemicals or other contamination involved;
   - Summary of the accident including its suspected cause and the time it occurred;
   - Summary of what is being done for the victim(s);
   - Depending on severity of the accident you may want to suggest helicopter transport, or meeting the ambulance somewhere along the transport route;
   - Do not hang up until the other party has done so.

5. ***APPLY EMERGENCY FIRST AID IF TRAINED:*** Remove injured party from contaminated or other unsafe zone, per OSHA HAZAWOPER guidelines. Ensure breathing, heartbeat, and reduce immediate threat to life.

EMERGENCY PROCEDURES - SECONDARY

1. Transport to hospital if possible, otherwise call ambulance (911).

2. Notify CES and USFS COR/OSC and other key personnel.

3. Complete written accident/incident report using attached form. Send copies to CES Project Manager, Health and Safety Officer, and Human Resources.

HOSPITAL ROUTE: to St. Elizabeth Health Services, 3225 Pocahontas Road in Baker City, Oregon (refer to Attached Maps: one is regional, the others are close-ups of Granite and Baker City). Note: For sever injuries (i.e., loss of appendage or heart attach) a helicopter could be used to airlift the injured to the hospital. CES will coordinate with the Forest Service to establish a suitable landing site.

- Follow Forest Service Primary Road #13 northeast along Clear Creek 4.7 miles to Forest Service Primary Road #10.
- Turn right and follow Primary Road #10 southeast for 2.0 miles along Bull Run Creek to Granite at the intersection with Primary Road #73.
- Turn right on Primary Road #73 (which becomes County Road 24, then State Highway 220) for 19.2 miles through Sumpter, Oregon to State Highway 7.
- Turn left and follow State Highway 7 for 25.8 miles into Baker City at the intersection with U.S. Highway 30.
- Follow U.S. Highway 30 for 4 blocks north to Broadway St.
- Turn left and follow Broadway St./U.S. Highway 30 west for 10 blocks to its 90^{o} turn to the north at a stoplight with 10^{th} St.
- Turn right and follow 10^{th} St. / U.S. Highway 30 north for 1.2 miles to Pocahontas Road.
- Turn left on Pocahontas Road for 0.1 mile.
- The hospital is on the left.

Information will not be released under any circumstances to parties other than those listed above or bonafide emergency response facilities. The SSO MUST NOTIFY OR-OSHA by Phone WITHIN 8 HOURS in the Event of DEATH or CATASTROPHE (an accident in which five or more site workers seek or are sent to medical attention) at the Work Site. SSO MUST notify OR-OSHA by phone within 24 hours in the event of ANY accidents or injuries resulting in a hospital admission with medical treatment other than first aid. OR-OSHA Office: 1-800-922-2689.

III. PROJECT DESCRIPTION

	TYPE	DATE	X	TYPE	DATE
X	Mobilization	September 19, 2005		Geophysical Survey	
	GW Sampling			Site Visit	
	Sf. Water Sampling			Drum Sampling	
	Sediment Sampling			Surveying	
	Air Sampling		X	Excavation/Construction	September 20-30, 2005
	Drilling			Building Demolition	
	Compliance Audit				

Status of Site: Active _____ Inactive X Prevailing Wind Direction varies

A. Site Description/History

The Bluebird Mine, located approximately 2.7 air miles southwest of Granite, Oregon, consists of one primary adit approximately 50 vertical feet above Clear Creek, a partially re-graded portal waste dump, a portal dam with an 8 inch HDPE discharge line under Clear Creek and Primary Road 13 to a wetlands basin, and an emergency overflow containment basin. An older upstream discharge line and wetlands basin system is deactivated. A small adit may exist above the primary adit. Only the primary adit and portal are addressed in the HASP. Gold was discovered in the area in the 1860s; the Bluebird claims were located between 1897 and 1899. According to historical records, development consists of approximately 2,500 feet on two levels. Reportedly, the upper level is 900 feet long with several shafts (winzes/raises). No visible dumps corroborate this, but the upper level could have been driven internally with waste removed through the main adit. Construction of a cyanide leach system is also reported followed by a gravity concentration circuit after high grade ore was encountered. Most production, which may have been up to 1,500 tons at a value of $5,000, occurred during 1904 and 1905. The mine passed through several owners prior to being abandoned circa 1950. Ferruginous adit discharge was direct to Clear Creek until sometime during the 1960s, when it may have been diverted to a settlement basin. In 1988, the Forest Service constructed a portal bulkhead and installed a drainage line to the same basin. The line was replaced and a new (current) wetlands treatment area constructed in 2003. Evaluation of a more permanent bulkhead and entrance by CES began during summer 2004.

IV. HAZARDS

A. Potential Chemical Hazards

The following potential chemical hazards may exist in soils or building materials at the Site. Specific hazards include skin contact and inhalation with soil containing heavy metals, exposure to acid drainage, accidents with acid preservatives, and physical hazards from topography and mine. Discharge pH is only weekly acidic at 5.2-5.5. Compounds of concern include only arsenic, which is further discussed in the following sections.

Arsenic: the OSHA PEL-TWA is 0.01 mg/m^3. Arsenic is a known carcinogen that has been shown to cause skin and lung cancer. It also may damage a developing fetus and should be handled as a teratogenic agent (causing developmental malformations). Oral exposure to inorganic arsenic can cause digestive tract pain, nausea, vomiting, diarrhea, decreased production of red and white blood cells, abnormal heart function, blood vessel damage, liver and/or kidney injury, and impaired nerve function, causing a "pins and needles" effect in the feet and hands. Skin contact with arsenic can cause burning, itching and a rash. Breathing arsenic can irritate the nose and throat; eye contact can cause red, watery eyes and irritation. Long-term exposure can cause an ulcer or hole in the "bone" dividing the inner nose, hoarseness, and sore eyes.

The Bluebird Mine has no airborne contaminant concentration data available to compare to TLV or OSHA-PEL TWAs. The information on TWA can be used to rank the relative toxicity of the compounds. The symptoms of exposure can be used as indicators to receive medical monitoring beyond the annual physical.

WASTE MATERIAL	LEVEL: Soil/Sediment	OSHA PEL or TLV*	I.P.	RISK
Arsenic/soil	7.3 – 86.8 mg/kg	0.01 mg/m^3		Moderate (Material is coarse.)
Arsenic/sediment	17.5 – 60 mg/kg	0.01 mg/m^3		Low (Wet)

NOTES:

1. *The TLV (Threshold Limit Value) from the American Council of Governmental Industrial Hygienists is listed, unless the PEL (Permissible Exposure Limit) designated by OR-OSHA or the National Institute of Occupational Safety and Health (NIOSH) is lower.
2. Hazardous substance information sheets for these constituents are attached.

Other Hazard Information: Oxygen depletion (y / n)***: N***
Explosion Hazard (y / n): ***N***
LEL (y / n): ***N***
Other Recognition Properties (odor, color, etc.)

B. Potential Physical Hazards

The remoteness of the Site, presence of explosives, and working underground presents a significant physical hazard. The nearest emergency facility is over approximately 45 miles away, and communications is poor. Minor incidents can become major accidents due to the lack of local facilities. Extra caution must be exercised by all personnel.

Physical hazards known or expected to be present on the site.

HAZARD	YES	NO	HAZARD	YES	NO
Overhead Power Lines		X	Heavy Equipment	X	
Buried Conduit	X		Pitch Points on Rig	X	
Uneven Ground	X		Insects/Snakes	X	
Steep Slopes	X		Ice	X	
Slippery Conditions	X		High/Low Temperatures	X	
Rain	X		Rodent Nests/Droppings		X
Confined Space Hazard	X		Potential adit collapse	X	
Fall hazards	X		Explosives	X	

V. ORGANIZATION & RESPONSIBILITIES

A. Personnel

The following personnel are designated to carry out job functions on the site. Their responsibilities (i.e., field team leader, etc.) and the tasks they will be carrying out on the site are listed.

CES/WWNF WORK PARTY	RESPONSIBILITY & TASKS
Bob Lambeth	Project Manager / Engineer of Record
Dennis Boles	COR / OSC
Greg Visconty	Forest Geologist
Subcontractor	Arne Widman (Widman Contractors, Inc.)
Bob Lambeth	Site Safety Officer
Dustin Wasley	Engineering Support

All CES and subcontractor site workers are required to meet the OR-MSHA training requirements outlined in Public Laws 91-173 and 95-164.

SUBCONTRACTOR WORK PARTY (NAME AND COMPANY)	RESPONSIBILITY	H/S INFO* ON FILE? (y/n)
Arne Widman – Widman Contractors, Inc.	Construction Manager	Yes
Widman – laborers	Laborers	Yes

NOTES:
*****H/S Information includes Medical Monitoring; Health & Safety Training.

B. Work Zones

Excavation using heavy equipment will be conducted during this operation. These activities may require the establishment of specific work zones to avoid accidents and/or unauthorized entry. Two work zones are recommended for this operation: The Work Zone, or the Exclusion Zone (EZ); and the Support Zone (SZ). The EZ will be the area immediately within and downwind of the mine. Signs and caution tape will be placed around the EZ to inform the public not to enter the EZ. The SZ will be located upwind and outside of the mine area. Exact boundaries will be decided on by the SSO in the field. The boundaries may be adjusted by the SSO as work progresses depending on local conditions (such as prevailing wind, visibility, dust, etc.). Any persons not directly associate with the construction activities, will not be allowed to enter the EZ without the expressed permission of the SSO.

Exit from the EZ into the SZ should be upwind, and over flat terrain, whenever possible. General access to the EZ by the public or other unauthorized visitors will be restricted. Due to the remoteness of the Site, fences and barricade tape will not be employed to mark the EZ.

C. Command Post

The command post/staging area will be established downgradient from the work areas. This location shall, if possible, be upwind from the EZs. The command post shall include, at a minimum, a transport vehicle, cell phone, expedition style first aid kit, eye wash station, food, water, blanket, extra Level C PPE, and a posted copy of this plan.

VI. PERSONAL PROTECTIVE EQUIPMENT

This section lists the equipment that must be present on the site and used during the specified protection level.

Modified Level C PPE is required at the Site for some of the work performed in the EZs. In this report, "Modified Level C" shall refer to Level D PPE, which may include the use of half-face air purifying respirators, and possibly the use of other protective clothing. The actual modifications to be employed will be set on-site by the SSO, and will be based on the assessment of Site conditions as work progresses. All personnel at the Site will attend daily health and safety "tailgate" meetings to be held by the SSO.

A. Respirators

As discussed in the potential hazards section above (Section IV), the inhalation of particulates presents a potential migration pathway for potential hazards at the site. Specifically, workers may be exposed to arsenic-laden dust during excavation. Therefore, the proper use of air-purifying respirators is very important.

> *The SSO shall submit written proof that a medical evaluation was performed stating that the worker is capable of working with a respirator, and a qualitative or quantitative fit test showing passing results for the respirator the worker is using at the Site (OSHA 1910.134 Respiratory Protection Standard). N-Series, R-series, or P-series filter cartridges may be used with the respirator as long as the minimum efficiency of the cartridge is 99% or greater.*
>
> *Subcontractor personnel shall provide written documentation of training in the use of respirators and self-rescuers.*

The following table is a checklist to be used when preparing for the field. Equipment that must be present on the site is marked with an **R; O** = Optional equipment. Optional items depend on site activities and existing/potential hazards. Subcontractors must have the same equipment listed here as a minimum.

DESCRIPTION	LEVEL OF PROTECTION							
	A		B		C		D	
	R/O	X	R/O	X	R/O	X	R/O	X
Respiratory								
Positive Pressure, full-face SCBA, or Positive Pressure Supplied Air Respirator with escape SCBA (NIOSH approved)	R		R					
Full-face or half-mask, air purifying respirator (NIOSH approved)					R	X		
Other (dust protection):						X		

DESCRIPTION	LEVEL OF PROTECTION							
	A		B		C		D	
	R/O	X	R/O	X	R/O	X	R/O	X
Body								
Totally Encapsulating Chemical-Protective Suit	R							
Disposable protective suit, gloves, and boots (depending on suit construction, may be worn over totally-encapsulating suit)	R							
Coveralls	O		O		O	X	R	X

DESCRIPTION	LEVEL OF PROTECTION							
	A		B		C		D	
	R/O	X	R/O	X	R/O	X	R/O	X
Long Underwear	O							
Hooded Chemical-Resistant Clothes:								
Overalls and long-sleeved jacket; coveralls; one or two-piece chemical-splash suit; disposable chemical-resistant overalls			R					
Overalls; two-piece chemical-splash suit; disposable chemical-resistant overalls					R	X		
Other (types: tyvek; saranex; splash apron):								
Hands								
Gloves, outer, chemical-resistant	R		R		R	X	O	X
Gloves, inner, chemical-resistant	R		R		O	X		
Other (types: latex; nitrile rubber; natural rubber; etc.):								
Feet								
Boots, chemical-resistant, steel toe and shank	R		R		R	X	R	X
Boot covers, outer, chemical-resistant (disposable)	O		O		O	X	O	X
Other (rubber, chemical-resistant boots):								
Head								
Hard Hat (under suit for Level A)	R		R		R	X	R	X
Other (head warmer):								
Eyes & Face								
Safety Glasses or Chemical Splash Goggles					R	X	R	X
Face Shield					O		O	
Escape Mask					O		O	
Other:								
Ears								
Ear Plugs	O		O		O	X	O	X
Ear Phones	O		O		O		O	
Other:								
Other Supplies								
First Aid Kit	R		R		R	X	R	X
Fire Extinguisher	R		R		R	X	R	X
Mobile Phone	R		R		R	X	R	X
Two-Way Radio	O		O		O			
Gator Aid / Water	O		O		R	X	R	X
Eye Wash Station	O		O		R	X	R	X
Wash & Dry Towelets	O		O		R	X	R	X
Other:								

NOTE:

Level A – To be selected when the greatest level of skin, respiratory, and eye protection is required.

Level B – The highest level of respiratory protection is necessary, but a lesser level of skin protection is needed.

Level C – The concentrations(s) and type(s) of airborne substance(s) is known and the criteria for using air-purifying respirators are met.

Level D – A work uniform affording minimal protection, used for nuisance contamination only.

Reassessment of Protection Program – The SSO may upgrade or downgrade the Level of Protection provided by PPE upon a change in site conditions or findings of subsurface investigations.

VII. MONITORING PROGRAM

Both *direct-reading instruments* and *passive air monitoring* may be employed during all phases of Site activities to estimate worker exposure at the Site.

> *Monitoring equipment will not be relied upon to assess suspended dust while working during excavation. Half-face respirators will always be employed by individuals working in the excavation zone at the Site invisible dust conditions. The respirators will be equipped with HEPA filters. Air monitoring may indicate the need for donning other PPE, however. The Onsite Safety Officer reserves the right to change the PPE following discussion with the Onsite Project manager.*

A. Air Monitoring

Sample pump air monitoring methods may be employed to monitor employee exposure to airborne contaminants, specifically airborne arsenic and mercury in dust, at the Site. Air monitoring can be achieved by collecting air samples using a sampling device attached to a worker for a specified amount of time (4 to 8 hours) during typical field activities that are *not* related to excavation. This will be performed prior to commencement of major field activities. The time-weighted average results will be used to assess the need for PPE or other actions in order to protect workers.

It will be assumed that permissible exposure limits may be reached during excavation. Therefore, workers will maintain appropriate PPE availability within reach. Air sampling may also be performed during excavation.

B. Action Levels

The following table specifies the monitoring equipment to be used on site and the action levels to upgrade to higher levels of personal protection.

MONITORING EQUIPMENT	MONITORING INTERVAL	ACTION LEVEL		
		D to C	C to B	Stop Work (IDLH*)
Air Sampling Device	4-8 hours	0.01 mg/m3 (As)	NA	5 mg/m3 (As)

*IDLH – Immediately Dangerous to Life and Health

C. Corrective Measures

At the first sign of fugitive emissions, water will be applied using an atomized spray until visually damp. Special consideration will be given not to overeater the tailings. No ponding or runoff from the tailings will be allowed. Excessively wet tailings can cause equipment safety issues and could potentially jeopardize the reclamation.

VIII. DECONTAMINATION / DISPOSAL PROCEDURES

Extensive decontamination procedures have been determined to be unnecessary for this project. However, should comprehensive decontamination become necessary due to Personal Protection Level upgrade, the SSO will devise a decontamination plan according to the table. Level C decontamination protocol shall be used with the following decontamination stations:

LEVEL C DECONTAMINATION STEPS		LEVEL D DECONTAMINATION STEPS	
1	Equipment Drop	1	Equipment Drop
2	Outer Garment, Boots, and Glove Wash and Rinse	2	Glove and Boot Wash and Rinse
3	Disposable Garment, Boots, and Glove Removal	3	Disposable Garment, Outer Boot and Glove Removal
4	Cartridge Change (if necessary)	4	Field Wash
5	Remove Respiratory Protection		
6	Field Wash		

The following decontamination equipment is required at the construction site.

DECONTAMINATION EQUIPMENT CHECKLIST			
X	Scrub Brushes	X	Garbage Bags
X	Waste Containers	X	Paper Towels
X	Soap		Isopropyl Alcohol
	Plastic Tubs		Pump Spray Bottles
X	Plastic Drop Cloths	X	Pump Spray Bottles (water)

Disposition of Decontamination Wastes

All equipment and liquids used for decontamination shall be decontaminated or disposed properly according to local, state and federal regulations. Commercial laundries or cleaning establishments that clean protective clothing or equipment shall be informed of the potentially harmful effects of exposures.

IX. COMMUNICATION PROCEDURES

Site workers will team with at least one other worker and operate on the buddy system at all times that work is being conducted anywhere on Site.

Three (3) horn blasts (siren, etc.) are the emergency signal to indicate that all personnel should leave the EZ.

The following standard hand signals will be used in case of failure of radio communications:

Hand gripping throat	Out of air, can't breathe
Grip partner's wrist	Leave area immediately
Both hands around waist	Leave area immediately
Hands on top of head	Need assistance
Thumbs up	OK, I am all right, I understand
Thumbs down	No, negative

X. EMERGENCY RESPONSE PLAN

For immediate emergency response, follow the steps outlined on page 3 of this plan.

It is not anticipated that the operations for this project will involve hazards that could necessitate instituting emergency response measures. However, should conditions change and an emergency response is warranted, the SSO will assume command unless and until superseded by police, fire or other emergency officials and follow OR-OSHA requirements. The priority of objectives in an emergency situation should be as follows: protection of personnel health and safety; protection of public safety; protection of environment; and protection of property.

Personnel Injury in the SZ. Upon notification of an injury in the SZ, the Project Team Leader and SSO will assess the nature of the injury. If the cause of the injury or loss of the injured person does not affect the performance of site personnel, operations may continue, with appropriate onsite first-aid and necessary follow-up as stated above. If the injury increases the risk to others, the designated emergency horn blasts or hand held siren signal shall be sounded and site personnel shall move to the decontamination line for further instruction. Activities onsite will stop until the added risk is removed or minimized.

1. The conditions resulting in the emergency have been corrected.
2. The hazards have been reassessed.
3. The Site Safety Plan has been reviewed.
4. Site personnel have been briefed on any changes in the Site Safety Plan.

The SSO or specified alternate must complete the Accident Report Form, attached in Appendix B, in the event of any accident or incident on the site. Copies should be given to the Project Manager and the CES Operations Manager.

XI. MEDICAL SURVEILLANCE

All employees at this site except subcontractors that seldom work with hazardous materials are subject to the strict medical surveillance requirements for hazardous site workers as outlined in 29 CFR 1910.120. Copies of evidence of a current physical exam for personnel are maintained at the offices of CES and available on request.

XII. CONFINED SPACE ENTRY

Confined space entry is not anticipated to be a part of this project. Workers will not enter any confined space without notification and approval by the Project Manager and the CES Operations Director. Any confined space entry must be performed in strict accordance with OR-OSHA Confined Space Entry requirements.

XIII. SPILL CONTAINMENT

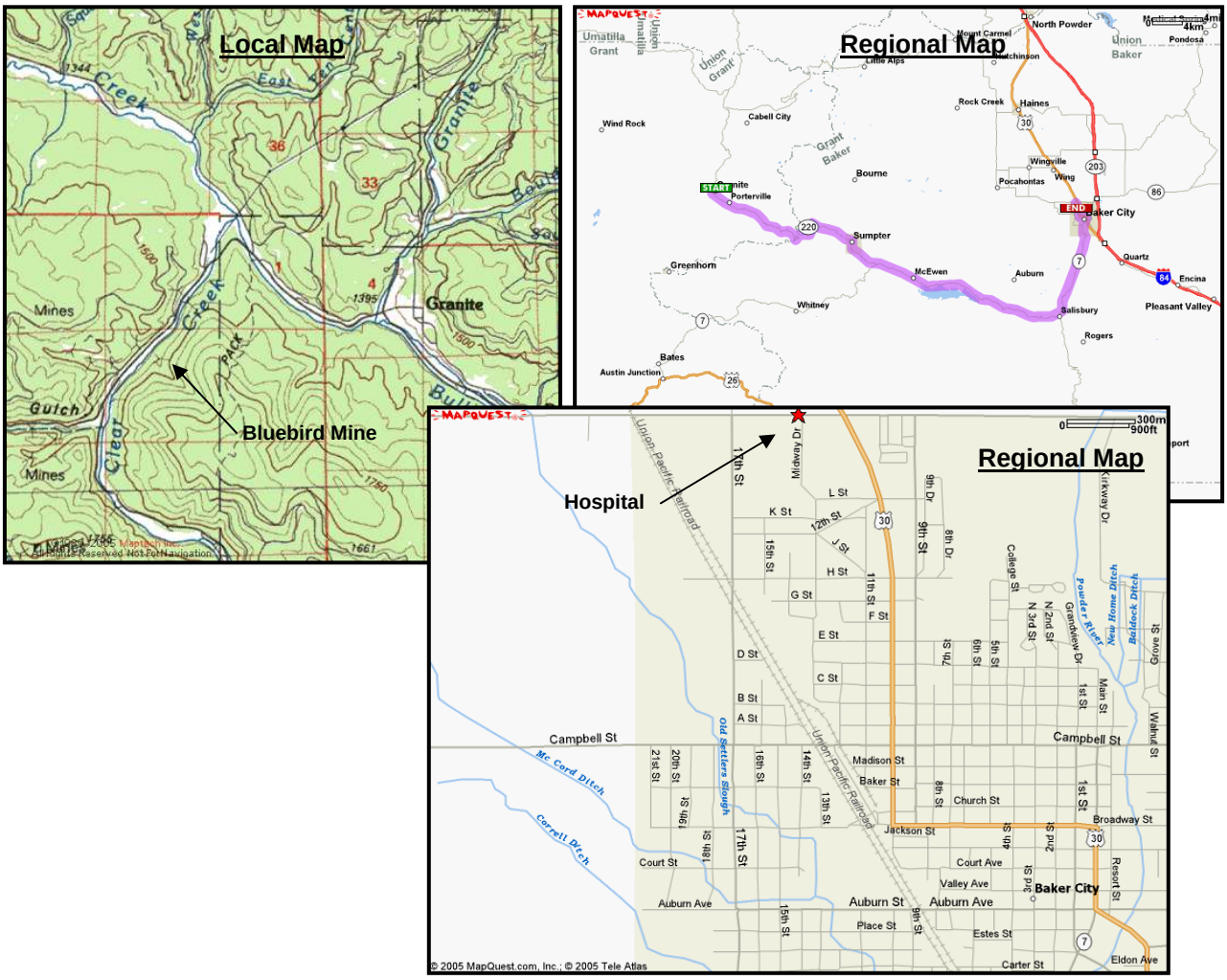
Spills of hazardous materials are not anticipated to be a part of this project. If a spill occurs, workers are required to follow the OR-OSHA requirements for spill containment as outlined in 29 CFR 1910.120.

* * * * * * * * * *

A copy of the Site Safety Plan will be posted, or made available at the Command Post to onsite personnel and regulatory officers.

HOSPITAL ROUTE MAPS

HOSPITAL ROUTE MAP – BLUEBIRD MINE



Hospital: St. Elizabeth Health Services
3325 Pocahontas Road
Baker City, OR 97814
Phone: (541) 523-6461
Emergencies: 911

Directions from Site:

Follow Forest Service Primary Road (PR) #13 northeast 4.7 miles to PR #10. Turn right and follow PR #10 southeast for 2.0 miles to Granite at the intersection with PR #73. Turn right on PR #73 (which becomes County Road 24, then State Highway 220) for 19.2 miles through Sumpter, Oregon to State Highway 7. Turn left and follow State Highway 7 for 25.8 miles into Baker City at the intersection with U.S. Highway 30. Follow U.S. Highway 30 for 4 blocks north to Broadway St. Turn left and follow Broadway St. / U.S. Highway 30 west for 10 blocks to its 90° turn to the north at a stoplight with 10th St. Turn right and follow 10th St. / U.S. Highway 30 north for 1.2 miles to Pocahontas Road. Turn left on Pocahontas Road for 0.1 mile. The hospital is on the left.

ACCIDENT / INCIDENT REPORT FORM

ACCIDENT/INCIDENT REPORT FORM

(Use additional page if necessary)

Date: _____ Time: _____ Page _____ of _____

Name: _____ Employer: _____

Site Name and Location: _____

_____

Nature of Illness/Injury: _____

_____

_____

Symptoms: _____

_____

Action Taken: Air and Rest _____ First Aid _____ Medical _____

Transported by: _____

Witnessed by: _____

Facility Treating (Hospital's name): _____

Treatment: _____

_____

What was the person doing at the time of the accident/incident? _____

_____

_____

Personal Protection Equipment Worn: _____

_____

Suspected Cause of Accident/Incident: _____

_____

_____

What Immediate action was taken to prevent recurrence? _____

_____

Additional Comments: _____

_____

Employee's Signature: _____ Date: _____

Supervisor's Signature: _____ Date: _____

FOREST FIRE SUPPLEMENT

Because of the potential for elevated forest fire danger during the Bluebird Mine Portal Closure construction period, the following precautions will be adhered to.

1. Fire Period and Closed Season

   Specific fire prevention measures are listed below and shall be effective for the period April 1 to October 31 of each year. The Forest Service may change the dates of said period by advance written notice if justified by unusual weather or other conditions. Required tools and equipment shall be kept currently in serviceable condition and immediately available for initial attack on fires.

2. Fire Plan

   Before starting any operations on the project, the Contractor, Permittee, Licensee, or Purchaser, hereinafter referred to as the "Contractor," shall prepare a fire plan in cooperation with the Engineer providing for the prevention and control of fires in the project area.

   The Contractor shall certify compliance with fire protection and suppression requirements before beginning operations during the fire period and closed season, and shall update such certification when operations change.

3. Substitute Measures

   The Engineer may by written notice authorize substitute measures or equipment or may waive specific requirements during periods of low fire danger.

4. Emergency Measures

   The Forest Service may require emergency measures, including the necessary shutting down of equipment or portions of operations in the project area during periods of fire emergency created by hazardous climatic conditions.

5. Fire Control

   The Contractor shall, independently and in cooperation with the Forest Service, take all reasonable action to prevent and suppress fires in the project area. Independent initial action shall be prompt and shall include the use of all personnel and equipment available in the project area.

   For the purpose of fighting forest fires on or in the vicinity of the project which are not caused by the Contractor's operations, the Contractor shall place employees and equipment temporarily at the disposal of the Forest Service. Any individual hired by the Forest Service will be employed in accordance with the Interagency Pay Plan for Emergency Firefighters. The Forest Service will compensate the Contractor for equipment rented at fire fighting equipment rates common in the area, or at prior agreed to rates.

6. Compliance with State Forest Laws

Listing of specific fire precautionary measures herein is not intended to relieve the Contractor in any way from compliance with the State Fire Laws covering fire prevention and suppression equipment, applicable to operations under this contract, permit or license.

7. Fire Precautions

Specific fire precautionary measures are as follows:

a. Smoking and Open Fires

Smoking and fires shall be permitted only at the option of the Contractor. The Contractor shall not allow open fires on the project area without advance permission in writing from Forest Service.

Unless restricted by State Law or Federal Regulation, smoking shall be permitted only in such portions of the project area that are free of flammable material. Smokers shall sit down to smoke in such a position that any burning material will fall within a cleared area, and shall extinguish and press out in mineral soil all burning material before leaving the cleared area.

b. Fire Extinguishers and Equipment on Trucks, Tractors, etc.

All power-driven equipment operated by the Contractor on National Forest land, except portable fire pumps, shall be equipped with one fire extinguisher having a UL rating of at least 5 BC, and one "D" handled or long handled round point shovel, size "0" or larger. In addition, each motor patrol, truck and passenger-carrying vehicle shall be equipped with a double-bit axe or Pulaski, 3-1/2 pounds or larger.

Equipment shall be kept in a serviceable condition and shall be readily available.

c. Power Saws

Each gasoline power saw operator shall be equipped with a pressurized chemical fire extinguisher of not less than 8-ounce capacity by weight, and one long-handled round point shovel, size "0" or larger. The extinguisher shall be kept in possession of the saw operator at all times. The shovel shall be accessible to the operator within 1 minute.

d. Extinguishers

One refill for each type or one extra extinguisher sufficient to replace each size extinguisher required on equipment shall be safely stored in the fire tool box or other agreed upon place on the project area that is protected and readily available.

e. Spark Arresters and Mufflers

Each internal combustion engine shall be equipped with a spark arrester meeting either (1) USDA Forest Service Standard 5100-1a, or (2) appropriate Society of Automotive Engineers (SAE) recommended practice J335(b) and J350(a) as now or hereafter amended unless it is:

(1)Equipped with a turbine-driven exhaust supercharger such as the turbocharger. There shall be no exhaust bypass.

(2)A passenger-carrying vehicle or light truck, or medium truck up to 40,000 GVW, used on roads and equipped with a factory-designed muffler complete with baffles and an exhaust system in good working condition.

(3)A heavy duty truck, such as a dump or log truck, or other vehicle used for commercial hauling, used only on roads and equipped with a factory designed muffler and with a vertical stack exhaust system extending above the cab.

Exhaust equipment described in this subsection, including spark arresters and mufflers, shall be properly installed and constantly maintained in serviceable condition.

f. Emergency Fire Precautions

The Contractor shall restrict operations in accordance with the Industrial Fire Precaution Levels listed below. The Forest Service may change the Industrial Fire Precaution Levels to other values upon revision of the National Fire Danger Rating System and may change the specific Industrial Fire Precaution Levels when such changes are necessary for the protection of the National Forest. When sent to the Contractor, the revised Industrial Fire Precaution Levels will supersede the attached levels.

INDUSTRIAL FIRE PRECAUTIONS SCHEDULE

LEVEL	INDUSTRIAL FIRE PRECAUTION (IFPL)

I. Closed season - Fire precaution requirements are in effect. A fire watch/security is required at this and all higher levels unless otherwise waived.

II. Partial hootowl - The following may operate only between the hours of 8 p.m. and 1 p.m., local time:

a. power saws, except at loading sites;
b. cable yarding;
c. blasting;
d. welding or cutting of metal.

III. Partial shutdown - The following shall be prohibited except as indicated:

Cable yarding - except that gravity operated logging systems employing non-motorized carriages may be operated between the hours of 8 p.m. and 1 p.m., local time, when all block and moving lines, except the line between the carriage and the chokers, are suspended 10 feet above the ground;

Power saws - except power saws may be used at loading sites and on tractor/skidder operations between the hours of 8 p.m. and 1 p.m., local time.

In addition, the following are permitted between the hours of 8 p.m. and 1 p.m., local time:

a. tractor/skidder operations;
b. mechanized loading and hauling of any product or material;
c. blasting;
d. welding or cutting of metal;
e. any other spark-emitting operation not specifically mentioned.

IV. General shutdown - All operations are prohibited.

The following definitions shall apply to these Industrial Fire Precaution Levels:

Cable yarding systems: A yarding system employing cables and winches in a fixed position.

Closed season (Fire Precautionary Period): That season of the year when a fire hazard exists as declared by the responsible agency official.

Engineer: The person executing the contract, permit or license on behalf of the Government and includes that person's designated representative, acting within the limits of their authority or the duly appointed successor to the individuals.

Loading sites/woods site/project area: A place where any product or material (including but not limited to logs, firewood, slash, soil, rock, poles, posts, etc.) is placed in or upon a truck or other vehicle.

Low hazard area: Means any area where the responsible agency representative (WDNR, ORF, BIA, BLM) determines the combination of elements reduces the probability of fire starting and/or spreading.

Tractor/skidder operations: include a harvesting operation, or portion of a harvesting operation, where tractors, skidders, or other harvesting equipment capable of constructing fireline, are actively yarding forest products and can quickly reach and effectively attack a fire start.

Waivers, written in advance, may be used for any and all activities. Activities for which waivers may be issued include, but are not limited to:

a. mechanized loading and hauling;
b. road maintenance such as sprinkling, graveling, grading and paving;
c. cable yarding using gravity systems or suspended lines and blocks, or other yarding systems where extra prevention measures will significantly reduce the risk of fire;
d. powers saws at loading sites or in felling and bucking where extra prevention measures will significantly reduce the risk of fire;
e. maintenance of equipment (other than metal cutting and welding) or improvements such as structures, fences and powerlines.

Such waiver, or substitute precautions will prescribe measures to be taken by the Contractor to reduce the risk of ignition, and/or the spread of fire. The Engineer shall consider site specific weather factors, fuel conditions, and specific operations that result in less risk of fire ignition and/or spread than contemplated when precaution level was predicted. Consideration shall also be given to measures that reduce the precaution levels above. The Contractor shall assure that all conditions of such waivers or substitute precautions are met.

The Contractor shall obtain the predicted Industrial Fire Precaution Level daily, prior to the start of work, from the appropriate Ranger District headquarters. If predictions made after 6:00 p.m., local time, are significantly different than the original prediction, the Forest Service will inform the Contractor when changes in restrictions or industrial precautions are made.

NOTE:The IFPL system does not apply on lands protected by ODF east of the summit of the Cascades.

Where hauling involves transit through more than one shutdown/regulated use area, the precaution level at the woods loading site shall govern the level of haul restriction, unless otherwise prohibited by other than industrial precaution level system.

8. Fire Tools

The Contractor shall furnish serviceable fire fighting tools in a readily accessible fire tool box or compartment of sound construction with a hinged lid and hasp so arranged that the box can be secured or sealed. The box shall be red and marked "Fire Tools" in letters one inch high. It shall contain a minimum of:

a. 2 axes or Pulaskis with a 32-inch handle;

b. 3 adze eye hoes. One Pulaski may be substituted for 1 adze eye hoe;

c. 3 long-handled, round point shovels, size "0" or larger.

9. Fire Security

When the Industrial Fire Precautions Level is "I" or higher, unless a waiver is granted, the Contractor shall designate a person who shall perform fire security services listed below on the project area and vicinity. The designated person shall be capable of operating the Contractor's communications and fire fighting equipment specified in the contract, excluding helicopters, and of directing the activities of the Contractor's personnel on forest fires. In lieu of having the designated person perform the required supervisory duties, the Contractor may provide another person meeting the qualifications stated above to direct the activities of Contractor's personnel and equipment during all fire fighting activities.

Services described shall be for at least 1 hour from the time the Contractor's operations are shut down. For the purposes of this provision, personnel servicing equipment, and their vehicles, who are not engaged in cutting or welding metal are excluded.

Fire security services shall consist of moving throughout the operation area or areas constantly looking, reporting, and taking suppression action on any fires detected. Where possible, the designated person shall observe inaccessible portions of helicopter operating areas from vantage points within or adjacent to project area.

10. Blasting

Whenever the Industrial Fire Precaution Level is "II" or greater, a fire security person equipped with a long-handled, round point, No. "0" or larger, shovel, and a five-gallon backpack pump can filled with water will stay at location of blast for 1 hour after blasting is done. Blasting may be suspended by Forest Service in writing, in an area of high rate of spread and resistance to control.

Fuses shall not be used for blasting. Explosive cords shall not be used without written permission of Forest Service, which may specify conditions under which such explosives may be used and precautions to be taken.

USDA Forest Service - Pacific Northwest Region
Fire Protection and Suppression

Additional Fire Precautionary Measure 1 - Tank Truck

The Contractor shall provide a tank truck or trailer containing not less than 300 gallons of water during yarding, loading, land clearing, right of way clearing, and mechanical treatment of slash. A tank truck or trailer will not be required if power saw falling and bucking is the only operation. Such tank truck or trailer shall be maintained in a serviceable condition and located within 10 minutes, round trip, from each project area during fire period and closed season.

The tank truck or trailer shall be equipped with a pump capable of discharging 20 gallons of water per minute, using a ¼ inch nozzle tip, through a 50-foot length of rubber lined hose. In addition, 500 feet of serviceable fabric jacket rubber lined hose of not less than 1 inch outside diameter, fitted with a nozzle capable of discharging a straight stream of ¼ inch diameter and a spray pattern shall be immediately available for use. The tank, pump, and at least 250 feet of hose and nozzle shall be connected and ready for use at all times.

If a trailer is used, it shall be equipped with a hitch to facilitate prompt movement. A serviceable tow vehicle shall be immediately available for attachment to the trailer and must meet the time requirements stated above. Such truck or trailer shall be equipped to operate for a minimum of 8 hours. Tank truck or trailer shall be available from the start of work to the end of the Fire Watch/Fire Security service.

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Additional Fire Precautionary Measure 2 - Communications

The Contractor shall provide adequate two-way communication facilities to report a fire to the Forest Service within 15 minutes of detection. FCC regulations prohibit commercial use of Citizen Band (CB) radios. CB's are not considered adequate two-way communications.

Such communications shall be operable during periods of operation of power driven equipment, including the time fire security is required.

R6-FS-6300-54