United States Department of the Interior
Bureau of Land Management
Elko Field Office

August 2001

Franco-Nevada Mining Corporation, Inc.
Tuscarora Exploration Project

Environmental Assessment
BLM/EK/PL2001/038

Case File # N16-97-001P

MISSION STATEMENT

The Bureau of Land Management is responsible for the stewardship of our public lands. It is committed to manage, protect, and improve these lands in a manner to serve the needs of the American people for all times. Management is based upon the principles of multiple use and sustained yield of our nation's resources within a framework of environmental responsibility and scientific technology. These resources include recreation, rangelands, timber, minerals, watershed, fish and wildlife, air and scenic, scientific and cultural values.

FINDING OF NO SIGNIFICANT IMPACT
AND
DECISION RECORD
FRANCO NEVADA INC. TUSCARORA EXPLORATION PROJECT AMENDMENT
ELKO COUNTY, NEVADA
BLM/EK/PL-2001/038
3809, N16-97-001P

Finding of No Significant Impact

The proposed action to allow Franco Nevada Mining Corporation, Inc. to: 1) expand the project boundary of 2,399 acres to 2,658 acres; and 2) increase surface disturbance by 2.71 acres; and 3) conduct exploration drilling west and southwest of the town of Tuscarora from late summer to fall of 2001 has been evaluated in the Franco Nevada Mining Corporation, Inc. Project Environmental Assessment BLM/EK/PL-2001/038.

Based on the analysis of potential environmental impacts contained in BLM/EK/PL-2001/038 no significant effects on the human environment will occur. Therefore an environmental impact statement is not required and will not be prepared.

Decision

It is my decision to authorize the Franco Nevada Mining Corporation, Inc. Tuscarora Exploration Project Amendment as described in the proposed action of BLM/EK/PL-2001/038. This decision will permit the exploration project from fall of 2001 to early summer of 2002.

Monitoring

Monitoring will consist of a Bureau specialist conducting compliance inspections of the Franco Nevada Mining Corporation, Inc. Tuscarora Exploration Project Amendment. All compliance inspections will be documented into the project file at the BLM Elko office.

Rationale

As a result of the analysis in BLM/EK/PL-200/1038, it was determined that the proposed action would not result in undue or unnecessary degradation to the public lands. The proposed action is in conformance with the Elko Resource Area Management Plan, Issue - Minerals, Management Prescription - 1. Implementation of the proposed action will allow Franco Nevada Mining Corporation, Inc. to conduct exploration drilling within the project area from late spring to fall of1998.

The No-Action Alternative was not selected because it would not allow Franco Nevada Mining Corporation, Inc. to conduct their drilling program for this project. The General Mining Law of 1872 gives the claimant the right to explore, discover, and diligently develop a mineral deposit on their claims. The Bureau of Land Management's responsibility is to determine and assure that unnecessary or undue degradation does not occur to the public lands during the exploration for locatable mineral deposits.

HELEN HANKINS
For Elko Field Manager

8/17/01
DATE

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1.0 INTRODUCTION/PURPOSE AND NEED

1.1 INTRODUCTION

Franco-Nevada Mining Corporation, Inc. (Franco-Nevada) proposes to conduct mineral exploration activities on public lands administered by the United States Bureau of Land Management (BLM), Elko Field Office. The proposed action, the Tuscarora Exploration Project, is described in the proposed *Tuscarora Exploration Plan of Operations Amendment and Modification to Reclamation Plan Permit No. 0133 for Tuscarora Exploration Project* dated January 16, 2001. The proposed exploration activities would occur near the 2,658-acre Tuscarora Operations Project area, located approximately one mile east of Tuscarora, Nevada (Figure 1). The proposed Tuscarora Exploration Project would be located within portions of Township 39 North, Range 51 East; and Section 34, Township 40 North, Range 51 East, Sections 3, 4, 8, and 9.

Franco-Nevada acquired Newcrest Resources Inc's (Newcrest) interests in the Tuscarora property in 1999. In conjunction with this acquisition, Newcrest's Plan of Operations (N16-97-001P) and Reclamation Permit No. 0133 were transferred to Franco-Nevada. This transfer designated Franco-Nevada as the operator for the Tuscarora Plan of Operations and Reclamation Permit. As such, Franco-Nevada has accepted responsibility for the surface disturbance created by Newcrest under the Plan of Operations and Reclamation Permit.

Newcrest disturbed approximately 4.05 acres of the 11.50 acres of surface disturbance authorized in the 1998 Plan of Operations. In March 2000, Franco-Nevada submitted a *Plan of Operation (N 16-97-001P) Amendment and Minor Modification to Reclamation Permit No. 0133 For Tuscarora Exploration Project;* this Plan of Operations was authorized on June 9, 2000. Franco-Nevada is authorized to perform similar exploration work and to disturb the remaining 7.5 acres of the 11.55 acres of authorized surface disturbance within the Tuscarora project area.

This environmental assessment (EA) was prepared in accordance with the National Environmental Policy Act (NEPA) of 1969 and in compliance with applicable regulations and laws passed subsequently, including the President's Council on Environmental Quality regulations, U.S. Department of Interior requirements, and guidelines listed in the BLM Manual Handbook H-1790-1. A previous NEPA analysis covering the Tuscarora Exploration Project includes *BLM/PL-98/009 Environmental Assessment for Newcrest Resources Inc. Tuscarora Exploration Project* dated May 1998. The current environmental assessment describing Franco-Nevada's new proposed activities would incorporate parts of BLM/PL-98/009 where applicable. This 1998 environmental assessment is available for review at the BLM Elko Field Office, 3900 Idaho Street, Elko, NV 89801.

The majority of the drilling would occur in concentrated drilling locations specified by Franco-Nevada. The proposed project time frame is summer and fall 2001. Figure 1 presents the project area and drill site locations.

1.2 PURPOSE AND NEED

The purpose for the proposed Tuscarora Exploration Project is to define the nature and extent, shape, and economic value of precious metals-bearing deposits within the existing and proposed Tuscarora Exploration Project area. The proposed drilling operations are needed to evaluate the potential for future mine development. The need for the proposed project arises from the international, national, and regional market demands for gold.

1.3 ISSUES

The following issues and concerns were raised by BLM during the scoping process:

- Cultural resources – potential impacts to historic features;
- Wildlife – removal of vegetation during the avian breeding season could result in destruction of bird nests and/or their contents; and
- Riparian areas – potential impacts to riparian areas within the project area.

These issues are addressed in Chapter 4 within their respective sections.

1.4 LAND USE PLAN CONFORMANCE STATEMENT

The proposed action and alternative described below are in conformance with the Elko Resource Management Plan, Issue: Minerals Management, Prescription 1, and are consistent with federal, state, and local laws, regulations, and plans to the maximum extent possible.

2.0 PROPOSED ACTION AND ALTERNATIVES

2.1 PROPOSED ACTION

The Plan of Operations Amendment proposes exploration activities involving approximately three acres of disturbance within the Tuscarora Operations Project area in summer and fall 2001. The proposed exploration project would occur only on public lands administered by the BLM. The applicant address is:

Franco-Nevada Mining Corporation, Inc.
6151 Lakeside Drive, Suite 2100
Reno, Nevada 89511

The proposed Tuscarora Exploration Project would be located within portions of Township 39 North, Range 51 East; and Section 34, Township 40 North, Range 51 East and Sections 3, 4, 8, and 9.

Table 1 presents a tabular history of the authorized disturbance.

TABLE 1
AUTHORIZED AND EXISTING DISTURBANCE AT THE TUSCARORA PROPERTY

Disturbance Type	1998 Authorized Disturbance (Newcrest) (acres)	1998 Actual Disturbance (Newcrest) (acres)	2000 Authorized Disturbance (Franco-Nevada) (acres)	2000 Actual Disturbance (Franco-Nevada) (acres)
Reverse circulation/core drill pads	0.8	-	1.10	0.35
Sumps	2.1	-	0.55	0.24
Access routes/cross-country travel	8.6	-	5.85	0.28
Existing Disturbance		-	4.05	4.05
Total	11.5[1]	4.05[2]	11.55	4.92[3]

1 The total was rounded up to 12 acres for bonding purposes.
2 No information was available regarding the disturbance by category.
3 Includes 4.05 acres of disturbance from Newcrest's activities and 0.87 acres of disturbance from Franco-Nevada's activities.

Franco-Nevada proposes to amend the existing authorization by adding five blocks totaling 259 acres to the east of the existing project area to explore new targets. Figure 1 presents the proposed changes to the Tuscarora project area. Several patented claims occur within or slightly overlap onto the proposed blocks. Franco-Nevada does not control these patented claims and will not engage in drilling activities on these claims. Table 2 presents the surface disturbance within the proposed blocks.

TABLE 2
PROPOSED DISTURBANCE BY BLOCK

Proposed Blocks	Acres In Block	Number of Holes	Reverse Circulation/ Core Drill Pads (acres)	Sumps (acres)	Access Routes/Cross-country[2] Travel (acres)	Total (acres)
A[1]	177	16	0.43	0.21	1.25	1.89
B	16	3	0.08	0.04	0.25	0.37
C	17	4	0.10	0.05	0.01	0.16
D	16	2	0.05	0.02	0.01	0.08
E	33	5	0.13	0.06	0.02	0.21
Total	259	30	0.79	0.38	1.54	2.71

[1]Includes approximately 20 acres of private land. No disturbance would occur on private land.
[2]Disturbance from cross-country travel is included in this column.

Franco-Nevada would utilize dual-tube, reverse-circulation (RC) air rotary drill rigs and diamond-bit core rigs in the mineral exploration program. Each type of drill rig has its advantages and disadvantages depending upon the nature of the material being drilled, the depth of the target and the information sought. For some deep holes, it is possible that both methods may be used sequentially to complete the hole. Following are characteristics of each type of drill.

The RC air rig is the standard exploration drill, capable of being used for the drilling range of 100 to 2,000 feet, but usually only to depths of 900 feet. At shallow depths, dry air is the working fluid, with water injected optionally for dust suppression. As water is encountered, a biodegradable detergent is typically added to improve sample recovery in the return stream. The RC rig selected for this exploration project would be a truck-mounted drill rig. It may be operated with optional auxiliary booster compressors to enable deeper penetration. This rig uses a down-hole, pneumatic hammer and percussion bit or rotary tricone bit to do the actual drilling; the latter is most often reserved for drilling under heavy water conditions.

The diamond-bit core drill would be truck-mounted such as a Longyear 44. This rig could drill a 2ϕ-inch hole to a depth of 2,500 feet below ground surface. This drill would be used in the event that RC-drilling encounters mineralization and core samples are needed. Typically, bentonite-based mud or equivalent is used for circulating drill cuttings. All fluids would be contained within mud tanks or sumps with a dimension of approximately five feet by 20 feet. Drill pads would be the same size as those used for RC drilling. Accessory equipment would include a pipe truck.

Franco-Nevada proposes to use an end-to-end drill rig-pipe truck combination allowing for most holes to be drilled directly from the temporary access roads, thereby minimizing drill pad construction and keeping disturbance to an area of approximately 20 feet by 60 feet per drill pad. Sumps to contain all water discharged from the drill holes would be constructed to the dimensions of approximately 40 feet by 15 feet. Sumps would be constructed next to the drill pads. Topsoil and vegetation cleared for the areas around the drill holes and sumps would be reclaimed upon completion of use as described in Section 2.3.

If initial results appear unfavorable, the drilling program would be discontinued. Reclamation for proposed disturbances would be conducted immediately after the drilling program is completed. Certain temporary roads and drill sites may be left open throughout the exploration program, if access would be required for continued exploration. Concurrent reclamation would be performed on individual portions of the project that have been completed. Franco-Nevada would reclaim all disturbed areas once operations are complete. Where activities have been completed, reshaping and revegetation would be conducted. The annual "Constructed to Date" report provided to the BLM and the NDEP would depict these reclaimed areas. Areas left inactive for more than several months at a time may require interim stabilization of slopes and installation of temporary runoff diversion ditches or other sediment control devices.

In areas of relatively low traffic with reasonably level terrain, construction of bladed roads would be avoided and drilling equipment would be driven overland to the drill locations. A bulldozer would be used to remove earth to level surfaces where needed.

Where surface disturbance is required, and primarily on reasonably level terrain, topsoil would be graded and stockpiled. On steeper slopes, topsoil would be stored as sidecast along the periphery of the temporary roads, pads, and sumps.

Temporary roads would be built to an average running width of ten to 12 feet (depending upon the terrain) for an average disturbed width of 16 feet. Cross-country travel routes would be an average of ten feet wide. Drill pad disturbance would be 20 feet by 60 feet in dimension to provide for operational use. Temporary roads cut on a side slope would typically be sloped at a grade of one to two percent. Temporary roads, other than those on side slopes, would be constructed at a grade of eight percent or less. Road maintenance and upgrading would be done to increase production and minimize adverse effects of erosion from heavy traffic and water runoff. Upgrading and maintenance procedures would include:

- Watering to control dust, as needed;
- Periodic dressing or blading of frequently used road surfaces with a grader;
- Installation of drainage controls such as water bars and ditches to control road damage, soil loss, and sediment impacts from erosion;
- Road maintenance, such as draining of mudholes, to provide access during wet seasons;
- Surfacing some road segments with gravel to control muddy conditions so that continued access along the defined route of travel can be assured; and
- Installation of culverts at low points in drainages.

2.2 STANDARD OPERATING PROCEDURES

Cultural Resources

Franco-Nevada would avoid and prevent impacts to sites eligible for the National Register of Historic Places (NRHP), potentially eligible, or unevaluated cultural resources in the project area. Franco-Nevada would perform a cultural resources survey on unsurveyed areas proposed for disturbance. A 150-foot buffer would be maintained around sites eligible or potentially eligible for the NRHP, or unevaluated sites unless otherwise agreed to by BLM and Franco-Nevada. Franco-Nevada would contact BLM in the event that a proposed drill site encroaches on the 150-foot buffer zone and use a contracted archaeologist to monitor the site during construction to avoid impacts. Franco-Nevada would take measures to ensure that its employees or others associated with the project do not collect artifacts or vandalize the sites or artifacts in them. Should the condition of any significant localities prove to be altered by Franco-Nevada or its contractor during the period of exploration activity, Franco-Nevada would bear the cost of mitigation through data recovery.

Work Force

Franco-Nevada proposes to utilize a maximum of two drill rigs with two contract employees per rig for a maximum work force of four contract employees. One geologist, currently employed by Franco-Nevada, would also be associated with this exploration project. Contract labor support staff would be employed on an as-needed basis.

Air Quality

Franco-Nevada proposes to water access and exploration roads, as necessary, to control dust. Vehicles would be driven at appropriate speeds to prevent excess generation of dust.

Solid and Hazardous Materials

All project-related refuse would be disposed at an approved landfill. Franco-Nevada would conduct oversight of the drilling contractors to assure that no refuse would be disposed on site.

Franco-Nevada would comply with applicable federal and state laws dealing with the use, storage, and disposal of chemicals, petroleum and petroleum products. Hazardous wastes would not be generated in the project area. In the event that regulated materials, such as diesel fuel, are spilled, measures would be taken to control the extent of the spill and clean the affected area. The NDEP and BLM would be notified in accordance with the applicable federal and state regulations.

Water Resources

Drill holes would be plugged according to Nevada Division of Water Resources and Nevada Administrative Code (NAC) 534.4369 through 534.4375. Springs or surface waters would be avoided during activities. Proposed environmental protection measures detailed in Chapter 2 of the State of Nevada Best Management Practices (BMP) Manual (NDEP, 1994) would keep indirect impacts to surface waters to a minimum by using the practices described. Sediment control structures would be constructed when necessary to control sediment runoff and sedimentation. Sediment control structures would include, but would not be limited to, silt traps and fences, sediment ponds, and/or settling basins. Weed-free straw

and hay bales, or synthetic geotextile fabrics would be used to construct silt traps and fences. Franco-Nevada would maintain these structures during the exploration activities. Upon completion of exploration activities and successful reclamation, sediment control structures would be removed or reclaimed.

Riparian Zones

Exploration activities would avoid riparian zones by at least 100 yards.

Wildlife

Franco-Nevada would implement wildlife protection procedures at the proposed project to include:

- Riparian areas would be avoided by at least 100 yards; and
- Ground-clearing activity would not occur during the migratory bird-nesting season between April 15 and August 1, unless under the direction of BLM.

Invasive, Nonnative Species

Hoary cress (whitetop) appears in abundance within the existing and proposed Tuscarora project areas and the nearby vicinity. Franco-Nevada would attempt to reduce the spread of hoary cress on lands disturbed by the proposed project by:

- Avoiding travel whenever possible through areas heavily infested by hoary cress to prevent windblown and mechanical transport of seed sources caused by exploration activities; and
- Inspecting, and if necessary, cleaning the undercarriages and tire treads of vehicles traveling out of the project area, to contain hoary cress seed to existing areas.

If hoary cress appears to be reestablishing in reclaimed areas within one year of reclamation activities, Franco-Nevada would consult with BLM and conduct appropriate treatment methods, such as manual, mechanical, or herbicide controls as described in Programmatic Environmental Assessment for Integrated Weed Management on Bureau of Land Management Lands (BLM, 1998a). Control of hoary cress would not be conducted within ¼ mile of active sage grouse leks or during sage grouse strutting season.

Reclamation

The *Plan of Operations Amendment and Modification to Reclamation Permit No. 0133 For Tuscarora Exploration Project* describes the detailed reclamation for this project. Reclamation for both public and private lands would be consistent with the requirements of Nevada Revised Statute (NRS) and NAC 519A regulations, 43 Code of Federal Regulations (CFR) 3809, and in accordance with the "Nevada Interim Standards for Successful Revegetation" (BLM Instruction Memorandum No. NV-94-026). The post-exploration goal is to restore lands for use as wildlife habitat and for livestock grazing. It is anticipated that available forage would be enhanced by seeding with the above mentioned forage species. Enhancement of wildlife habitat would be accelerated through the use of appropriate plant species as determined by the lead agency's authorized officer.

Temporary roads, drill pads, and sumps could be either entirely or partially constructed without generating side-cast material. Vegetation blading could be all that is required to create a temporary, stable roadbed. Cross-country travel routes disturb even less vegetation, resulting in equipment tracks which would be revegetated using methods described below. Temporary roads and cross-country travel routes which do not require replacement of side-cast material would be scarified or ripped to a depth of approximately eight inches, prior to re-seeding. Efforts would be taken to scarify only those portions of road which are compacted and require seeding (e.g., tire tracks) while minimizing disturbance to the established vegetation. Recontouring and scarifying constructed temporary roads, drill pads, sumps, and compacted cross-country travel routes would be the primary means by which seedbeds would be prepared. Where topsoil has been salvaged and stockpiled, it would be bladed as a final layer onto the roughened surface prior to seeding. Cross-country travel routes would be re-seeded during reclamation.

Seed mixture and application rates have been recommended by the lead agency during previous exploration in the vicinity. The reclamation plant list proposed for the project area is presented in Appendix A. Temporary roads and drill sites would be reclaimed as soon as practical after the cessation of drilling activities in the area. Seeding would occur during the late fall or early spring to take advantage of winter moisture. The application rate for the mixture would be 7.5 to nine pounds pure live seed (PLS). Species would be selected from the reclamation plant list based upon their price and availability. The seed mix would contain at least two to three grasses and one to two forbs. The final seed mixture would be determined by the lead agency's authorized officer.

Seeding procedures would be dependent upon site characteristics. Recontoured roads, pads, and sumps with severe slopes would be seeded with hand-held broadcast seeders. An electric broadcast seeder mounted on an All-Terrain Vehicle (ATV) or other suitable vehicle, may be used on roads with gentle slopes. A chain drag mounted behind an ATV or small tractor may be used to cover the seed.

If drainage structures have been installed, Franco-Nevada would remove the structures during reclamation and reshape and fill material in drainages to reestablish preexisting seasonal flow channels.

2.3 ALTERNATIVE TO THE PROPOSED ACTION

2.3.1 No Action Alternative

The Mining Law of 1872 grants the claim holder access and the right to explore their claims in a prudent and diligent manner. Under the No Action Alternative, Franco-Nevada's proposed Tuscarora Exploration Project would not be approved. Franco-Nevada would not be able to further define and discover ore deposits on blocks A, B, C, D, and E; however, Franco-Nevada would continue exploration activities on private land and public lands upon which Franco-Nevada is presently authorized to explore.

3.0 AFFECTED ENVIRONMENT

The Tuscarora Exploration Project area is characterized by rolling high desert mountain foothills. The proposed project site is within the Tuscarora Mountains; elevations in the immediate area range form approximately 5,780 to 6,160 feet above mean sea level (AMSL).

The Tuscarora Exploration Project area is within the Tuscarora Mining District, along the southeastern slope of Mount Blitzen in the Tuscarora Range. The District has been historically mined for silver and gold. The first recorded discovery of placer gold in the District was made in 1867. Silver was discovered in the District in 1871; active mining continued through 1876 during which time six silver mills were in operation. The Dexter gold mine was discovered in 1898 and continued gold production through 1903. The Dexter Mine briefly re-opened in 1912. The Tuscarora Nevada Mines Company opened a mining camp from 1907 to 1915. Several exploration operations have been conducted in the Tuscarora area from the 1900's to present. According to the Nevada Bureau of Mines and Geology, the most recent mining activity in the Tuscarora district includes a small open pit mine and heap leach which was operated by Horizon Gold Corporation. They mined approximately two million tons of ore and waste, and treated about one million tons of ore. The operation, which was located predominantly on fee lands, has been idle since 1992 and is currently undergoing reclamation (BLM, 1998).

3.1 PROPOSED ACTION

The following critical elements of the human environment are not present or are not affected by the proposed action or alternative in this Environmental Assessment:

- Air Quality
- Areas of Critical Environmental Concern
- Environmental Justice
- Farmlands (Prime or Unique)
- Floodplains
- Native American Religious Concerns - By federal law and executive order, the BLM is required to undertake a good-faith effort to consult with Native American governments whose economic, social, traditional or religious values may be affected by a proposed action. Various tribes and bands of the Western Shoshone have stated that federal projects and land actions can have widespread effects to their culture and religion as they consider the landscape as sacred and as a provider.

  Ethnographically, the Independence Valley area was used for gathering seeds and grasses and for fishing and hunting. Prior to dam construction along the Columbia and Snake Rivers, the headwaters of the Owyhee River were salmon spawning grounds that were likely very important to the Western Shoshone. Western Shoshone did have small camps around Tuscarora prehistorically and historically. However, since 1867, placer and hard-rock mining, and trenching

and drilling exploration activities have occurred extensively in the several miles surrounding Tuscarora. The drill holes proposed in this action would not significantly change land usage. Any prehistoric or historic area with past traditional or religious significance to the Western Shoshone is likely compromised to the point that exploration activities can do no further harm. Therefore, the BLM did not undertake a process of information exchange or consultation with the various tribes and bands of the Western Shoshone for this proposal. Should the proponent submit a much more extensive exploration Plan-of-Operations or a mining Plan-of-Operations, the BLM could decide to initiate a consultation process at that time, depending on the size, level of disturbance, and location of the proposal.

- Wastes (Solid or Hazardous)
- Wetlands – No wetlands are located within the project area
- Wild and Scenic Rivers
- Wilderness

The following critical elements and resources were determined by the BLM to be present and affected and are brought forward for analysis

3.1.1 Water Quality (Surface/Ground)

Surface Water

The project area contains five known, but unnamed seeps. The northern-most seep in Block A drains from a pipe installed in the side of the drainage. The project area also includes some ephemeral drainages that flow during seasonal storm events. These drainages are tributaries to McCann Creek and the South Fork of the Owyhee River. The South Fork of the Owyhee River is an interstate water that has Nevada water quality standards, as stated in NAC 445A.225, that must be met. Water quality is generally considered good, with the exception of temperature, which is exceeded daily during the summer months. The locations of the seeps are shown on Figure 1. A Public Water Reserve (No. RO 5545) has been filed within a portion of Block A.

Groundwater

Goundwater in the project area has been encountered as perched water tables at variable depths ranging from 50 to 200 feet. The bedrock groundwater table lies at a depth of about 200 feet at a distance of 2,000 feet south of the Dexter Pit (BLM, 1998).

3.1.2 Soils

Soils within the existing project area were mapped at the Order III Level by the Natural Resource Conservation Service. Five distinct soil associations occur within the existing project area: Welsh; Crooked Creek; Crooked Creek silty clay loam; Donna-Stampede; and Cotant-Graley (BLM, 1998).

Three distinct soil associations have been determined to occur within the proposed project area boundary: Cotant-Graley association, Donna-Stampede association, and Cotant-Lerrow-Bullump association. The

Cotant-Graley association and Donna-Stampede association were described previously in *Environmental Assessment for Newcrest Resources Inc. Tuscarora Exploration Project.*

Soils within the Cotant-Lerrow-Bullump association are found within the westernmost area of the proposed exploration project. The association is comprised of three series (Cotant, Lerrow, Bullump) consisting of gravelly clay loam, cobbly loam, and very gravelly loams, respectively. This association is found on the back slopes and summits of hills at elevations between 6,200 and 6,700 AMSL. The association is well drained with a low susceptibility to water and wind erosion. Soils in the Cotant-Lerrow-Bullump Association are shallow over bedrock, moderately deep, and deep, respectively. The depth of the soil will dictate the amount that can be lost via wind and water erosion while maintaining a quantity sufficient for productive reclamation.

Soils in the Cotant-Lerrow-Bullump Association are poorly suited (due to shallow rooting depth), suited (too arid, droughty, large stones), and poorly suited (small stones) respectively, to rangeland seeding. The project area is in a relatively high precipitation zone. The association supports the dominant vegetation of bluegrass, bottlebrush squirreltail, low sagebrush (Cotant), big sagebrush, bluebunch wheatgrass (Lerrow), Idaho fescue, basin wildrye, and mountain brome (Bullump).

3.1.3 Vegetation

The vegetation community within the project area is sagebrush-grasslands. Major vegetative species present include: mountain big sagebrush; Wyoming big sagebrush; low sagebriush; Douglas rabbitbrush; rabbitbrush; bluebunch wheatgrass; Thurber needlegrass; serviceberry; spiny hopsage; Sandberg's bluegrass; bottlebrush squirreltail; Indian ricegrass; lupine; arrowleaf balsamroot; phlox; and astor (BLM, 1998).

3.1.4 Riparian Areas

Five riparian areas associated with the seeps were identified within the proposed project boundaries. See Figure 1. Review of the BLM infrared photographs taken July 2, 1979 indicates the total riparian acreage within the proposed boundaries would be less than two acres. The riparian areas that exist are disconnected and occur as isolated areas of vegetation along drainages with associated seeps or intermittent flow (Personal communications with Carol Evans, BLM Wildlife Biologist, 2001). Riparian plant communities that may be present in these wet meadow range areas consist of Nevada bluegrass, alpine timothy, Sierra clover, meadow sedges, scattered willows, and other perennial grasses. Potential vegetative composition is approximately 80 percent grasses and 20 percent forbs. No wetlands were identified within the project area.

3.1.5 Wildlife

Wildlife species that could occur in the project area include those that characteristically occur in the northern Great Basin, such as mule deer, coyotes, badgers, bobcats, mountain lions, several rabbit species, various shrews, and a variety of rodents. Upland game birds that could occupy portions of the project

area include sage grouse, Hungarian partridge, chukar, and mourning doves. An antelope herd is located in the vicinity of the existing project area (BLM, 1998).

Further discussion of wildlife resources is contained in *Environmental Assessment for Newcrest Resources Inc. Tuscarora Exploration Project* is the same for the proposed action. No sage grouse leks are located within or near Blocks A through E (Personal communications with Dr. Gary Back, SRK Principal Ecologist, 2001).

3.1.6 Migratory Birds

On January 11, 2001 President Clinton signed the Migratory Bird Executive Order. This executive order outlines the responsibilities of federal agencies to protect migratory birds. The United States has recognized their ecological and economic value to this country and other countries by ratifying international, bilateral conventions for the conservation of migratory birds. These migratory bird conventions impose substantive obligations on the United States for conservation of migratory birds and their habitats. The United States has implemented these migratory bird conventions through the Migratory Bird Treaty Act. President Clinton's Migratory Bird Executive Order directs executive departments and agencies to take certain actions to further implement the Migratory Bird Treaty Act. As defined in the executive order, "action" means a program, activity, project, official policy (such as a rule or regulation), or formal plan directly carried out by a federal agency. The executive order further states that each Federal agency taking actions that have, or are likely to have, a measurable negative effect on migratory bird populations is directed to develop and implement, within two years, a Memorandum of Understanding (MOU) with the Fish and Wildlife Service that shall promote conservation of migratory bird populations. The term "action" would be further defined in this MOU as it pertains to each Federal agency's own authorities and programs.

A list of the migratory birds affected by the President's executive order is contained in 43 CFR 10.13. References to "species of concern" pertain to those species listed in the periodic report "Migratory Nongame Birds of Management Concern in the United States," priority migratory bird species as documented by established plans (such as Bird Conservation Regions in the North American Bird Conservation Initiative or Partners in Flight physiographic areas), and those species listed in 50 CFR 17.11.

The proposed action is located within sagebrush habitat. The Nevada Partners in Flight Bird Conservation Plan identifies Sage Grouse the only obligate bird species associated with this ecotype. Other species identified as occurring within this ecotype include black rosy finch, ferruginous hawk, gray flycatcher, loggerhead shrike, vesper sparrow, prairie falcon, sage sparrow, sage thrasher, Swainson's hawk, burrowing owl, and calliope hummingbird. Other associated species are Brewer's sparrow, western meadowlark, black-throated sparrow, lark sparrow, and green-tailed towhee.

3.1.7 Threatened, Endangered, Candidate, and Special Status Species

The U.S. Fish and Wildlife Service was consulted during January 1997 to determine the potential for or known regional occurrence of threatened, endangered, candidate, or special status species within the

vicinity of the project area. No threatened or endangered species were identified as occurring within the existing project area. However, the spotted frog, a candidate specie, and 14 special status species could occur within the project area and include: meadow pussytoes; spotted bat; small-footed myotis; long-eared myotis; fringed myotis; long-legged myotis; pale Townsend's big-eared bat; Pacific Townsend's big-eared bat; sage grouse; northern goshawk; ferruginous hawk; Swainson's hawk; and, western burrowing owl. No sightings of any of these species have been recorded in the area although suitable habitat could exist in some portions of the project area (BLM, 1998).

3.1.8 Visual Resources

The proposed project area is located within a Visual Resource Management (VRM) Class IV area. Class IV VRM objectives provide for management activities which require major modification of the existing landscape. Land forms are rolling and rounded with moderate to steep slopes. Landscape colors include reddish brown and dark gray (soil and rock outcrops) and gray-green (vegetation). Previous mineral exploration activities have created horizontal to very shallow diagonal lines and have exposed the dark reddish brown soils (BLM, 1998).

3.1.9 Cultural Resources

Prehistoric occupation in the Tuscarora area could have occurred over a time span of years, though only the past 3,500 years are demonstrably present. Semi-nomadic hunters and gatherers obtained fish, game, and plant resources from the Independence Valley area. Known sites from the area consist of the remnants of tool-making or small kill sites. There are two known prehistoric sites in the project area, neither eligible to the National Register.

Historic Tuscarora began as a small placer mining town on McCann Creek in the late 1860's, about three miles southwest of the present townsite. Beginning about 1868, former Chinese railroad workers built large water ditches for the placer systems; during that time they also began to replace EuroAmerican miners who were leaving for other mining districts. By 1870, 104 of 119 of the town's occupants were Chinese. Outlying placer camps, some of which are in the project area, were mainly Chinese. Exploration for underground, hard-rock mining occurred sporadically in the early 1870's, resulting in the development of the Young America claim and Grand Prize mine in 1876. EuroAmerican miners arrived immediately, and the town swelled to over 6,000 occupants. The townsite was moved to its present location in 1876 with the previous townsite being known as Old Tuscarora. During the boom prior of 1876-1886, Tuscarora was the largest population center in Elko County. While gold was the objective of the placer operations, all the hard rock mining in the boom period was for silver. As the Grand Prize Mine declined, new claims were developed north of town, including the Belle Isle, North Belle Isle, Commonwealth, and Nevada Queen mines. The North Commonwealth mining complex is adjacent to area E. By this time, about 2,000 of the town's occupants were possible Chinese, engaging in placer mining, cutting sagebrush for fuel, or providing services in town. Most of the rest of Nevada was in mining depression or borrasca during Tuscarora's boom prior, so Tuscarora is significant in the state's development. The 1890's marked a slow decline of Tuscarora, although the development of the Dexter gold mine and mill, the latter employing a cyanide process, allowed the Tuscarora mining district to

continue its productivity. The school and newspaper shut down prior to World War I but the town has survived with less than a hundred occupants to present.

Historic resources include linear features (utility lines, historic stage and freight roads, and placer ditches) and area features. Area features can range in size and complexity, from large mining complexes to small historic trash dump scatters. Other area features include Chinese house foundations and dugouts, mining claim claims, shafts, placer piles, prospect pits, shafts and adits, placering areas, privies, and waste rock dumps.

Between May 2 and May 18, 2001, Summit Envirosolutions, Inc., conducted a Class III cultural resource inventory of 259 acres of BLM-administered public land in Elko County, Nevada, for Franco-Nevada. The entire project area is within site CrNV-12-9311, which represents the proposed Tuscarora National Historic District. Historic archaeological resources identified during the inventory were recorded as constituents of CrNV-12-9311, with the exception of previously recorded sites. Prehistoric resources were separately designated as well.

Historic resources were recorded as localities, which consist of groups of historic features unified either by proximity to one another, landform setting, inferred function, or a combination of these elements. Each feature was recorded and individually evaluated as either a contributing or non-contributing element of the NRHP eligibility of CrNV-12-9311.

A total of 454 historic features, divided amongst 22 localities, were recorded during the inventory. Their NRHP eligibility, as contributing or non-contributing elements of CrNV-12-9311, was assessed. Three additional localities, which included historic artifacts but no clearly defined features, were also assessed. Of the 457 total features and localities evaluated, 68 are recommended as contributing elements to the NRHP eligibility of CrNV-12-9311, and 13 are unevaluated. Unevaluated features, certain ditches and placer areas for example, are very likely components of more extensive, substantial systems which extend beyond the project area. For management purposes, unevaluated features are treated as contributing elements. The remaining 376 features and localities are recommended as non-contributing elements. No previously unrecorded prehistoric sites were identified during the inventory.

Three previously recorded sites (CrNV-12-3262, 12-3263, and 12-8120) are located within the project area. Two of these, CrNV-12-3263 and 12-8120 were relocated; CrNV-12-3262 was not. CrNV-12-3263, a historic site, is recommended as a contributing element to the NRHP eligibility of CrNV-12-9311. CrNV-12-8120 is a prehistoric site, assessed as not eligible for the NRHP.

3.1.10 Invasive, Nonnative Species

Hoary cress appears in abundance in and around the town of Tuscarora and the vicinity (BLM, 1998).

3.2 NO ACTION ALTERNATIVE

The description of the affected environment for the No Action Alternative would be the same as that for the proposed action.

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 PROPOSED ACTION

4.1.1 Water Quality (Surface/Ground)

Five seeps and numerous ephemeral drainages exist within the project area. The proposed project does have the potential to create erosion and increase runoff and sediment from the development of temporary cross-country travel routes, exploration roads, and drill sites. Best Management Practices, as identified in Section 2.3, would minimize impacts to surface water. Drilling would not occur within 100 yards of seeps. Impacts to water resources would be temporary, lasting until drill holes are plugged and temporary cross-country travel routes, exploration roads, and drill sites are reclaimed. No impacts are projected to the Public Water Reserve.

Proposed exploration activities would not result in impacts to groundwater resources. Environmental protection measures have been incorporated into the proposed action such as the construction of sumps and plugging holes according to NAC 534.4369 through 534.4375, which would prevent direct and indirect impacts to groundwater resources.

4.1.2 Soils

Direct impacts to soils would result from the construction, development, and use of access roads, temporary cross-country travel routes, drill sites, and sumps. These impacts could include modification of soil physical characteristics, loss of soil to wind and water erosion, and decreased soil biological activity. Changes would result from mixing soil horizons, which reduces the organic matter content of surface soil and lowers soil productivity. Total disturbance to soil resources from the proposed project would be approximately three acres.

When access roads are developed, salvaged soils would be bermed on the side. Franco-Nevada assumes that an average of six inches of soil could be temporarily removed across the proposed three acres of disturbance, which represents approximately 2,420 cubic yards of soil salvaged. The maximum amount of displaced soil would not occur at one location. Therefore, impacts to soils would be dispersed over the 259-acre project area and would occur periodically during the one-year period. Impacts to soils would be temporary until drill sites and roads are successfully reclaimed.

4.1.3 Vegetation

The direct impact from the proposed project would be the disturbance of approximately three acres of sagebrush-grassland communities. Franco-Nevada plans to re-establish vegetation on exploration disturbance as described in Section 2.3. Revegetation success could be hindered by the generally low permeability, low available water capacity, and moderate water erosion potential of the soils. Exploration activities would utilize Best Management Practices to keep direct impacts to vegetation to a minimum and

to protect range improvements. Vegetation would gradually become re-established in disturbed areas after project exploration activities cease, through reseeding efforts and native-species recolonization. Disturbance created would mostly be short-term and linear (roads) or patchy (drill sites) in form. This type of development would be conducive to recolonization from the surrounding areas.

4.1.4 Riparian Areas

Franco-Nevada would avoid riparian areas by at least 100 yards; therefore, no impacts are projected.

4.1.5 Wildlife

Impacts to wildlife would consist of temporary habitat loss, displacement as a direct result of removal and/or crushing of vegetative cover, and disturbance from human activity and noise. Activities associated with the proposed action may be sufficient to cause mammals and reptiles to avoid use of suitable habitat in the project area. Wildlife could tend to avoid active drilling sites and move temporarily into adjacent habitat which would increase populations in those areas. Impacts to wildlife would not be large enough to eliminate individual territories or populations.

4.1.6 Migratory Birds

Impacts to migratory birds would consist of temporary habitat loss and displacement of migratory birds as a direct result of the removal and/or crushing of vegetation cover, and disturbance from human activity and noise. Nesting habitat for shrub- and ground-nesting birds may be removed for the short term until reclamation and reestablishment of shrub species occur. Activities associated with the proposed exploration may be sufficient to cause birds to avoid use of suitable habitat in the project area. Birds may tend to avoid active drilling sites and may move temporarily to adjacent habitat which could increase the population in that area. Since the proposed activities would result in the temporary loss of three acres of sagebrush-grassland habitat, impacts to wildlife would not be large enough to eliminate individual bird territories or populations.

4.1.7 Threatened, Endangered and Special Status Species

Based on habitat requirements, the project area does not have the potential to provide habitat for the meadow pussytoes which occurs in moist or wet meadows.

The proposed project area has the potential to provide foraging habitat for: spotted bat; small-footed myotis; long-legged myotis; pale Townsend's big-eared bat; sage grouse; northern goshawk; ferruginous hawk; Swainson's hawk; and, western burrowing owl.

No impacts are projected to the bat/myotis species since the proposed action would avoid seeps which provide forage habitat. No sage grouse leks are located within one mile of the project area. Activities would occur in late summer and fall, so no impacts to sage grouse are anticipated.

The proposed action would result in the removal of foraging habitat for the northern goshawk and the ferruginous hawk; however, since the proposed disturbance is less than three acres, no impacts are project.

Seeps within the project area have the potential to provide habitat for the spotted frog. Since Franco-Nevada proposes to avoid seeps, impacts to the frog are unlikely.

4.1.8 Visual Resources

Short-term impacts to line and color would result from the proposed action. The horizontal and shallow diagonal bands and lines from the exploration roads, temporary cross-country travel routes, and drill pads would create moderate form and line contrasts with the characteristic landscape. Moderate color contrasts would result from the vegetation removal associated with road and drill pad construction. Successful reclamation of the exploration roads, temporary cross-country travel routes, and drill pads would reduce the long-term visual impacts of the proposed action. Class IV VRM objectives would be met.

4.1.9 Cultural Resources

Avoidance is the preferred management option for the 68 contributing features and one previously recorded contributing site. Four proposed drill sites and three access roads were relocated and one drill site deleted to prevent impacts to cultural resources. Table 3 presents the modifications to the Plan of Operations Amendment concerning drill site and road locations.

TABLE 3
DRILL SITE AND ROAD LOCATION CHANGES

Block	Locality/Feature	Potential Impact	Modification/Management Recommendation
A	Loc. 104, F14 (ditch)	Drill site within 100 ft.	Drill site moved 70 ft south to a position approximately 125 ft southwest of F14.
A	Loc. 109, F4-6 (structures)	Access road within 100 ft.	Access road moved north to a location 115 ft. from closest feature.
A	Loc. 109, F22 (placering area)	Drill site within feature	Drill site moved 60 ft east to a position 60 ft from feature boundary. Monitoring may be required to ensure avoidance of the feature.
A	Loc. 99, F18, F20, F16, F21 (ditch network)	Features crossed by access road	Access road moved 170 ft. north to a location approximately 150 ft. from nearest feature.
C	Loc. 96 (telephone line)	Drill site within 100 ft.	Drill site moved 70 ft. west to a position approximately 140 ft. from feature.
D	Loc. 112, F1, (ditch)	Feature crossed by access road; 2 drill sites within 100 ft.	Drill site requiring access road crossing feature deleted from project. Drill site within 100 ft. of feature moved 115 ft. to a position 100 ft. south of feature.

4.1.10 Invasive, Nonnative Species

Hoary cress appears in abundance in the vicinity of the proposed project area. Franco-Nevada would attempt to limit the windblown and mechanical transport of seed sources by avoiding travel through infested areas when possible and inspecting vehicles traveling outside the project area for the presence of seed sources. Vehicles found to be carrying weed seeds on the undercarriage or tire treads would be washed on-site to contain the noxious weed presence to existing areas. If necessary, Franco-Nevada would use other noxious weed control treatment methods, such as, spraying to limit the spread of hoary cress on areas disturbed by the proposed project.

4.2 NO ACTION ALTERNATIVE

Implementation of the No Action Alternative would result in the denial of the proposed amendment to the Tuscarora Exploration Project. Franco-Nevada would continue to conduct exploration activities within the area previously authorized for exploration. The No Action alternative would result in the avoidance of all the identified project-specific resource impacts.

4.3 CUMULATIVE IMPACTS

4.3.1 Past and Present Activities

Past and present activities within the cumulative effects study area include grazing, wildlife habitat, agriculture, mining, exploration, and dispersed recreation. The BLM is presently working in conjunction with the town of Tuscarora to create a "greenbelt" around the town which would act as a fire break.

4.3.2 Future Activities

Further activities would be the same as past and present activities.

4.3.3 Reasonably Foreseeable Activities

Reasonably foreseeable activities within the cumulative effects study area include the continuation of existing activities of grazing, wildlife habitat, agriculture, exploration, and dispersed recreation. Additionally, should the exploration drilling identify the presence of gold resources, additional drilling activity would likely be undertaken to further define the resource within the next five years. It is not unreasonable to assume that additional wildfires would occur in and around the cumulative effects study area.

The foreseeable future scenario for management of wildlife within the cumulative effects study area is based on the current management objectives found in the Elko Resource Management Plan Record of Decision. Objective #3 of the Record of Decision is to maintain and/or improve range conditions and crucial habitats. The foreseeable future scenario for grazing management of livestock and wildlife is to continue the maintenance and improvement of range conditions.

4.3.4 Cumulative Impacts

Water (Surface/Ground)

The impact of existing and reasonably foreseeable activities to water resources would be minimal. Existing practices would be maintained; reasonably foreseeable activities would use mandatory and accepted practices to protect both surface water and groundwater.

Soils

The impact of existing and reasonably foreseeable activities to soils would be minimal. Future wildfires have the potential to disturb soils in the cumulative effects study area by removing plant life that stabilizes soil from erosion.

Vegetation

Cumulative impacts to vegetation from existing and reasonably foreseeable activities would be kept to a minimum due to reclamation measures and other established practices. Reclamation of exploration-related activities would include the reseeding of disturbed areas with a BLM recommended seed mixture. The revegetation of these areas would provide forage for wildlife and livestock; however, reclamation would not duplicate the original plant community. Following the establishment of a productive plant cover, colonization by seeds from surrounding undisturbed lands would likely occur.

Visual Resouces

The cumulative impact disturbance from existing and reasonably foreseeable activities would occur over several years and not at the same time or location. Reclamation of exploration-related activities would include regrading, contouring, available topsoil replaced, and reseeding, in an attempt to reduce visual disturbance. Future wildfires also have the potential to disturb visual resources in the cumulative effects study area.

Cultural Resources

Continued exploration activities could lead to sporadic illegal collecting and other minor impacts within the Tuscarora historic area (CRNV-12-9311). These activities could potentially provide a benefit by locating historic and prehistoric artifacts not previously identified thereby providing additional cultural information for the area.

Wildlife

The removal of wildlife habitat from existing and reasonably foreseeable activities would not occur all at once. Reclamation of exploration-related activities would include the reseeding of disturbed areas with a BLM recommended seed mixture. The revegetation of these areas would provide forage for wildlife. Future wildfires also have the potential to affect wildlife habitat in the CESA.

Invasive, Nonnative Species

Cumulative impacts from invasive, nonnative species would be kept to a minimum due to operational and reclamation measures to control the spread of noxious weeds. Reclamation of exploration-related activities would include the reseeding of disturbed areas with a BLM recommended seed mixture. The revegetation of these areas would provide forage for wildlife and livestock; however, reclamation would not duplicate the original plant community. Future wildfires also have the potential to increase the presence of invasive, nonnative species in the cumulative effects study area.

5.0 CONSULTATION AND COORDINATION

5.1 LIST OF PREPARERS

U.S. Bureau of Land Management - Elko Field Office

Roger D. Congdon	Project Lead, Plan Review, Geology
Carol Evans	Wetlands/Riparian Zones
Eric Dillingham	Cultural Resources, Native American Religious Concerns
Mark Coca	Invasive, Nonnative Species
Bob Marchio	Lands
Carol Marchio	Soil, Water, Air
Marlene Braun	NEPA Coordination
Donna Nyrehn	Livestock Grazing, Vegetation
Ken Wilkinson	Wildlife and Threatened, Endangered, Candidate, and Special Status Species

SRK Consulting

Valerie Sawyer	Project Manager
Steve Boyce	Senior Engineer

5.2 PERSONS, GROUPS, OR AGENCIES CONSULTED

Kirk Schmidt	Geologist

Summit Envirosolutions

Barbara Mackey	Historic Archaeologist
Eric Obermayr	Archaeologist

5.3 PUBLIC NOTICE AND AVAILABILITY

Notification of this project was published in the July 2001 *Project and Planning Schedule* that was made available to interested persons and organizations on the Elko Field Office mailing list. Copies of the Tuscarora Exploration Project Environmental Assessment can be obtained at the BLM Elko Field Office, or on the web at www.nv.blm.gov/Elko.

6.0 REFERENCES

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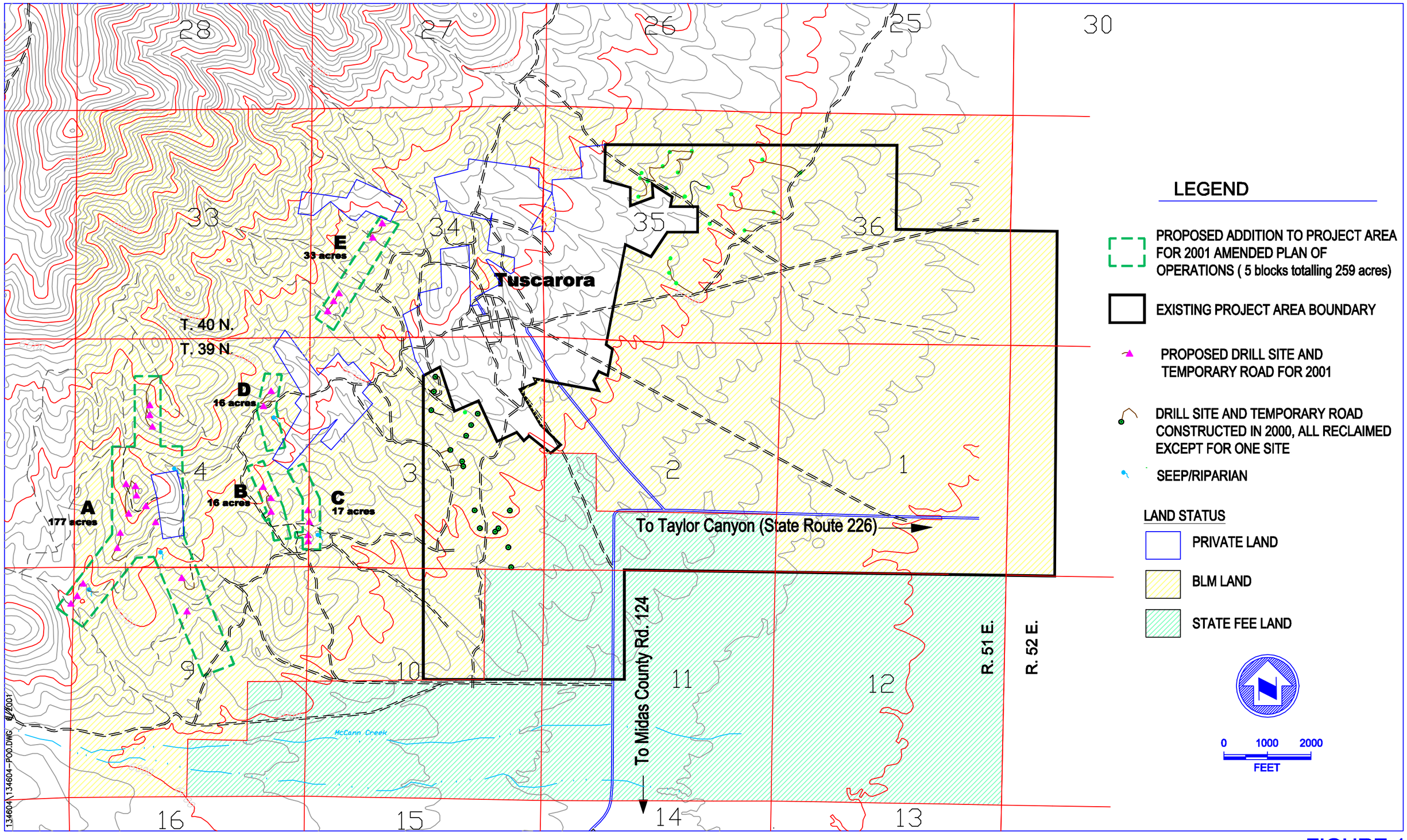
APPENDIX A
Reclamation Plant Mix

RECLAMATION PLANT LIST

COMMON NAME	SCIENTIFIC NAME
GRASSES	
Bluebunch wheatgrass	*Agropyron spicatum*
Indian ricegrass	*Oryzopsis hymenoides*
Webber ricegrass	*Oryzopsis webberi*
Basin wildrye	*Elymus cinereus*
Green needlegrass	*Stipa viridula*
Idaho fescue	*Festuca idahoensis*
Sandberg bluegrass	*Poa sandbergii*
Slender wheatgrass	*Agropyron trachycaulum*
Siberian wheatgrass	*Agropyron fragile ssp. sibericum*
FORBS	
Arrowleaf balsamroot	*Balsamorhiza sagittata*
Small burnet	*Sanguisorba minor*
Eriogonum (buckwheat)	*Eriogonum*
Rockcress	*Arabis*
Chickpea mildvetch	*Astragalus cicer*
Northern sweetvetch	*Hedysarum boreale*
Palmer Penstemon	*Penstemon palmeri*
Western yarrow	*Achillea millefolium lanulosa*
Blue flax	*Linum lewisii*
Prostrate summer cypress	*Kochia prostrata*
Gooseberryleaf globemallow	*Sphaeralcea coccinea*

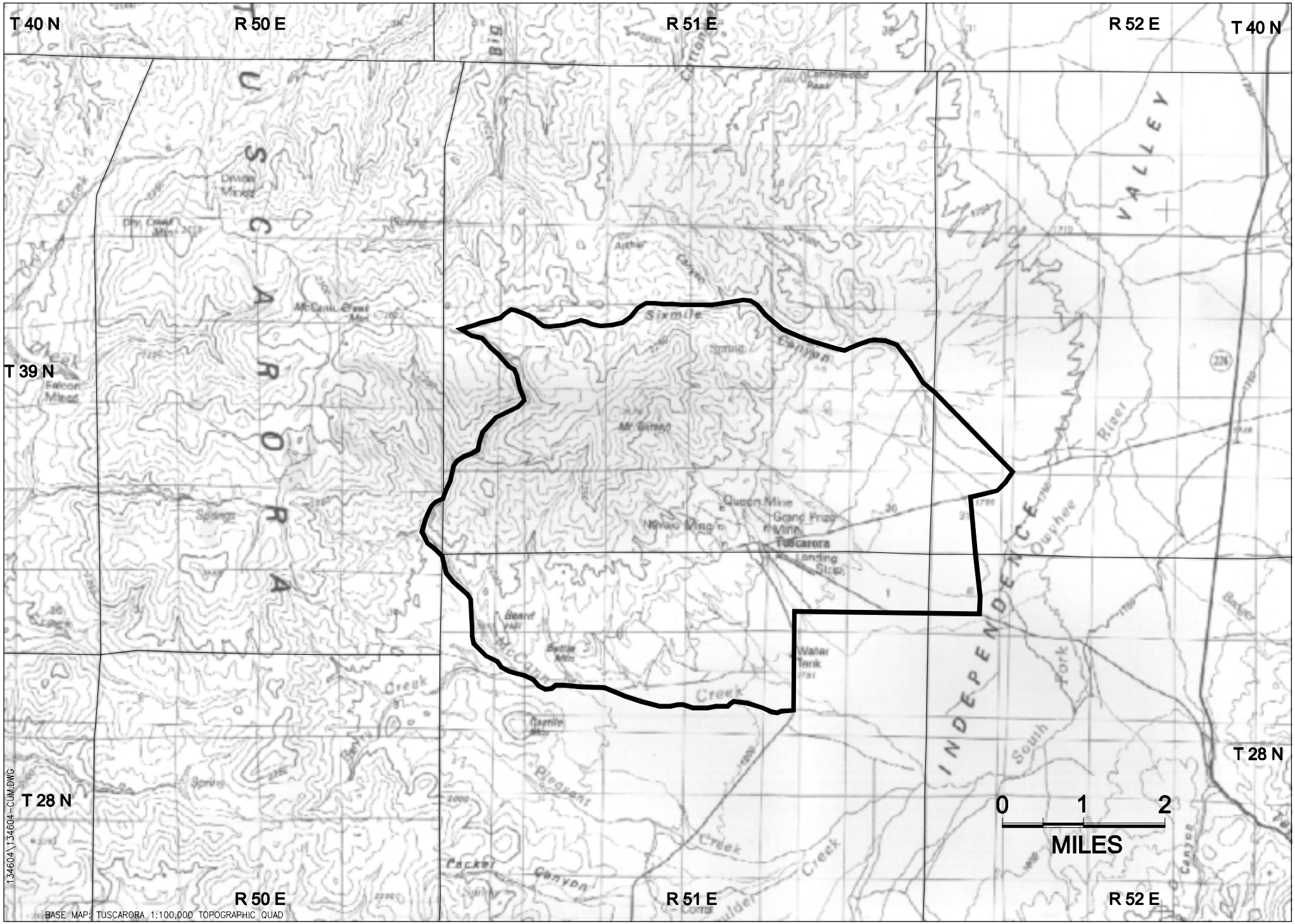
Source: BLM/PL-98/009 *Environmental Assessment for Newcrest Resources Inc. Tuscarora Exploration Project*, May 1998.

FIGURES



TUSCARORA EXPLORATION PROJECT
ENVIRONMENTAL ASSESSMENT

FIGURE 1
PROJECT AREA and
DRILL SITE/ TEMPORARY ROAD LOCATIONS



FRANCO-NEVADA MINING CORP. LTD.
TUSCARORA EXPLORATION PROJECT
ENVIRONMENTAL ASSESSMENT

FIGURE 2
CUMULATIVE EFFECTS
STUDY AREA