7 REFERENCES AND GLOSSARY

7.1 References

AMEC Earth and Environmental, Inc. (Amec). 2003. *Preliminary Report Ground Subsidence and Earth Fissure Evaluation Pipeline/South Pipeline Project*. Prepared for Cortez Gold Mines. June 18, 2003.

_____. 2004. Summary of Risk Assessment, Ground Subsidence & Earth Fissure Evaluation, Pipeline/South Pipeline Project, Cortez Gold Mines, Lander County, Nevada. January 7, 2004.

Bedinger, M.S., J.R. Harrill, W.H. Langer, J.M. Thomas, and E.A. Mulvihill. 1984. *Maps Showing Ground-Water Levels, Springs, and Depths to Ground Water, Basin and Range Province, Nevada*. U.S. Geological Survey Water-Resources Investigations Report 83-4119-B.

Berger, D.L. 2000. *Water-budget Estimates for the 14 Hydrographic Areas in the Middle Humboldt River Basin, North-Central Nevada*. U.S. Geological Survey Water-Resources Investigation Report 00-4168.

Bredehoeft, J.D. 1963. *Hydrogeology of the Lower Humboldt River Basin, Nevada*. Nevada Department of Conservation and Natural Resources Water-Resources Bulletin 21.

Brown and Caldwell. 1998. *Analysis of Water Level Declines at the Cortez Pit Lake, Cortez Mine Site, Lander County, Nevada.* Prepared for Cortez Gold Mines, Beowawe, Nevada. October 6, 1998.

_____. 1999. *Analysis of Water Level Declines at the Cortez Pit Lake, Cortez Mine Site, Lander County, Nevada.* Prepared for Cortez Gold Mines, Beowawe, Nevada. July 2, 1999.

Bunch, R.L., and J.R. Harrill. 1984. *Compilation of Selected Hydrologic Data from the MX Missile Siting Investigation, East-central Nevada and Eastern Utah*. U.S. Geological Survey Open-File Report 84-702.

Bureau of Land Management (BLM). 1986a. *Shoshone-Eureka Resource Area, Resource Management Plan, Record of Decision*. Battle Mountain District Office, Battle Mountain, Nevada.

_____. 1986b. *Visual Resource Management, "Visual Resource Contrast Rating"*. BLM Manual, Section 8431:1. January 17, 1986.

_____. 1988. *BLM NEPA Handbook H-1790-1.* October 25, 1988.

_____. Multiyear. *BLM NEPA Handbook, 516 DM 1-7.*

_____. 1992a. *Solid Minerals Reclamation Handbook.* BLM Manual Handbook H-3042-1.

_____. 1992b. *Cyanide Management Plan.*

_____. 1992c. *Cortez Gold Mines Expansion Project Draft Environmental Impact Statement*. Battle Mountain District Office. Battle Mountain, Nevada. December 1992.

_____. 1994. *Crescent Pit Environmental Assessment*. Battle Mountain District Office. Battle Mountain, Nevada.

_____. 1996a. *Cortez Pipeline Gold Deposit Final Environmental Impact Statement*. Battle Mountain District Office. Battle Mountain, Nevada.

_____. 1996b. Cortez Gold Mines Pipeline Gravel Pit Project Environmental Assessment. Battle Mountain District Office. Battle Mountain, Nevada.

_____. 1999. *Pipeline Infiltration Project Environmental Assessment*. Battle Mountain Field Office. Battle Mountain, Nevada.

_____. 2000a. South Pipeline Final Environmental Impact Statement. Battle Mountain Field Office. Battle Mountain, Nevada.

_____. 2000b. *Horse Canyon/Cortez Unified Exploration Project.* Battle Mountain Field Office. Battle Mountain, Nevada.

_____. 2004. Pipeline/South Pipeline Pit Expansion Supplemental Environmental Impact Statement Scoping Document.

Carpenter, M.C. 1993. *Earth Fissure Movements Associated with Fluctuations in Ground-Water Levels Near the Picacho Mountains, South-Central Arizona, 1980-1984*. U.S. Geological Survey Professional Paper 497-H. 116 pp.

Cole, T.M. and S.A.Wells. 2002. *CE-QUAL_W2: A Two-Dimensional, Laterally Averaged, Hydrodynamic and Water Quality Model, Version 3.1 (User Manual)*. Prepared for U.S. Army Corps of Engineers, Washington, D.C.

Cortez Gold Mines (CGM). 1992. *Pipeline Project Plan of Operations.*

_____. 1996. *Amendment to the Pipeline Plan of Operations for the South Pipeline Project.* Crescent Valley, Nevada. September 13, 1996.

_____. 1998. *Pipeline Infiltration Project Plan of Operations.*

_____. 1999. *Form SF 299* filed with Bureau of Land Management, Battle Mountain District Office, Battle Mountain, Nevada. June 17, 1999.

_____.2000. Cortez Gold Mines' Response in Opposition to Petition for Stay Pending Appeal Filed by Great Basin Mine Watch, Western Shoshone Defense Project, and the Mineral Policy Center.

_____. 2001a. *Cortez Gold Mines, Modification to the Pipeline Plan of Operations for the Pipeline/South Pipeline Pit Expansion, Beowawe, Nevada*. Cortez Gold Mines. January 2001, Revised April 2004.

_____. 2001b. *Pediment Project Plan of Operations*. Cortez Gold Mines. January 2001.

_____. 2001c. Plan of Operation Amendment Pipeline Gravel Pit Expansion, NVN-067575. Cortez Gold Mines. Beowawe, Nevada. December 2001.

_____. 2004. Monitoring Plan for Ground Subsidence and Related Earth Fissure Development Near the Pipeline Mine. Cortez Gold Mines.

Council, G.W. 1997. Simulating lake-ground water interaction with MODFLOW. In K.J. Hatcher, ed., 457-462. *Proceedings of the 1997 Georgia Water Resources Conference.* Athens, Georgia. March 1997.

_____. 1999. *Lander County Policy Plan for Public Lands*. Battle Mountain, Nevada. Draft of April 1, 1999.

Covarrubais, S.W. 1969. *Cracking of Earth and Rock-fill Dams: A Theoretical Investigation by Means of the Finite Element Method.* Harvard Soil Mechanics Series No. 82. Cambridge, MA: Harvard University Press. 163 pp.

Crompton, E.J. 1995. *Potential Hydrologic Effects of Mining in the Humboldt River Basin*. U.S. Geological Survey Water Resources Investigation Report 94-4233.

Daly, C., R.P. Neilson, and D.L. Phillips. 1994. *A Statistical-topographic Model for Mapping Climatological Precipitation Over Mountainous Terrain*. Journal of Applied Meteorology, v. 33(2), pp. 140-158.

Dames and Moore. 1994. *Design of Ground Water Reinfiltration Project.* August 1994.

Davis. 2002. *A Screening-Level Method to Estimate Pit Lake Chemistry. In press*.

Eakin, T.E., G.B. Maxey, T.W. Robinson, J.C. Fredericks, and O.J. Loeltz. 1951. *Contributions to the Hydrology of Eastern Nevada: Office of the Nevada State Engineer.* Water Resources Bulletin No. 12, 171 pp.

Edison Electric Institute. 1984. *Electric Power Plant Environmental Noise Guide*. Second Edition. Edison Electric Institute. Washington D.C.

EMA. 1998. *South Pipeline Air Quality Impact Assessment Report*. Prepared for Cortez Gold Mines.

Enviroscientists, Inc. 2003. *Air Quality Impact Assessment Report, Pipeline/South Pipeline Pit Expansion Project, Lander County, Nevada*. January 2003.

Everett, D.E. and F.E. Rush. 1966. *A Brief Apprisal of Water Resources of Grass and Carico Lake Valleys, Lander and Eureka Counties*. Water Resources Reconnaissance Report 37.

Fennemore, G.G., W.C. Neller, and A. Davis.1999. *Modeling Pyrite Oxidation in Acid Environments*. Environmental Science and Technology. 32: 2680-2687.

Foo, S.T., R.C. Hays, Jr., and J.K. McCormack. 1996. *"Geology and Mineralization of the South Pipeline Gold Deposit, Lander County, Nevada*". In Geology and Ore Deposits of the American Cordillera. Symposium Proceedings, Geological Society of Nevada.

Frick, D.L. 1985. *Quantitative Analysis of Groundwater Flow in valley-fill Deposits in Steptoe Valley, Nevada*. MSc. Thesis, University of Nevada, Reno.

Galloway, D.L., K.W. Hudnut, S.E. Ingebritsen, S.P. Phillips, G. Peltzer, F. Rogez, and P.A. Rosen. 1998. *Detection of Aquifer System Compaction and Land Subsidence Using Interferometric Synthetic Aperture Radar, Antelope Valley, Mojave Desert, California*. Water Resource Research, Vol. 34, No. 10, pp. 2573-2585.

Gelhaus, J.W. 1998. *Annual Air Quality Data Summary of the Cortez Gold Mine, January 1997 - December 1997*. February 1998.

_____. 1999. *Annual Air Quality Data Summary of the Cortez Gold Mine, January 1998 - December 1998*. February 1999.

_____. 2000. *Annual Air Quality Data Summary of the Cortez Gold Mine, January 1999 - December 1999*. February 2000.

_____. 2001. *Annual Air Quality Data Summary of the Cortez Gold Mine, January 2000 - December 2000*. February 2001.

_____. 2002. *Annual Air Quality Data Summary of the Cortez Gold Mine, January 2001 - December 2001*. February 2002.

Geomega. 1997. *South Pipeline Project Waste Rock Dump Study*. Prepared for Cortez Gold Mines. September 2, 1997.

_____. 1997a. *A Discussion of Arsenic, Boron, and TDS in Crescent Valley Groundwater*.

_____. 1997b. *An Evaluation of Potential Transient Water Chemistry Effects During Re-Infiltration of Pit Dewatering Water at the Proposed Frome Infiltration Site, Pipeline Project, Lander County, Nevada*.

_____. 1998a. *Characterization of Baseline Conditions for the South Pipeline Project*. Prepared for Cortez Gold Mines. June 4, 1998.

_____. 1998b. *Ground Water Flow Modeling Report for the South Pipeline Project*. Prepared for Cortez Gold Mines. June 4, 1998.

_____. 1998c. *South Pipeline Project: Pit Lake Water Quality Prediction.* Prepared for Cortez Gold Mines. June 4, 1998.

_____. 1998d. *Response to Review of Ground Water Flow & Pit Water Quality Modeling Reports for the South Pipeline Environmental Impact Statement.* Beowawe, Nevada. July 16, 1998.

_____. 1998e. *Pipeline Injection Viability Report.* Prepared for Cortez Gold Mines, Beowawe, Nevada. October 19, 1998.

_____. 1998f. *Hydrogeochemical Evaluation of Proposed Infiltration Sites, Pipeline Project, Lander County, Nevada*. Prepared for Cortez Gold Mines, Beowawe, Nevada. August 21, 1998.

_____. 2001a. *Discussion of Nitrate in Crescent Valley Alluvial Groundwater*. May.

_____. 2001b. *Infiltration System Permit Renewal Pipeline Project, Lander County, Nevada*. February.

_____. 2002a. *South Pipeline Expansion Waste Rock Evaluation*. Prepared for Cortez Gold Mines.

_____. 2002b. *Pipeline / South Pipeline Pit Expansion Project Baseline Characterization Report*. Prepared for Cortez Gold Mines.

_____. 2002c. *Structural Controls on Water Levels Within Alluvium at Pipeline Mine*. Prepared for Cortez Gold Mines.

_____. 2002d. The Characterization of Potential Water Quality and Waste Rock Impacts: Pediment Project. July 19, 2002.

_____. 2003a. *Groundwater Flow Modeling Report for the Pipeline/South Pipeline Pit Expansion Project*. Prepared for Cortez Gold Mines, Beowawe, Nevada.

_____. 2003b. *Pit Lake Chemistry Assessment for the Pipeline/South Pipeline Pit Expansion Project*. Prepared For Cortez Gold Mines.

_____. 2003c. *South Pipeline Expansion Waste Rock Evaluation*. Prepared for Cortez Gold Mines, Beowawe, Nevada. June 13, 2003.

Gilluly, J., and O. Gates. 1965. *Tectonic and Igneous Geology of the Northern Shoshone Range, Nevada.* U.S. Geological Survey Bulletin 465.

Golder Associates Inc (Golder). 2002. *Report of Engineering Analysis for Storage of Waste Materials Pipeline/South Pipeline Project.* Prepared for Cortez Gold Mines, Beowawe, Nevada. December 4, 2002.

Haneberg, W.C. 1992. Drape Folding of Compressible Elastic Layers, I. Analytical Solutions for Vertical Uplift. In *Journal of Structural Geology*, Vol. 15.

Harrill, J.R., J.S. Gates, and J.M. Thomas. 1988. *Major Ground-Water Flow Systems in the Great Basin Region of Nevada, Utah, and Adjacent States*. U.S.G.S. Hydrologic Investigations Atlas HA-694-C.

Harris, C.M., ed. 1991. *Handbook of Acoustical Measurements and Noise Control*. Third Edition. New York: McGraw-Hill, Inc.

Hays, Robert C. Jr. and Timothy G. Thompson. (2000). *The Cortez Pediment Deposit, A Recent Discovery in an Historic Mining District, Lander County, Nevada.* Abstract.

Hoffman, J., A.J. Howard, D. Galloway, and F. Amelung. 2001. *Seasonal Subsidence in Las Vegas Valley, Nevada, Observed by Synthetic Aperature Radar Interferometry*. Water Resource Research, Vol 37, No. 6, pp. 1551-1556.

HydroGeoLogic. 1996. *MODFLOW-SURFACT, Code Documentation Report*, Herndon Virg., HydroGeoLogic, Inc.

Jachens, R.C. and T.L. Holzer. 1982. *Differential Compaction Mechanisms for Earth Fissures Near Casa Grande, Arizona.* The Geological Society of America Bulletin, Vol. 93, pp. 998-1012.

JBR Environmental Consultants, Inc. (JBR). 1993. *Cortez Gold Mining Company Seep and Spring Report*. Salt Lake City, Utah.

_____. 1995a. *Cortez Pipeline Project, Springsnail Survey.* Prepared for the Battle Mountain District Office and Cortez Gold Mines.

_____. 1995b. *Cortez Pipeline Project, Burrowing Owl Survey*. Prepared for the Battle Mountain District Office and Cortez Gold Mines.

_____. 1996. *Cortez Gold Mines Pipeline Project, Seep and Spring Monitoring.* Spring Quarter, 1996. Elko, Nevada.

_____1997a. *Cortez South Pipeline Project Burrowing Owl Survey.* Prepared for Cortez Gold Mines. Beowawe. Nevada

_____. 1997b. *Cortez Gold Mines Springsnail Survey.* Prepared for Cortez Gold Mines. Beowawe. Nevada.

_____. 1997c. *Cortez Gold Mines Literature Review of the Northern Goshawk*. Prepared for Cortez Gold Mines. Beowawe. Nevada.

_____. 2003. *Cortez Gold Mines Pipeline Project Seep and Spring Monitoring: Fall Quarter 2002.*

Kryter, K.D. 1985. *The Effects of Noise on Man. Second Edition*. Orlando: Academic Press, Inc.

Leake, S.A. and D.E. Prudic. 1988. *Documentation of a Computer Program to Simulate Aquifer-System Compaction Using the Modular Finite-Difference Ground Water Flow Model*. U.S. Geological Survey Open File Report 88-482.

Lee, K.L. and C.K. Shen. 1969. *Horizontal Movements Related to Subsidence. In Journal of the Soil Mechanics and Foundation Division*. ASCE, Vol. 95, No. SM1. pp. 139-166.

Lefler, Diana. Personal Communication. March 2003.

Leonards, G.A. and Narain, J. 1963. *Flexibility and Cracking of Earth Dams*. ASCE Journal of the Soil Mechanics and Foundations Division, Vol. 89, No. SM2, Pt. 1, pp. 47-98.

Maurer, D.K., R.W. Plume, J.M. Thomas, and A.K. Johnson. 1996. *Water Resources and Effects of Changes in Ground Water Use Along the Carlin Trend, North-Central Nevada*: U.S. Geological Survey Water-Resources Investigations Report 96-4134.

Maxey, G.B., and T.E. Eakin. 1949. *Ground Water in White River Valley, White Pine, Nye, and Lincoln Counties, Nevada*. State of Nevada Water Resources Bulletin No. 8.

May, D.N. 1978. *Handbook of Noise Assessment*. New York: Van Nostrand Reinholt Co.

McCormack, J.K and R.C. Hayes Jr. 1996. *A Model for Reconstruction of District Mineralization in the Basin and Range*. In Coyner, A.R., and P.L. Fahey. Geology and Ore Deposits of the American Cordillera. Symposium Proceedings. Geological Society of Nevada. pp. 635-646.

McDonald, M.G. and A.W. Harbaugh. 1988. *A Modular Three Dimensional Finite Difference Ground Water Flow Model.* Book 6 U.S. Geological Survey Techniques of Water-Resources Investigations.

Muffler, L.J.P. 1964. *Geology of the Frenchie Creek Quadrangle*, *North-Central Nevada.* U.S. Geological Survey Bulletin 1179.

Nevada Department of Wildlife (NDOW). 1997a. Letter from Rory E. Lamp to Kristin F. Kuyper.

_____. 1997b. Letter from Rory E. Lamp to Terri Rodefer.

Nevada Division of Water Resources. 1997. *Water Rights Data Base, Special Hydrographic Abstract*.

Nichols, W.D., R.J. Laczniak, G.A. DeMeo, and T.R. Rapp. 1997. *Estimated Groundwater Discharge by Evapotranspiration, Ash Meadows Area, Nye County, Nevada*. U.S. Geological Survey Water-Resources Investigations Report 97-4025.

Nichols, W.D. 2000. *Regional Ground-Water Evapotranspiration and Ground-Water Budgets, Great Basin, Nevada*. U.S. Geological Survey Professional Pater 1628.

Oregon State University. 2002. *Climate Mapping with PRISM*. Spatial Climate Analysis Service. February 10, 2002.

Parkhurst, D. L. 1995. *User's guide to PHREEQC - A Computer Program for Speciation*, *Reaction-Path, Advective Transport, and Inverse Geochemical Calculations.* U.S. Geological Survey Water Resources Investigation Report, 95:4227.

Plume, R.W. 1995. *Water Resources and Potential Effects of Ground Water Development in Maggie, Marys, and Susie Creek Basins, Elko and Eureka Counties, Nevada*. U.S. Geological Survey Water-Resources Investigations Report 94:4222.

_____. 1996. *Hydrogeologic Framework of the Great Basin Region of Nevada, Utah, and Adjacent states*. U.S. Geological Survey Professional Paper 1409-B.

_____. 1997. U.S. Geological Survey. Personal communication with Geomega. August.

Prudic, D.E., J.R. Harrill, and T.J. Burbey. 1995. *Conceptual Evaluation of Regional Ground-Water Flow in the Carbonate Rock Province of the Great Basin, Nevada, Utah and Adjacent States*. U.S.G.S. Professional Paper 1409-D, 102 pp.

Prudic, D.E. and M.E. Herman. 1996. *Ground Water Flow and Simulated Effects of Development in Paradise Valley, a Basin Tributary to the Humboldt River in Humboldt County, Nevada.* U.S. Geological Survey Professional Paper 1409-F.

Robinson, T.W., and A.O. Waananen. 1970. *Evapotranspiration by Woody Phreatophytes in the Humboldt River Valley Near Winnemucca, Nevada*. U.S. Geological Survey Professional Paper 491-D.

Rush, F.E. 1968. *Index of Hydrographic Areas in Nevada.* Nevada Division of Water Resources, Information Report 6, 38 pp.

Scheffe, R.D. 1988. VOC/NOx Point Source Screening Tables. U.S. Environmental Protection Agency. Washington D.C.

Schulze, R.H. 1991. Practical Guide to Air Dispersion Modeling. Trinity Consultants, Inc. Dallas, Texas.

SHB AGRA, Inc. 1993. *Tailings Impoundment and Heap Leach Facilities, Pipeline Project, Lander County, Nevada.* April.

Shevenell, L. 1996. *Statewide Potential Evapotranspiration Maps for Nevada*. Nevada Bureau of Mines and Geology Report 48.

Shuttleworth, W.J. 1993. *Evaporation*. D.R. Maidment, ed., Handbook of Hydrology, New York, McGraw-Hill. Chapter 4

Sobek, A.A., W.A. Schuller, J.R. Freeman, and R.M. Smith. 1978. *Field and Laboratory Methods Applicable to Overburdens and Minesoils.* Prepared for Industrial Environmental Research Lab, Cincinnati, Ohio by West Virginia University, College of Agriculture and Forestry, PB-280 495, U.S. Department of Commerce National Technical Information Service.

Steffen Robertson & Kirsten, Inc. (SRK). 1996. *Amendment to the Pipeline Plan of Operation for the South Pipeline Project*. Prepared for Cortez Gold Mines. August 20.

Stewart, J.H. and J.E. Carlson. 1976. *Geologic Map of North-Central Nevada. Nevada Bureau of Mines and Geology Map 50.*

Stewart. J.H. 1980. *Geology of Nevada*. Nevada Bureau of Mines and Geology. Special Publication 4.

Stone, W.J., T. Leeds, R.C. Tunney, G.A. Cusack, and S.A. Skidmore. 1991. *Hydrology of the Carlin Trend, Northeastern Nevada - A Preliminary Report: Carlin, Nevada.* Newmont Gold Company Report.

Stone, D.B., C.L. Moomaw, and A. Davis. 2001. *Estimating Recharge Distribution by Incorporating Runoff from Mountainous Areas in an Alluvial Basin in the Great Basin Region of the Southwestern United States*. Ground Water, Vol. 39, No. 6, pp. 807-818.

Struhsacker, D.W. 1986. "*Geology and Mineralization of the Beowawe-White Canyon Area, Eureka and Lander Counties, Nevada*." In J.V. Tingley and H.F. Bonham, Jr. (eds.). Precious-Metal Mineralization in Hot Springs Systems. Nevada-California. Nevada Bureau of Mines and Geology Report 41.

Thomas, D.H., L.S.A. Pendelton, and S.C. Cappannari. 1986. *Western Shoshone In Great Basin*. Handbook of North American Indians. Vol. II, edited by W.L. d-Azevedo. Pp. 262-283. Smithsonian Institution. Washington D.C.

Thomas, J.M., S.M. Carlton, and L.B. Hines. 1989. *Ground Water Hydrology and Simulated Effects of Development in Smith Creek Valley, A Hydrologically Closed Basin in Lander County*, *Nevada*. U.S. Geological Survey Professional Paper 1409-E.

Thompson, Timothy G. Personal Communication. Cortez Gold Mines. January 2002.

U.S. Department of Energy (DOE). 2002. Final Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada. U.S. Department of Energy, Washington D.C.

U.S. Geological Survey (USGS). 1994. *Water Resources Data, Nevada, Water Year 1993.* Carson City, Nevada.

_____. 1996. *Water Resources Data, Nevada, Water Year 1995.* Carson City, Nevada.

Water Management Consultants Inc. (WMC). 1992a. *Pipeline Gold Project: Preliminary Characterization of Ground water Conditions and Dewatering Pre-feasibility.* May.

_____. 1992b. *Pipeline Gold Project: Preliminary Assessment of the Impact of Mining on Regional Water Resources.* December.

_____. 1993. *Pipeline Gold Project: Preliminary Evaluation of the Hydrology of the Final Open Pit.* Draft. April.

_____. 1995a. *Pipeline Gold Project: Results of the Expanded Ground Water Model and Support Documentation.*

_____. 1995b. *Pipeline Gold Project: Integrated Monitoring Plan*. September.

WESTEC. 1997a. *Delineation of Waters of the United States: South Pipeline Project*. Prepared for Cortez Gold Mines, Beowawe, Nevada. June.

_____. 1997b. *Geotechnical Investigation for the Pipeline Gold Project Infiltration Galleries.* Prepared for Cortez Gold Mines, Beowawe, Nevada.

Winograd, I.J., and W. Thordarson. 1975. *Hydrogeologic and Hydrochemical FrameWork, South-Central Great Basin, Nevada-California, with Special Reference to the Nevada Test Site*. U.S. Geological Survey Professional Paper 712-C.

Wruck, C.T., and D.M. Cole. 1991. *Lithology and Geochemistry of Core from U.S. Geological Survey Deep Drill Hole at Indian Creek and Discussion of Core from a Drill Hole Near Gold Acres, Shoshone Range, Nevada.* U.S. Geological Survey Open File Report 91-585.

Zones, C.P. 1961. *Ground water Potentialities in the Crescent Valley, Eureka and Lander Counties, Nevada*. U.S. Geological Survey Water-Supply Paper 1581.

7.2 Glossary

Acid Generating Potential (AGP) - The amount of acid-producing constituents in a given material. For rock material, the total sulfur concentration is determined, assumed to be reactive sulfide, and reported in terms of calcium carbonate equivalent per mass of material.

Acid Neutralizing Potential (ANP) - The amount of alkaline or basic constituents in a given material. The capacity of this material to neutralize acidity is determined and reported in terms of the equivalent mass of calcium carbonate per mass of material.

Acre-Foot - Volume of water covering one acre one foot deep; equal to 325,900 gallons.

Alluvial Fan - A low, outspread, relatively flat to gently sloping mass of loose rock material, shaped like an open fan or a segment of a cone, deposited by a stream.

Animal Unit Month - The amount of forage required to support one animal unit for one month.

Annual Duty - The maximum permitted volume of water which may be pumped yearly from a water right or from a designated hydrographic basin.

Aquifer - A water-bearing, subsurface geologic deposit that may be composed either of rock or of unconsolidated sediments such as alluvium.

Backfilling - With reference to waste rock, it is the relocation of waste rock for final disposition from a waste rock dump located outside of the open pit in to the open pit.

Beneficial Use - The use of water for any purpose for which benefits are derived, such as for irrigation, hydroelectric power, and industrial and domestic uses. Benefits vary with locality and custom, and what constitutes beneficial use is often defined by statute or by court decision.

Cortez Gold Mines, Inc. - CGM's mining facilities (consists primarily of the Cortez and East open pits, heap leach and processing facilities, CFB roaster, CIL mill, tailings facility, and support and administrative facilities) located immediately northwest of Cortez at the southeast end of Crescent Valley, and approximately 8 miles southeast of the Project Mine and Process Area.

Cortez - An historic mining town in Eureka County, located immediately southeast of the CGM Cortez facilities.

Cortez Gold Mines (CGM) - A subsidiary of Placer Dome U.S., Inc. (PDUS) that conducts mineral exploration and mining operations within the Joint Venture Area controlled by Cortez Joint Venture, a joint venture between Placer Dome U.S., Inc. (PDUS) and Kennecott; proponent of the Project.

Cortez Joint Venture - A joint venture between Placer Dome U.S., Inc. (PDUS) and Kennecott, to conduct mineral exploration and mining within the Joint Venture Area, which is operated by Cortez Gold Mines (CGM), a subsidiary of PDUS.

Cortez Pipeline Gold Deposit Final Environmental Impact Statement (Pipeline Final EIS) - The environmental documentation prepared to analyze the environmental impacts of the Pipeline project. The project received BLM approval.

Diversion Rate - The maximum permitted rate at which water may be pumped from a designated hydrographic basin.

Ephemeral Stream - A stream channel which carries water only during and immediately after periods of rainfall or snowmelt.

Evapotranspiration - Discharge of water from the earth's surface into the atmosphere by transpiration by plants during growth and by evaporation from the soil, lakes, and streams.

Gold Acres Facilities - CGM's mining facilities (consisting principally of the Gold Acres and London Extension open pits, a waste rock dump and a heap leach facility) located on the southwest side of Crescent Valley in the Shoshone Range, approximately two miles northwest of the Project Mine and Process Area.

Ground Water Mound - An elevated mound-shaped surface in a water table that builds up as a result of the downward percolation of water.

Head - The height of a column of fluid necessary to develop specific pressure. Also known as pressure head.

Horse Canyon Facilities - Consists of the Horse Canyon open pit mine and associated with South Silicified Zone. Mining commenced in early 1983 and supplied ore to the Cortez mill for approximately four years. Mining has been completed and no new facilities or mining operations are proposed. Exploration is ongoing.

Hydraulic Conductivity - A measure of the characteristics of a unit area of an aquifer to allow water to flow through it, frequently expressed as feet per day.

Hydraulic Gradient - The change in the elevation of the water level in an aquifer over a given distance, expressed either as feet per feet or as a dimensionless number.

In Situ - In the original location.

Intermittent Stream - A stream which flows part of the year, as when fed by runoff or spring flow.

Joint Venture Area - an approximately 47,000 acre (74 square mile) area located in north-central Nevada where mineral exploration and mining operations are conducted by the Cortez Joint Venture.

Net Neutralizing Potential (NNP) - The net amount of alkaline or basic constituents in a given material minus acid generating material, or ANP-AGP=NNP. Reported in terms of the equivalent mass of calcium carbonate per mass of material.

Oxidized Ore - Mineralized rock which is comprised predominantly of oxidized or weathered rock types and is of sufficient economic value to justify mining and recovery costs.

Perched Ground Water - Ground water separated from an underlying body of ground water by an unsaturated zone of soil or rock.

Perennial Stream - A stream or reach of a stream that flows continuously throughout the year and whose upper surface is generally lower than the water table in the region adjoining the stream.

Phreatophytes - Plants whose root systems tap into the water table.

Playa - A dried-up, vegetation-free, flat-floored area composed of thin, evenly stratified sheets of fine clay, silt or sand, and representing the bottom part of a shallow, completely closed or undrained, desert lake basin in which water accumulates and is quickly evaporated. Low-lying central area of an arid plain in which water collects and is evaporated after a period of surface runoff.

Porosity - The volume of open space between sand grains or in fractures through which ground water may flow; usually expressed as a percentage.

Project Ancillary Facilities - Those existing CGM facilities located within the Joint Venture Area, but outside the Project Area, that would be utilized by, but not modified as a result of, the Proposed Action. These project ancillary facilities include the following: that portion of the Gold Acres Haul Road and the Cortez access road located outside the Project Area; the Cortez CFB roaster, CIL mill, and tailing facilities; and the Cortez support and administrative facilities.

Project Area - A defined, 39,350-acre area within the Joint Venture Area in which all activities associated with the Proposed Action that would result in modification of existing facilities would occur. The Project Area includes the Project Mine and Process Area; the Project mine water disposal area; and other areas (in which Project exploration would be conducted; existing Project access and haul roads would be used and/or modified; and new access roads may be constructed).

Project Mine and Process Area - An approximately 3,442-acre area within the Project Area where all mining and processing activities associated with the Proposed Action would occur. The Project Mine and Process Area would include the South Pipeline open pit, waste rock dump(s), soil stockpile(s), heap leach facilities, internal haul and access roads, exploration operations, and those same facilities constructed and used for the Pipeline/South Pipeline project.

Pipeline Project - The Cortez Gold Pipeline Project consist of a 1,827-acre development. The project includes the Pipeline open pit mine, associated dewatering system and waste rock dumps, a combined heap leach/tailings impoundment facility, a 11,000 ton/day ore-process facility, and continuing exploration drilling.

Recharge - Replenishment of water to an aquifer.

Specific Yield - The quantity of water that a unit volume of an unconfined aquifer after being saturated will yield by gravity; it is expressed either as a ratio or as a percentage of the volume of the aquifer; specific yield is a measure of the water available to wells.

Storage Coefficient - The volume of water an aquifer releases from or takes into storage per unit surface area per unit change in head.

Transmissivity - A measure of the rate of ground water flow through a unit width of an aquifer of a given thickness. It is the product of hydraulic conductivity and the aquifer thickness and can be expressed in terms of square feet per day.

Translocation - With reference to waste rock, it is the movement of waste rock during the mining operation from one location in the open pit to another location in the open pit.

Vadose Zone - A subsurface zone containing ground water at less than atmospheric pressure and air or gases at atmospheric pressure. Also known as unsaturated zone, zone of aeration, or zone of suspended water.

Weak Acid Dissociable (WAD) Cyanide - This term refers to the analytical method used to determine the weakly bound complexes of the cyanide compound and is generally considered to include free cyanide and the less-stable metallo-cyanide complex compounds. Iron and cobalt cyanide complexes are more stable and typically do not report as WAD Cyanide.

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