

# CHAPTER 7

## GLOSSARY, ACRONYMS, AND ABBREVIATIONS

### 7.1 Glossary

#### Glossary

Acid-forming materials	Earth materials that contain sulfide minerals or other materials that, if exposed to air, water, or weathering processes, form acids that may create acid drainage (as in potentially acid generating or reactive rock).
Acid mine drainage	<ol style="list-style-type: none"> <li>1. Drainage with a pH of 2.0 to 4.5 from mines and mine wastes. It results from the oxidation of sulfides exposed during mining, which produces sulfuric acid and sulfate salts. The acid dissolves minerals in the rocks, further degrading the quality of the drainage water.</li> <li>2. Acidic run-off water from mine waste dumps and mill tailings ponds containing sulfide minerals. Also refers to groundwater pumped to surface from mines.</li> </ol>
Apex tunnel	An existing structure at the West Plant Site that diverts off-site flows from north of the site to the Silver King Wash west of the site.
Apron feeder	A metal conveyor (or conveyor with metal plates) operated to control the rate of delivery to a standard belt conveyor. The metal-plate construction allows the apron feeder to withstand the weight and force of rock material being dumped from a chute onto a bin.
Belt tilter	A mechanism on a belt conveyor that allows material to be discharged into a bin or silo.
Cave	Caving of the ore is induced by undercutting the ore zone, which removes its ability to support the overlying rock material. Fractures spread throughout the area to be extracted, causing it to collapse and form a cave underground, which propagates upward throughout the mining process.
Civilian Conservation Corps	The Civilian Conservation Corps (CCC) was a public work relief program that operated from 1933 to 1942 in the United States for unemployed, unmarried men. The CCC was a major part of President Franklin D. Roosevelt's New Deal, which provided unskilled manual labor jobs related to the conservation and development of natural resources in rural lands owned by Federal, State, and local governments.
Crosscut	A passageway driven at an angle to the drifts of a mine. The crosscuts connect the parallel drifts.
Crushers	Machines that reduce large rocks into smaller rocks.
Cyclone tailings	Hydrocyclone classifiers (cyclones) would process both ore and tailings. The centrifugal force separates the tailings into both fines deposited into the tailings facility and sand which is used in embankment raises.
Diurnal	A rhythm to each day; in biology, being active or open during the day.
Drift	A horizontal or nearly horizontal underground opening.
Dry	A change house for mine workers. Contains lockers and clothes baskets and is equipped with shower, toilets, and sinks.

*continued*

Glossary

East Plant Site	Current exploratory shaft sinking site, historic Magma Mine site, future mine site, and area impacted by block caving.
Fire intensity	Fire intensity refers to the rate at which a fire produces heat at the flaming front and should be expressed in terms of temperature or heat yield.
Fire severity	Fire severity is a measure of the physical change in an area caused by burning.
Flotation	Process of separating small particles of various materials by treatment with chemicals in water in order to make some particles adhere to air bubbles and rise to the surface for removal while others remain in the water.
Fracture limit	The fracture limit is the outer limit of any potential large-scale surface cracking (or fracturing) that consists of an area around the cave crater in which the ground surface could be broken with open tension cracks and rotational blocks.
Galloway	Temporary working platform suspended above the bottom of the shaft under construction, to support the ongoing drilling, blasting, and mucking.
Gangue	Commercially worthless material that surrounds, or is closely mixed with a wanted mineral in an ore deposit.
Graben	An elongated block of the earth's crust lying between at least two faults and displaced downward relative to the blocks on either side.
Grizzly	A coarse screening or scalping device that prevents oversized bulk material from entering a material transfer system, such as an ore pass or ore chute. A grizzly is typically constructed of rails, bars, or steel beams.
Historic property	As defined in the implementing regulations of Section 106, 36 CFR 800.16(l), historic properties are any district, site, building, structure, or object that is included in or eligible for inclusion in the NRHP under one of four significance criteria: a) association with events that have made a significant contribution to the broad patterns of history; b) association with a significant person in the past; c) embodiment of the distinctive characteristics of a type, period, or method of construction, or represents the work of a master or possess high artistic values; d) the potential to yield information important about the past (National Park Service 1995).
Loadout facility	A proposed facility where copper concentrate would be filtered to remove water and then sent to off-site smelters via rail cars or trucks.
MARRCO corridor	Magma Arizona Railroad Company railroad corridor that begins at the Union Pacific Line at Magma Junction and continues to the town of Superior. The corridor would be used for water pipelines, concentrate pipelines, power and pump stations.
MARRCO right-of-way	The existing easement through public and private property associated with the MARRCO railway.
Mineralization	The process or processes by which a mineral or minerals are introduced into a rock, resulting in a valuable or potentially valuable deposit. It is a general term, incorporating various types; e.g., fissure filling, impregnation, and replacement.

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### Glossary

New Magma Irrigation and Drainage District (NMIDD)	An irrigation and water conservation district located west of Phoenix, between Queen Creek and the Gila River. It encompasses 27,410 acres, of which 26,900 are irrigable.
Ore	The naturally occurring material from which a mineral or minerals of economic value can be extracted at a reasonable profit.
Panel caving	A high-volume underground mining technique. A variation of block caving, typically used on low-grade, massive ore bodies.
Semi-autogenous grinding (SAG)	A type of grinding mill designed to break a solid material into smaller pieces. It is essentially autogenous but uses some balls to aid in grinding steel.
Semi-autonomous	Equipment with instrumentation and computer controls to be operated with minimal or no manual oversight.
Sensitive receptor	Those locations or areas where dwelling units or other fixed, developed sites of frequent human use occur.
Skip	A bucket used to hold broken ore and development rock that is hoisted from a mine via a shaft.
Slot raise	A shaft driven upward from a lower level to a higher level.
Slurry	Mixture of a fine-grained solid material – such as copper ore concentrate or tailings - and water.
Store and release cover	A reclamation cover that minimizes infiltration into the underlying material by acting like a sponge to store water from precipitation events until it is evaporated or transpired by plants growing in the cover material.
Subsidence	The process by which underground excavation collapses and movement of material connects all the way to the surface where a depression or deformation in the land surface is formed.
Sulfide enrichment	Enrichment of a deposit by replacement of one sulfide by another of high value, as pyrite by chalcocite.
Tailings	The processed waste component that results from copper ore processing.
Tailings (PAG)	The tailings produced in the copper-molybdenum potentially acid generating (PAG) circuit.
Tailings (NPAG)	The tailings product that would be produced from rougher/non-potentially acid generating (NPAG) circuit.
Tailings corridor	The corridor that begins at the West Plant Site and ends at the tailings storage facility and is used for water and tailings pipelines and access.

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Glossary

Tailings Storage Facility	The final storage area for unrecoverable and uneconomic metals, minerals, chemicals, organics and process water.
Traditional Ecological Knowledge (TEK)	Cumulative body of knowledge, practice, and belief, evolving by adaptive processes and handed down through generations by cultural transmission, about the relationship of living beings (including humans) with one another and with their environment.
Waste Rock	Valueless rock that must be fractured and removed from a mine to keep the mining scheme practical and gain access to ore.
Water (CAP)	This water is the fresh make-up water that is drawn either directly from the Central Arizona Project (CAP) canal or through pumping of groundwater available through banking of CAP credits.
Water (effluent)	Wastewater (treated or untreated) that flows out of a treatment plant, sewer, or industrial outfall.
Water (filtrate)	The water removed from the concentrate filtration process.
Water (mine dewatering)	Groundwater that accumulates in underground mine workings and must be pumped out in order to operate the mine.
Water (mine service)	Water used at the mine for the refrigeration and ventilation systems, dust suppression, washdown water, and direct cooling.
Water (potable)	Potable water is defined as “water that meets the standards for drinking purposes of the State of Arizona and those of the US Environmental Protection Agency’s National Primary Water Regulations.” This water is kept completely separate from the other waters, and is supplied by Arizona Water Company.
Water (process)	Water which comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product. The project creates this through milling, grinding, thickener overflows, and other mine processes. Other types of water that come into contact with process water by mixing into the process water pond or at the tailings distribution box are considered process water from that point forward. Process water is reused and recycled to the greatest extent possible within the mill area. Ore moisture is considered a process water due to its contact with raw materials.
Water (reclaim)	Decanted water pumped from a set of barges in the tailings storage facility to the process water pond. Includes tailings storage facility stormwater runoff and tailings storage facility seepage captured by seepage collection embankments.
Water (service)	Fresh water stored at the CAP water distribution tank, used in several ways at the concentrator complex. It is used for dust suppression and wash-down water, as well as for gland water.
Water (void)	The tailings consist of a matrix of solid waste material and water. This water, which fills the annular spaces between the solid particles, is called void water.
West Plant Site	Current site of water treatment plant, historic Magma Mine concentrator and smelter, legacy tailings/waste rock, future site of concentrator.

## 7.2 Acronyms and Abbreviations

### Acronyms and Abbreviations

°C	degree(s) Celsius	AZPDES	Arizona Pollutant Discharge Elimination System
°F	degree(s) Fahrenheit	<b>B</b>	
C	absolute contrast threshold	BADCT	Best Available Demonstrated Control Technology
ΔE	color contrast for gray terrain	BGC Engineering	BGC Engineering USA Inc.
μg	microgram(s)	BGEPA	Bald and Golden Eagle Protection Act
μg/m <sup>3</sup>	micrograms per cubic meter	BLM	U.S. Department of the Interior Bureau of Land Management
<b>A</b>		<b>C</b>	
ACEC	Area of Critical Environmental Concern	CAP	Central Arizona Project
ACHP	Advisory Council on Historic Preservation	CAP Water	Fresh make-up water that is drawn either directly from the Central Arizona Project (CAP) canal or through pumping of groundwater available through banking of CAP credits
Act	Southeast Arizona Land Exchange and Conservation Act		
ADEQ	Arizona Department of Environmental Quality	CDA	Canadian Dam Association
ADOT	Arizona Department of Transportation	CDP	Census designated place
ADWR	Arizona Department of Water Resources	CEQ	Council on Environmental Quality
AGFD	Arizona Game and Fish Department	CFR	Code of Federal Regulations
AIRFA	American Indian Religious Freedom Act of 1978	cfs	cubic feet per second
Air Sciences	Air Sciences Inc.	CO	carbon monoxide
AMA	Active Management Area	CWA	Clean Water Act
amsl	above mean sea level	CWPP	Community Wildfire Protection Plan
ANCOLD	Australian National Committee on Large Dams	<b>D</b>	
APP	Aquifer Protection Permit	DAT	Deposition Analysis Thresholds
APS	Arizona Public Service Company	dB	decibel(s)
Arizona Trail	Arizona National Scenic Trail	dBA	A-weighted decibel(s)
ARS	Arizona Revised Statutes	dB(L)	unweighted decibel(s)
ASLD	Arizona State Land Department	DEIS	draft environmental impact statement
ATV	all-terrain vehicle		
AUM	animal unit month		
AWQS	Arizona Numeric Aquifer Water Quality Standards		

*continued*

Acronyms and Abbreviations

<b>E</b>			
EA	environmental assessment	GTES	General Terrestrial Ecosystem Survey
EIS	environmental impact statement	<b>H</b>	
EO	executive order	H <sub>2</sub> SO <sub>4</sub>	sulfuric acid
EPA	U.S. Environmental Protection Agency	HAP	hazardous air pollutant
ERMA	Extensive Recreation Management Area	HDD	horizontal directional drilling
ERU	Ecological Response Unit	HDMS	Arizona Heritage Data Management System
ESA	Endangered Species Act	HDPE	high-density polyethylene
ET	evapotranspiration	HPTP	historic properties treatment plan
<b>F</b>		<b>I</b>	
FEIS	final environmental impact statement	ICMM	International Council on Mining and Metals
FEMA	Federal Emergency Management Agency	ID	interdisciplinary
FLPMA	Federal Land Policy and Management Act	IMPLAN	Impact Analysis for Planning
FMEA	failure modes and effects analysis	in/sec.	inches per second
FONSI	Finding of No Significant Impact	ISO	Insurance Services Office
forest plan	Tonto National Forest Land and Resource Management Plan	ITRB	Independent Technical Review Board
Forest Service	U.S. Department of Agriculture Forest Service	<b>K</b>	
FR	fire regime	Kg TNTe	kilograms TNT equivalent
FSH	Forest Service Handbook	km	kilometer(s)
FSM	Forest Service Manual	KOP	key observation point
FWS	U.S. Department of the Interior Fish and Wildlife Service	kV	kilovolt(s)
FY	fiscal year	<b>L</b>	
<b>G</b>		L	liter(s)
g/ha/year	grams per hectare per year	land exchange	Southeast Arizona Land Exchange
Ga	billion years old	Ldn	day-night average noise level
GDE	groundwater-dependent ecosystem	Leq	energy average noise level
GIS	geographic information system	Leq(h)	energy average hourly noise level
GMU	Game Management Unit	Lmax	maximum noise level
GPO	General Plan of Operations	LOS	level of service

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## Acronyms and Abbreviations

LOST	Legends of Superior Trails	NMIDD	New Magma Irrigation and Drainage District
M		NNP	net neutralizing potential
m	meter(s)	NO <sub>2</sub>	nitrogen dioxide
MA	Management Area	NO <sub>x</sub>	nitrogen oxides
Ma	million years old	NOI	Notice of Intent
MAC	Mining Association of Canada	NPAG	non-potentially acid generating
MARRCO	Magma Arizona Railroad Company	NRCS	Natural Resources Conservation Service
MBSC	Migratory Bird Species of Concern	NRHP	National Register of Historic Properties
MBTA	Migratory Bird Treaty Act	NSDWR	National Secondary Drinking Water Regulations
mg/L	milligram(s) per liter	<b>O</b>	
MIS	Management Indicator Species	Oak Flat Withdrawal Area	Oak Flat Picnic and Campground Withdrawal Area
MM	Modified Mercalli	OHV	off-highway vehicle
MOA	memorandum of agreement	OSI	Other Species of Interest
mph	miles per hour	<b>P</b>	
MSGP	Multi-Sector General Permit	PA	programmatic agreement
MSHA	Mine Safety and Health Administration	PAG	potentially acid generating
<b>N</b>		PBRISD	Performance-Based Risk-Informed Safe Design
N	nitrogen	PCAQCD	Pinal County Air Quality Control District
N/A	not available, not applicable	PCE	primary constituent element
NAAQS	National Ambient Air Quality Standards	PL	Public Law
NAGPRA	Native American Graves Protection and Repatriation Act of 1990	PM <sub>2.5</sub>	particulate matter 2.5 microns in diameter or smaller
NDA	the Carl Levin and Howard P. 'Buck' McKeon National Defense Authorization Act for Fiscal Year 2015	PM <sub>10</sub>	particulate matter 10 microns in diameter or smaller
NEPA	National Environmental Policy Act of 1969, as amended	ppm	part(s) per million
NFS	National Forest System	PPV	peak particle velocity
NFS Road	National Forest System Road	project	Resolution Copper Project and Land Exchange
NGO	non-governmental organization	PSD	prevention of significant deterioration
NHPA	National Historic Preservation Act	<b>Q</b>	
NIBS	National Institute of Building Sciences	Q/D	Standard Source/Distance

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Acronyms and Abbreviations

**R**

REC

Resolution Copper

RFFA

RI

ROD

ROS

RUG

**S**

S

SCC

SERI

SGCN

SHPO

SIP

SMA

SO<sub>2</sub>

SR

SRMA

SRP

SSURGO

SWCA

SWPPP

SWReGAP

**T**

TCP

TEKP

TNF

Town

recognized environmental condition

Resolution Copper Mining, LLC

reasonably foreseeable future action

Report of Investigations

record of decision

recreation opportunity spectrum

Recreation User Group

sulfur

Species of Conservation Concern

Species of Economic and Recreational Importance

Species of Greatest Conservation Need

Arizona State Historic Preservation Office

State Implementation Plan

Special Management Area

sulfur dioxide

Arizona State Route

Special Recreation Management Area

Salt River Project

Soil Survey Geographic

SWCA Environmental Consultants

stormwater pollution prevention plan

Southwest Regional Gap Analysis Project

traditional cultural property

traditional ecological knowledge place

Tonto National Forest

Town of Superior

**U**

U.S.

U.S. 60

USACE

U.S.C.

USDA

USGS

UTV

**V**

VdB

VOC

VQO

VRM

**W**

WUI

United States

U.S. Route 60

U.S. Army Corps of Engineers

United States Code

U.S. Department of Agriculture

U.S. Geological Service

utility task vehicle

vibration decibel(s)

volatile organic compound

Visual Quality Objective

Visual Resource Management

wildland urban interface