

Appendix C-1

Significant Impacts on Non-Market Values

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for

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August 16, 2010

Appendix C-1: Summary of Likely Significant Adverse Impacts on Non-Market Values

Value	Issues	Location	Significance	Impacted users and populations
Water supply	Drawdown of aquifers adversely impacting public and private domestic and agricultural wells on both the east and west sides of the Santa Rita Mountains;	Area immediately surrounding proposed mine; down gradient and downstream users; Davidson Canyon	Reduced or loss of water supply poses significant economic costs to public and private sector	All surrounding public and private water users; ranging from adjacent properties to users downstream and down-gradient
Water quality	Pollution of surface and groundwater (including toxic pollution) from processing operations, tailings, waste rock, and leach facilities; pollution of aquifer/public and private wells; creation of pit lake with high concentrations of toxic chemicals; acid mine drainage; adverse impacts on downstream users, including City of Tucson (water supply).	Area immediately surrounding proposed mine; down gradient and downstream users; Davidson Canyon	Toxic materials (heavy metals and other chemicals) pose serious health hazards to local and regional populations; significant associated health costs to public and private sector	All water users; ranging from adjacent properties to users downstream and down-gradient
Air Quality	Production/introduction of dust (particularly toxic dust and fine-grained tailings), airborne chemicals, emissions (from industrial processing and vehicles); contribution to changes in local/regional microclimates/climate change	Impacts higher closer to proposed mine site; severe winds may produce dust storms that impact the entire region	Dust from toxic mine tailings containing heavy metals and other chemicals pose serious health hazards to local and regional residents	Elderly, children, and persons with chronic respiratory problems at high risk; cattle ranchers and Santa Rita Experimental Range researchers (impacts of toxic dust on forage); impacts greater closer to proposed mine site
Wildlife	Reduction/viability/loss of species and populations resulting from preemption of habitat, noise, light, vibration, traffic, and other disturbance from the proposed mining operations; loss of critical wildlife linkages (wildlife movement); in addition to direct impacts on wildlife, adversely impacts recreation (wildlife viewing, hunting), research, education, peace of mind/spirituality	Adverse impacts throughout the northern Santa Rita Mountains; adverse impacts on wildlife linkages effect population viability in adjoining Rincon, Whetstone, and Mustang mountain ranges	Significant impacts on wildlife result in reduction in biological diversity and ecosystem stability; adverse impacts also reduce valued human activities	Scientific and educational communities; recreation users; hunters;
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Cultural Resources	Disturbance, degradation and/or loss of Native American sacred sites, ceremonial sites, and ancestral human remains; loss of traditional resource collecting areas -- food, medicines, firewood, and traditional crafts;	Rosemont Valley and surrounding hills and mountains within and adjacent to the proposed project	Significant impacts on all Native Americans with ancestral and tribal connections to the Rosemont area	Native Americans with ancestral and tribal connections to the Rosemont area; research community
Historic Resources	Disturbance, degradation and/or loss of historic sites and buildings from the settlement period; impacts from blasting on structural integrity of Historic Buildings	Rosemont Valley and surrounding hills and mountains within and adjacent to the proposed project	Significant impacts on resources lists the National Register, including but not limited to Empire Ranch historic adobe ranch headquarters building on the Las Cienegas National Conservation Area	Local and regional residents; general visitor public; research and education community
Transportation and Circulation	Increased traffic, increased industrial truck traffic, increased transport of toxic chemicals on Scenic Highway 93, a two-lane state route with marginal road geometry and alignment for use as a mining haul road. (See associated issues under visual and scenic resources, and public safety).	State Route 83 between Sonoita and US 10; US 10 between Highway 93 junction and Kolb Road; Kolb Road to Port of Tucson; Also US 10 from Highway 83 junction eastbound to Amarillo, TX.	Significant impacts on public safety resulting from industrial 18-wheel trucks carrying xxx and xxx; delivery of toxic chemicals and explosives during projected 20-30 year life of the proposed project; it is unknown if the Port of Tucson has the capacity to manage the volume of rail shipping	All vehicular travelers on State Highway 83, including commuters, visitors, emergency vehicles, commercial vehicles, motorcyclists, bicyclists, cattle and horse trailers, etc. Highway 83 is a critical transportation lifeline for connecting Sonoita, Elgin, and Patagonia with Tucson
Visual and Scenic Resources	Degradation of scenic landscape; degradation of views from Arizona Scenic Highway 83; degradation of views from surrounding public and private lands; scale of proposed project and high contrast of pit, waste rock, and tailings with natural landscape and landforms would be apparent from throughout the entire viewshed	Massive scale of the proposed industrial project would degrade foreground, middle-ground and background views throughout the Greater Sonoita Basin, Coronado National Forest, and Saguaro National Park	Significant impacts on travelers on Highway 83; significant impacts on passive recreation uses in Coronado National Forest; Las Cienegas National Conservation Area; Saguaro National Park;	General public; visitors and tourists; local residents and property owners; active and passive recreation users on all public lands (activities include, but not limited to hiking, walking, wildlife and bird watching, photography, relaxing, picnicking, horseback riding, etc.)
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Dark Sky and Astronomy	Reduced night sky viewing conditions resulting from mining operation and facilities, including, but not limited to increased light; air particulates and gases from mine-related facilities, equipment, vehicles, and processes; significant impacts include reduce visibility of stars, planets, satellites, and other celestial objects; impacts of particulate emissions and vibration from blasting and drilling on sensitive astronomy equipment	Key observatories at risk in Tucson area include: Mt Graham Binocular and Vatican, Mt Lemmon, Mt Bigelow, Desert Eagle, Kitt Peak National Observatory, Lake Patagonia, Winer Observatory, and Mt Hopkins; adverse impacts at observatory sites located as far as 70 miles from the proposed project site	Significant increase in airborne particulates illuminated by the required industrial and safety night lighting constitutes a significant degradation in “seeing conditions” necessary for dark sky observing	Professional and amateur astronomers (public and private facilities); recreationists, stargazers, and area residents who derive important benefits from dark sky conditions, including but not limited to peace of mind, sense of wonder, and spiritual well-being
Recreation	Adverse effects of the mining operation (preemption, noise, traffic, degraded air and water quality, loss of wildlife, adverse visual changes) on recreational opportunities on public lands, including loss of specific recreation sites and lands, loss of access, loss of or reduction in solitude, remoteness, rural setting, and quiet; high-participation recreation uses in the area include walking, hiking, viewing nature (including wildlife /bird watching), picnicking, horseback riding, biking, ORV riding, hunting; preemption of new Park and Natural Area shown in Sonoran Desert Conservation Plan;	Arizona Trail impacts immediately adjacent to waste rock and tailings disposal; preemption of all current recreational uses within the Rosemont Valley; adverse visual impacts on all rerouted trails impeded by or rerouted as a result of proposed mine	Significant adverse impacts on Coronado’s share of regional outdoor recreationists; displaces recreation visitors to northern Santa Rita Mountains to more distant recreation sites; loss of irreplaceable recreation opportunities in close proximity to Tucson	Regional population of outdoor recreations; local and regional residents who must travel to alternative recreation sites; general public who will experience heavier use at alternative sites
Public Safety	Reduction in public safety due to increased public exposure to a variety of hazards associated with the proposed project, including, but not limited to increased traffic volumes, oversized , on-going transport of hazardous materials and the associated increase in the risk of a spill; increased human health risks to national forest visitors in proximity to the mine operations, tailings, or waste rock piles; air quality and water quality impacts (see above); increased downstream public safety and health hazards due to presence of mining operation in upstream floodplain	Due to the nature of the transported materials and the types and frequencies of transporting vehicles, public safety is diminished along the entire alignment from the haul and delivery routes, Highway 83 in particular; high winds in the area would result in dust storms transporting toxic dust miles from the site; water quality impacts can travel miles downstream	Significant increase in traffic accidents and deaths, spills, road blockages; significant impacts on local emergency responders and providers; increased likelihood of significant costs associated with failure of mining impoundments, with resultant downstream flooding	All travelers on Highway 83 and effected sections of US 10 exposed to greater risks (see Transportation and Circulation above); significant risk to all residents and visitors to toxic dust, particularly during high winds; entire Tucson population potentially at risk from toxic pollution in City of Tucson water supply
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Socioeconomics	Adverse impacts on local and regional employment, property values, tax base, tourism revenue, and demand and cost for road maintenance and emergency services (see analyses elsewhere in this series of reports); reduction in quality of life resulting from locating a large-scale industrial facility in the rural historic landscapes important to local residents and tourists (see analyses elsewhere); cost of delays and inconvenience of travel on Highway 83 as the critical lifeline connecting the greater Sonoita area to Tucson;	Significant impacts throughout the greater Tucson region, including both private and public sectors which depend upon the amenities of the region for their economic well-being; major impacts on local businesses and economies in the more rural areas – Sonoita, Elgin, Patagonia, and settlements in close proximity to the proposed mine site including Vail, Corona de Tucson, and Hilton Ranch area	In the aggregate, significant adverse impacts throughout the regional and local economies as a result of modest impacts on very large numbers of economic enterprises; significant larger adverse impacts on some local businesses	All residents and visitors to the region could experience adverse socioeconomic impacts.