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Risk Assessment of Blackbird Mine

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Risk Assessment of Blackbird Mines

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Background

- Located 25 miles west of the town of Salmon, in east-central Idaho, Lemhi County, United States.
- This is an EPA Superfund site[1].
- Soil and groundwater contaminated in this area.
- Cobalt, copper, and arsenic toxic were detected in this area.

Figure 1: Map of Black Mine.

Specific Aim

The aim of this study was to develop a perspective on the risk management of Blackbird mines using multiple perspectives.

Methods

Description of the site → Hazard identification → Dose response assessment → Description of the surrounding community → Assessment on risk management

Results

Table 1: Hazard identification[2,3,4]

	Cobalt	Copper	Arsenic
Acute hazard	Irritate skin, eyes, nose, throat	Irritate nose, throat and may cause nausea, vomiting, and diarrhea	Irritate nose, throat and may cause nausea, vomiting, diarrhea, skin rashes
Chronic hazard	Affects liver, kidney, and heart	May cause kidney and liver failure	May cause kidney and liver failure and cancer

Table 2: Dose response assessment[2,3,4]

Metal	In water/food (mg/L)	In air (µg/m³)	In workplace (µg/m³)
Cobalt	0.002	0.0004	0.0001
Copper	1.3	1.0	0.1
Arsenic	0.010	~0.008	10

- **Description of the surrounding community**
  - Surrounded by many creeks, parks, rivers, and schools
  - Low income & low education statistics
  - About 13.5 % of the population are in the poverty line[5]

Conclusions

- To clean up the cobalt and copper, four mining companies have compromised to pay $50 million[6].
- Aquatic populations are more exposed to a high level of metals.
- The fish consumers are at risk for exposure to the hazards.
- The contamination has posed serious health risks, especially for children.

To Prevent exposure to hazards

- The community needs to avoid consuming fish and drinking groundwater.
- Hikers, campers, site trespassers need to avoid drinking groundwater of superfund areas.
- More cleanup has to be done.

References

1. [illegible]
2. Centers for Disease Control and Prevention. (2020, February 10). Cobalt. Centers for Disease Control and Prevention.
3. Centers for Disease Control and Prevention. (2011, October 19). Copper. Centers for Disease Control and Prevention.
4. [illegible]
5. [illegible]
6. [illegible]