

# Nevada Department of Wildlife's Industrial Artificial Pond Program

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# Presentation Outline

- Mission Statement
- IAP Background
- Where we are today
- The good, the bad, the ugly
- Questions



# NDOW Organization

## Mission Statement

To protect, conserve, manage and restore wildlife and its habitat for the aesthetic, scientific, educational, recreational, and economic benefits to citizens of Nevada and the United States, and to promote the safety of persons using vessels on the waters of Nevada.

## NDOW is organized into seven divisions:

Game	Law Enforcement	Data and Technology
Habitat	Conservation Education	Services
Fisheries	Wildlife Diversity	

NDOW is led by a governor-appointed Director, who also serves as the Secretary of the Wildlife Commission. The Wildlife Commission is a 9-member, governor-appointed board that is responsible for establishing broad policy, setting annual and permanent regulations, reviewing budgets, and receiving input from county advisory boards and the general public.

# IAP Background

- Pre 1989
  - No state-level regulations for wildlife protection specific to mining industry.
  - Large wildlife mortality events throughout the state (thousands per year) resulted from cyanide heap leaching and milling techniques.
    - Waterfowl comprised most of the mortalities.
    - Violations of the Migratory Bird Treaty Act (MBTA).

# IAP Background

- Mining companies, Nevada Mining Association, NDOW, USFWS all realized there was a problem with large scale mortality events.
- Groups formed a working group with a common goal of developing a regulatory mechanism for wildlife protection.
- Resulted in formation of Nevada Revised Statutes which provided direction to NDOW.

# Regulatory Process

- In 1989, NRS were codified requiring NDOW to develop and implement regulations to reduce or eliminate wildlife mortalities at mining operations through the use of a permit system.
- Nevada Administrative Code (implementing regulations) were developed in coordination with the Nevada Mining Association and Wildlife Commission and the program was implemented in 1990.
- NDOW is the only state wildlife agency that has its own dedicated mining program and regulatory authority over operations that it covers.

# Permitting Requirements

- Nevada Revised Statute (NRS) 502.390
  - Permit required to develop or maintain certain bodies of water; fees and assessments; penalties
- Section 1
  - Any artificially created body of water that contains chemicals or substances in quantities which may cause the death of any wildlife,
  - An operator of a mining operation which develops or maintains an artificial body of water containing chemicals directly associated with the processing of ore.

# NRS Overview

- Section 2 & 3 cover permit issuance
  - NDOW has 30 days to issue or deny a permit,
  - Permit denials may be appealed to the NBWC,
  - Permit valid for up to 5 years,
  - Permit fee is \$125/year or \$68 for 6 months,
  - Permit remains in effect for 30 days after transfer or sale of operation.



# NRS Overview

- Section 4 requires an assessment
  - Permit holders must pay an assessment to NDOW.
  - Assessment is determined by regulations adopted by the NBWC.
  - Assessment must be no more than \$10,000/year for each permit.



# NRS Overview

- Section 5 covers penalties
  - Failure to obtain a permit,
  - Failure to pay assessment, or
  - Failure to comply with permit provisions,
  - Penalties can result in misdemeanor for 1<sup>st</sup> offense and gross misdemeanor for 2<sup>nd</sup> offense for the responsible party (General Manager).

# NAC Overview

- Nevada Administrative Code (NAC) 502.460 to 502.495
  - **Defines bodies of water lethal to wildlife, chemicals or substances, normal use, forms, and fees.**



# NAC Overview

- Requires NDOW to design a permit that includes measures to protect wildlife and operating standards to be implemented by the permittee.
- Permittees must comply with permit conditions, which include but are not limited to:
  - Fencing requirements,
  - Covering requirements,
  - Operating standards (neutralization of toxic solutions)



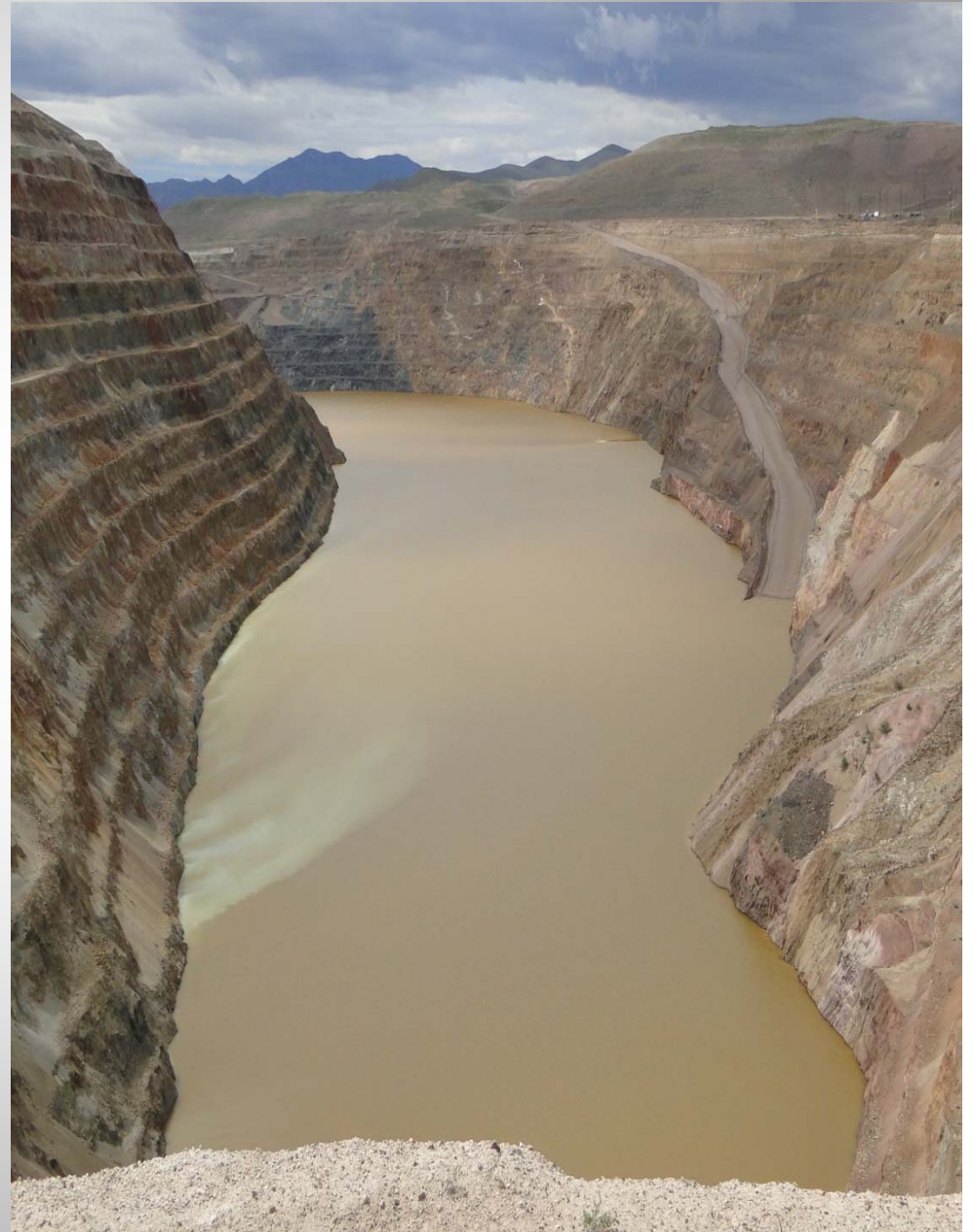
# NAC Overview

- Requires permittees to report wildlife mortalities based on requirements stated in the permit.
- Requires permittees to allow Department employees to access the permitted properties (inspections).



# Program Responsibilities

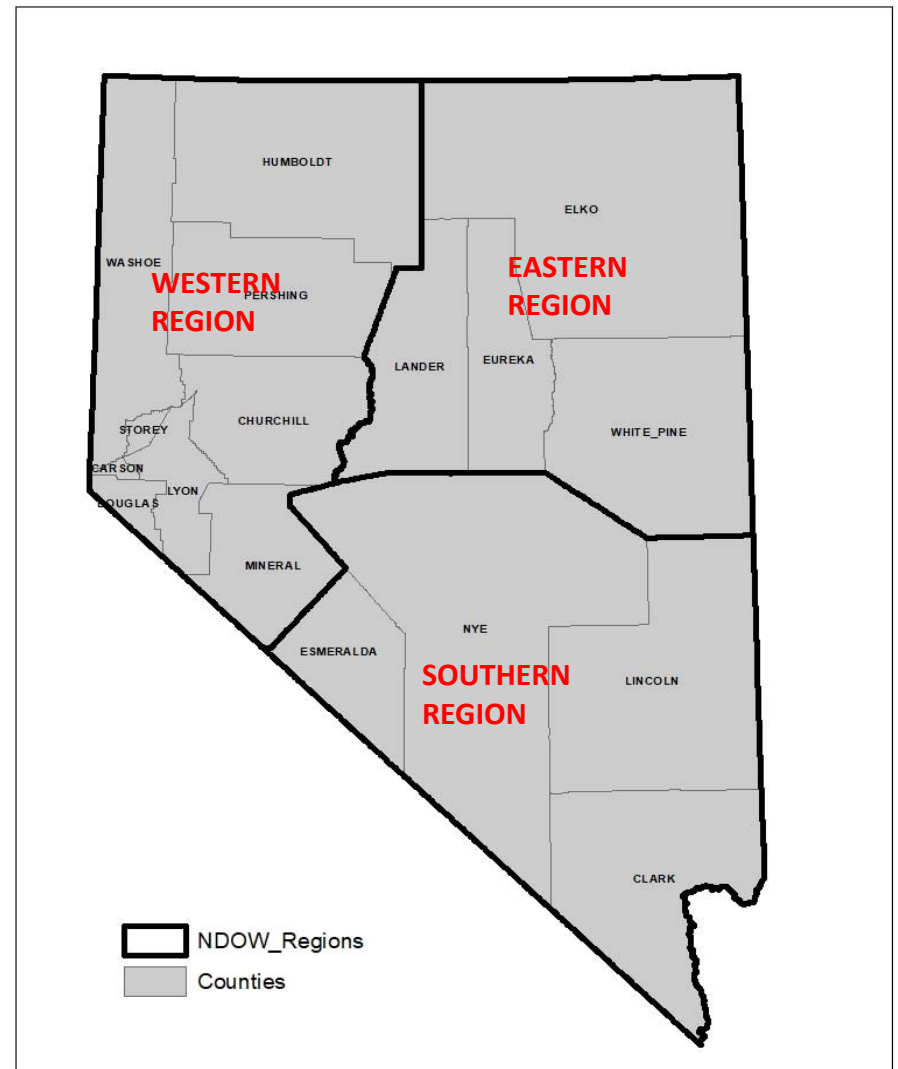
- Managed within NDOW's Habitat Division.
- Made up of one staff specialist and three and a half mining biologists.
- Program funded by annual assessment fees charge to each permittee.



# Program Responsibilities

Field biologists:

- Cooperating agency status in NEPA,
- Issue and inspect IAP Permits,
- Review mortality reports,
- Provide assistance and coordination with mine operators.



# Program Responsibilities

- Technical Review and Support
  - GIS database
  - Cooperating Agency in NEPA process
  - Mitigation collaboration
- Abandoned Mine Lands Surveys and Closures
- Mining Assessment Fee funded projects.
  - Habitat Restoration, Research and Database Projects.





# Operations and Permits

- Types of Operations Covered:
  - hard-rock mines (heap leach, mill/tailings)
  - oil/gas,
  - solar, geothermal, and coal power plants,
  - Groundwater lithium extraction operations
- Permits and Pond Characteristics
  - ~80 Active Permits Statewide.



# Permitted Facilities

- Permits & Pond Characteristics
  - Up to 5 acres for heap leach facilities,
  - up to 470 acres for mill tailings facilities,
  - Evaporation ponds for groundwater-lithium facilities range in size from 11 to 754 acres and total almost 5,000 acres.
  - Most extreme Industrial Artificial Pond: almost 5,000 acres of ponds.



# Permit Conditions

- Permit language includes measures to exclude wildlife from toxic solutions, including:
  - Fencing
  - Netting
  - Bird balls
  - Synthetic cover (floating pond covers)
  - Tanks
  - Chemical neutralization
  - Minimize open solution on heap leach pads.



STATE OF NEVADA

Department of Wildlife  
Habitat Division

Industrial Artificial Pond Permit  
(Pursuant to NRS 502.390)



Permittee:

Responsible Party:

Project Name:

Facility ID:

Facility Name:

Permit ID:

Pursuant to Nevada Revised Statutes (NRS) 502.390, and regulations promulgated thereunder by the State Wildlife Commission and implemented by the Department of Wildlife (NDOW), this Permit authorizes the Permittee to construct and operate the named Facility in accordance with the conditions, limitations, and requirements set forth in this Permit. This is a Permit to construct and operate an artificial or artificially created body of water in the State of Nevada that contains chemicals or substances that cause or will cause the death of wildlife. This Permit is issued by NDOW under the authority of NRS 502.390, NAC 502.475, NAC 502.480, and NAC 502.482. This Permit requires implementation and maintenance of wildlife protective measures that prevent wildlife mortality from occurring as a result of the Facility and associated artificial or artificially create body of water. Failure to abide by the terms and conditions of this Permit is subject to penalties of law and/or to immediate revocation of the Permit. The first offense is a misdemeanor. Subsequent offenses are gross misdemeanors. In addition, any activity that leads to the death of migratory birds is a Federal offense under the Migratory Bird Treaty Act (16 U.S.C. 701-718h).

The Facility is \_\_\_\_\_, and is located in Mineral County, Nevada within the Legal Description of: Township: 13N, Range: 32E, and Sections: 4-10, 16, 17.

The Permittee must comply with all terms and conditions of this Permit and all applicable statutes and regulations. This Permit is based on the assumption that the information submitted in the application, or as otherwise modified by subsequent approved amendments, modifications, and renewals, is accurate and that the Facility has been or will be constructed and operated as specified in the application. The Permittee must inform the NDOW of any deviation from or changes in the information in the application, which may affect the Permittee's ability to comply with applicable regulations or Permit conditions.

This Permit is effective as of 6/1/2013, and shall remain in effect until 5/31/2018, unless otherwise modified, suspended, terminated, or revoked. Signed:

\_\_\_\_\_  
Mark Freese  
Regional Supervisor  
Western Region  
Nevada Department of Wildlife

State of Nevada - Department of Wildlife  
Industrial Artificial Pond Permit SLAP 22.55, 04/2017 Update

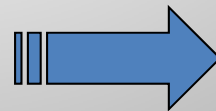
# Permit Conditions

- Mandatory mortality reporting,
- Facility inspections and maintenance of desired wildlife protective measures.



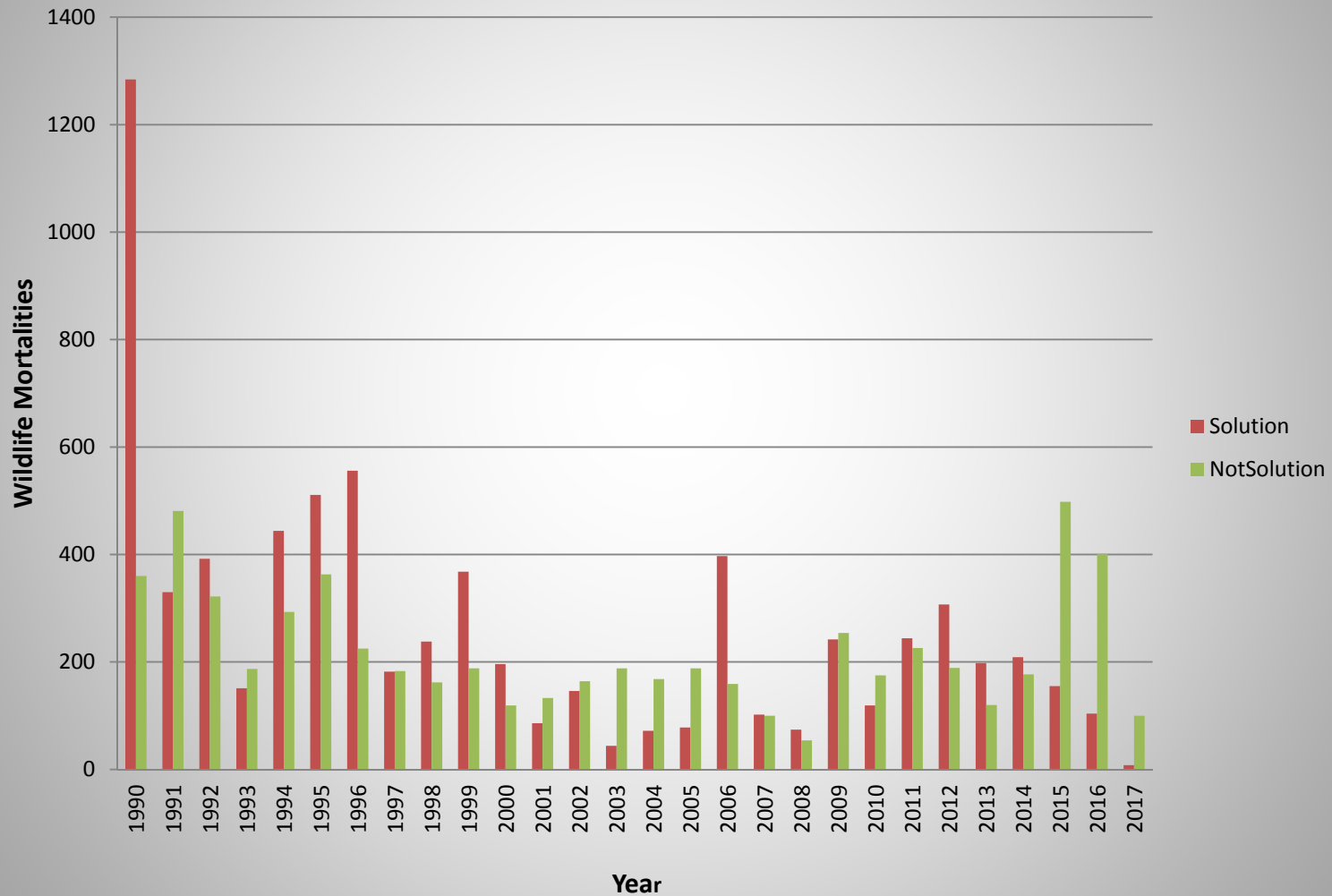
# Mandatory Mortality Reporting

- All permitted facilities must submit quarterly wildlife mortality reports.
- Telephone notification for mortalities, within 24 hours of the discovery, for certain species:
  - Migratory Bird Treaty Act
  - Game species
  - Sensitive, T/E
  - Mortalities directly associated with toxic solutions



# Impact on Mortality Events

## Wildlife mortalities over time



(Actual mortalities estimated to be 2 to 5 times higher)

# Self-Funded Program

- Program funding
  - Permit cost: \$125 per year, permits can be valid for up to 5 years, so \$625 for a 5 year permit.
- Annual assessment fee calculations based on:
  - Number of tons of ore a facility is designed and permitted to process per year.
  - Cumulative acres of artificial water bodies a facility is designed to include.
  - Cumulative number of artificial water bodies a facility is designed to include.

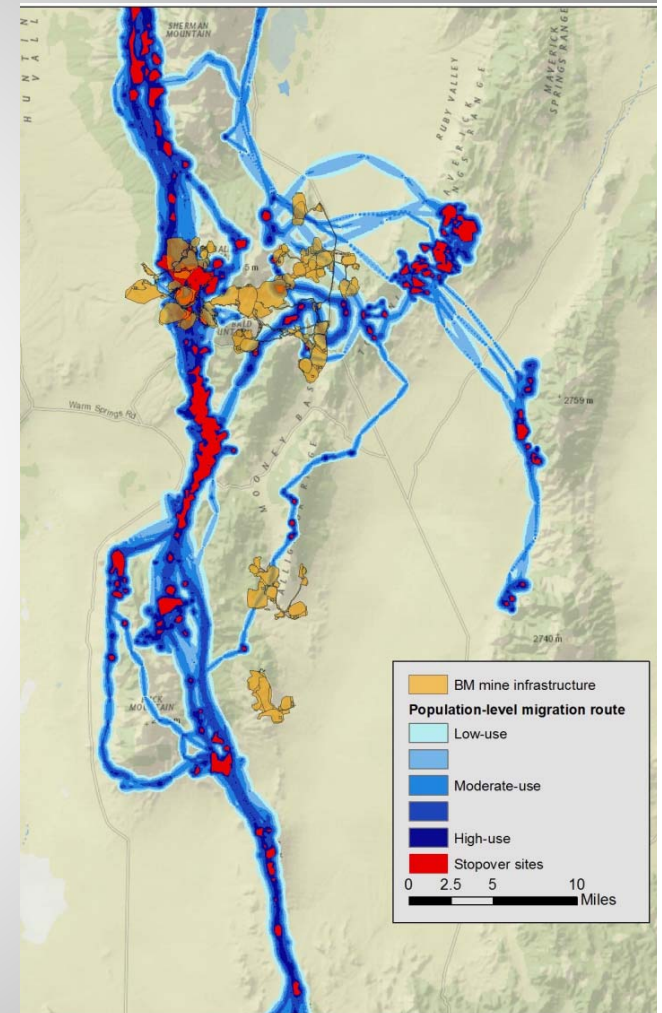
# Self-Funded Program

- Five Payment Tiers within each Fee Schedule:
  - As project size or production increases, the fee will increase.
  - Larger projects require more effort to permit and inspect (higher costs to NDOW).
  - Payment tiers range from \$1,000 to \$10,000 per year.



# What are the fees used for?

- How the funding is used:
  - Pays for the operation of the IAP program statewide.
  - Remaining funds go into the Industrial Development Fund:
    - Wildlife or habitat enhancement, reclamation, research projects
    - Nexus with industrial development in Nevada.
  - Assessment fee structure was developed in coordination with the Nevada Mining Association.



# Industrial Development Project Fund

- Project Examples:
  - Abandoned Mine Lands wildlife surveys and bat-compatible closures.
  - PVC mine claim marker pulling project.
  - Golden eagle surveys.
  - Sage-grouse and mule deer telemetry studies.



# IAP Program Benefits

- Significant reduction in wildlife mortalities at mine operations since inception of program,
- Improved partnerships with mining companies and operations, leading to projects that minimize impacts,
- Industrial development fund creates opportunity for proactive projects and provides good public relations opportunity for mines.



The good, the bad, the ugly

**The Good: Successful mine reclamation**

05.16.2006 10:56



# The good, the bad, the ugly

**The Good: Successful mine reclamation –  
higher precipitation and elevation helps!**

07.18.2006 13:10

# The good, the bad, the ugly


Mule deer winter range.  
Reclaimed waste rock dump

**The Good: Mule deer winter use on mine reclamation projects.**

12.07.2006 14:41



# The good, the bad, the ugly



**The Good: Many operations implement concurrent reclamation to jump-start their reclamation effort.**

# The good, the bad, the ugly



**The Good: Post-mining land uses can be beneficial.**



# The good, the bad, the ugly

**The Good: Coordination with mines during and after closure can result in projects like guzzlers that benefit wildlife.**

08.05.2006 14:02

# The good, the bad, the ugly



**The Good: Cooperation and partnerships can result in additional funding for habitat enhancement projects and access to private lands.**



The good, the bad, the ugly

**The Bad: Process failures at exploration projects. This stream was occupied by cutthroat trout.**

07.21.2006 15:59

# The good, the bad, the ugly



**The Bad: Uncontained spills at exploration projects.**



# The good, the bad, the ugly

**The Bad: Failure to maintain wildlife protection measures at process/solution ponds. Netting must cover the entire pond surface.**

An aerial photograph showing a vast, rectangular fishing net laid out on a body of water. The net is made of a fine, light-colored mesh and is held up by several thick, dark ropes that run across the water's surface. In the lower-left foreground, a small, light-colored boat is partially visible, with the net draped over its side. The water is a deep blue-grey color, and the overall scene suggests a large-scale fishing operation.

# The good, the bad, the ugly

**The Bad: Failure to maintain wildlife protection measures at process/solution ponds.**

# The good, the bad, the ugly



**The Bad: Failure to maintain wildlife protection measures at process/solution ponds. Bird balls must cover the entire pond surface.**

# The good, the bad, the ugly

**The Bad: Failure to maintain cyanide drip systems on heap leach pads causes ponding and exposed solutions.**





# The good, the bad, the ugly



**The Bad: Failure to maintain cyanide drip systems on heap leach pads causes ponding and exposed solutions.**

# The good, the bad, the ugly

**The Bad: Upset conditions can result in exposure of solutions.**



# The good, the bad, the ugly



**The Bad: Lots of hazards for wildlife in otherwise undeveloped areas.**

## The good, the bad, the ugly

**The Bad: Perimeter fencing is required, but not always wildlife safe. Many mining areas are in mule deer habitat or migration corridors.**



# The good, the bad, the ugly

A photograph showing a dead animal, possibly a sheep or goat, lying on a vast, cracked, and dry landscape. The ground is a deep reddish-brown color, heavily fissured with deep, irregular cracks that suggest extreme drought. The animal is positioned in the center of the frame, its body stretched out. The lighting is bright, casting a distinct shadow of the animal onto the cracked earth to its left. The overall scene conveys a sense of environmental hardship and the impact of dry conditions on wildlife.

**The Ugly: Tailings impoundments create entrapment hazards for a variety of wildlife. Many operations are in otherwise good wildlife habitat areas and have abundant populations.**

# The good, the bad, the ugly



**The Ugly: Poor management of cyanide solutions attract wildlife in dry sites and result in ingestion of toxic solution.**

## The good, the bad, the ugly



**The Ugly: Lithium evaporation projects create hypersaline ponds that attract migrating waterfowl and result in salt encrustation.**


# The good, the bad, the ugly



**The Ugly: Pit Lakes can create entrapment and drowning issues.**



## The good, the bad, the ugly



**The Ugly: Wildlife collisions are frequent at some mine sites, especially those located in prime wildlife habitat and movement corridors or migration routes.**

# Recommendations

- Recommendations for wildlife protective measures.
  - Bird balls or floating pond covers.
  - Fencing should be 8 foot chain-link tight to the ground.
  - Multiple escape ramps placed in all ponds.
  - Proper water balance and management of heap leach pads and tailings to avoid open uncontained solution.
  - Good reclamation
    - Work with NDOW and Land Management agencies for productive post wildlife habitat.

# Summary

- Summary
  - Significant wildlife mortalities pre 1989.
  - Working cooperatively with Mine Industry, FWS and NDOW and others found a solution (i.e. Mine Program).
  - Since this time, we have observed a significant decline in mortalities, especially solution related mortalities.
  - We continue to work with industry to improve program and do good thing for wildlife.
  - Only State Wildlife Agency run mining program.

# Questions?

