

# A New Dawn, A New Day

The Future Is Here: Mining Gold Without Moving a Rock  
Non-Invasive Mineral Extraction Technology

LD Micro Conference Presentation

June 2021

Group 11 Technologies, a private company advancing the combination of a non-invasive mineral extraction ('ISR' or 'in-situ recovery') with eco-friendly water-based chemistry

Benefit: an environmentally friendly closed-loop cyanide-free process.



## Founding Partners

EnCore Energy Corp. (EU)

40%

ISR technical expertise in development & application of in-situ recovery technology

EnviroLeach Technologies (ETI)

40%

Use of patented license for chemical-free water-based chemistry and technical assistance

Golden Predator Mining (GP)

20%

Secondary Recovery Unit (SRU) development to potentially replace the smelter process, proven application of water-based chemistry





## Who We Are *Board of Directors*

**William M. Sheriff, Director** - founder and Executive Chairman of enCore Energy Corp, a co-founder of Group 11

**Duane Nelson, Director** - the founder and Chief Executive Officer of EnviroLeach Technologies Inc, a co-founder of Group 11

**David Morgan, Director** - a renowned precious metals analyst, he has appeared on media outlets including Fox Business, CNBC, Wall Street Journal and BNN Blomberg

**JeanAnne K. Hauswald, Director, Audit Chair** - Managing Partner of Solo Management Group, previous Director of Constellation Brands and Vice President and Treasurer of the Seagram Company

**Janet Lee-Sheriff, President & Director** - co-founder of Group 11, as CEO of Golden Predator led the world's first on-site test of the ETI eco-friendly formula in an SRU.

## Who We Are Technical Team

**Dennis Stover, Ph.D., Group 11 Chief Technical Officer**, Expert in ISR development, design and operation having co-invented original ISR applications and holder of 6 ISR patents

**Hanif Jafari, M.Sc., Mineral Engineering & Mining** CTO at EnviroLeach Technology (ETI), extensive experience in extractive metallurgy, hydrometallurgy and process design

**Guy Lewis, Explosives Engineering** Expert in advanced explosive design and application; rock mechanics and in-place rubblization

**Mark Pelizza, M.Sc., Geological Engineering** Expert in ISR permitting, application and operation with 40 years in the uranium industry

**Peter Poston, Ph.D., Chemistry** Geologist and retired Professor of Chemistry led extensive research focused on environmental geochemistry, Laser Raman Spectroscopy, XRF and Nanotechnology

**Colin Craft, Materials Processing** Expert in materials handling, milling and metals processing. Pioneered the first mill-site application of a secondary recovery unit (SRU) utilizing ETI's cyanide free gold recovery system

**Joseph Harrington, Graduate Research, Metallurgy** National award-winning expert in mine-related reclamation holding 6 patents on in-situ metal immobilization of metals in groundwater, pit-lakes, soils and disturbed rock

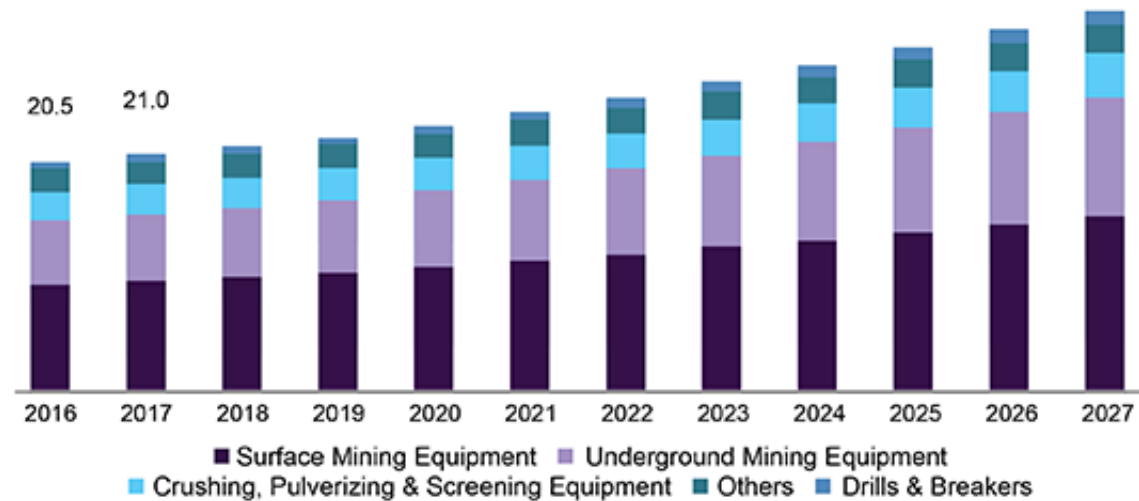


# The Challenges in the Mining Industry

- Environmental concerns to address decarbonization in the sector, clean air technology, minimizing environmental footprints and water use
- Continually increasing demand for commodities and increasing costs
  - Increasing demand due to solar, wind and electric cars
- Demand from investors to be more environmentally and socially responsible



U.S. mining equipment market size, by equipment, 2016 - 2027 (USD Billion)



Source: [www.grandviewresearch.com](http://www.grandviewresearch.com)

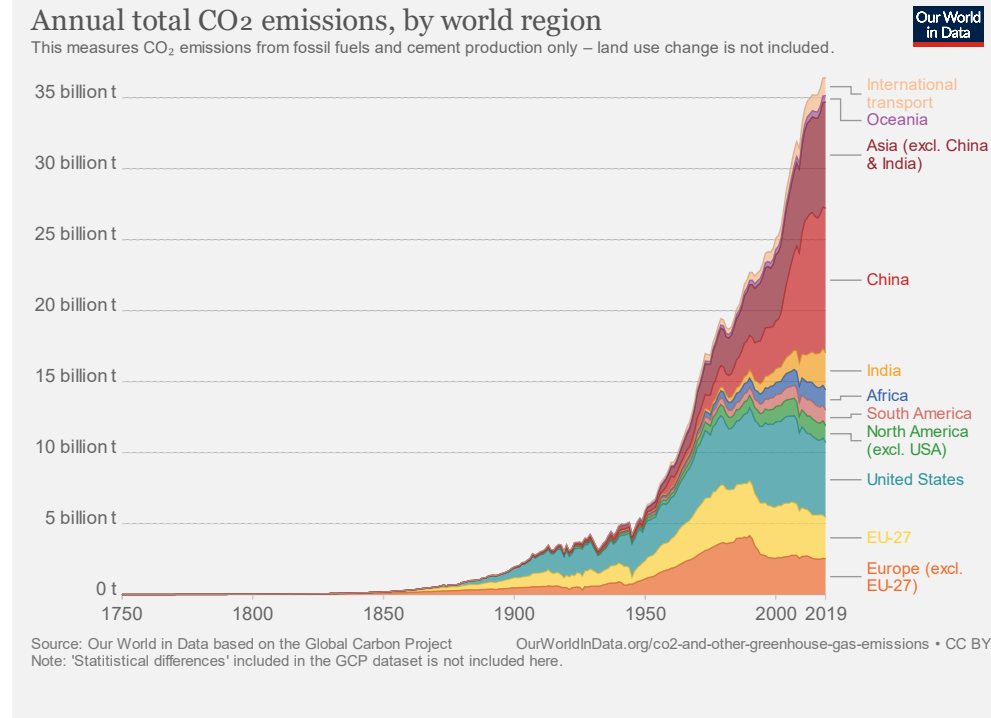


# Global Annual Total CO<sub>2</sub> Emissions

**Issue – CO<sub>2</sub> emissions:** Globally 28,000 mine hauling trucks emit 68 million tons of CO<sub>2</sub>/year – equivalent to the total greenhouse gas of Finland. Mineral processing (smelters etc.) adds significantly.

**Issue – Water Use:** This expensive precious shared and finite resource is a growing source of conflict under increasing pressure to ensure access by all users. ISR uses significantly less water than conventional mining.

**Solution:** Group 11 Technologies' objective combines in-situ recovery with an eco-friendly water-based chemistry creating a closed loop system to minimize water use with a near net zero solution (eliminates mine trucks and reduces processing).



Source: Carbon Dioxide Information Analysis Center (CDIAC); Global Carbon Project (GCP)  
Note: The difference between the global estimate and the sum of national totals is labeled "Statistical differences".  
OurWorldInData.org/co2-and-other-greenhouse-gas-emissions • CC BY

# The Opportunity

- Developing 'First to market' potential of environmentally friendly extraction technology in the gold sector
- Builds on proven application – GR11 team proved the world's first successful field application of the eco-friendly water-based chemistry to recover gold from a sulfide concentrate using its Secondary Recovery Unit (SRU) , replacing the need for a smelter
- Meeting environmental principles for responsible mineral extraction including stewardship, water usage, energy and climate change





# What We Do To Meet the Challenge

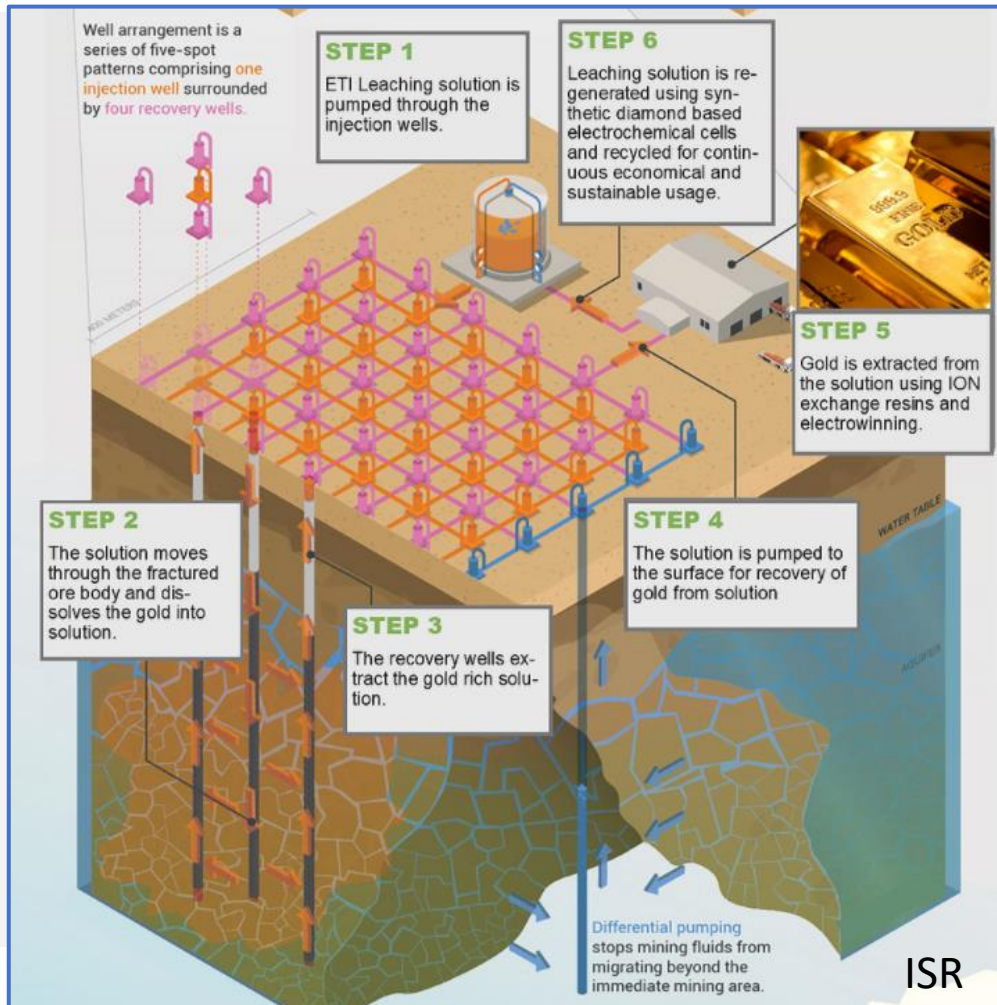
Changing the way the world recovers  
GOLD...solution-oriented technology development  
combining in-situ recovery (in place mining) with an  
eco-friendly water based chemistry

- ✓ Committed to leading the development and application of environmentally and socially responsible mineral extraction
- ✓ Provide an alternate solution to conventional open pit and underground mineral extraction
- ✓ Provide an alternative to conventional mills & smelters for mineral processing



# The Group 11 Competitive Advantage

ISR...until now....there was no safe and eco-friendly solution to dissolve gold



So why isn't it used more often?

Until now, there was no **safe & eco-friendly** leach solution that could dissolve gold

THE **RIGHT** CHEMISTRY

## How Environmentally Friendly?

All ingredients in EnviroLeach's patented formulas are **FDA approved** for human consumption...

**FDA** U.S. FOOD & DRUG  
ADMINISTRATION

A simple chemical equation that  
solves a complex problem...



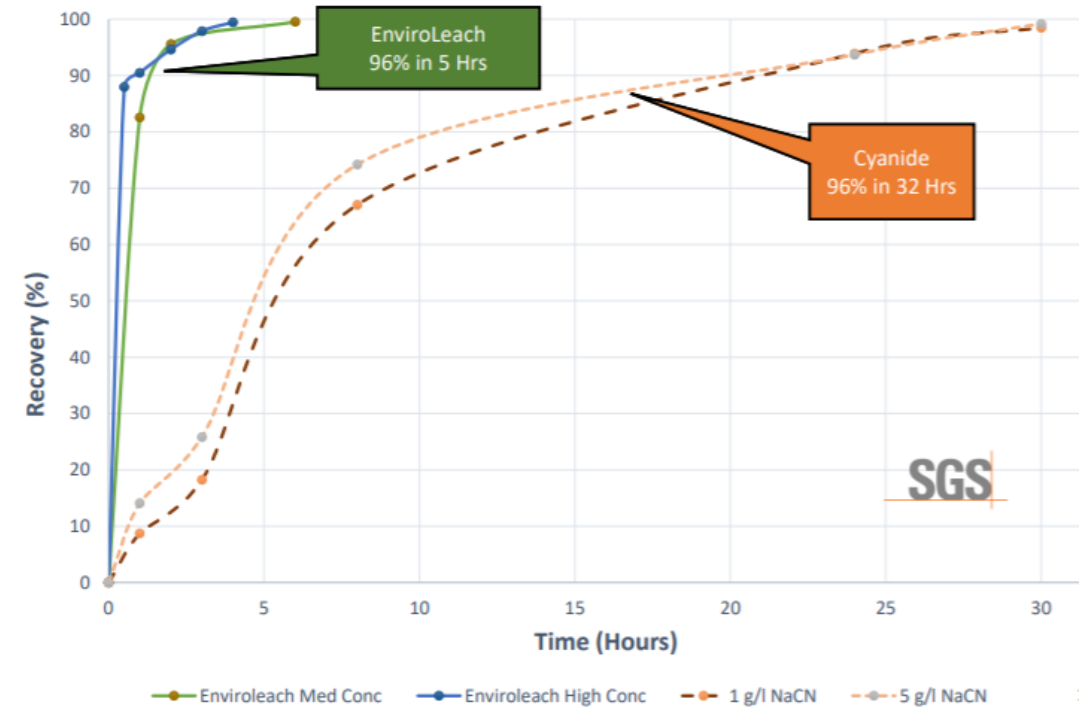
## NON-CYANIDE CHEMISTRY

EnviroLeach Technologies provides Group 11 exclusive license for its water based chemistry for ISR and SRU development and application. EnviroLeach has strong intellectual property rights and patents.

	<u>Cyanide</u>	<u>EnviroLeach</u>
High gold recoveries	✓	✓
Fast leach kinetics	✓	✓
Environmentally safe & sustainable	✗	✓
Safe to handle & transport	✗	✓
Socially acceptable	✗	✓
No potential for dangerous off-gassing	✗	✓
No dangerous waste-water effluent	✗	✓
Functions in the presence of copper	✗	✓
Has potential for In-Situ gold recovery	✗	✓



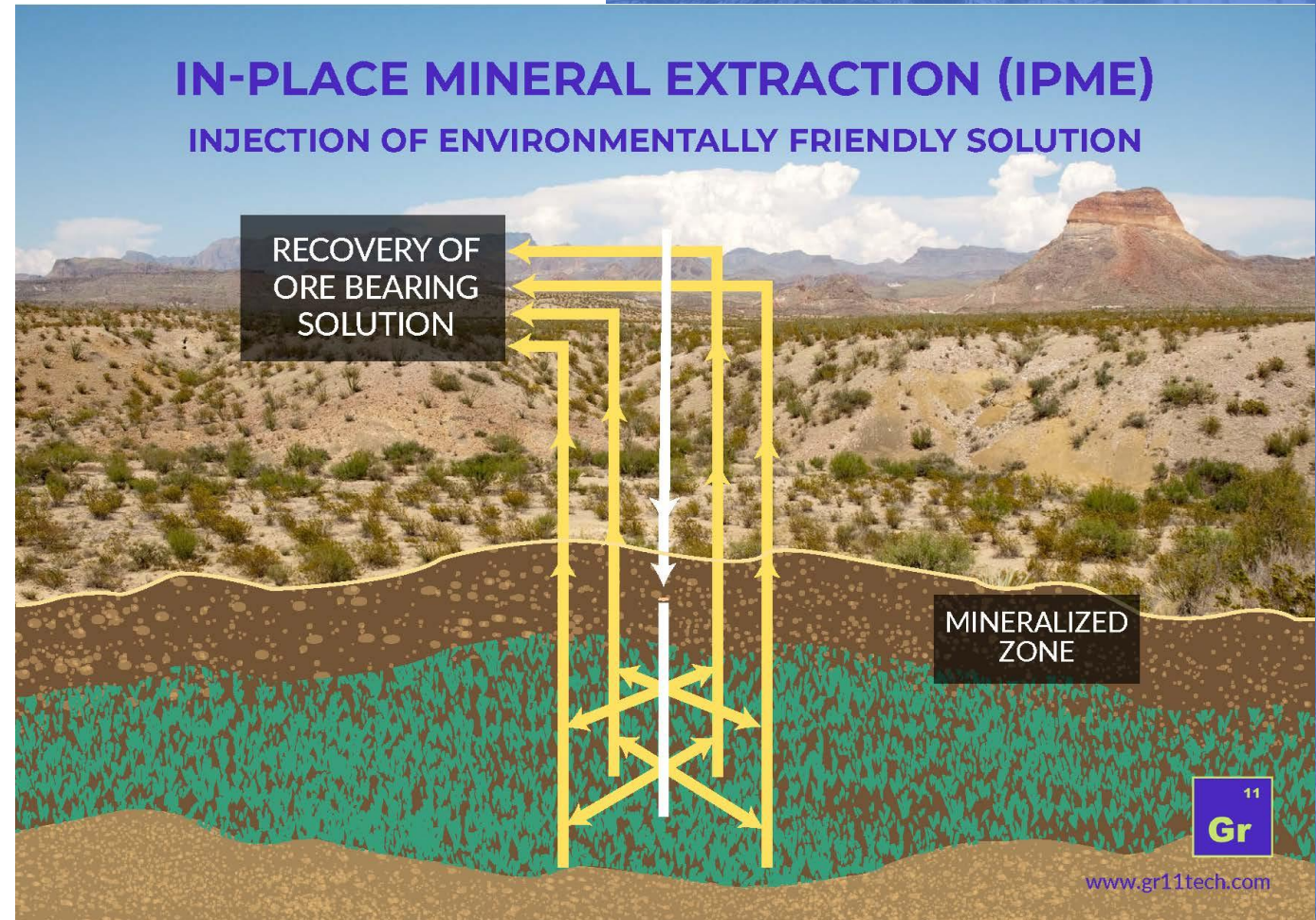
### ENVIROLEACH VS CYANIDE...





# What is In Situ Recovery (“ISR”)

- ISR uses fluid to recover valuable minerals from the ground without digging and moving earth
- The ISR process involves pumping fluid underground to dissolve minerals. The fluid is then pumped to the surface for the minerals to be recovered
- The remaining solution is then recycled and circulated back through the rock to recover more minerals. This process continues until the process no longer recovers a viable amount of minerals, and the mine is rehabilitated and closed.





# What is In Situ Recovery (“ISR”)

In Situ Recovery Operation



Conventional Mining





# Economic & Safety Advantages of In-Situ Recovery

Advantages of ISR	Conventional Mining	In Situ Recovery
Lower Operating Costs		✓
Lower Capital Costs		✓
Flexible Mine Planning		✓
Smaller Workforce		✓
Short Lead Time for Mine Development		✓
Safer Work Environment		✓
Reduced Site Disturbance & Reclamation Costs		✓
Reasonable Permitting Timelines		✓



Reverse Osmosis Units



# Environmental Advantages of In-Situ Recovery



Environment Advantages of ISR	Conventional Mining	In Situ Recovery
Fast Leaching Kinetics	✓	✓
Surface Disturbances Temporary	✗	✓
Minimal Consumption Use of Water	✗	✓
No Solid Mine Wastes	✗	✓
No Mill Tailings	✗	✓
No Dust from Mining	✗	✓
No Dust from Tailings	✗	✓
Minimal Local Social Impact (small Labor force)	✗	✓



Wyoming ISR Facility



# History of In Situ Recovery (ISR) in the US

- 1940's Race for uranium! (1946 Energy Act, AEC)
- 1950's Uranium frenzy continues
  - Discovery of large, high grade, deposits with underground and surface open pit
- 1960's Birth of In Situ Recovery and Commercial Nuclear Power
  - Recovery of Uranium from Low Grade Mineralization Using a Leach in-place Process
- 1970's Decade of In Situ Recovery commercial development and expansion
- Today World-wide acceptance of ISR with over 50% of all uranium mining in the world**

## Facts

- There has never been a drinking water supply contaminated by ISR
- ISR facilities are one of the most highly regulated industries in the United States
- ISR facilities are highly monitored and uses less groundwater than conventional mining
- There are excellent examples of successful groundwater restoration in the US
- ISR mining is one of the safest industries in the U.S.



ISR Facility



# Does it Work: Proven 1<sup>st</sup> in the World Field Testing:

## The SRU (Secondary Recovery Unit)

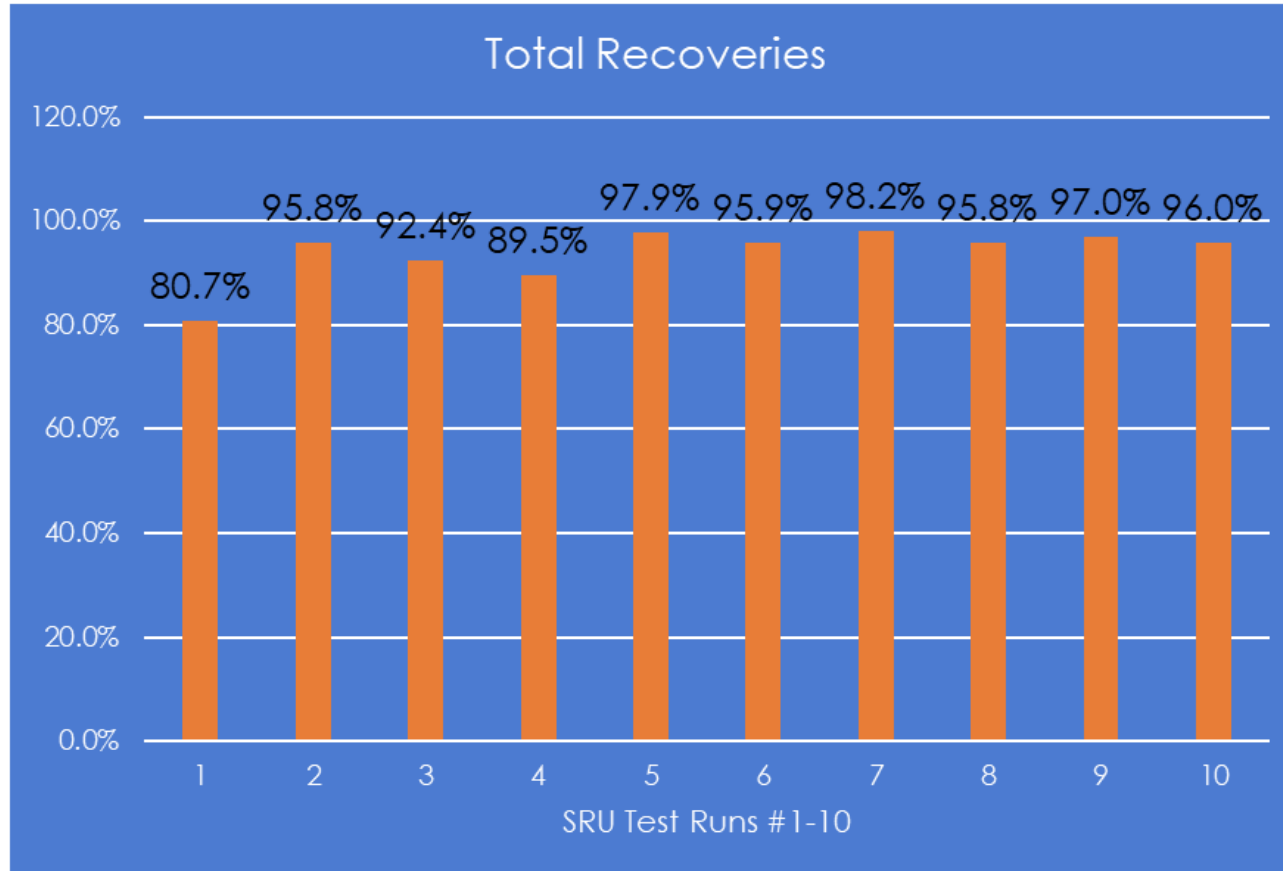
- Golden Predator (partner) developed and operated the mobile SRU in Canada's Yukon to replace the smelter process, create local solutions and replace cyanide in the process
- Utilized the EnviroLeach (ETI) water-based chemistry as a safe, recyclable, environmentally friendly alternative for gold leaching (cyanide-free)
- Completed 11 site tests utilizing the same ETI formula; results led to formation of Group 11



SRU in operation



# Proven 1<sup>st</sup> in the World Field Testing: The SRU (Secondary Recovery Unit)



- Leach kinetics similar to, or exceeding that of, cyanidation (ore dependant)
- Portable SRU capacities scalable



SRU 100% green gold bar

## Next Steps: 1<sup>st</sup> Test Commercial Project: Rattlesnake Hills, WY

With the selection of the first test project Group 11 will:

- Conduct testing over a wide variety of parameters based on a comprehensive characterization of the site, the mineralization and environmental setting
- Compile necessary geological data and environmental setting information
- Conduct laboratory testing of drill core to determine amenability to gold extraction from the eco-friendly water based chemistry
- Enable a full assessment of the ISR potential with the eco-friendly solution



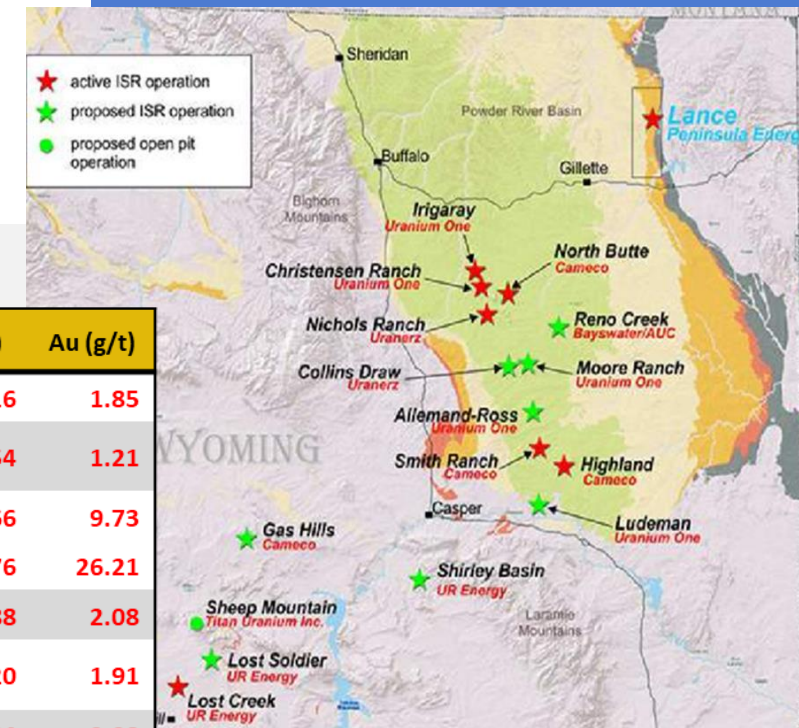


## Why Rattlesnake Hills, WY

- ✓ WY is rated as one of the top mining jurisdiction in the U.S. (coal, uranium, trona, oil & gas)
- ✓ WY regulators understand & effectively legislate ISR better than anywhere else in the U.S.
- ✓ Gold grades throughout the project vary from low to high, allowing for testing various grades response to the ISR process
- ✓ Significant drilling (over \$40MM USD) and investment has established gold occurs in a variety of geological settings, allowing for testing of various styles of mineralization
- ✓ Gold occurs across a large physical area allowing for testing under various conditions & through several rock types & chemistries
- ✓ Gold occurs under relatively accessible topography, an important consideration for wellfield development

Rattlesnake Project – Select Drill Highlights

Hole	From (m)	To (m)	Length (m)	Au (g/t)
RSC-007	108.20	344.36	236.16	1.85
RSC-019	83.82	181.36	97.54	1.21
RSC-020	143.26	198.91	55.66	9.73
Incl.	160.02	176.78	16.76	26.21
RSC-039	25.91	176.78	150.88	2.08
RSC-042	147.83	224.03	76.20	1.91
RSC-089	83.82	213.36	129.54	2.08
RSC-089	216.41	243.84	27.43	7.85
RSC-132	112.78	329.18	216.41	1.58
RSC-135	83.82	160.02	76.20	4.68
Incl.	144.78	147.83	3.05	45.30
RSC-141	30.48	172.21	141.73	1.90
RSC-144	205.74	251.46	45.72	3.23
RSC-145	137.16	192.02	54.86	3.20
Incl.	143.26	147.83	4.57	15.67
RSC-145	204.22	281.94	77.72	4.20
Incl.	239.27	240.79	1.52	128.00





# Well Structured Partnership: Key to Success

Group 11 combines the Rattlesnake Hills Gold Project with an innovative technology that could revolutionize the gold mining industry



Partnering with  
pioneers &  
experts in ISR



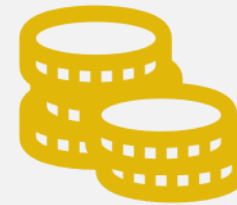
Established  
permitting path to  
production



Increased news  
flow &  
marketability



Most  
environmentally  
friendly mining  
method



Fully funded with  
cash & equity  
payments

# The Future is Here

*“Not everything that is faced can be changed, but nothing can be changed until it is faced.”*

*-James Baldwin*

## GROUP 11 TECHNOLOGIES INC.

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**Group 11** is a group of elements in the periodic table, also known as the coinage metals, consisting of copper (Cu), silver (Ag), and gold (Au). They were most likely the first three elements discovered