



Working Together: Industrial & Artisanal Mining

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The Hemco Model



- The Hemco Vision – Industrial Mining and Artisanal Mining can and must work together.
- Both activities can be compatible if developed in an orderly and dignified manner, with mutually beneficial, and well defined roles and responsibilities.
- The Hemco effort has resulted in a unique social and economic development model that can serve as a potential template for other mining operations.



Hemco and the Bonanza Mine



- The principals of Hemco have been invested in the Bonanza area since 1995.
- Formal mining assets include fully operational, fully permitted underground and open-pit mines, associated milling complexes and dedicated 5.4 MW hydroelectric generation.
- Rapidly expanding gold production, in part due to the relationship with artisanal miners:
 - 38,000 ounces in 2011
 - 55,000 in 2012
 - 67,000 (est.) in 2013 &
 - 75,000 (est.) for 2014



BOSAWAS

Cola Blanca

Bonanza

Rosita

Siuna

Banacruz

HEMCO Concession Package

26 exploration concessions
totaling 269,400 Ha.




Includes 12,400 ha Mining
Concession awarded in 1994
for 50 years.

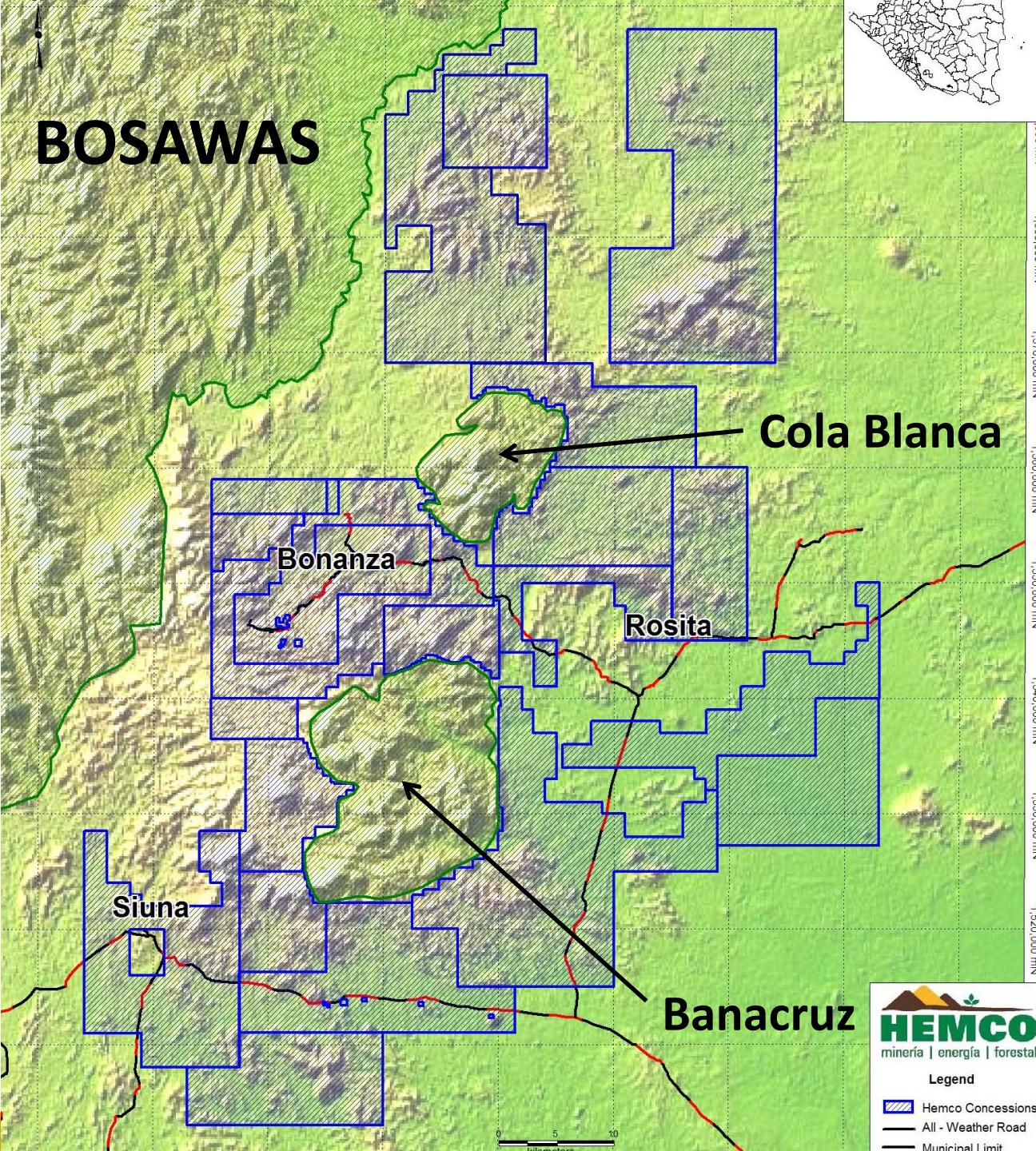
\$5 million/year exploration
program – with \$4 million for
regional exploration and \$1
million for near-mine
exploration.

9 drill rigs on the property.

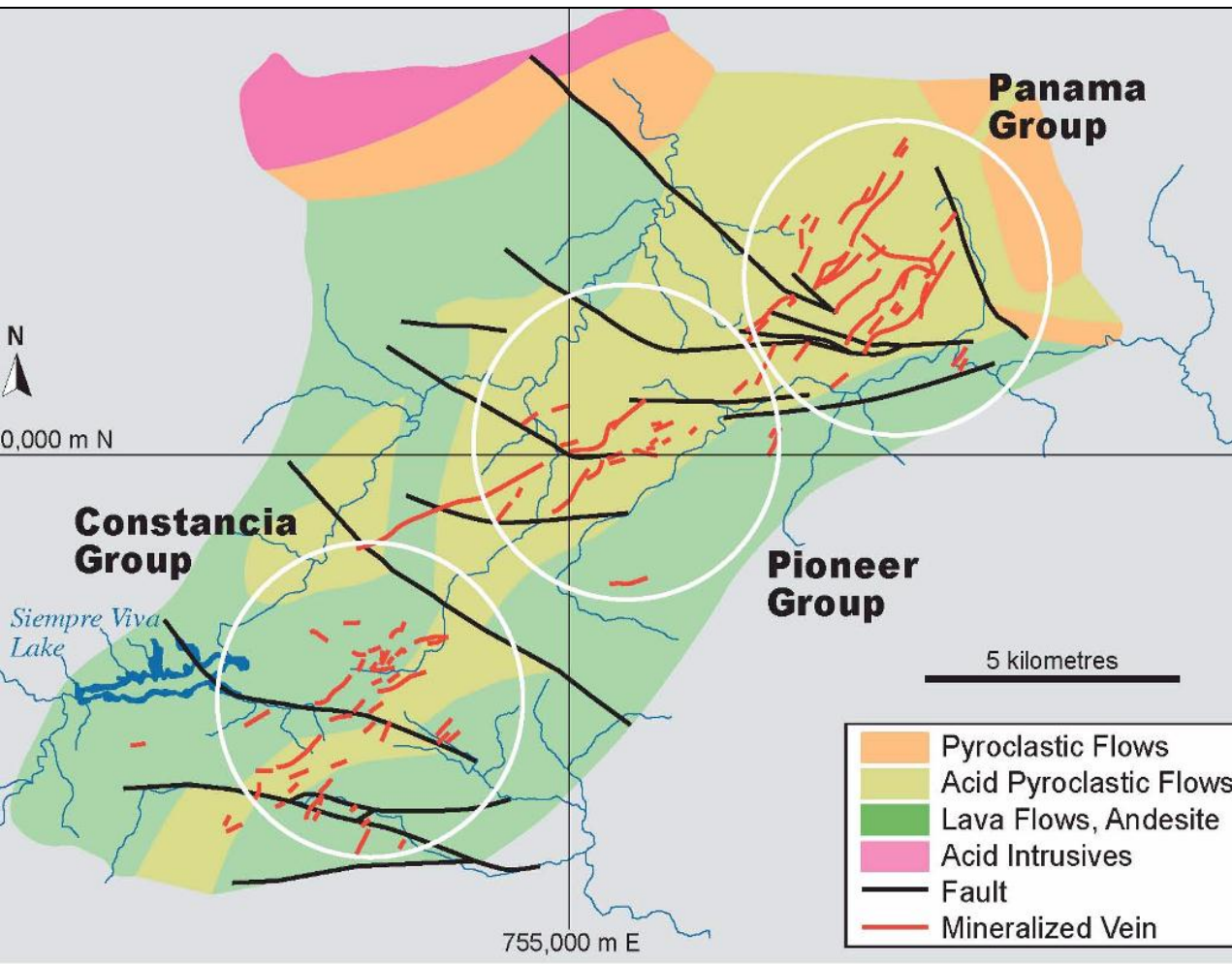


Legend

-  Hemco Concessions
-  All - Weather Road
-  Municipal Limit



Bonanza Mine Exploration

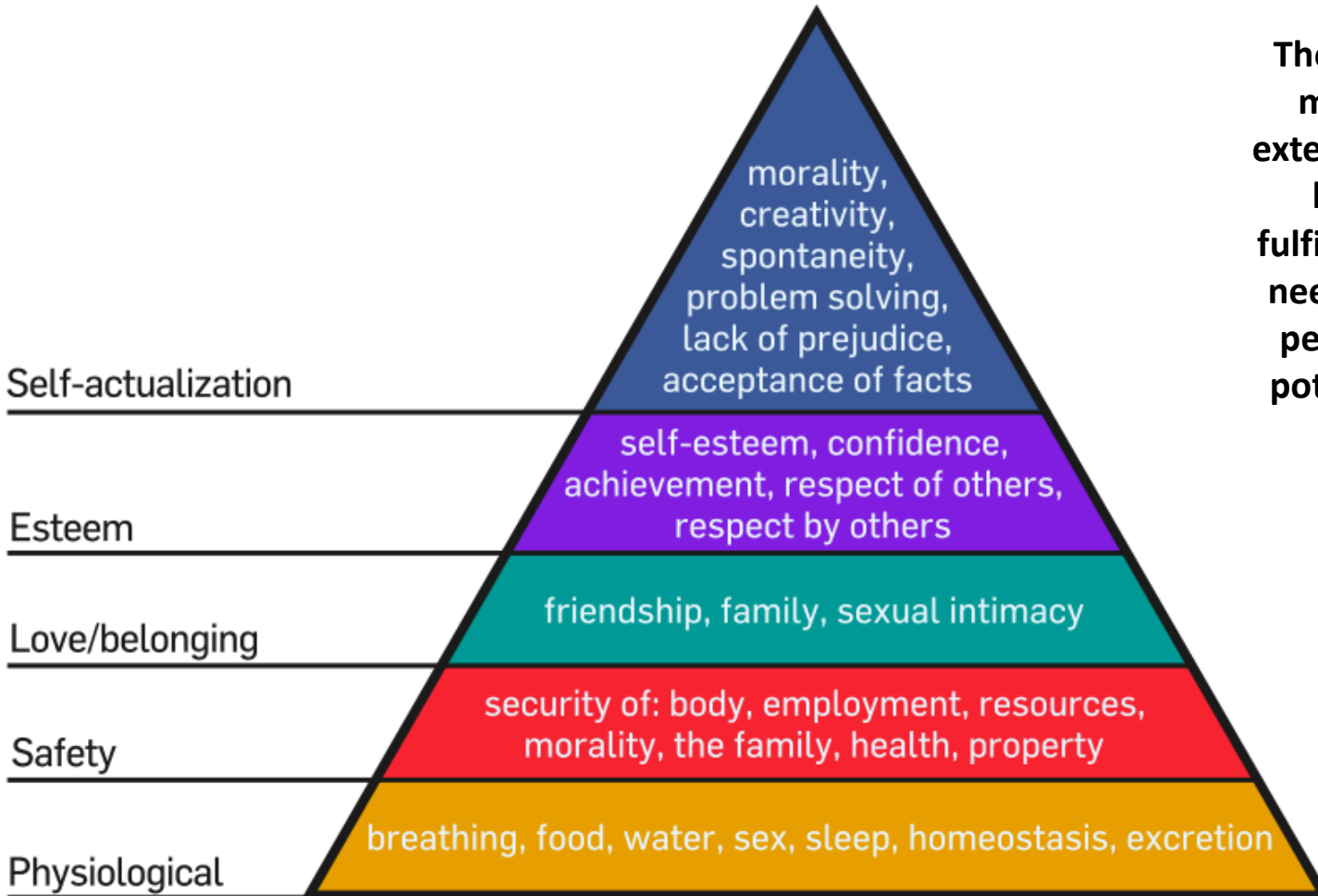


Bonanza Mining Concession

Extensive (> 20 km) epithermal system – gold bearing quartz veins in volcanic host rock (andesites and basalts).

The bulk of the artisanal mining occurs on this concession.

The External Stakeholder Relationship



The relationship between mining companies and external stakeholders has to be predicated on the fulfillment of innate human needs, in priority, to allow people to reach their full potential, as per Abraham Maslow.



Integrated Development Plan



- 2008 - PODU:
 - Township Development Plan
 - Unique to Costa Caribe
- 2010 – 1st Forum for Artisanal Mining in Bonanza:
 - Problem Identification
 - Plan for Sector Development
- Issues Identified:
 - Legal Insecurity
 - Environmental Practices
 - Occupational Health Risks
 - Lack of Social Development Programs
- Results:
 - Establishment of rules and guidelines for the mutually beneficial activities between Artisanal Miners and Hemco



5 Principals of the Hemco Model



- Legal Stability and Order:
 - Permits to Operate
 - Rights and Responsibilities
- Dedicated Processing Plants:
 - Reduced Environmental Impacts
 - Higher Mineral Recoveries
- Industrial Training and Safety:
 - Hemco Sponsored Training
- Human Development Programs:
 - Zero Usury, Child-Care Centers, Financing, Training
- Enhanced Environmental Management Practices:
 - Commitment to a Mercury Free Mining Zone in 2 Years



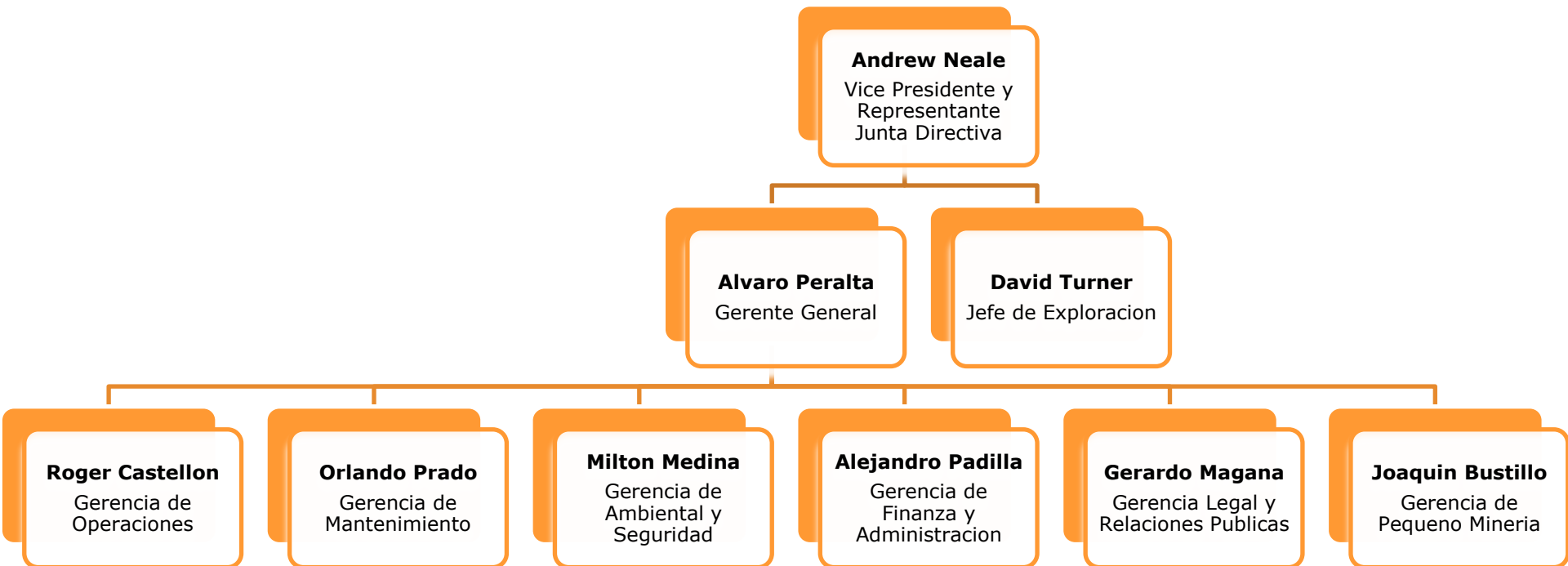
Implementation



- A fair, organized and equitable business relationship is established.
- Completed census forms the basis for accreditation.
- Hemco as the concession owner assigns locations for Artisanal developments.
- Identification cards issued as proof of authorization.
- Accredited miners must respect laws against child labor, environmental regulations, and occupational hygiene, including annual regulatory refresher courses.



Hemco Organization



Day-to-Day Operation (1 of 3)



Day-to-Day Operation (2 of 3)



Day-to-Day Operation (3 of 3)



Results – Hemco Plant



- Currently processing 900 t/day:
 - Conventional crushing, grinding, CN⁻ leach, Merrill Crowe Plant
 - 24% Artisanal Ores
 - 46% Underground Ores
 - 30% Open Pit Ores
- Expansion to 1,200 t/day by Q3, 2013
- Maintain 20-25% Artisanal Ores in Feed
- 40-45% of Au production attributable to Artisanal Ore



Results – Vesmisa & La Curva Plants



- Vesmisa – 110 t/day of 100% Artisanal Ores commissioned in 2011:
 - CN⁻ Leach Plant
 - Dore Production
 - 200-250 oz. Au per week
- La Curva – 80 t/day of 100% Artisanal Ores commissioned in September 2012:
 - Gravity Recovery and Flotation Plant
 - Concentrates Transported to and Processed in the Hemco Plant
- Opportunities exist for addition plants in the local area and elsewhere in Nicaragua.

Compare & Contrast



- Mercury vs. Gravity & Flotation
- Tailings Discharge vs. Tailings Management
- Health & Safety
- Confirmation of the Applicability of Gravity Recovery to Initiate the Phasing-Out of Mercury



Commercial Terms



- Ore delivered in ~10 ton lots, weighed, sampled and assayed.
- Settlement with the ore owner on weights and assays.
- Sliding payment scale of 48%-51% of contained gold based on ore grade.
- Ore owner pays mining costs, surface access costs, and delivery costs to the plant.
- Ores processed and dore produced & shipped to the US for refining – Hemco costs.
- Payment in full to the ore owner within 3 weeks of delivery to the plant, based on the spot gold price that Hemco receives from the refinery.



Financials Jan – June 2012

	Under-ground	Open Pit	Purchased Ore	Total
Production				
Ore Delivered	56,440	61,004	38,176	155,620
Waste Moved	-	312,870	-	312,870
Strip ratio	-	5.1	-	5.1
Head Grade - gpt	3.42	3.25	9.23	4.78
Recovery	75.2%	73.9%	90.8%	82.3%
Ounces - gold	4,673	4,720	10,293	19,686
Ounces - silver	11,129	11,240	24,513	46,882
Revenues				
Revenues	7,703,932	7,780,279	16,968,399	32,452,610



Financials Jan – June 2012

	Under-ground	Open Pit	Purchased Ore	Total
Costs				
Direct Op. Costs	2,068,580	1,152,033	8,504,238	11,724,851
Ref. & Transp.	53,961	54,495	118,852	227,308
Milling	1,326,955	1,434,259	897,552	3,658,766
Silver credit	(337,903)	(341,251)	(744,252)	(1,423,406)
Tech. Services	81,459	88,047	55,099	224,605
Administration	809,308	874,753	547,416	2,231,477
	4,002,361	3,262,335	9,378,905	16,643,601
Cost per Oz.	856	691	911	845
Auric royalty	80,335	81,131	176,942	338,408
Cash costs	4,082,696	3,343,466	9,555,847	16,982,009
Margin	3,621,236	4,436,812	7,412,552	15,470,601
Margin per ounce	775	940	720	786

Conclusions



- Industrial Miners can co-exist and thrive with Artisanal Miners.
- Communication is better than Confrontation.
- Working relationship is based on mutual respect and shared benefits.
- Improved economic opportunities, improved workplace safety, reduced environmental impacts, increased tax base, access to social and economic benefits, and general community development.
- With the introduction of gravity recovery systems, a program is in place to declare Bonanza a Mercury Free Zone within 2 years.

