

# Faro Mine Complex Care & Maintenance

**Tlcho Engineering and Environmental Services**  
**Quarter 1 Performance Report**  
**August 2012**





**Faro Mine Complex  
Care & Maintenance**

## **Q1 Performance Presentation**

- 1. Introductions**
- 2. TEES Overview**
- 3. Health & Safety**
- 4. Site Activities**
- 5. AYFN Training & Participation**
- 6. Financial Reporting**
- 7. Closing Remarks**





## Faro Mine Complex Care & Maintenance

# Introductions

- George Mackenzie – President
- Robert Johnson – Project Manager
- Jared Buchko – Client Service Manager/Backup PM
- Boyd Barstad – Site Manager
- Jodi Boyd – Site Administrator
- Eleni Mouriki – Environmental Coordinator



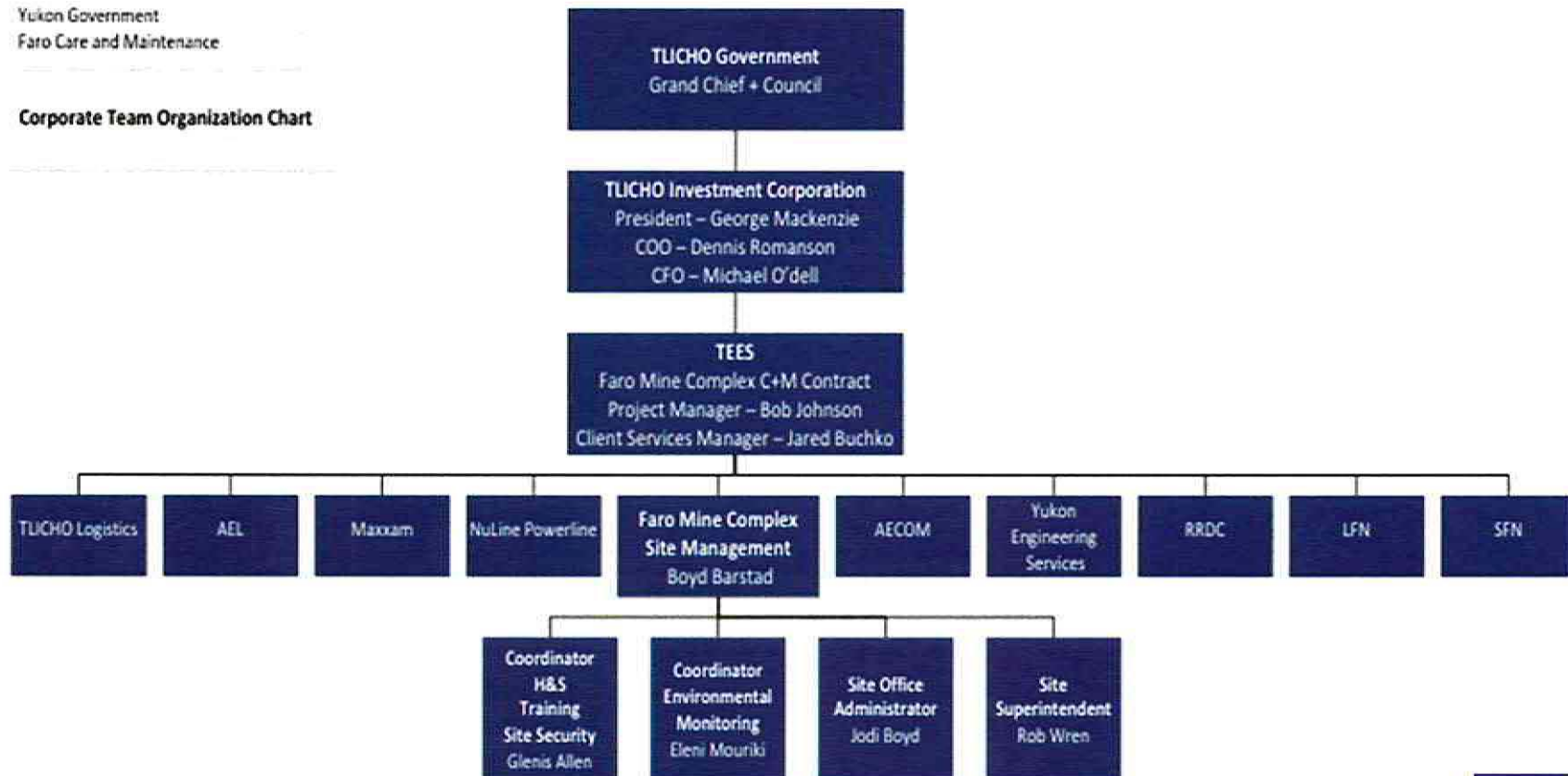


## Faro Mine Complex Care & Maintenance

# Corporate Team Organization

Yukon Government  
Faro Care and Maintenance

### Corporate Team Organization Chart



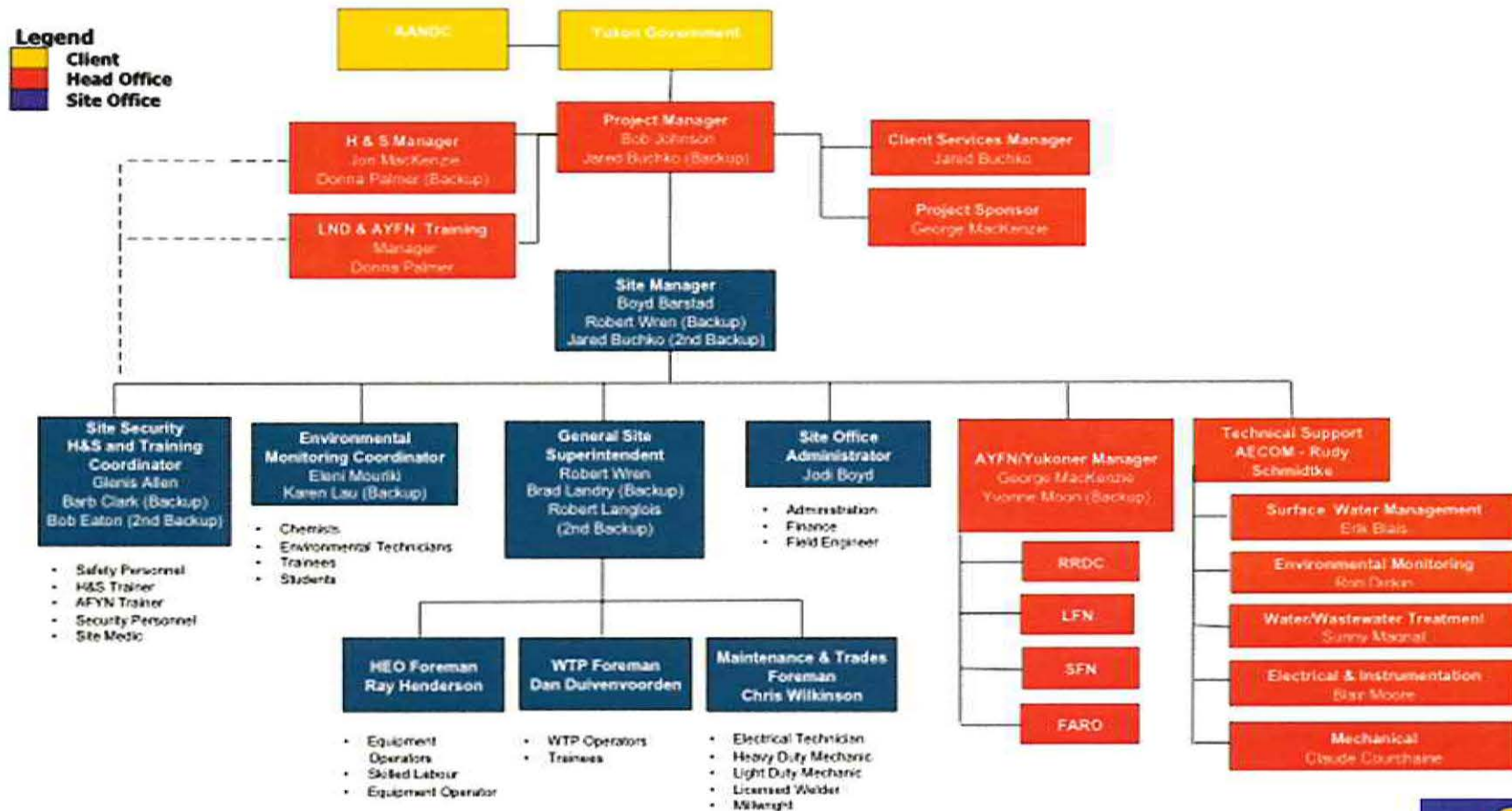
## 2. TEES Overview – Corporate Team Organization





# Faro Mine Complex Care & Maintenance

## Project Team Organization





## Faro Mine Complex Care & Maintenance

# Corporate Mandates

- Competitive and Profitable
- Train Local Impacted People
- Provide Employment Opportunities to Impact Groups
- Provide Economic Sustainability to Impacted Communities





## Faro Mine Complex Care & Maintenance

# Care & Maintenance Goals

- **Primary Goal**
  - Prevent adverse effects on persons, property and the environment in a cost effective manner
- **Secondary Goals**
  - Yukon Occupational H&S Act Compliance
  - Benefits provided for AYFN, Faro and Yukon residents and businesses
  - Environmental Protection





## Faro Mine Complex Care & Maintenance

# Care & Maintenance Services

- Environmental Protection
- H&S programs for protection of workers & public
- Manage site in accordance with SOW
- Emergency Response
- Budget Forecasting and Reporting
- Implementation of Participation Plan





## Faro Mine Complex Care & Maintenance

# Management Team Skills

- Experience managing Complex sites related to mining
- Experience working with government
- Experience as ultimate authority & responsibility
- Experience managing mining operations in at least 2 of the following:
  - Surface water management
  - Waste water management
  - Earthworks, erosion and sediment control
- O&M of electrical/mechanical systems in at least 1 of:
  - Surface water management and earthworks
  - Water treatment systems





## Faro Mine Complex Care & Maintenance

# Health and Safety – Incidents

- No Lost Time Injuries (LTI's) or Medical Treatment Cases (MTC's)
- Total person hours worked in the quarter: 19,120
- Reporting of incidents encouraged, regardless of their outcome

Month	Number of Incidents Reported	Incident Description	Action Taken/ Response
April 2012	4	Unauthorized access and HE keys missing	<ul style="list-style-type: none"><li>• RCMP</li><li>• Action plan for keys</li></ul>
		Equipment damage when handling garbage bin	<ul style="list-style-type: none"><li>• Repairs completed to minor damage</li><li>• Bin taken out of service</li></ul>
		Light vehicle near miss	Coaching
		Coffee pot broken	Positive feedback for reporting





## Faro Mine Complex Care & Maintenance

# Health and Safety - Incidents

Month	Number of Incidents Reported	Incident Description	Action Taken/ Response
May 2012	0	-	-
June 2012	4	Power outage (strike to Yukon Energy Power Line outside of Faro)	(Power supply resumed after 48 hours)
		Employee slip and fall	Toolbox follow up on slips, trips and falls. Eyes on path.
		Oil leak from lime truck	Area cleaned and contaminated material disposed
		Oil leaks discovered at Grum – unknown date of occurrence	Clean up contaminated areas





## Faro Mine Complex Care & Maintenance

# Health and Safety – Activities

Month	Activities/ Work Completed	Improvements/Efficiencies
April 2012	<ul style="list-style-type: none"><li>• Site Orientations held</li><li>• “Bear Aware” Course conducted</li></ul>	<ul style="list-style-type: none"><li>• Suspended hazard (pipe in Lime Bay) removed</li><li>• Emergency Operation Procedure for XPR 6550 hand held radios developed</li><li>• Job Hazard Analysis (JHA) template approved and posted</li><li>• Working at Heights permit approved and posted</li><li>• Implemented buggy whips and beacon requirements for all light vehicles</li><li>• Back in parking for all equipment at site</li></ul>





## Faro Mine Complex Care & Maintenance

# Health and Safety – Activities

Month	Activities/ Work Completed	Improvements/Efficiencies
<b>May 2012</b>	<ul style="list-style-type: none"> <li>• Monthly Inspections completed (fire extinguishers, emergency showers, air horns, O<sub>2</sub> monitors)</li> <li>• Multi-gas monitor calibrated and bump tested</li> <li>• Respirator Fit testing procedure started</li> <li>• Joint OH&amp;S Committee representative nominations completed</li> <li>• Faro Mill H&amp;S audit done (external auditors)</li> <li>• Site Orientations held</li> <li>• Eyewash bottles and eyewash stations sterilized and replaced</li> </ul>	<ul style="list-style-type: none"> <li>• Emergency Evacuation Procedures approved and posted</li> <li>• Emergency Telephone Directory created - internal and external resources within the Yukon</li> <li>• Underflow tunnel entry procedure completed and posted</li> </ul>





## Faro Mine Complex Care & Maintenance

# Health and Safety – Activities

Month	Activities/ Work Completed	Improvements/Efficiencies
<b>June 2012</b>	<ul style="list-style-type: none"> <li>• Fit testing for the Respirator 7700 Series continued</li> <li>• “Young Workers” Monthly Safety Topic meeting held</li> <li>• Monthly Inspections completed (fire extinguishers, emergency showers, eye wash stations, air horns, O<sub>2</sub> monitors)</li> <li>• Multi-gas monitor calibrated and bump tested</li> <li>• Faro Mine Complex tour with YWCHSB Compliance Manager and Safety officer taken</li> <li>• 85 Orientations held</li> <li>• Safe Work Practices drafted</li> </ul>	<ul style="list-style-type: none"> <li>• Dehydration warning signs posted</li> <li>• Sampling access at X5 upgraded</li> </ul>





## Faro Mine Complex Care & Maintenance

# Water Management

Month	Activities/ Work Completed	Improvements/Efficiencies
April 2012	<ul style="list-style-type: none"> <li>• Site monitored (in preparation for treatment)</li> <li>• Godwin pump and lines put in place, system commissioned and trialed for GSC surface runoff</li> <li>• <i>Cross Valley Pond drawn down since mid-April</i></li> <li>• Pumps and electrical checked and repaired in Faro Mill</li> <li>• S-wells pumping continued (2" to 4")</li> <li>• Little Creek Dam diversion ditch excavated/cleaned</li> </ul>	<ul style="list-style-type: none"> <li>• IP barge was cleaned and repainted</li> <li>• More lighting added in the Faro Mill</li> <li>• In-line flow meter installed at X5 for continuous flow monitoring</li> </ul>

### 4. Site Activities – Water Management





## Faro Mine Complex Care & Maintenance

# Water Management

Month	Activities/ Work Completed	Improvements/Efficiencies
May 2012	<ul style="list-style-type: none"> <li>• <i>Treatment in Faro Mill began on May 2</i></li> <li>• <i>Treated compliant water discharged on May 4</i></li> <li>• GSC sediment pond pumped (runoff from GSC)</li> <li>• <i>LCD pumping started on May 22</i></li> <li>• S-wells pumping continued (4")</li> <li>• CVP drawdown continued (discharge at 14,000 LPM)</li> <li>• <i>Sheep pad pond siphon was set-up; pond drained and recharged</i></li> </ul>	<ul style="list-style-type: none"> <li>• Inline flow meter reinstalled to Faro inflow line</li> <li>• Lighting improvement continued for the month of June</li> </ul>





## Faro Mine Complex Care & Maintenance

# Water Management

Month	Activities/ Work Completed	Improvements/Efficiencies
June 2012	<ul style="list-style-type: none"> <li>• <b>Peak freshet on June 9</b></li> <li>• Plans for Vangorda flume repairs underway</li> <li>• Vangorda Pit Barge launched (week 1)</li> <li>• Electrical systems and pumps installed (week 2)</li> <li>• Water treated in VTP and collected in Clarification Pond</li> <li>• Received positive Trout Bioassay June 25</li> <li>• <b>Water discharged to environment on June 27 from VTP</b></li> <li>• IP barge positioned in deeper water levels to allow for further drawdown</li> <li>• Surge protector installation prepared for S-wells</li> <li>• LCD pumping stopped; low levels reached</li> <li>• Drill site preparation support to CH2M Hill provided; electrical support provided to Grum building</li> </ul>	<ul style="list-style-type: none"> <li>• X5 walkway work completed and installed</li> <li>• Replaced all mechanical seals for all Vangorda pumps prior to start-up</li> <li>• Re-packed and re-sealed all pumps in the Faro Mill</li> </ul>





## Faro Mine Complex Care & Maintenance

# Water Management

Month	Water Volume Treated (m <sup>3</sup> )				Water Volume discharged (m <sup>3</sup> )	
	Faro Pit	IP	ETA	Vangorda Pit	Rose Creek	Grum Interceptor Ditch
<b>April 2012</b>	-	-	-	-	337,000	-
<b>May 2012</b>	213,700	297,500	25,900	-	643,000	-
<b>June 2012</b>	299,800	241,200	27,400	49,500	737,000	65,000
<b>2012 Q1</b>		<b>1,105,500</b>		<b>49,500</b>	<b>1,717,000</b>	<b>65,000</b>
<b>2011 Q1*</b>		<b>1,102,000</b>		<b>45,800</b>	<b>1,915,700</b>	<b>56,400</b>

*\*Sources: 2011 Annual Report, Emline*

#### 4. Site Activities –Water Management

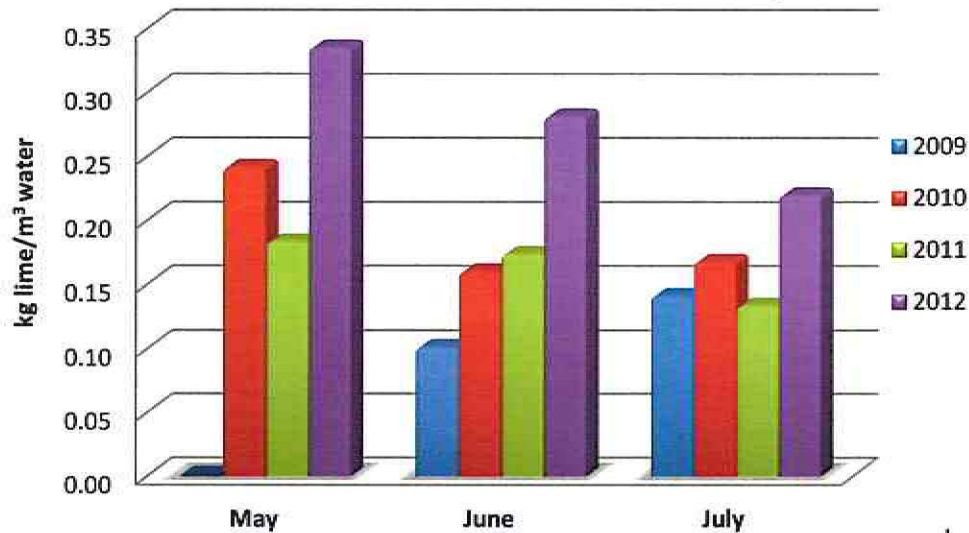




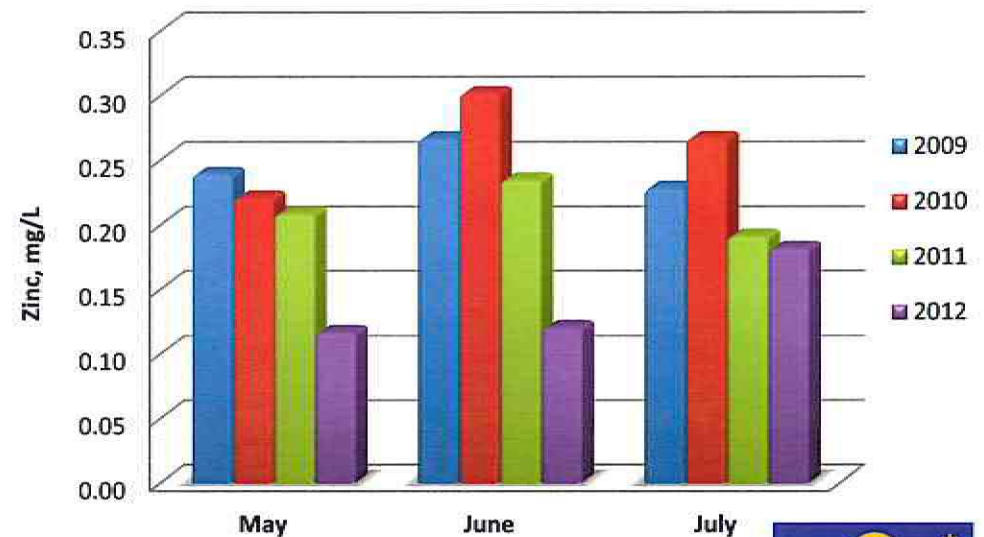
## Faro Mine Complex Care & Maintenance

# Lime Consumption

2009-2012 Faro Mill Lime Consumption



2009-2012 Water Quality at X5



4. Site Activities – Contaminated Water Management – Lime Consumption





## Faro Mine Complex Care & Maintenance

# Maintenance

Month	Activities/ Work Completed	Improvements/Efficiencies
April 2012	<ul style="list-style-type: none"><li>• Minor repairs carried out in-house. External support where repairs require a certified mechanic</li><li>• Difficulty in recruiting a journey person for this position</li><li>• Pump inspections and repairs done in preparation for water movement</li><li>• Electrical support to pumping systems provided</li><li>• Road maintenance continued in all FMC areas</li><li>• HEO support provided for IP barge move</li></ul>	<ul style="list-style-type: none"><li>• Faro Mill lighting upgraded</li><li>• House at 450 Campbell inspected</li></ul>





## Faro Mine Complex Care & Maintenance

# Maintenance

Month	Activities/ Work Completed	Improvements/Efficiencies
May 2012	<ul style="list-style-type: none"> <li>• In-house minor repairs continued</li> <li>• Vehicles washed for light vehicle inspection</li> <li>• Light vehicle and stationary equipment inspected</li> <li>• Turbo replaced on Volvo loader</li> <li>• Road maintenance continued all around FMC</li> <li>• <b><i>Equipment placed in strategic locations in preparation for freshet</i></b></li> <li>• Gravel pushed in up in Rose Creek gravel pit for road surfacing material</li> </ul>	<ul style="list-style-type: none"> <li>• Lighting upgraded in Faro Mill and Guardhouse</li> <li>• Buggy whips and beacons installed on all light vehicles</li> <li>• New lime truck modifications continued for new U20 cans</li> <li>• Tree clearing below power lines (south of Guardhouse) carried out</li> <li>• House at 450 Campbell repaired</li> </ul>

#### 4. Site Activities – Contaminated Water Management





## Faro Mine Complex Care & Maintenance

# Maintenance

Month	Activities/ Work Completed	Improvements/Efficiencies
June 2012	<ul style="list-style-type: none"> <li>• Vangorda pumping and plant commissioned</li> <li>• HEO support provided with drill pads preparation for CH2M Hill</li> <li>• Maintenance work on access areas along the flume (freshet)</li> <li>• Road maintenance and lime delivery continued</li> <li>• Tailings dust suppression planned with arrival of Challenger 65</li> <li>• Vangorda dewatering line repaired</li> </ul>	<ul style="list-style-type: none"> <li>• Heavy and light vehicle assessment completed</li> <li>• X5 walkway work completed and installed</li> <li>• Recommendations from Faro Mill audit being implemented</li> </ul>





## Faro Mine Complex Care & Maintenance

# Equipment Requirements

Unit #	Equipment	2011	2012 Actual	2012 Estimate	Assessment	\$ Estimate
		Hours	Hours	Hours		
E1	Link-Belt 460LX Excavator	598	117	600	Overhaul	\$200,000
E10	Caterpillar Road Grader	731	221	800	Trans/Chain Drives	\$210,000
E11	Caterpillar Dozer 6 Way Blade (D5)	216.5		400	Overhaul	\$200,000
E13	Caterpillar Excavator (345)	1062.5	174	1200	Mid Life	\$120,000
E2	Volvo Front End Loader	514.5	185	800	Overhaul	\$200,000
E3	Case 4WD Loader/Backhoe	260.75	24	400	Mid Life	\$30,000
TIM01	Volvo Rock Truck	184.5	10.5	400	TEES to supply	

### 4. Site Activities – Equipment Requirements





# Faro Mine Complex Care & Maintenance

## Photos



Access area work around flume



Vangorda flume during freshet



IP barge preparation work



Vangorda dewatering line  
leak repair



Steamed out siphon at CVP



Godwin pump at GSC Sediment  
Pond



# Faro Mine Complex Care & Maintenance

## Improvements



4. Site Activities – Improvements





## Faro Mine Complex Care & Maintenance

# Improvements





## Faro Mine Complex Care & Maintenance

# Environmental Monitoring Program -SOW

Type of Activity	Details	Challenges	Cause	Action taken
<b>Water Quality</b>	<ul style="list-style-type: none"> <li>✓ -Surface Water</li> <li>✓ Seepage</li> <li>✓ Groundwater</li> <li>✓ QA/QC</li> <li>✓ Bioassays</li> <li>✓ Monthly Reporting</li> </ul>	Resample	Missed Shipping	Yes
		Sediment in Samples	Sampling Technique	Yes
		Delayed Analyses	Unaccounted Samples	Yes
<b>Flow Monitoring</b>	<ul style="list-style-type: none"> <li>✓ Staff Gauge Reading</li> <li>✓ Salt Slug Flows</li> <li>✓ In-stream Flows</li> <li>✓ Weir Flows</li> <li>✓ Estimated Flows</li> <li>✓ In-pipe Flows</li> <li>✓ Continuous Monitoring*</li> <li>✓ Maintenance of Facilities</li> <li>✓ Monthly Reporting</li> </ul>	No flow taken/ reported	Hazardous conditions/ insufficient accuracy	-
		Damaged SG Structures	Freshet	Yes
<b>Meteorological Conditions</b>	<ul style="list-style-type: none"> <li>✓ Monthly Downloads</li> <li>✓ Station Battery Checks</li> <li>✓ Monthly Reporting</li> </ul>	-	-	-

\*under Hydrology Program

### 4. Site Activities – Environment – SOW





## Faro Mine Complex Care & Maintenance

# EMP - General SOW

Type of Activity	Details	Challenges	Cause	Action taken
<b>Water Levels</b>	<ul style="list-style-type: none"> <li>✓ Pits</li> <li>✓ Ponds</li> </ul>	-	-	-
<b>Geotechnical</b>	<ul style="list-style-type: none"> <li>✓ Faro Diversion SG reading</li> <li>✓ Piezometers</li> <li>✓ Inclinometers</li> <li>✓ Thermistors</li> <li>✓ Observations/Photos</li> <li>✓ Slope Stability/Wall Regression</li> <li>✓ Weir Flows</li> <li>✓ NF1, NF2 water levels</li> <li>✓ Downloads</li> <li>✓ Equipment Maintenance and Calibration</li> </ul>	Lack of 2012 Monitoring Program	-	Yes (in communication with YG)
<b>Site Inspections</b>	<ul style="list-style-type: none"> <li>✓ Log of Observations</li> <li>✓ Photos</li> </ul>	-	-	-
<b>CVP Monitoring</b>	<ul style="list-style-type: none"> <li>✓ Depth Profile Sampling</li> <li>✓ In-House Analysis</li> </ul>	Obstructions (ice) Safety	Weather Conditions Rain/Lightning	Yes Yes

### 4. Site Activities – Environment – General SOW





## Faro Mine Complex Care & Maintenance

# EMP – Non-routine Activities

Type of Activity	Details	Challenges	Cause	Action taken
Water Levels/ Pumping Rates	<ul style="list-style-type: none"> <li>✓ Surveys</li> <li>✓ Flow Measurements</li> </ul>	-	-	-
Water Quality	<ul style="list-style-type: none"> <li>✓ Sampling</li> <li>✓ In-House Analysis</li> <li>✓ Potable Water</li> </ul>	-	-	-
Off-site assistance	<ul style="list-style-type: none"> <li>✓ Site tour</li> <li>✓ Observations/Photos</li> </ul>	-	-	-





## Faro Mine Complex Care & Maintenance

# EMP – Special Projects

Type of Activity	Details	Challenges	Cause	Action taken
<b>Moose Pond Water Balance</b>	<ul style="list-style-type: none"> <li>✓ Flow Measurements</li> <li>✓ Water Levels at Moose Pond</li> <li>✓ Level Logger Installation</li> <li>✓ Level Logger Download</li> <li>✓ Observations</li> <li>✓ Location Identification (GPS)</li> <li>✓ Seep Monitoring</li> <li>✓ Reporting of Results</li> </ul>			
<b>Grum Sulphide Cell Ponds Sampling</b>	<ul style="list-style-type: none"> <li>✓ Sampling</li> <li>✓ In-house Analysis</li> <li>✓ Visual Inspections</li> <li>✓ Level Logger Installation</li> <li>✓ Reporting of Results</li> </ul>	Runoff/melt period too short	Weather Conditions	
<b>Ore Transfer Pad</b>	<ul style="list-style-type: none"> <li>✓ Sampling</li> <li>✓ In-house Analysis</li> <li>✓ Visual Inspections</li> <li>✓ Location Identification</li> <li>✓ Reporting of Results</li> </ul>			





## Faro Mine Complex Care & Maintenance

# EMP – Site Laboratory

Type of Activity	Details	Challenges	Cause	Action taken
<b>Maintenance and Operation</b>	<ul style="list-style-type: none"> <li>✓ Analytical and Equipment Supplies</li> <li>✓ Consumables</li> <li>✓ Stock Management</li> <li>✓ House-keeping</li> <li>✓ Maintenance Log</li> <li>✓ Personnel</li> <li>✓ Equipment Service</li> <li>✓ Lab Improvements</li> </ul>	RO unit malfunction	Cartridge	Yes
		QA/QC	Temperature fluctuations	Yes
		Residue in digester	Digester fan	Yes
<b>Safety, Awareness and Training</b>	<ul style="list-style-type: none"> <li>✓ PPE</li> <li>✓ Spill Kits</li> <li>✓ Training</li> <li>✓ Fume Hood Flow Checks</li> </ul>	Fume hood alarm/ Nitric Acid gas smell	Low flow	Yes
<b>CALA Proficiency Testing</b>	<ul style="list-style-type: none"> <li>✓ Participation</li> <li>✓ Proficiency</li> </ul>	New personnel unfamiliar with procedure	-	Yes





## Faro Mine Complex Care & Maintenance

# EMP – Compliance

APRIL 2012

Compliance Site	Compliance Met	Non-Compliant Parameter Value	Effluent Quality Standard Value	Comments
X5	Yes	-	-	-
X13	Yes	-	-	-
V2	Yes	-	-	-
V25BSP	Yes	-	-	-





## Faro Mine Complex Care & Maintenance

# EMP – Compliance

**MAY 2012**

Site	Compliance Met	Non-Compliant Parameter Value	Effluent Quality Standard Value	Comments
X5	Yes, - 1 parameter	Colour – 30 Col. Units	Colour – 20 Col. Units	Sample was analyzed past holding time. Subsequent sampling round analysis showed compliance
X13	Yes, - 2 parameters	<ul style="list-style-type: none"> <li>• Colour – 40 Col. Units</li> <li>• Turbidity – 18.6 NTU</li> </ul>	<ul style="list-style-type: none"> <li>• Colour – 20 Col. Units</li> <li>• Turbidity – 15 NTU</li> </ul>	Site has historically shown problems with Colour and Turbidity
V2	Yes, - 1 parameter	TSS – 18 mg/L	TSS – 15 mg/L	2 <sup>nd</sup> sampling round was compliant
V25BSP	-	-	-	-





## Faro Mine Complex Care & Maintenance

# EMP – Compliance

**JUNE 2012**

Site	Compliance Met	Non-Compliant Parameter Value	Effluent Quality Standard Value	Comments
X5	Yes, - 1 parameter	TSS – 41.7 mg/L	TSS – 15 mg/L	3/4 sampling rounds showed compliance; likely an isolated event
X13	Yes, - 2 parameters	Bioassay – 90% Turbidity – 21.1 NTU	Bioassay – 100% Turbidity – 15 NTU	Site has historically shown problems with Turbidity and Fish Mortality; an investigation was planned and implemented
V2	Yes	-	-	-
V25BSP	Yes	-	-	-

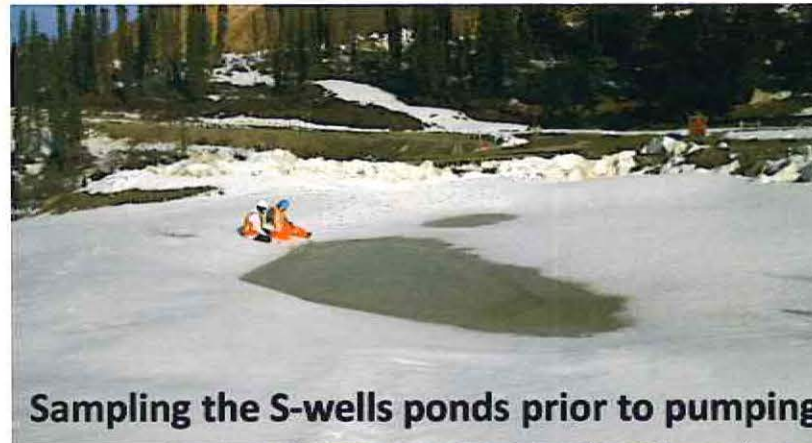




## Faro Mine Complex Care & Maintenance

# Environment – Photos

Site Labeling at Vangorda  
Drains



Sampling the S-wells ponds prior to pumping

Sampling at Grum Sulphide Cell  
Contingency Storage Area



Damaged Structure and High  
Current at V27

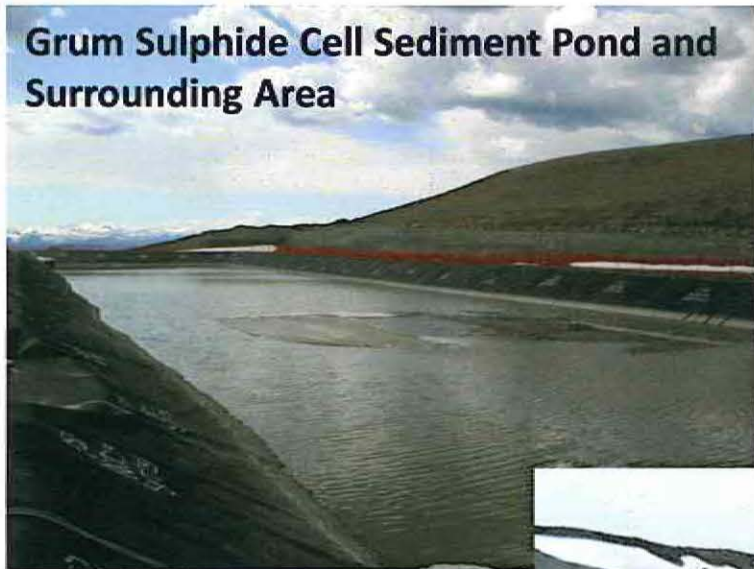




## Faro Mine Complex Care & Maintenance

# Environment – Photos

**Grum Sulphide Cell Sediment Pond and Surrounding Area**



**"Kaori's Seep" at Moose Pond Wall**



**Ore Transfer Pad Seepage**





## Faro Mine Complex Care & Maintenance

# AYFN - Training and Participation

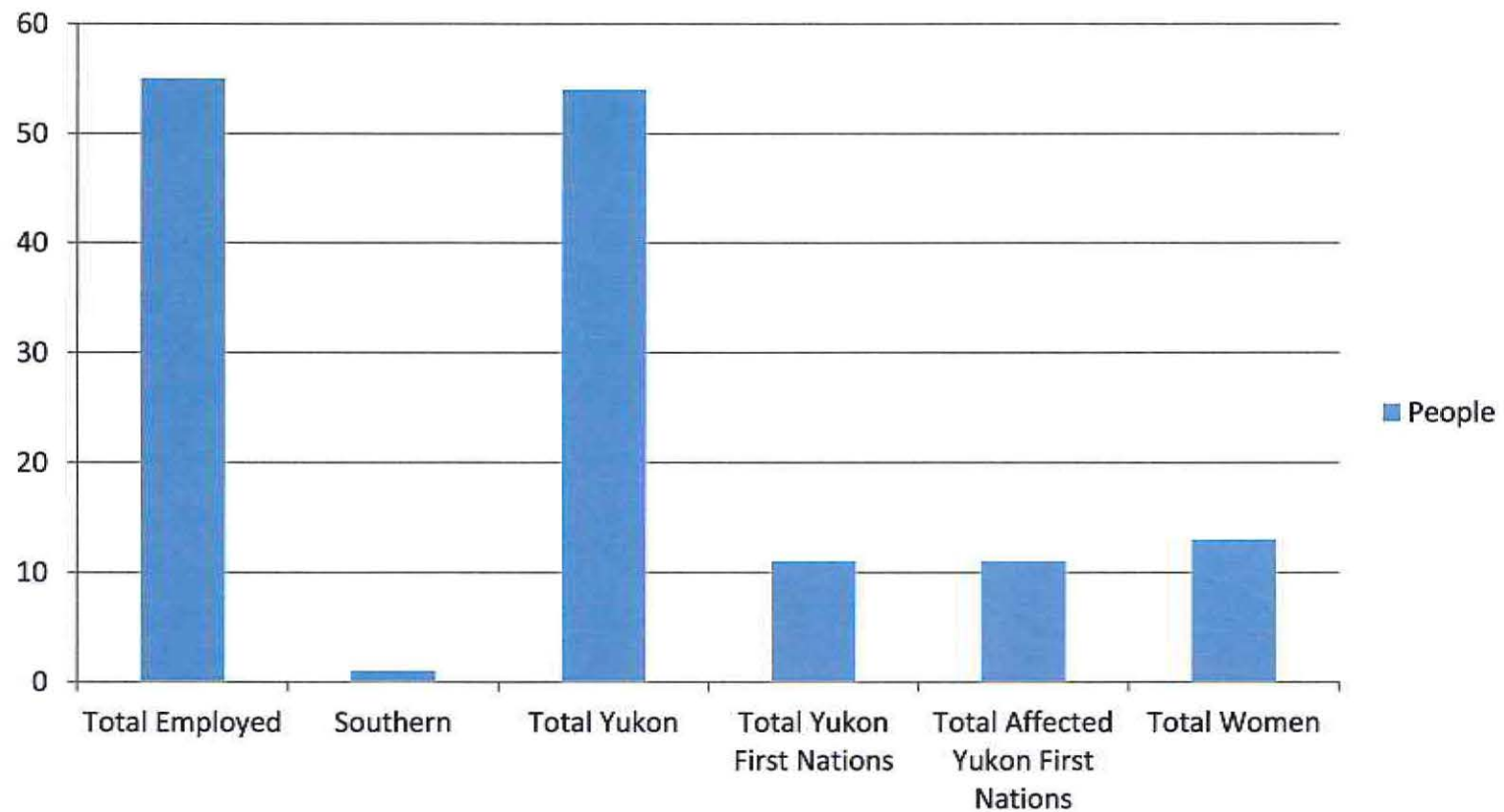
- June 27, 2012 TEES officially kicked off The AYFN Training and Participation Program
- Total of 2 candidates from Watson Lake, 4 from Ross River
- All candidates completed and received Hazwoper Certification, WHMIS, First Aid, Wilderness First Aid and Transportation of Dangerous Goods
- All candidates have worked in Environment, Security, CH2MHill's summer field program, and trades
- AYFN Candidates are now working in Trades with TEES' Welder, Electrician and Millwright
- The program is scheduled to conclude in mid September
- Great start to building relationships with our First Nations





## Faro Mine Complex Care & Maintenance

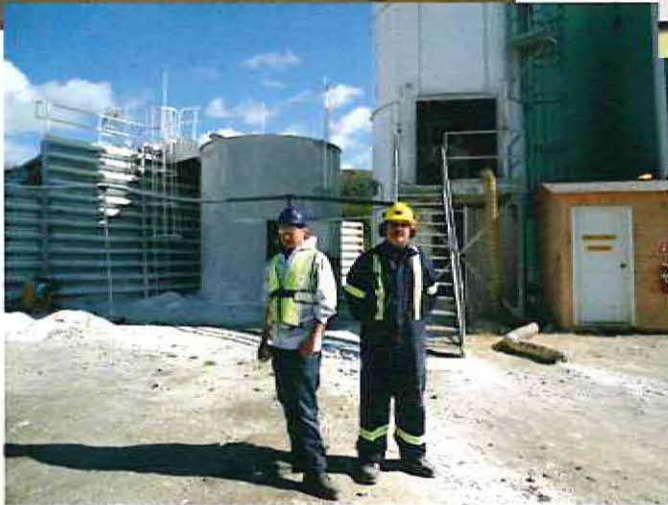
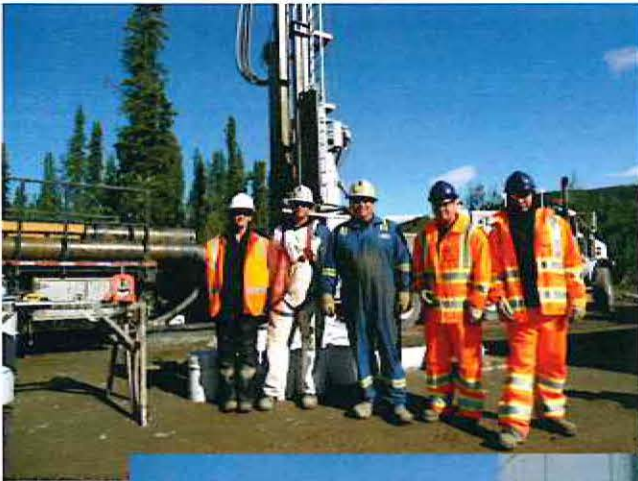
# AYFN - Statistics





## Faro Mine Complex Care & Maintenance

### AYFN – Photos



5. AYFN – Photos





## Faro Mine Complex Care & Maintenance

# Financial Reporting

### Operations: Q1 Results

Month	Actual	Budget	Var \$	Var %	Spent Q1
April	58,426	145,000	86,574	60%	40%
May	234,407	211,000	(23,407)	-11%	111%
June	170,635	313,000	142,365	45%	55%
QTD	463,468	669,000	205,532	31%	69%





## Faro Mine Complex Care & Maintenance

# Financial Reporting

## Maintenance: Q1 Results

Month	Actual	Budget	Var \$	Var %	Spent Q1
April	63,627	197,000	133,373	68%	32%
May	207,997	313,333	105,336	34%	66%
June	210,348	296,333	85,985	29%	71%
QTD	481,972	806,667	324,694	40%	60%





## Faro Mine Complex Care & Maintenance

# Financial Reporting

### Operations: Q2 Forecast

Forecast Q2	Less:Carry fwd Q1	Subtotal	Budget	Var \$	Var %
1,160,000	(205,532)	954,468	676,000	(278,468)	-41%

### Maintenance: Q2 Forecast

Forecast Q2	Less:Carry fwd Q1	Subtotal	Budget	Var \$	Var %
1,330,500.00	(324,694)	1,005,806	960,333	(45,472)	-5%





## Faro Mine Complex Care & Maintenance

# Our Commitments

- Successful and Efficient Performance
- Outstanding Customer Service
- Co-operative Team Approach
- Successful AYFN Participation
- Efficiency
- Technical Excellence





## Faro Mine Complex Care & Maintenance

# “Our Vision”

George Mackenzie – President  
Tlicho Investment Corporation

*7. Closing Remarks*





## Faro Mine Complex Care & Maintenance

# Masi Cho

