

UT Energy Week 2015

Frontier – Safety, Regulation & Environmental Issues

Anadarko Petroleum Corporation - Mozambique

February 16, 2015



Mozambique

- **Former Portuguese Colony**
 - Independence 1975
 - Civil war 1977 – 1992
- **1990 Constitution**
 - Established Multi-party democracy
 - Stable presidential republic
- **Economy**
 - Based mainly on agriculture
 - Coal, tourism, Oil & Gas
 - Population 24 million
 - Remarkable economic growth of ~8% over the last 15 years



Anadarko Locations



Palma

- Site of Future LNG plant
- Onshore drilling locations

Mocimboa da Praia

- Airfield
- Aviation Base
- Helicopter departure point for offshore

Pemba

- Shorebase location for drilling support

Maputo

- Head office



Frontier Activities – HSE

- **Protecting the Environment**
- **HSE & Regulatory Standards**
- **Protecting Workforce Health**
- **Workforce Safety**
- **Emergency Response**



Protecting the Environment

- **Environmental Baseline Studies**

- *Terrestrial*
- *Marine*
- *Transition Zones*

- **Assess Potential Environmental Impacts**

- **Mitigation of Impacts – Hierarchy**

- *Avoid*
- *Minimize*
- *Mitigate (repair / restore)*
- *Offset*

- **Stakeholder Engagement**

- *Community Meetings / NGOs*



HSE & Regulatory Expectations

- ***Country Laws / Country Regulations***
- ***Company HSE Programs / Company Values***
- ***Good International Industry Practice***
- ***Lending Institutions***
 - *IFC Performance Standards*
 - *Equator Principles*
- ***Stakeholder Engagement***
 - *Community*
 - *NGOs*



Workforce Health Protection

- **Preliminary Health Baseline Surveys (prior to entry)**
- **Community Resources available (or not available) for workforce**
- **International or Regional Health Partner**
 - Medical Support
 - Medical Evacuation Plan
- **Infectious Disease Mitigation**
 - Tuberculosis
 - Malaria
 - Influenza
 - Ebola
- **Infectious Disease Corrective Action Plan**
 - Medical Evacuation Preparedness



Workforce Safety Challenges

Local Workforce (non-skilled labor)

- Life Skills
- 6HTK = Six Hazardous That Kill
- 6WPE = Six Ways to Protect the Environment



Emergency Response

- **Environmental Incidents / Safety Incidents / Health Incidents**
- **Evacuation of Personnel (security issues)**
- **Identify Anticipated Risks / Scenarios**
- **Risk Assessment Matrix**
 - Likelihood / Probability
 - Significance of Event / Severity
- **Establish Consistent System (Incident Command System)**
 - Emergency Response Team (Local)
 - Incident Management Team (Area Support)
 - Incident Support Team (Remote Support)
 - “Go Team” Concept
- **Collaborative Efforts**
 - Government Resources & Cooperation
 - Other Oil & Gas Industry in Area
 - Local Industries
 - International Response Efforts



Frontier Activities - HSE

- Protecting the Environment
- HSE & Regulatory Standards
- Protecting Workforce Health
- Workforce Safety
- Emergency Response



Frontier Activities - HSE

