Welcome to ESRI Petroleum

Purpose

• Show the value-added:
  – Experiences
  – Ideas
  – Information
  – In Oil&Gas
GIS Is Focused On Integration

Bringing Together Our Complex Data and Knowledge

And Making It Accessible
GIS Is Particularly Valuable

Providing Many Benefits
- Understanding
- Efficiency
- Cost Savings
- Improved Decision Making
- Better
  - Communication
  - Collaboration
  - Coordination

A Framework for Managing Human Activities
ESRI Software Strategies

- Enhance ArcGIS Desktop
- Strengthen / Simplify Geodata Management
- Extend ArcGIS Server
- More Mobile GIS

... With Increased Focus on Quality, Usability and Performance
ESRI Software Products

GIS Platforms
- Desktop GIS
- Embedded GIS Components (Engines)
- GIS Servers
- Mobile GIS

Updated

Web Services

ArcExplorer
ArcGIS Desktop
ArcPad
ArcGIS Server
ArcIMS
ArcSDE

Casual Users
Professional
Developers

Mobile Workforce

Servers

Engines

Geodatabase

... An Integrated Platform for Everybody

• Compilation
• Mapping
• Geoprocessing
• Visualization
• Management
• Authoring
• Serving
• Viewing
GIS Is Evolving on the Internet

Supporting
- Publishing
- Discovery
- Sharing
- Interoperability
- Distributed Data Mgmt.
- Collaborative Computing
- Application Integration

Creating a Distributed, Global GIS
Individual Systems Will Be Connected into broader Systems

Facilitated by...
- Standardized Data Models
- GIS Portals
- Networks of Providers
- Collaboration Agreements
- Leadership and Organization
- Technology

...And You

GeoWeb

...Helping Better Manage Our World
GIS Web Services Will Provide the Framework

Over Time
- Expanded GIS Services
- More Synergy
- Easier Exploration Tools
- Pervasive Use

Supporting Many Geospatial Communities
GIS in Petroleum
Saudi Aramco

- Infrastructure management
- Portal Project
- Oil&Gas assets
Shell

- Global rollout
- Integration, 3D
- On-demand access
- SAP portal

Those involved in the Shell International Exploration and Production/ESRI contract signing include from the left: Roger Able, Shell; Thierry Gregorius, global GIS/spatial coordinator of Shell International Exploration and Production; John Darley, director of Shell Technology Exploration and Production; Jack Dangermond, president of ESRI; Aart van Wingerden, regional manager of ESRI-Europe; Frits van der Schaaf, manager sales, ESRI Nederland; and Linda Dodge, Shell

ExxonMobil

• Map Maker/Data Integration

• Portal Project

• Service station locator
Chevron

- Pipeline Manager
- Portal Project
BP

- Workflow management
- Pipeline routing
- 3D
BHP Billiton

- Global infrastructure
- Multiple industries
- Portals
Petrobras

- Transnational pipelines
- New construction
- APDM
El Paso

- Continental infrastructure
- Pipeline surveillance
- Data modeling
USGS

- Geospatial One-Stop
- metadata portal
- spatial ranking
UK DEAL

- Petroleum portal
- 5 years running
- XML links
Exploration

- Getting more revenue out of your assets
  - seismic, drilling, production, transmission, delivery
- Every asset
  - generates revenue (+)
  - incurs certain costs (-)
- Therefore asset management means:
  - increased revenue of assets
  - reduced cost of same assets
Exploration

• Basin Analysis
  – Display surface geology
    • Structures (Anticlines, domes, etc.)
    • Stratigraphy
  • Traps – What kinds?
  • Source Rock Analysis
  • Petroleum Migration
  • Geological Play Assessment
Visualization

... with real-time information
Visualization

- Displaying Oil and Gas business Objects
  - Seismic Lines
  - Wellpath depth labels
  - Production bubble maps
- 3D Display
- Interoperability
  - Landmark / Schlumberger
  - OpenSpirit / Volant
Production

- Ongoing Field Analyses
  - well, lease, etc. mgmt.
  - re-surveying via GPS
  - pipeline re-inspection
  - manage encroachment
- Locate Facilities
- Leak Detection
- Map book generation

... understand the needs of Oil&Gas
Production

- Lease Management
  - Royalties
  - Working Interest
  - Expiration dates
  - Lease Purchasing

... nearly every process is spatial
GIS

- Exploration
- Production
- Transportation
- Distribution
- Facilities Management
- Retail
- Environmental
- Business
- Data Management

Petroleum Seminar
Transportation

• Vehicle Routing
  – Drive time directions
  – Scheduling
  – Load Analysis

• Tracking and response Planning
  – Location of Vehicles
  – Buffer Zones
  – Safety
  – Mitigation/Accident Information
Tracking and Resource Planning
Transmission

• Facility modeling
• Pipeline routing
• Integrity management
• Economic development
• Load forecasting for system planning
• Pipeline Monitoring
• Right of Way management

...breakthroughs in planning for the future
SOCCOIN (Spain) …

- New pipeline construction
  - Least Cost Analysis
- APDM for infrastructure
- Link to distribution network
GIS
Procurement

- Visualization of leaks, etc.
- Locating facilities
- Visualization of SCADA, etc.
- Reverse GIS
  - text driven
  - map report

... GIS means business!
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Petroleum Seminar

30 miles and 60 miles – approximately the bands where winds could be expected in the > 100 mph and 60-100 mph ranges, respectively

Map of Offshore Facilities

Map 2
2004 Oil Production in Relationship to Hurricane Katrina Path
Petrol Station Locator, Ghana
Service Station locator

- Driving Directions
- Store Locations
- Store Hours
Oil Spill Response and Planning

- Spill Mapping
  - Environmental Impacts (sensitive areas)
  - Containment
  - Weather conditions
  - Equipment locations
    - Boom Placement - Protection
- Impact to Society
  - Road Closings
  - Evacuations
  - Mitigation Analysis
High-Consequence Area

- High-Consequence Area (HCA) analysis
  - Where is the pipeline?
  - What is its pressure?
  - Where is the building?
  - What is its occupancy?
- Regulatory reporting
  - new in the U.S.
  - megaprojects abroad

... ROI is significant
Prospect Portfolio

• Reserves Analysis and Mapping
• Exploration Prospects
  – Risk Assessment
  – Economic Assessment
ArcWeb Services Portals

• Portals:
  - Push data up and out to all

• Web server:
  - Round-trip to-and-from server
  - GIS becomes the dashboard for new and legacy applications
Data Management

- Where is your data?
- How do you access your data?
- Data Integration
- Versioning and Replication
- Metadata Management
- Interoperability
Data Models

- Template: www.apdm.net
- APDM
- Metadata content
- Work with PODS and ISAT
PUG

- April 3 - 5 Houston Texas
  - Stay current on key topics in GIS for the enterprise, Web portals for petroleum companies, and interoperability for oil and gas operations
  - Connect with industry and product development teams to provide input for future ESRI product development
  - Network with ESRI solution partners to discuss your upcoming projects
  - Gain insight to guide GIS and IT development decisions for your organization

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helping manage our world