The Exploration Game
Geokinetics Modular Schools

Contact: H. Roice Nelson, Jr.
VP Interpretation Business Development
Geokinetics Processing & Interpretation
One Riverway, Suite 2100
Houston, TX 77056 - 713-782-1234 - roice@geodev.com

Summary

Geokinetics is a full service geophysical contractor, providing seismic acquisition, seismic processing, depth migration, petrophysical evaluation, seismic modeling, seismic interpretation, and integrated interpretation services. Recognizing the importance of integrating the various Geokinetics state-of-the-art geophysical technologies, both internally and at customer sites, the modular Exploration Game provides an immersive educational experience in the practical application of advanced geophysical technologies. Participants select modules applicable to their business needs, and thus drive the structure of each instance of The Exploration Game.
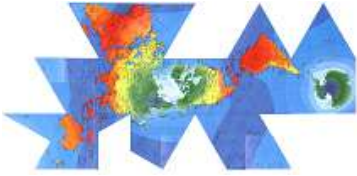
Participants

The Exploration Game is for:

1. professionals wanting practical experience showing the implications of using advanced geophysical tools and techniques;
2. managers wanting to understand the technical and business implications of using specific geophysical tools and techniques;
3. managers who want to determine employee interests, and how employees react and interact under pressure to meet geophysical or business objectives; or
4. new employees needing to rapidly come up on the experience curve in order to play and win The Exploration Game for their employer.

The Exploration Game is available for internal company instruction, or for public forum instruction, as either a stand-alone class or in conjunction with a seminar or conference. Courses must be prescheduled, with a minimum of 12 participants per session.

How The Exploration Game Works

The sponsor/organizer defines the customer environment, selects modules appropriate for training goals and for the planned audience, the data set(s) to use, as well as the date and place for the school. Each Exploration Game is unique, and each includes:

1. Lectures on module technologies to provide a level playing field during the game;
2. Data, systems, and software, allowing practice in a familiar environment;
3. An exploration objective, creating a competitive environment, to drive the game;
4. Teams and time tables for completion of Exploration Game objectives; and
5. Review and evaluation of technologies and the process of practical application.

Game Rules

OBJECTIVE:

To gain new insights in exploration techniques, to have fun, and to end up with the most paper money.

PARTICIPANTS:

1. Each participant will receive a complete set of data for selected modules.
2. Each participant will write his/her name/initials on each handout upon receipt. Handouts not marked are subject to possible confiscation by the GOVERNMENT.
3. Participants are to spend the workshop actively working as part of their assigned team. The GOVERNMENT reserves the right to fine non-participation.

TEAMS:

1. Teams consist of between two and seven members, depending on selected modules and data to be evaluated.
2. Each team will elect or appoint 2 officers:
   a. President – responsible for coordinating the efforts of the team.
   b. Chief Geophysicist – responsible for all contact with the GOVERNMENT or with other teams.
3. Teams will initially be known as A, B, …, but are responsible to register an official company name with the government within 2 hours of the start of the game using form (A).
4. Partnerships between different teams need to be reported with a transfer of funds, form (B), in order to be recognized.

GOVERNMENT:

1. Workshop instructor(s) represent the GOVERNMENT (in all of it's wisdom).
2. GOVERNMENT decisions are final (and right).
3. The GOVERNMENT will strictly follow the leasing schedule (see DEADLINES), unless it changes it's mind.

MONEY:

1. Approximately 1/4th of the teams will start with $10MM each.
2. All other teams will start with $6MM each.
3. If data acquisition, lease requests, partnerships, and/or drilling commitments exceed company(ies) resources, all processes involving the company are invalidated.
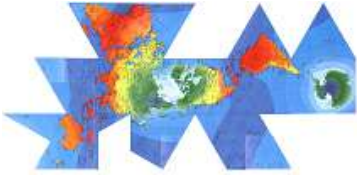
DEADLINES:
1. Will be preset by the GOVERNMENT, based on the specified company environment, modules selected, and data sets selected. Deadlines will be handed out with the initial data package.
2. All deadlines must be met. No exceptions.

DATA:
1. Data to be distributed during The Exploration Game will be defined based on the specified company environment, modules selected, and data sets selected. The schedule for data distribution will be handed out with the initial data package.
2. The price for obtaining data will be handed out with the initial data package.
3. All data transactions are reported with a transfer of funds form (B).
4. New data can be made available or withdrawn at any time, as decided by the GOVERNMENT.

LEASES:
1. Lease bids are submitted on Bid Form (C).
2. Leases are awarded to the highest bidder(s) by the GOVERNMENT.
3. Lease Partnerships (before or after a lease award) are reported on a transfer of funds form (B).

DRILLING:
1. All drilling requests will be submitted on a drilling request form (D).
2. The GOVERNMENT will provide drilling results at it's pleasure.
3. The number of possible drilling locations will be specified in a handout with the initial data package. Wells on the corners of blocks are shared equally between the four adjacent blocks. Wells on the edge, are shared equally between the owner (s) of the two adjacent blocks. Wells in the center of a lease block are entirely the property of the owner(s) of that lease.
4. Each well is assigned a production value. This value is divided equally between the leases that adjoin the well location.
5. Money from successful wells can be reinvested in other wells, leases, and seismic data, immediately upon notification of drilling results by the GOVERNMENT.

FORMS:
A. Official Company Name Form
B. Transfer of Funds Form
C. Lease Bid Form
D. Drilling Request Form
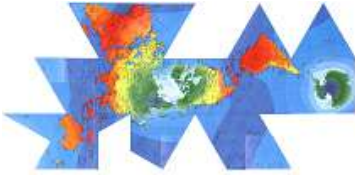
PUBLIC DATA TO BE POSTED BY THE GOVERNMENT

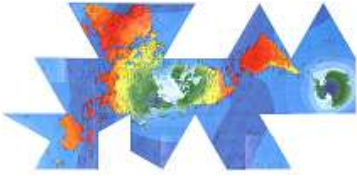1. **Summary of Financial Transactions:**

Team Name → / Time ↓	A	B	C	D	...
Start	$10,000,000	$6,000,000	$6,000,000	$6,000,000	
Time 2	-$1,000,000	-$500,000	-$750,000	-$400,000	
Time 3					
•					
•					
•					
TOTALS	$9,000,000	$5,500,000	$5,250,000	$5,600,000	
Team Ranking	1	3	4	2	

2. **Lease Sale Bid Forms:**

1st Lease Sale			2nd Lease Sale		
BLOCK	COMPANY	BID	BLOCK	COMPANY	BID
A			A		
B			B		
C			C		
D			D		
•			•		
•			•		
•			•		

3. **Drilling Results:**

WELL NAME	WELL LOCATION X	WELL LOCATION Y	OWNING COMPANIES	PRODUCTION RESULTS	VALUE PER COMPANY
#1					
#2					
#3					
•					
•					
•					

**Customer Environment (The Framework to Replicate in The Exploration Game)**
1. Systems Environment (check each relevant box):
    a. Systems (provided by client: Yes ☐ No ☐):
        i.   Personal Computers   ☐ # _____
        ii. Linux Computers   ☐ # _____
        iii. Unix Workstations   ☐ # _____
    b. Software (provided by client: Yes ☐ No ☐):
        i.   Landmark Graphics   ☐ # _____
        ii. GeoQuest   ☐ # _____
        iii. SMT   ☐ # _____
        iv. dGB   ☐ # _____
    c. Simulation Tools:
        i.   Synthetics from Check-Shots and Sonic Logs (GDCMOD) ☐
        ii. Depositional Simulation (MarcoPolo)   ☐
        iii. Fluid Migration Simulation (IES GmbH)   ☐
        iv. Synthetic Seismic Sections (GDCMOD)   ☐
        v.   Ray Trace Offset Gathers (GDCMOD)   ☐
        vi. Full Elastic Wave Equation Offset Gathers (SOLID)   ☐
2. Exploration Environment (Select Basin: _____), or select:
    a. Structural Styles:
        i.   Gravity Control   ☐
        ii. Salt or Shale Flows   ☐
        iii. Strike-Slip and Thrusting   ☐
    b. Depositional Systems
        i.   Siliciclastics   ☐
        ii. Carbonates   ☐
        iii. Mixed, including Volcanics   ☐
    c. Expected Traps
        i.   Folds   ☐
        ii. Faults   ☐
        iii. Salt Welds   ☐
        iv. Stratigraphic   ☐
        v.   Digenetic   ☐
        vi. Combination   ☐
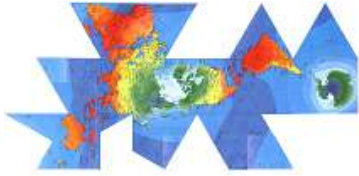
Modules (check each relevant box)

1. Develop Focused Exploration Concept: _____ ☐
   a. Define Play Fairways (trend curves, A/B, etc.) ☐
   b. Predict Anticipated Prospects ☐
   c. Access Outcrop, Log, and Seismic Analogs (Abbott Atlas) ☐
2. Manage Exploration Data: _____ ☐
   a. Acquire Seismic Data ☐
      ii. Acquire 2-D Seismic Data ☐
      iii. Acquire 3-D Seismic Data ☐
         • Design 3-D Seismic Survey Design ☐
         • Understand 3-D Seismic Field Operations ☐
         • QC Seismic Acquisition ☐
   b. Seismic Processing ☐
      i. Time Processing ☐
      ii. Imaging ☐
      iii. Depth Processing ☐
   c. Data Management ☐
      i. Legacy Exploration Data ☐
      ii. Project Exploration Data ☐
      iii. Data Mining ☐
3. Generate Prospects: _____ ☐
   a. Evaluate Well logs ☐
      i. Edit Well logs ☐
      ii. Build Percent Sand Curves ☐
      iii. Create Synthetics ☐
      iv. Create Ray Trace Fluid Substitutions ☐
      v. Create Synthetic Angle Stacks ☐
      vi. Create Elastic Fluid Substitutions ☐
   b. Evaluate Seismic ☐
      i. Load Data on Workstation ☐
      ii. Interpret Fault Framework ☐
      iii. Interpret Horizons ☐
      iv. Interpret Geobodies ☐
      v. Convert Surfaces and Geobodies to Depth ☐
   c. Tie Well Log Synthetics and Seismic ☐
   d. Define Traps ☐
   e. Identify Prospect Migration Pathway ☐
4. Generate Prospect Report: _____ ☐
   a. Make Production Forecast and Rank Prospects ☐
   b. Predict Operating Expense and Capital Expense ☐
   c. Define Economic Measures and Probability of Creating Value ☐
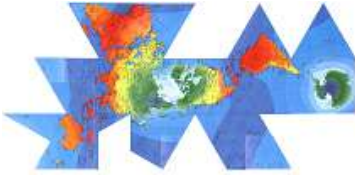
5. Earth Model Context: _____ ☐
   a. Engineering Considerations ☐
   b. Earth Physics Considerations ☐
   c. Geology Considerations ☐
   d. Integrated Calculations ☐
6. Project Integration: _____ ☐
   a. Physical Space ☐
   b. Conceptual Space ☐
   c. Measurement Space ☐
7. Reports and Bidding: _____ ☐
   a. Living Digital Reports ☐
   b. Indexing Reports for Future Reference ☐
   c. Training Repository ☐

Data Sets
1. Boonsville 3-D from BEG ☐
2. Stratton 3-D from BEG ☐
3. Nigerian Marginal Fields (?) ☐
4. Deep Water Studies ☐
5. Miocene Study ☐
6. Tile Rock Property SEG-Y Volumes ☐
7. Customer Provided Seismic and Well Data ☐

Module Name	**Time**	
1. Develop Focused Exploration Concept	4 hours	☐
2. Manage Exploration Data	6 hours	☐
3. Generate Prospects	6 hours	☐
4. Generate Prospect Report	4 hours	☐
5. Earth Model Context	4 hours	☐
6. Project Integration	4 hours	☐
7. Reports and Bidding	4 hours	☐

Costs (not including the cost of leasing of hardware or software)
1. $600 per participant Modules 1, or 4-7.
2. $800 per participant Modules 2 or 3.
3. $1,000 per participant 2-3 Modules
4. $1,200 per participant 4-5 Modules
5. $1,500 per participant 6-7 Modules

The Exploration Game requires inclusion of Module 3.
25% course cancellation fee.