

Permitting, Collection and Public Release of Data and Information

U.S. Bureau of Ocean Energy Management



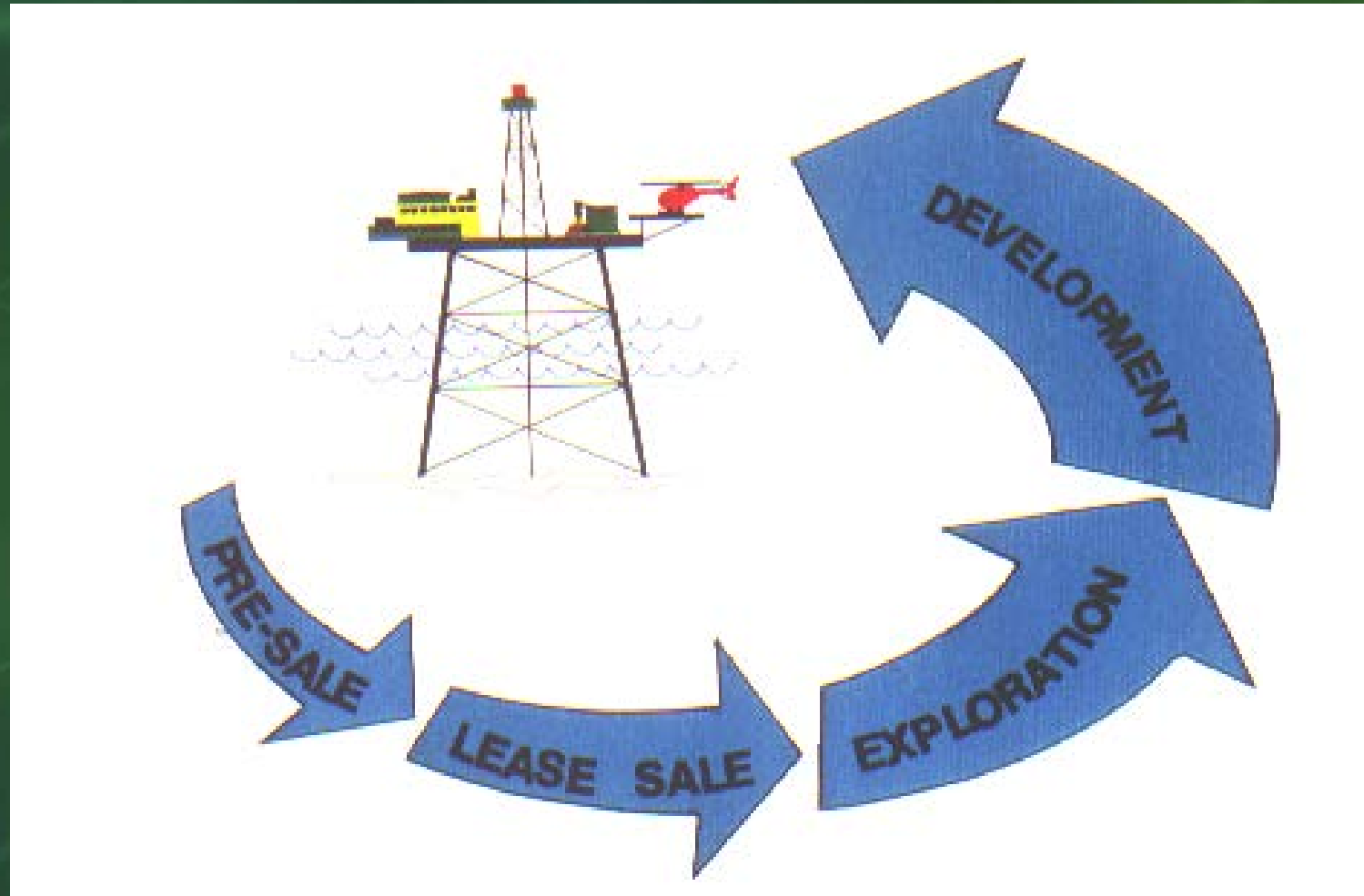
Discussion Topics

- Introduction
 - Why We Need Data
 - Data Sources
- BOEM Data Acquisition Program
 - General Regulatory Requirements
 - BOEM Data Acquisition Schema
 - Prelease Data and Information
 - Postlease Data and Information
 - Scientific Research
 - Non Compliance
 - Legal Basis

Discussion Topics contd.

- Data Management
 - GIT
 - Data Release
- Data Example
 - Return on Investment
- Concluding Remarks

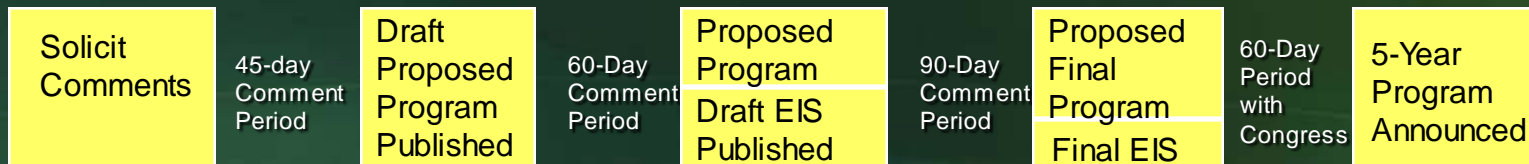
Proper Stewardship Requires Knowledge



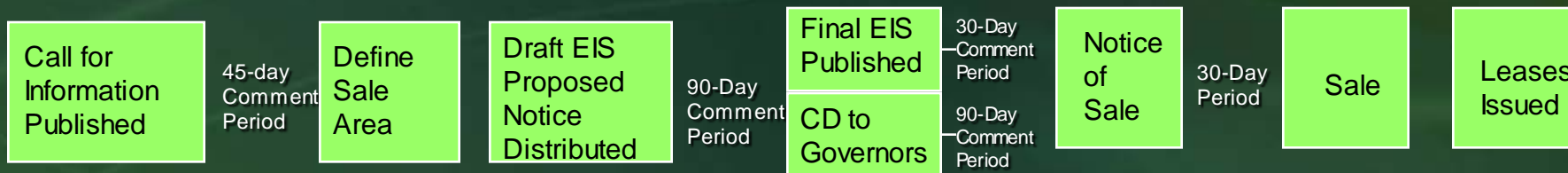
OCS Leasing, Exploration, & Development Process

Release

Develop 5-Year Program

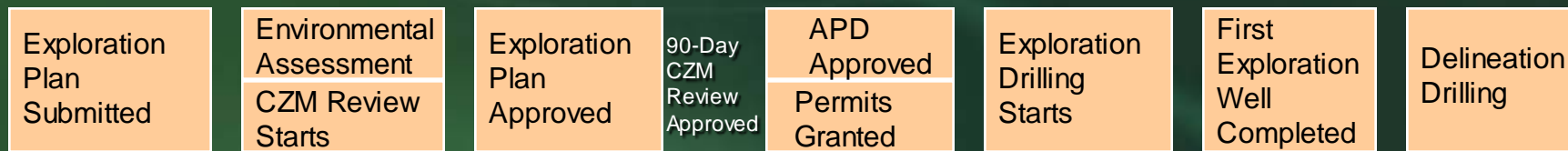


Planning for Specific Sale

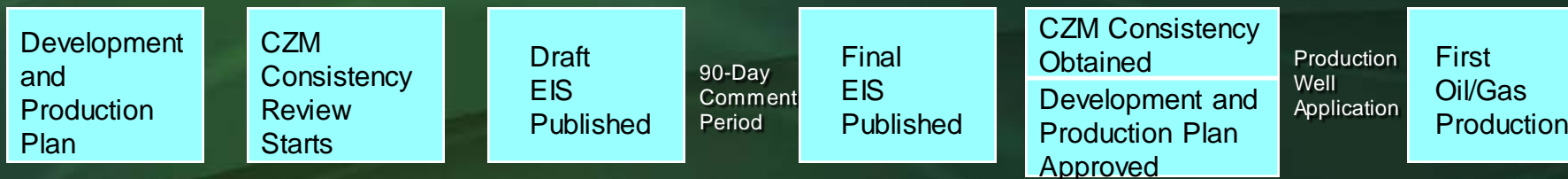


Post Lease

Exploration Plan Approval



Development & Production Plan Approval



Assessing Data and Information Needs

Type Of Evaluation

Basin → Play → Prospect → Field

Scale Of Data

General → Specific

Data and Information Available to BOEM for Resource Evaluation

● Public Data Sources

- Literature
- USGS, DOE, State Agencies
- Purchase of well logs and seismic data (includes state and foreign i.e. Canada, Mexico, and Cuba data)
- Purchase of studies or interpretations

● BOEM/BSEE Proprietary Data Sources

- Pre-lease
- Post-lease

Data and Information Available to BOEM for Resource Evaluation contd.

- Pre-Lease Data
 - Industry gathering of data (mostly seismic) is a normal part of the pre-lease process.
- Acquired Through BOEM Permit
 - Available for BOEM Inspection
 - Available to BOEM for cost of Reproduction
 - Used for Lease Sales and all other evaluations
 - Types of data
 - Technological advances in data

Data and Information Available to BOEM for Resource Evaluation contd.

- What we can tell with this data
- Data is made available to the public after prescribed time period
- Post-Lease Data (now BSEE)
 - Acquired through lease agreement
 - Consists of all data from wells, all production and injection data, seismic data shot on-lease
- G&G Data Budget
 - Mostly pre-lease seismic data purchased
 - \$2-3 million / year, mostly for GOMR

The Bottom Line

- Large amounts of data and information are required to perform our functions as a government regulator of the oil and gas industry.
- Your data acquisition process must assure that you have timely access to the types and quantity of data necessary to carry out your mission.

BOEM Data Acquisition Program

- BOEM does not physically acquire E&P data and information
- BOEM regulations are designed to assure that BOEM has access to all relevant data and analyzed or interpreted information acquired by permittees or operators
- This is accomplished by
 - Application and issuance of permits
 - Notification Requirements
 - Various approvals during drilling and production operations

General Requirements of Prelease OCS Permits and Notices

Geophysical and geological activities shall be conducted so that they do not:

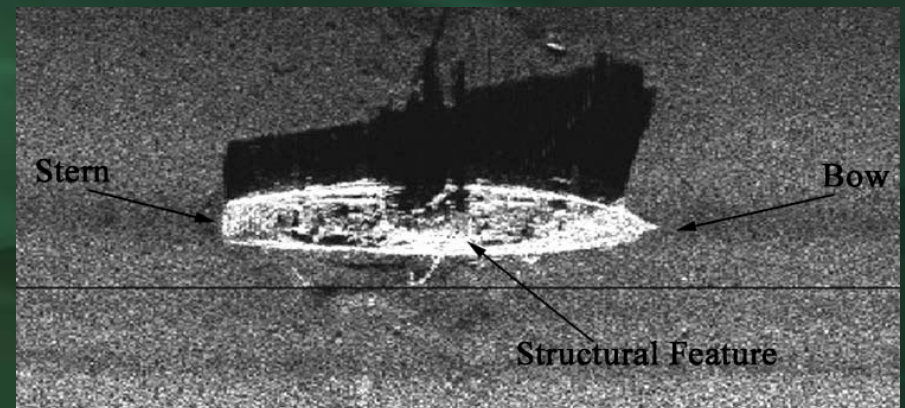
- Harm or damage aquatic life,
- Cause pollution,
- Disturb cultural resources,
- Interfere with operations under any lease,
- Create hazardous or unsafe conditions,
- Unreasonably harm or interfere with other uses of the area



General Requirements of Prelease OCS Permits and Notices contd.

Any person conducting geophysical or geological activities shall immediately report to BOEM when they:

- Detect hydrocarbon occurrences,
- Encounter environmental hazards which constitute an imminent threat to human activity,
- Adversely affect the environment, aquatic life, cultural resources, or other uses of the area.

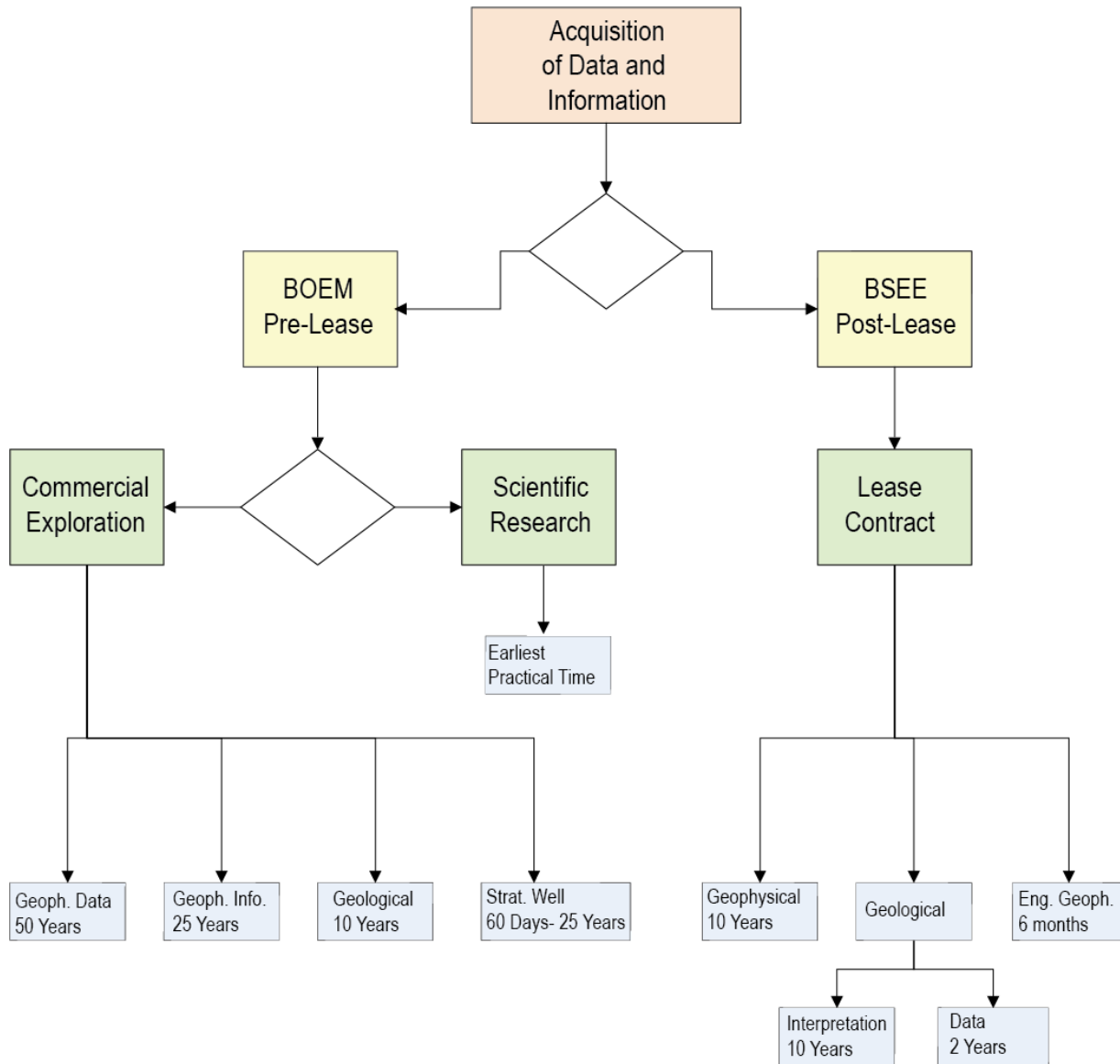


Steam Yacht *Anona*, GOM, 1904 - 1944

Regulatory Scheme

Permit Type Required:

Public Data Release Terms:



Exploration for Mineral Resources

- *Definition:* The **commercial** search for oil, gas, and sulphur. Activities classified as exploration include geological and geophysical marine and airborne surveys where magnetic, gravity, seismic reflection, seismic refraction, gas sniffers, coring, or other systems are used to detect or imply the presence of oil, gas, or sulphur, and, any drilling, whether on or off structure.



Prelease Geophysical and Geological Surveys

- *Definition:* Data and information produced by geophysical and geological techniques that is related to the existence or characterization of mineral resources on unleased lands or on lands under lease to a third party.

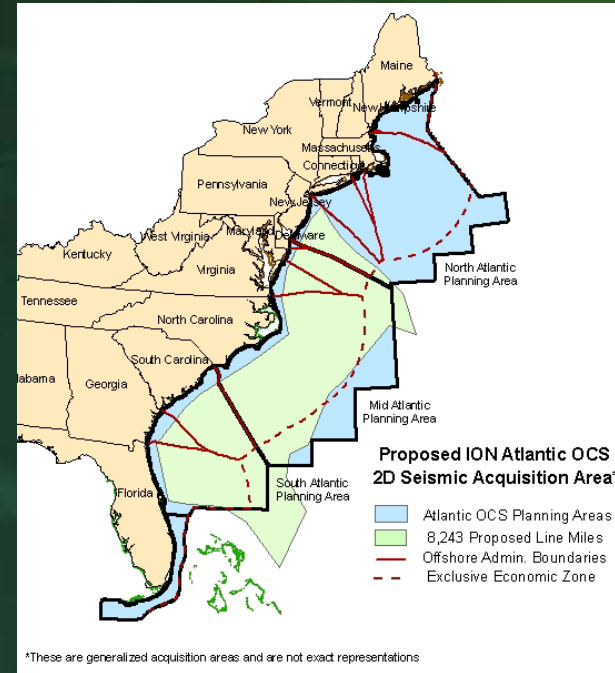
G&G Permitting and Acquisition

- Issue Permits to allow G&G acquisition companies and E&P companies to acquire G&G data in the GOM, Atlantic, Alaska, and Pacific regions.
- Pre-lease only
 - On lease activities are covered under 30CFR250 (Ancillary Activities) – 30 day notification required
- Permitting for oil and gas – 30 CFR 251
- Permitting process for other minerals – 30 CFR 280
- G&G data (primarily seismic data) acquired may be multi-client or exclusive
- Data available for BOEM inspection
- Data available to BOEM for cost of reproduction

G&G Permitting

● Permitted Activities: Geophysical Surveys

- 2D and 3D Seismic
- Controlled Source Electromagnetic (CSEM)
- Gravity and Magnetics
- High Resolution Seismic
- Aeromagnetic Surveys



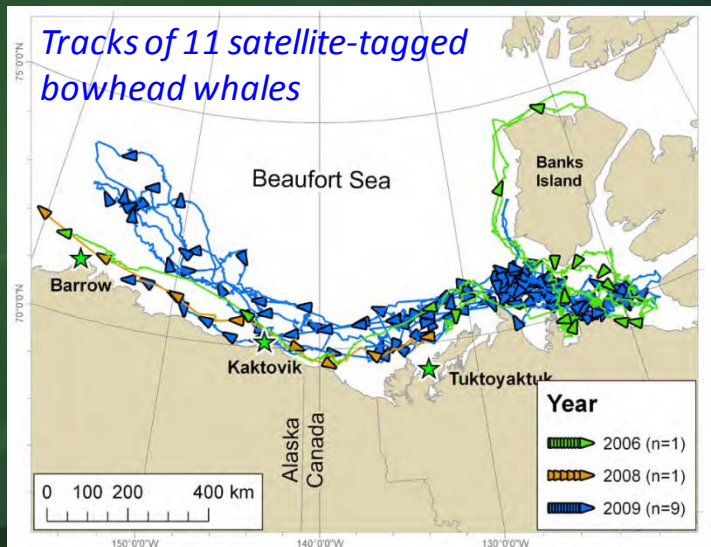
● Permitted Activities: Geological Surveys

- Coring
- Shallow Test Drilling
- Deep Stratigraphic Test Wells

G&G Permitting contd.

BOEM Permitting Process

- Application for G&G permit submitted to BOEM by E&P company or contractor (includes *pre-plot* map)
- Note: pre-plot map is posted on GIS system; provides current activity map
- Environmental Assessment (EA) required by National Environmental Policy Act (NEPA)



- Marine Mammal Protection Act (MMPA)
- Endangered Species Act (ESA)
- National Historic Preservation Act

G&G Permitting contd.

- Environmental mitigations are attached to the permit
 - Ramp-up
 - Marine Mammal Observers (MMO)
- Signed by BOEM Regional Supervisor for Resource Evaluation
- Permit issued (issued in 60 day increments up to 1 year)
- Final Report (including *post-plot* map) and digital navigation data are submitted to BOEM at conclusion of acquisition.
 - Note: digital navigation is posted on GIS system and provides location of survey as actually acquired



Requirements for an Exploration Permit

- Permits do not convey rights to any minerals discovered.
- Submit an application for a permit at least 30 days prior to the anticipated start date, which includes:
 - Name of person who will conduct the proposed activity.
 - The type of activity and manner in which the activity will be conducted.
 - Expected start and end dates.
 - Locality of survey.
 - Vessel, registry number, port of registry, owner.
 - Navigation system.
 - Energy source.
 - Anticipated data on which the data will be available to BOEM for inspection.

Attachment 1

**UNITED STATES
DEPARTMENT OF THE INTERIOR
MINERALS MANAGEMENT SERVICE**

**GULF OF MEXICO REGION
(AREAS IN GULF OF MEXICO AND ATLANTIC OCS)**

**APPLICATION FOR PERMIT TO CONDUCT GEOLOGICAL OR GEOPHYSICAL
EXPLORATION FOR MINERAL RESOURCES OR SCIENTIFIC RESEARCH
IN THE OUTER CONTINENTAL SHELF**

(Section 11, Outer Continental Shelf Lands Act of August 7, 1953, as amended on September 18, 1978,
by Public Law 95-372, 92 Statute 629, 43 U.S.C. 1340, and 30 CFR Part 251)

WesternGeco, LLC

Name of Applicant

10,001 Richmond Avenue

Number and Street

Houston, TX 77042

City, State, and Zip Code

Multi-Client

Name of Service Company or Purchaser
(if different from above)


Application is made for the following activity: (check one)

Geological exploration for mineral resources

Geological scientific research

Geophysical exploration for mineral resources

Geophysical scientific research



Submit: Original, two copies, and one public information copy.

To be completed by MMS

Permit Number: 509-01 **Date:** Feb 2, 2009

NMS Form MMS-327 (July 2008 - Supersedes all previous versions of Form MMS-327 which may not be used.) Page 5 of 11

Requirements for an Exploration Permit contd.

- Complete a permit form, which includes the following information:
 - Name of person who will conduct the proposed activity.
 - Name of contractor, if different.
 - The type of activity and the manner in which the activity will be conducted.
 - Brief description of operations.
- The permit is a contract between the permittee and the U.S. Government and authorizes specific activities under specific terms and conditions.



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- Offshore Energy
- Enviro. Stewardship
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- Pipeline Open Access
- GOMESA Rev. Sharing
- Public Engagement
- Contact Us
- Alaska
- Atlantic
- Gulf of Mexico
- Pacific

Permit Application Forms - G&G

A cost recovery fee of \$2,012 is required for each G&G permit application submitted and must be paid electronically using the Pay.Gov system. Additional information about the payment of cost recovery fees can be found at:

<http://www.boemre.gov/offshore/paygov.htm>

Companies wishing to collect geological and geophysical data on the OCS prior to a lease sale must obtain a permit from the Resource Evaluation Office of BOEMRE. A non-refundable service fee is required to be paid at the time of submission of the application.

Application forms can be downloaded from this page in Adobe Acrobat format. Contact the Alaska Region Resource Evaluation G&G [Permit Coordinator](#) with questions on completing the forms to fully meet the BOEMRE application requirements or call (907) 334-5328.

Oil, Gas, and Sulphur Activities:

- Application for Permit to Conduct Geological or Geophysical Exploration for Mineral Resources or Scientific Research in the Outer Continental Shelf (BOEMRE [Form MMS-327](#))
- Permit for Geophysical Exploration for Mineral Resources or Scientific Research in the Outer Continental Shelf (BOEMRE [Form MMS-328](#))
- Permit for Geophysical Exploration for Mineral Resources in the Outer Continental Shelf (BOEMRE [Form MMS-329](#))

Prospecting for Minerals Not Related to Oil, Gas, and Sulphur Activities:

- Application for Permit to Conduct Geological or Geophysical Exploration for Mineral Resources or Scientific Research in the Outer Continental Shelf Related to Minerals Other than Oil, Gas, and Sulphur (BOEMRE [Form MMS-134](#))
- Permit for Geophysical Prospecting for Mineral Resources or Scientific Research in the Outer Continental Shelf (BOEMRE [Form MMS-135](#))
- Permit for Geophysical Exploration for Mineral Resources in the Outer Continental Shelf (BOEMRE [Form MMS-136](#))

Hot Topics:

[NEW Reforms](#)

[Ocean Energy Safety Advisory Committee](#)

Prelease G&G Surveys: Permit Requirements - Standard Stipulations and Special Provisions

- Stipulations:
 - Require all lessees or operators be notified in writing in advance of activities.
 - Requirements for use of explosives.
 - Formats for submittal of navigation and other data.
- Special Provisions:
 - Endangered species.
 - Archaeological resources.
 - Biologically sensitive areas.
 - Military (DOD) warning and operating areas; hold and save harmless clause.
 - Activities extending beyond the EEZ require State Department notice.

Prelease G&G Surveys: Permit Requirements - Short Term

- Progress Reports:
 - Bimonthly status of operations.
 - Daily Log of operations.
 - Map showing data actually acquired.
- Completion Report within 30 days of completion:
 - A description of the actual work performed.
 - Post survey navigation/location plot and digital data.
 - Date actual activities performed.
 - Narrative summary of any hydrocarbons detected, environmental hazards encountered, and any adverse impacts on environment, aquatic life, cultural resources or other uses of the area.

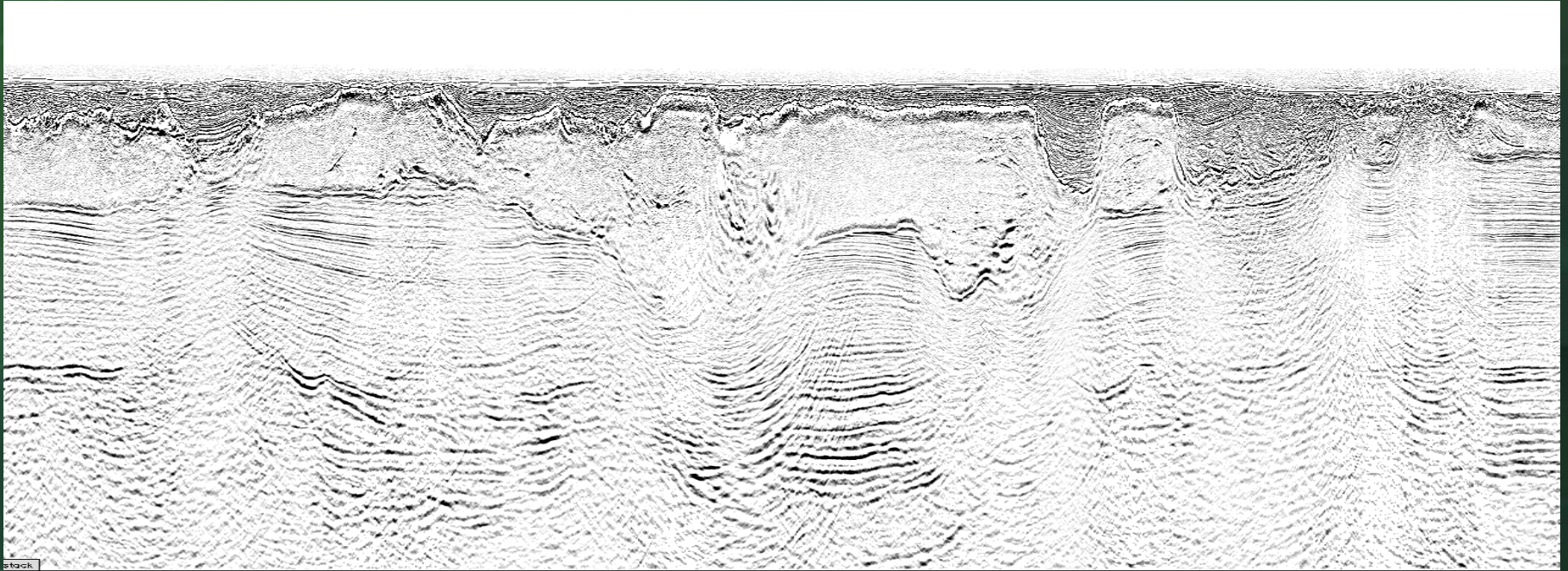
Prelease G&G Surveys: Permit Requirements - Long Term

- BOEM Inspection of data and information:
 - Notify BOEM in writing within 30 days of initial processing or analysis of data.
 - Respond within 30 days following a request from BOEM as to the availability of reprocessed information.
 - Provide data and information for BOEM inspection and/or retention within 30 days of receipt of a request.
 - In the event that information or data is transferred from the permittee to a third party, by its acceptance of the data set, and a provision of the transfer, the third party assumes the same obligations of the permittee.

Prelease G&G Surveys

Data and Information Submittal Requirements:

- No mandatory submittals.
- BOEM must initiate request for data.



Purchasing Data

- Sources of Data:
 - Permitted Data (Pay for cost of reproduction)
 - Multi-Client data
 - Exclusive Data (includes enhanced data from bidders during a lease sale)
 - Non-Permitted Data (Pay full price)

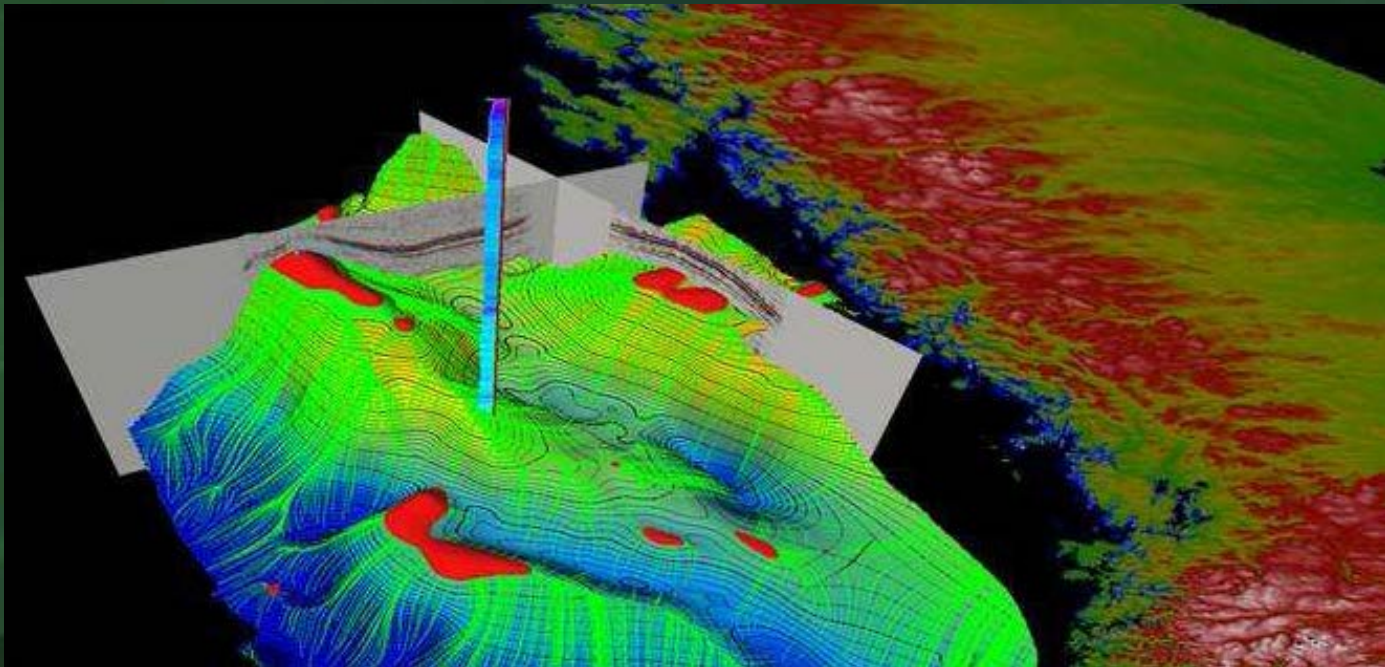
Data Type	Reproduction Cost	Unit
2-D Data	\$0 - \$0.10	Per Line-Mile
3-D Data	\$0 - \$50.00	Per Lease Block (9 mi ²)

Purchasing Data

- Draft letter to data holder requesting
 - SEG-Y data (may obtain multiple data sets for multiple migration algorithms; RTM, WAZ)
 - Navigation Data
 - Stacking Velocities
- By regulation BOEM must receive the data within 30 days
- Upon receipt, data is logged in and prepared for loading

Post-lease Geophysical and Geological Surveys

- *Definition:* Data and information produced by geophysical and geological techniques that is performed on a lease by or on the behalf of a lessee.



Postlease Required BOEM/BSEE Approvals

- Exploration Plans (EP)
- Application for Permit to Drill (APD)
- Drilling Operations (APM or Sundry Notices)
- Development and Production Plans (DOCD or DPP)
- Conservation Information Document (CID)
- Production Reporting (OGOR)

Postlease Data and Information Types

- Well histories
- Geological and geophysical interpretations - markers, structure and isopach maps, cross-sections, etc.
- Geologic samples - cores, paleontological and petrologic cuttings and samples and associated analyses
- Well logs, directional and other surveys run in wellbore
- Fluid samples and analyses
- Well test results – pressure and production tests
- Production histories
- Reservoir data – rock properties, fluid contacts, PVT analyses, etc.
- Records must be maintained by operator for 2 years

Operations, Production and Performance Data and Information

Important to have accurate records of all operations and activities associated with drilling and operating a well

- Create an inventory of activities that generate necessary information to support resource evaluation activities
- Provides a check list for the completeness and timeliness of company data submittals

Postlease G&G Surveys: Requirements

- Prior Notification.
- Conditions include protective measures for endangered species, archaeological resources and topographic features similar to prelease permits.
- Notification of DOD if operating in military warning areas.
- All requirements are those of designated operator or lessee.

Postlease G&G Surveys

- Information submittal is required for:
 - Plan of Exploration (EP)
 - Development Plan (DOCD or DPP)
 - Platform Applications
 - Pipeline Applications
 - Platform Removal
 - Site Clearance
- The same survey can be used to fulfill several requirements.

Postlease G&G Surveys: Completion Report

Must be submitted within 60 days of completion of activities:

- Description of all activities performed.
- Final postplot map and digital navigation data.

Contact Us

Alaska

Atlantic

Gulf of Mexico

Pacific

Hot Topics:

[New Reforms](#)

[Ocean Energy Safety Advisory Committee](#)

[Notice to Lessees](#)

[Well Permits and Plans](#)

[Investigations and Review Unit](#)

[Deepwater Horizon Library & Reading Room](#)

Contact:

[Public Affairs](#)

Leasing and Adjudication

MMS-149	Assignment of Federal OCS Pipeline Right-of-Way Grant (Use this form to pay for a Pipeline ROW grant assignment)
MMS-150	Assignment of Record Title Interest in Federal OCS Oil and Gas Lease -- Reporting Instructions (Use this form to pay for a Record title/assignment of operating rights transfer)
MMS-151	Assignment of Operating Rights Interest in Federal OCS Oil and Gas Lease -- Reporting Instructions (Use this form to pay for a Record title/assignment of operating rights transfer)
MMS-152	Relinquishment of Federal OCS Oil and Gas Lease

Drilling and Operation

MMS-123	Application for Permit to Drill (APD) -- Reporting Instructions
MMS-123S	Supplemental APD Information Sheet -- Reporting Instructions
MMS-124	Application for Permit to Modify (APM) (previously Sundry Notices and Reports on Well) -- Reporting Instructions
MMS-125	End of Operations Report (EOR) (previously Well Summary Report) -- Reporting Instructions
MMS-131	Performance Measures Data -- Reporting Instructions -- Reporting Element Definitions
MMS-133	Well Activity Report (WAR) (previously Weekly Activity Report) -- Reporting Instructions ; Tool Code List (updated 01/13/2011)
MMS-133S	Open Hole Data Report (Supplement to the Well Activity Report)
MMS-143	Facility/Equipment Damage Report
MMS-144	Rig Movement Notification Report -- Reporting Instructions
Instructions	Directional Survey Reporter's Handbook (updated 06/25/2007) (applicable for wells that reach total depth on or after July 15, 2006)
Instructions	Velocity Survey Reporter's Handbook (updated 10/26/2007) (applicable for wells that reach total depth on or after July 15, 2006)

Exploration

MMS-141	ROV Survey Report
MMS-142	Environmental Impact Analysis Worksheet
MMS-327	Requirements for Geological and Geophysical Exploration or Scientific Research in the Outer Continental Shelf

Postlease G&G Surveys: Additional Data Submittal Requirements

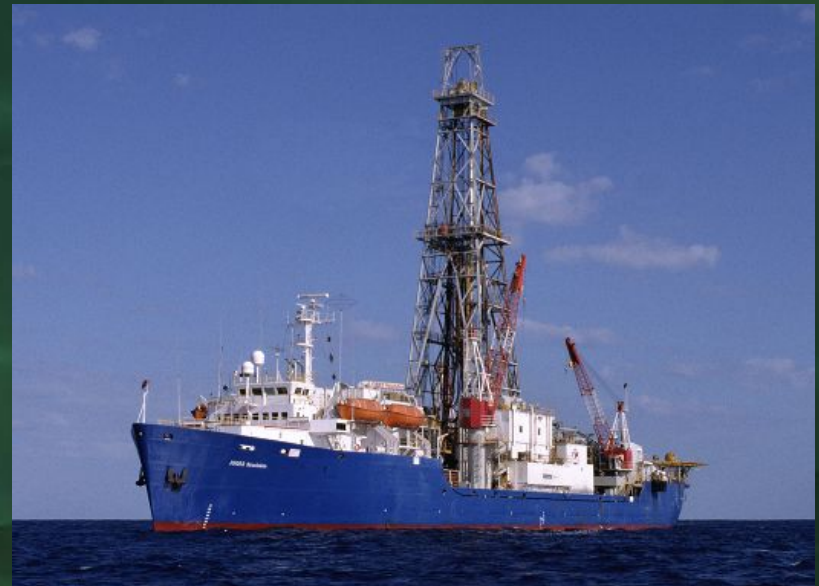
- Borehole geophysics: Digital velocity and check shot surveys are required to be submitted within 30 days of completion of the activity. Other borehole seismic data and information must be submitted if requested.
- Geologic surveys: Data and information, when requested, must be submitted within 30 days.

Postlease G&G Surveys: Reimbursement for Selected Data

- Permittee, lessee or third party will be reimbursed for the reasonable costs of reproduction at their lowest rate or at the lowest commercial rate established in the area, whichever is less.
- If BOEM requests that the information be processed or reprocessed in a form and manner other than that used in the normal conduct of business, BOEM will reimburse for reasonable costs attributable to this processing or reprocessing.
- BOEM will not reimburse for acquisition costs.

Prelease Surveys – Scientific Research

Definition: Any oil, gas, or sulphur related investigation conducted on the OCS for scientific and/or research purposes. Geological, geophysical or geochemical data and information gathered and analyzed are made available to the public for inspection and reproduction at the earliest practicable time. This term does not include commercial geological or geophysical exploration or research.



JOIDES Resolution scientific drillship - IODP

Requirements for a Notice for Scientific Research

- All requirements are those of person sponsoring the activity.
- A notice must be filed 30 days prior to the commencement of activities.
- Nonstandard form, but must include:
 - The type of activity and manner in which it will be conducted.
 - Name of persons conducting and participating in research.
 - Location designated on a map, plat or chart.
 - Dates on which research will start and end.
 - Proposed time and manner in which information will be made available to the public.
 - An agreement that the information and data will not be sold or withheld for exclusive use.
 - Name, registry number, registered owner and port of registry of vessels used in operation.

Enforcement and Penalties for Noncompliance - Pre-release

- Temporarily suspend an activity
- Impose civil penalties if the violation persists after being notified and provided a reasonable time for corrective action or for repeated violations
- Cancel a permit, lease, right-of-way, or approval
- Forfeiture of any performance bonds
- Debarment
- Criminal penalties

Enforcement and Penalties for Noncompliance - Postlease

- Temporarily suspend an activity
- Issue reports documenting incidents of noncompliance
- Cancel a permit, lease, right-of-way, or approval
- Forfeiture of any performance bonds
- Debarment
- Criminal penalties

Geophysical, Geological Activities – BOEM Authorities and Regulations

- OCS Lands Act (43 USC 1331 et seq., as amended)
- Code of Federal Regulations
 - Oil, Gas & Sulphur: 30 CFR Parts 250, 251 and 252
 - Other Minerals: 30 CFR Parts 280 and 282
- Notices to Lessees and Letters to Permittees

**Code of Federal
Regulations (CFR)**



Data Management - G&G Budget

- The G&G Budget for BOEM is managed by the Resource Evaluation Division (RED) in Headquarters and shared by the Alaska, Gulf of Mexico, and Pacific regional offices.
- Each region prepares a prioritized list of G&G data required to properly evaluate oil and gas resources in their region.
 - Requires an intimate knowledge of G&G data and the needs of the region.
 - Permitting G&G data acquisition allows the BOEM to determine which data sets may be available for purchase.
 - Additionally, BOEM contacts G&G data vendors to find out which data sets are newly available for purchase.

Data Volume

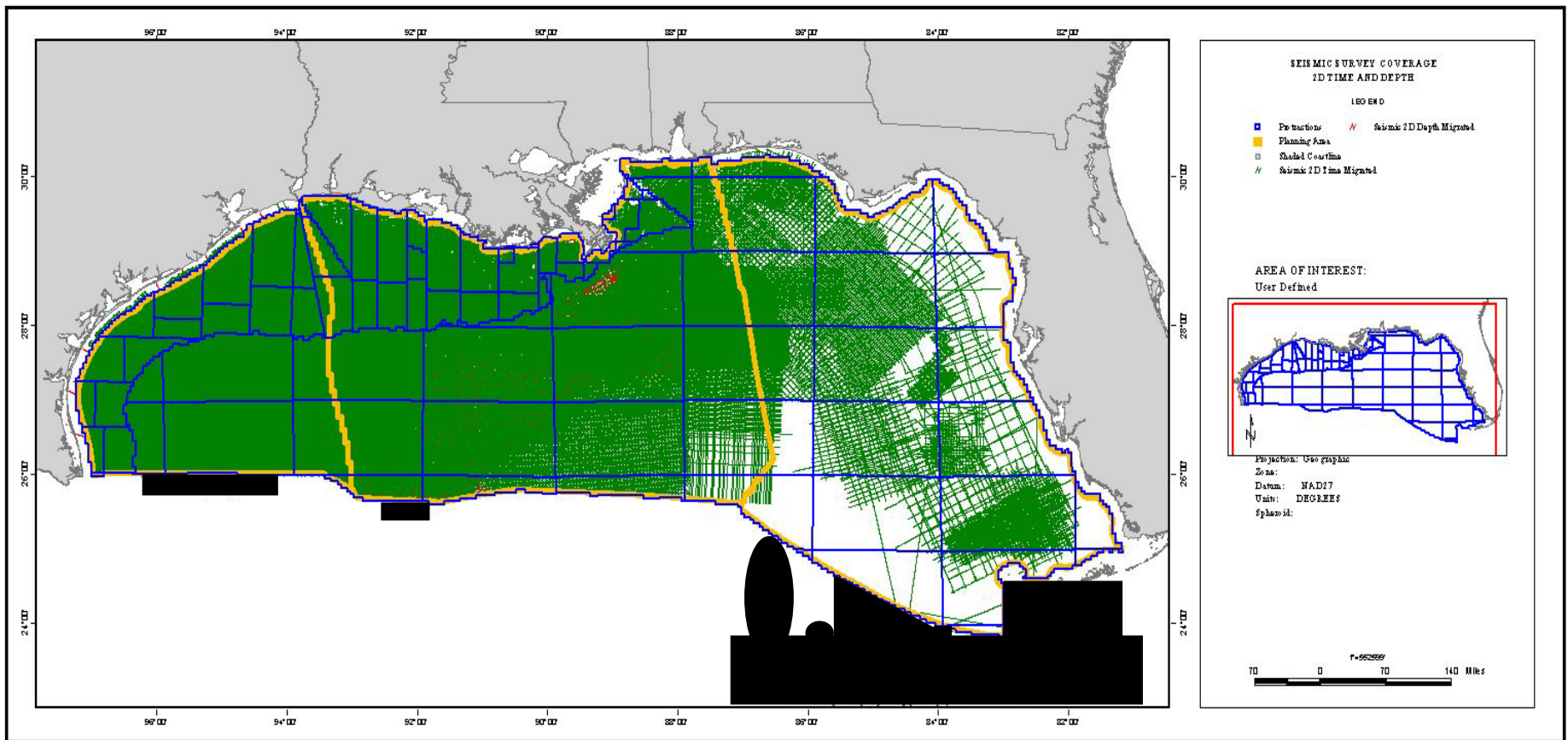
- BOEM Seismic Data
 - 67 terabytes of 8 bit seismic data on-line
 - 1831 3D seismic projects (may contain more than one seismic survey; more than one type of migration)
 - 1,272,600 miles² or 3,296,032 km²
 - 303 2D seismic projects (may contain more than one survey; more than one type of migration)
 - 2,584,000 line miles or 4,158,545 km
 - ~310 terabytes of 32 bit data on near-line storage (HSM tape robotic system)

Data Volume contd.

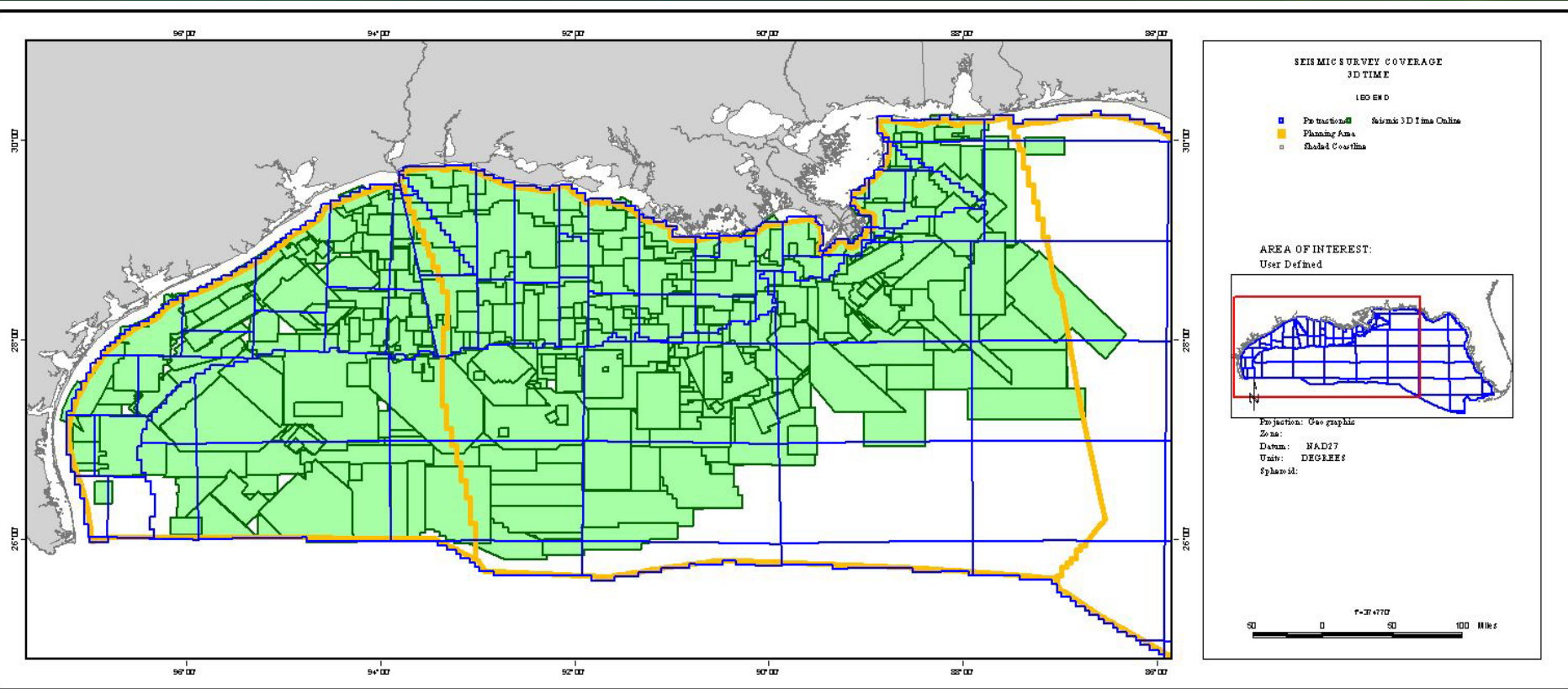
45,000 wells drilled in the Gulf of Mexico

- Operators are required to submit well data as part of the permitting process
 - 1,275,000 digital LAS well log curves
 - 5 terabytes of digital logs
 - BOEM purchased 30,000 workstation ready logs via a contract
 - 470,000 well log images (1.65 terabytes)
 - 50,000 well directional surveys
 - Over 7 million production records

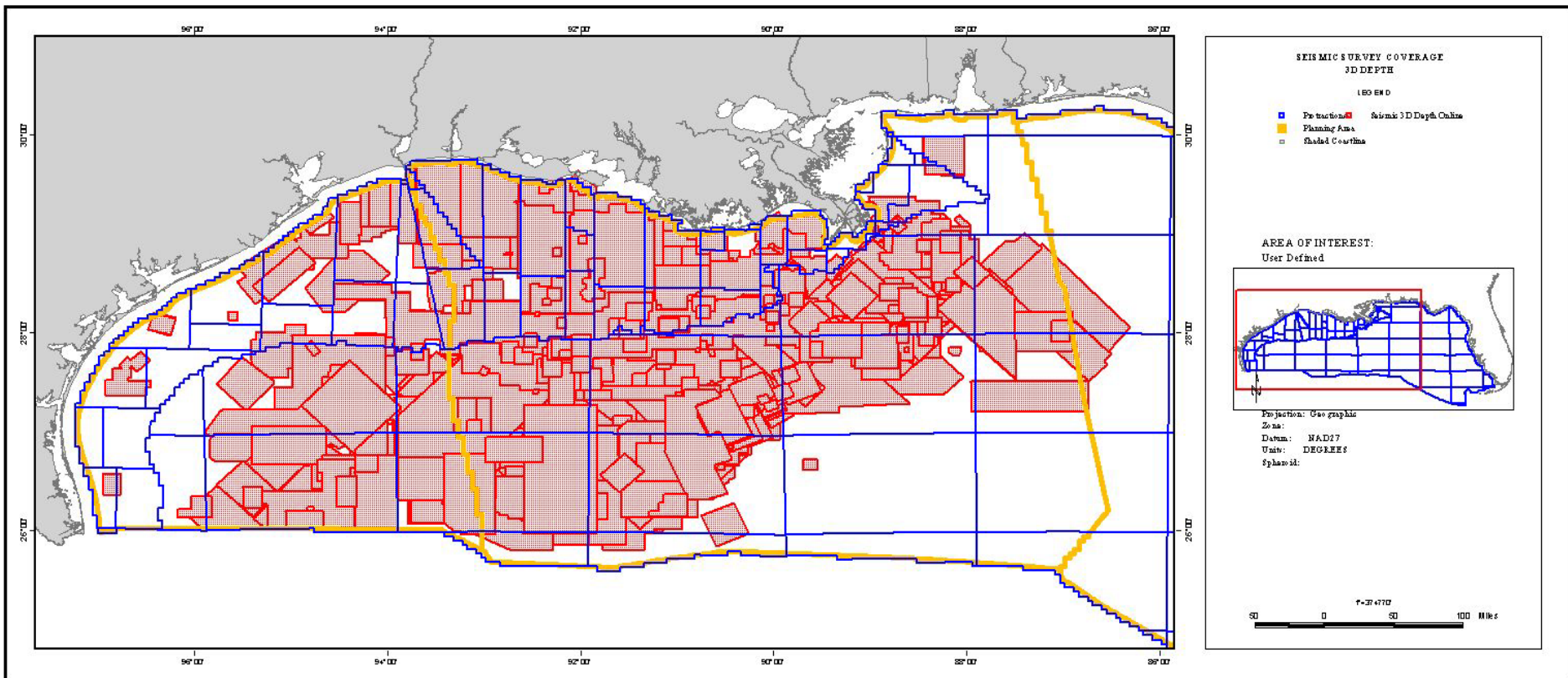
Gulf of Mexico 2D Seismic Coverage



Gulf of Mexico 3D Time Seismic Data



Gulf of Mexico 3D Depth Seismic Data

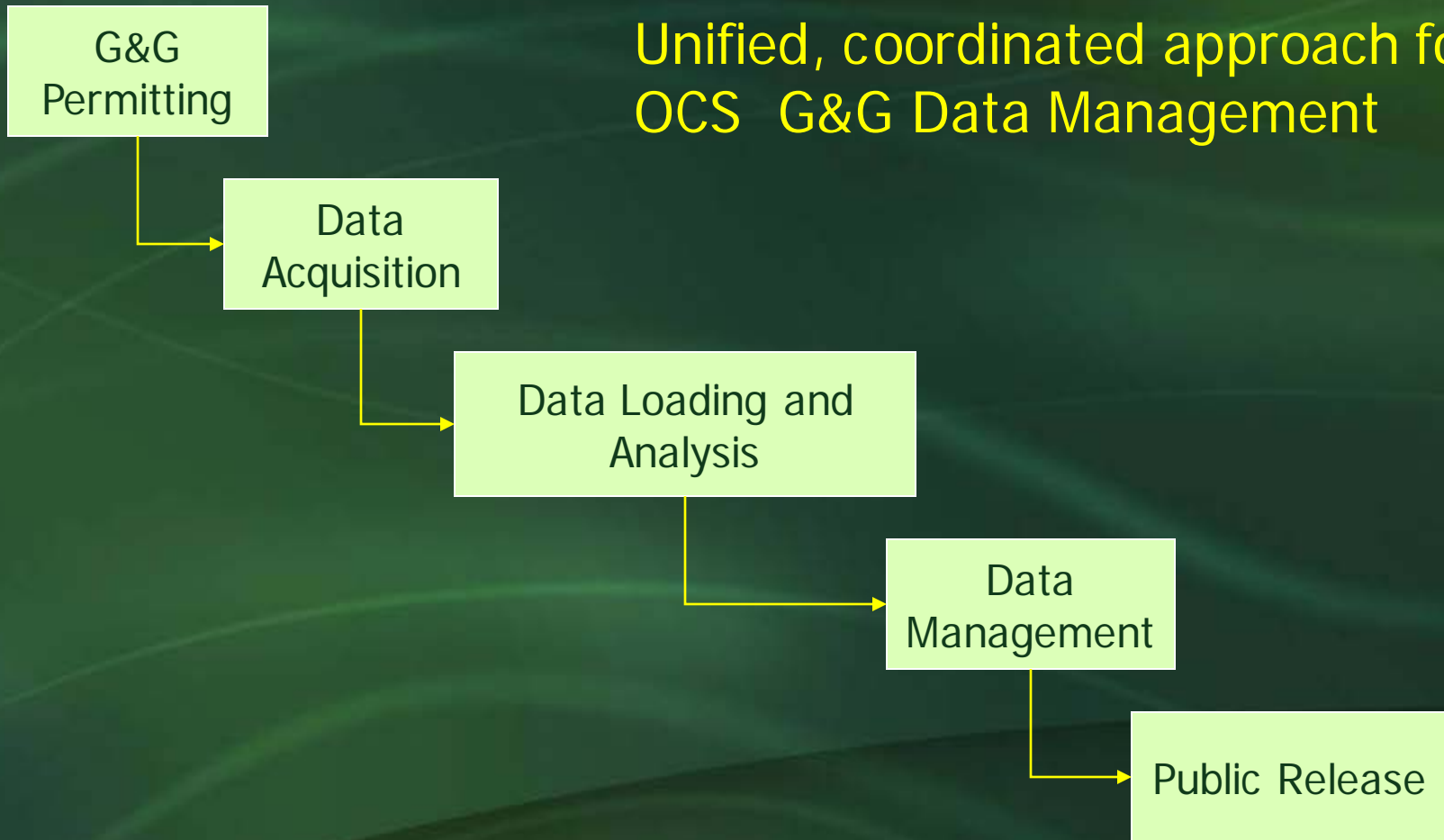


Data Management

- In process of upgrading in-house databases to reflect the “life cycle” approach
 - Historically used several different stand alone databases to maintain G&G metadata (proprietary in-house, Excel, Access databases)
 - Schlumberger ProSource Seismic Manager to integrate different data repositories
- GIS System
 - Review and maintain location of permitted G&G data
 - Review current G&G activity
 - Review and maintain location of geophysical data available in-house (on-line; near-line)

Data Management contd.

Unified, coordinated approach for
OCS G&G Data Management



Data Management contd.

- Managing geophysical data on-line
 - Historically: BOEM has maintained all of the 8 bit versions of seismic surveys on-line; equates to purchasing more disk space each year
 - Just completed: Archiving all 32 bit data to our near-line HSM robotic tape system from original vendor provided media
 - Developing: A plan to remove on-line data that is not currently being used
 - Free up disk space
 - Reload data as requested from the near-line system

Data Management contd.

- Evaluating methods of archiving and maintaining access to seismic data
 - New tape robotics near-line system
 - Disk based all on-line system
 - Cloud Solution
 - Partner with other Government Agencies
 - Commercial contract

BOEM Corporate Databases

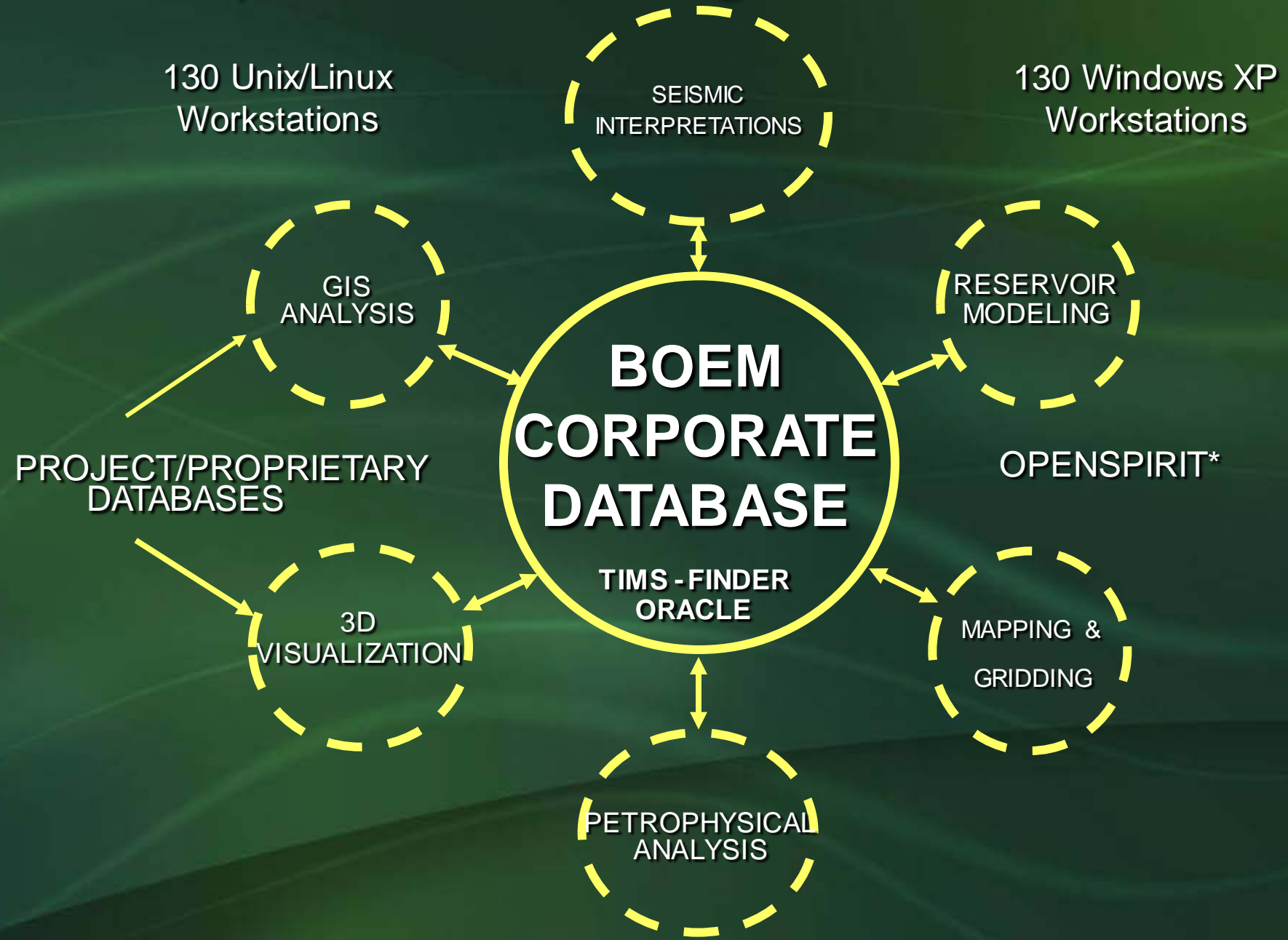
- Technical Information Management System (TIMS) and Finder
 - Both TIMS and Finder are Oracle relational databases
 - Over 1,270 oracle tables
 - TIMS was developed in-house using a phased approach, began 1976
 - Finder is based on PPDM database model
 - Well and seismic components stored in Finder

Welcome To the
Technical Information
Management System (TIMS)

Corporate Database Components

- ADJUDICATION
- BLOCK & BOUNDARY
- CIVIL PENALTY
- COMPANY & BONDING
- ENVIRONMENTAL
- EVENTS
- GEOLOGIC
- INSPECTIONS
- LEASE ADMINISTRATION
- LEASE STATUS
- LEASE SUSPENSION
- METERS
- OIL SPILL FINANCIAL RESPONSIBILITY
- PERFORMANCE REVIEWS
- PIPELINES
- PLANS
- PLATFORMS
- POSTSALE
- PRESALE
- PRODUCTION
- PUBLIC INFORMATION
- RATE CONTROL
- RESERVES
- RIGHT-OF-USE & EASEMENT
- RIGS
- ROYALTY MANAGEMENT
- ROYALTY RELIEF
- SALE
- SAMPLING
- SECURITY
- SEISMIC
- SUPPLEMENTAL BONDING
- TRACT EVALUATION
- UNITS
- WELLS

Conceptual Data Management Model



Continuity of Operations Plan

- BOEM actively manages geophysical data to ensure the data are recoverable when needed, and to deliver quality data to all stakeholders including the public in a timely fashion.
 - Data back-up and redundancy
 - Offsite climate controlled storage

Geological Interpretive Tools (GIT)

- GIT is an ongoing contract to provide BOEM geoscientists and engineers technologically advanced software applications, hardware, and network configurations to aid the identification and evaluation of complex and subtle oil and gas plays and fields being explored and developed in the Outer Continental Shelf (OCS) of the Atlantic, Gulf of Mexico, Pacific and Alaska regions.

Geological Interpretive Tools - Funding

- Funding
 - Software acquisition
 - Software maintenance
 - Typically 20% of software acquisition cost
 - Hardware
 - Workstations, Servers, Hard Drives, Video Cards, etc.
 - Training

Data Release – Proprietary Data Terms

- BOEM is required by law to maintain geophysical data as proprietary and release data to the public in accordance with the following table:

Geologic Data and Information	10 years after permit issued
Geophysical Data	50 years after permit issued
Geophysical Information	25 years after permit issued

Data Release – Prelease G&G Surveys

- Data and information will be made available to the Governor of affected states pursuant to Sec. 8(g) and 26 of the OCSLA
- Data and information will be made available to the public in accordance with 30 CFR 250.196:
 - Geophysical data: 50 years after submittal
 - Geophysical information: 25 years after submittal
 - Geological data and information: 10 years after issuance of the permit. (Except for deep stratigraphic test wells, which have a term of either 25 years or 60 days after a lease is issued within 50 miles of the well, whichever is less)
- Data and information not retained by BOEM is released to the public at the discretion of permittee

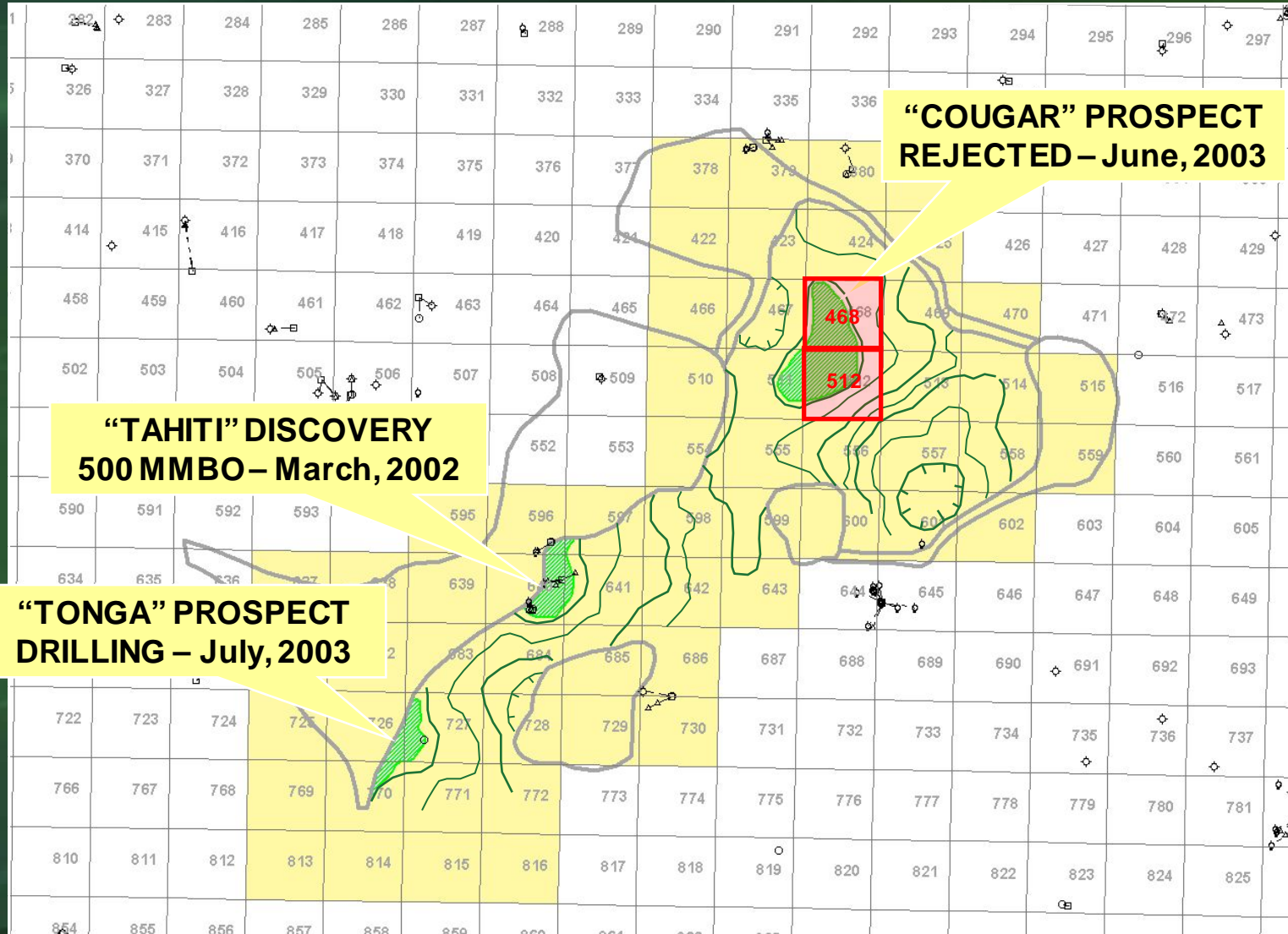
Data Release – Postlease G&G Surveys

- Data and information will be made available to the Governor of affected states pursuant to Sec. 8(g) and 26 of the OCSLA
- Data and information will be made available to the public in accordance with 30 CFR 251.14:
 - CDP and borehole seismic data and information: when lease expires or 10 years after submission, whichever is less
 - Interpreted geophysical or geological data and information: when lease expires or 10 years after submission, whichever is less
 - Geological data and analyzed geological information such as well logs, directional surveys, and core analyses: 2 years after submittal or when the lease expires, whichever occurs sooner
 - High resolution seismic (e.g.; bathymetry, side scan sonar, subbottom profiler, magnetometer): 60 days after submittal

Data Release – Operations, Production, and Performance Data

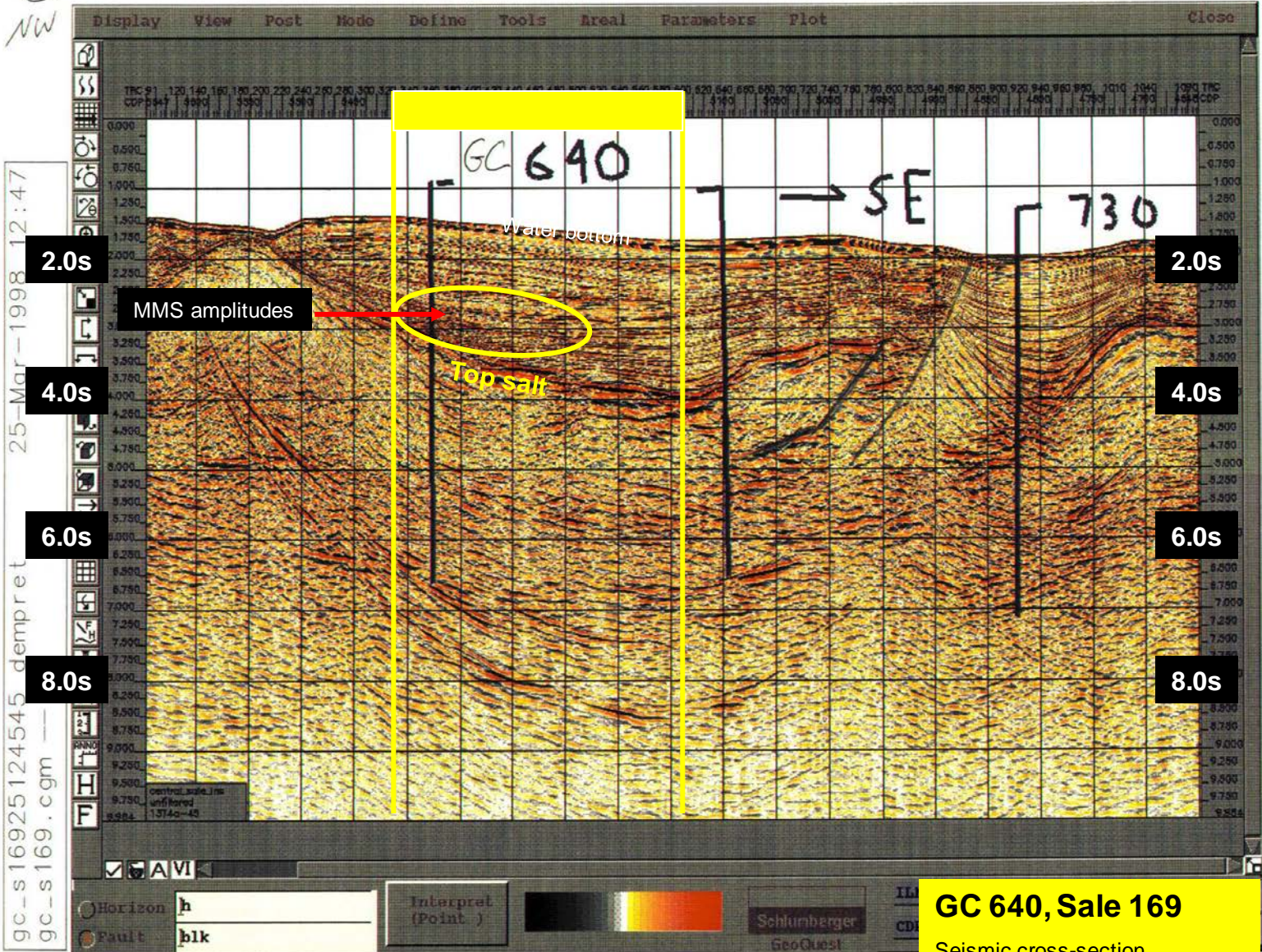
- Data and information will be made available to the Governor of affected states pursuant to Sec. 8(g) and 26 of the OCSLA
- Data and information will be made available to the public:
 - Geophysical data and information and interpreted geological information: 10 years after submittal or the lease expires, whichever occurs sooner; e.g. maps, cross-sections, detailed paleontological reports
 - Geological data and analyzed geologic information: 2 years after submittal or the lease expires, whichever occurs sooner; e.g. well logs, directional surveys, core analyses
- Data and information not retained by BOEM is released to the public at the discretion of permittee

Data Example – Tahiti Trend



G
NW

G'
SE



25-Mar-1998 12:47
 gc_s16925124545 dempret
 gc_s169.cgm

25-Mar-1998 12:47
 gc_s16925124545 dempret
 gc_s169.cgm

2.0s

2.0s

4.0s

4.0s

6.0s

6.0s

8.0s

8.0s

MMS amplitudes

Top salt

GC 640

730

SE

Water bottom

GC 640, Sale 169

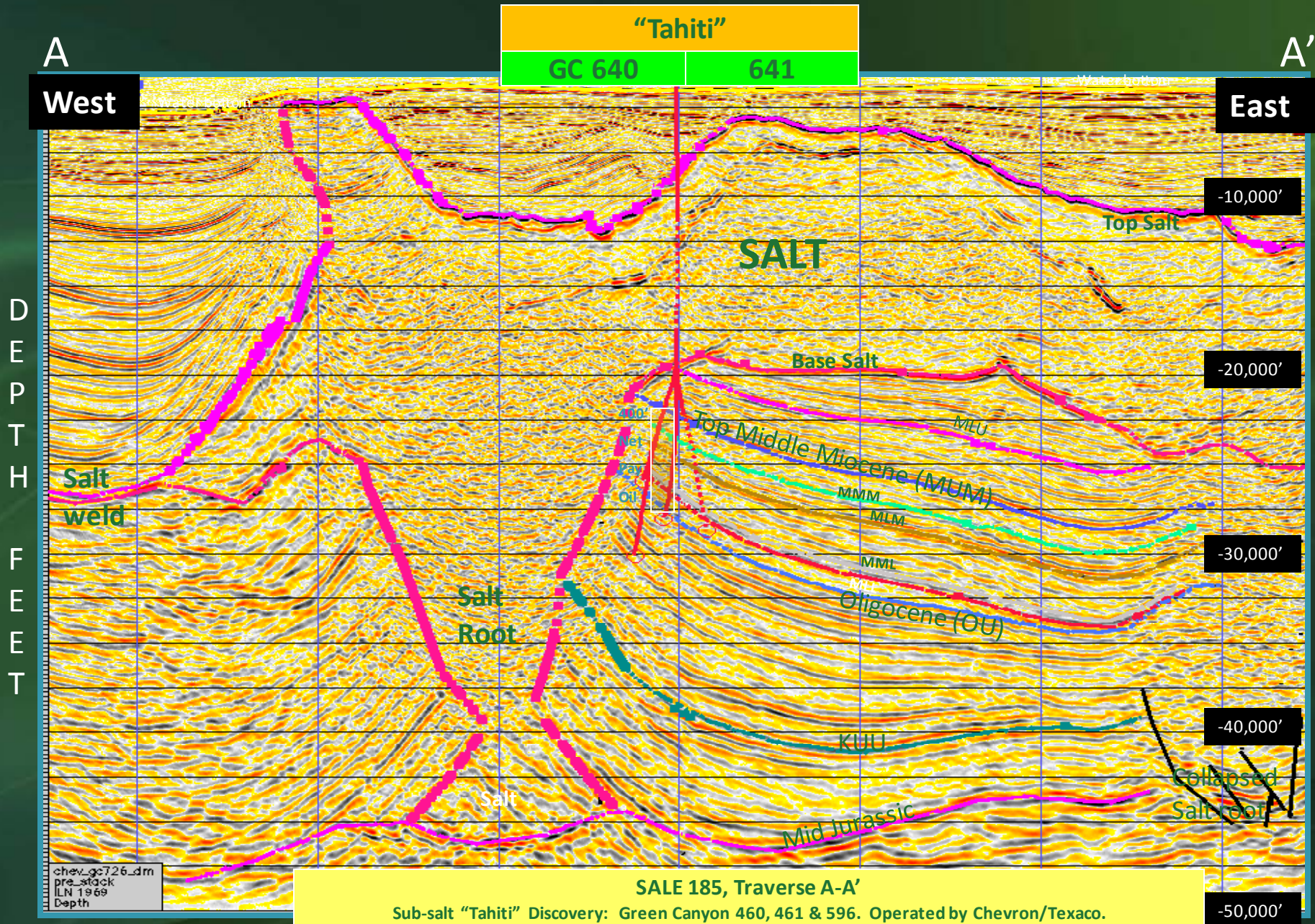
Seismic cross-section
 of "Tahiti" prospect
 MMS exhibit from sale
 evaluation package

Horizon h
 Fault blk

Interpret (Point)

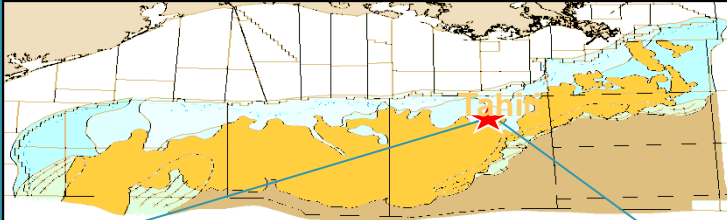


Schlumberger
 GeoQuest

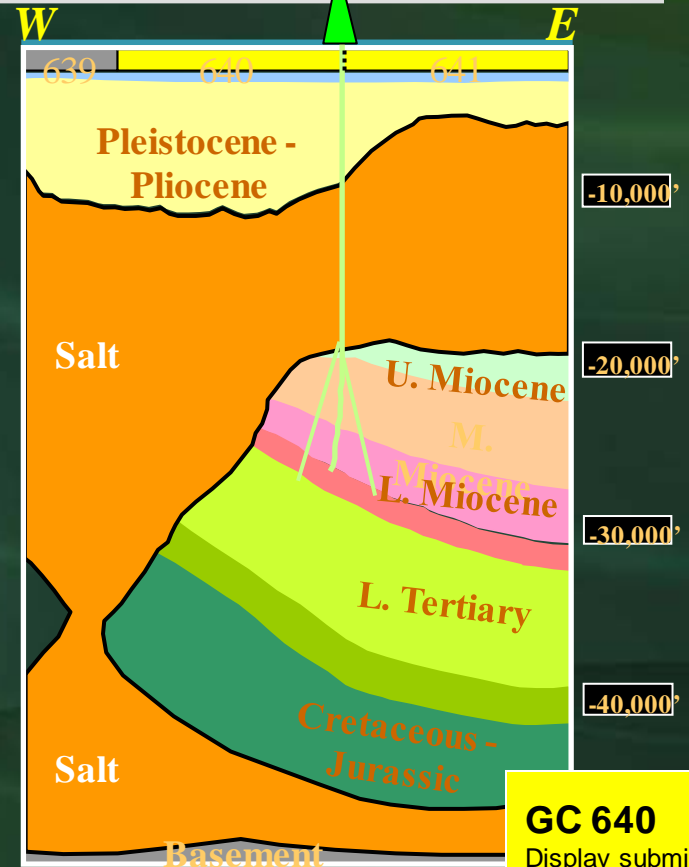
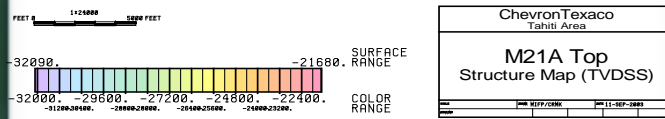
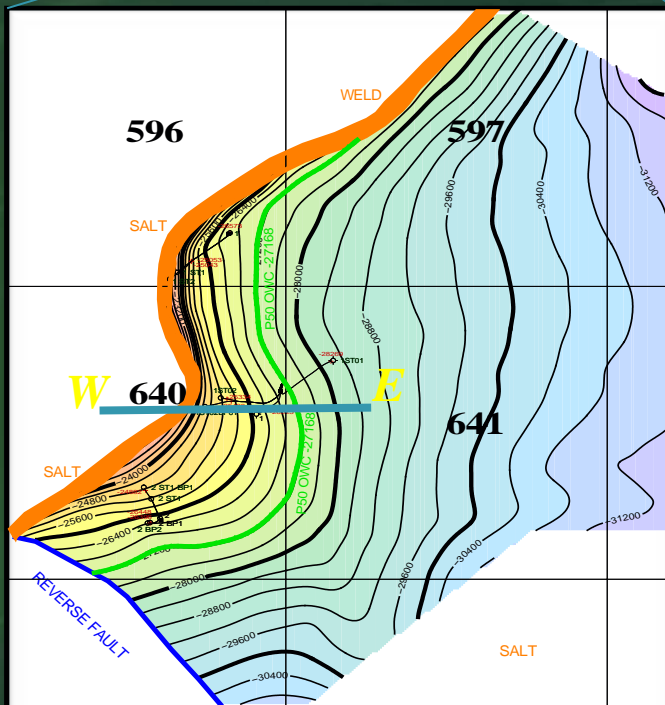


SALE 185, Traverse A-A'
 Sub-salt “Tahiti” Discovery: Green Canyon 460, 461 & 596. Operated by Chevron/Texaco.
 Over 400 feet net pay oil in Middle and Lower Miocene turbidite fan sands.
 Pre-stack depth migrated data. Interpretation by R.F. Wells, June 2003

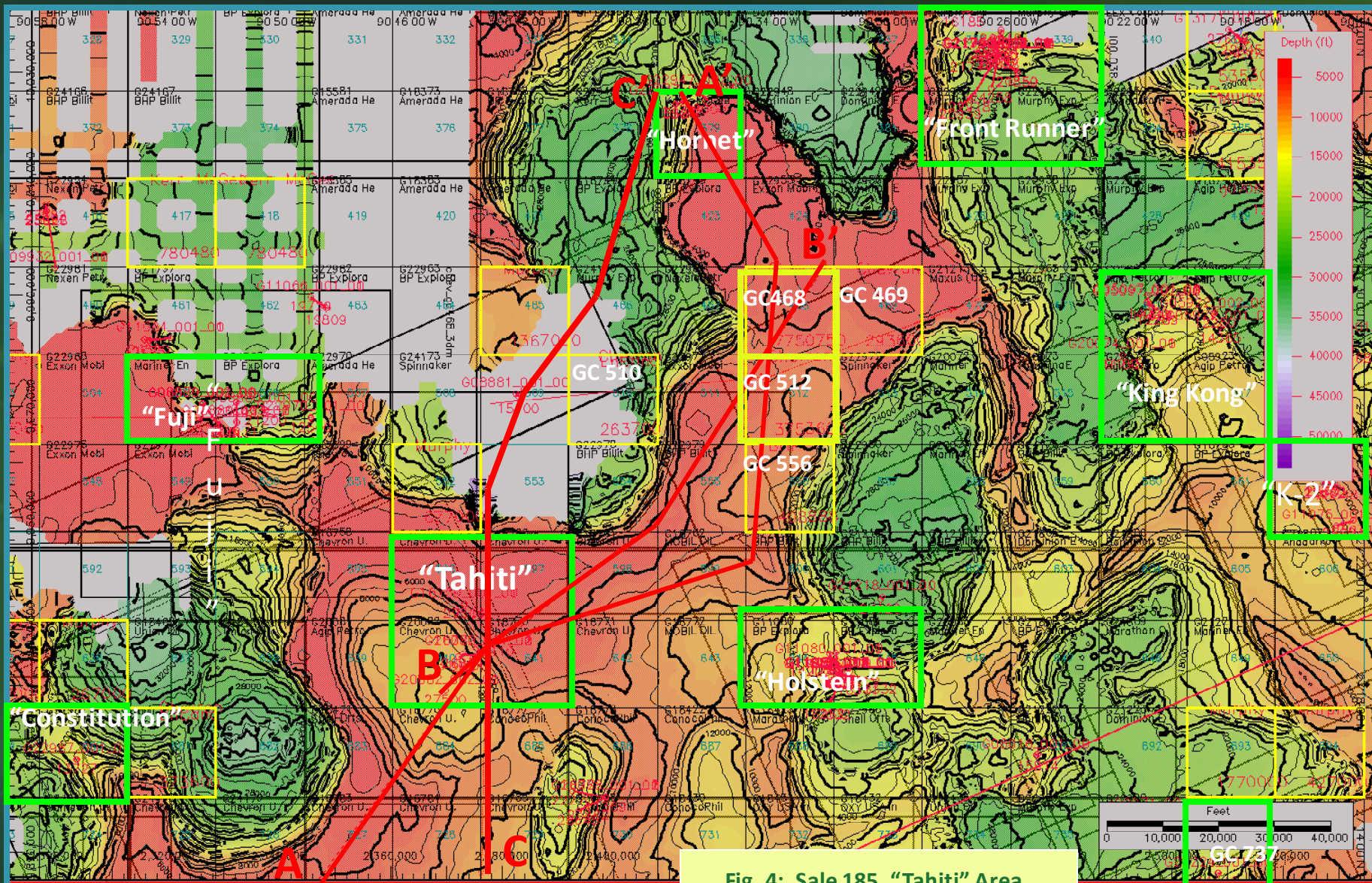
Tahiti Location Map and Trap Geometry



- 3-way structural trap against salt
- Salt canopy 11,000' thick
- Primary pay sands are Middle to Lower Miocene
 - 23000 ft – 28000 ft TVDSS



GC 640
 Display submitted by operator after discovery and appraisal



**Fig. 4: Sale 185, "Tahti" Area
Structure Top of Salt
Depth contours, (C.I. = 1,000 ft.)
Interpretation by: R.F. Wells, June 2003**

High Bid

Sale 185:	GC 468	GC 512	Total HB
Chevron	\$ 7,750,750	\$ 3,753,600	\$11,504,350
BHP/Nexen	\$ 308,888	\$ 688,888	
BOEM value	\$14,000,000	\$15,000,000	\$29,000,000

The bids were rejected for both tracts

Help
from
CGG

ATWATER VALLEY MISSISSIPPI CANYON

NME 1, 2 & 3 available for pre-commitment!

MC-AV

Mississippi Canyon

PHASE A

GC I

GC II

GC III

GC-AV

Atwater Valley

GC VII

468	469	468		
512	511	512	513	514

Full volume showcase of GC 468/512 area available October 2003!

For more information, please contact Charles Bowen at (1) 281 646 2559 (email cbowen@cgg.com), Bert Chenin at (1) 281 646 2560 (email bchenin@cgg.com) or Richard Fossier at (1) 985 624 3027.

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October, 2003
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AAPG Explorer

Sale 185
Reject blocks

High Bid

Sale 185:	GC 468	GC 512	Total HB
Chevron	\$ 7,750,750	\$ 3,753,600	\$11,504,350
BHP/Nexen	\$ 308,888	\$ 688,888	
BOEM value	\$14,000,000	\$15,000,000	\$29,000,000

High Bid
High Bid

Sale 190:	GC 468	GC 512	Total HB
Amerada Hess	\$35,290,892	\$ 7,290,892	\$35,290,892
Nexen/Union/ BHP/Anadarko	\$17,095,000	\$31,088,000	\$31,088,000
Murphy/Spinnaker Westport	\$21,760,760	No Bid	
Dominion/ Kerr-McGee	\$27,553,300	\$27,532,800	
Conoco/Phillips	No Bid	\$10,500,000	
Chevron	\$ 7,750,751	\$ 3,753,601	
HIGH BIDS	\$35,290,892	\$31,088,000	\$66,378,892

Increase	GC 468	GC 512	Combined
	\$27,540,142	\$27,334,400	\$54,874,542

Return on Investment

- BOEM bid adequacy procedures have consistently resulted in higher returns in subsequent sales for tracts that have had bids rejected on fair value grounds in previous sales. Over the last twenty five years, BOEM has rejected total high bids of \$581.8 million in the Gulf of Mexico. Subsequently, the same blocks were re-offered and drew high bids of \$1,516.7 million, for a total net gain of \$934.9 million.

