

Guidelines for the preparation and submission of geophysical reports

as required under the South Australian *Petroleum Act 2000*

January 2008



Guidelines for the preparation and submission of geophysical reports as required under the South Australian *Petroleum Act 2000*

Petroleum and Geothermal Group

January 2008

**A guide to the preparation and submission of various geophysical reports appropriate to petroleum
and geothermal licences administered by the South Australian Petroleum Act 2000**

Petroleum and Geothermal Group

Division of Minerals and Energy Resources
Primary Industries and Resources South Australia
Level 6, 101 Grenfell Street, Adelaide
GPO Box 1671, Adelaide SA 5001

Phone National (08) 8463 3204

 International +61 8 8463 3204

Fax National (08) 8463 3229

 International +61 8 8463 3229

Email pirsa.petroleum@saugov.sa.gov.au

Website www.petroleum.pir.sa.gov.au

This guideline is also available on the Petroleum Channel of the PIRSA website (see above). Go to Legislation & Compliance, Guidelines, Data and Reports.

CONTENTS

INTRODUCTION	5
GEOPHYSICAL REPORT TYPES	6
MEDIA TYPES.....	6
FORMAT.....	7
FILE NAME CONVENTIONS	7
DATA CONTENT.....	8
DELIVERY	8
APPENDIXES	
1 Recommended contents of a geophysical progress report.....	9
1a Weekly report template.....	10
2 Expected contents of a geophysical operations report.....	11
2a Expected contents of a geophysical operations report — expanded description	13
3 Expected contents of seismic interpretation report	17
3a Expected contents of seismic interpretation report — expanded description	18
TABLES	
1 Reports required following a geophysical program	6

INTRODUCTION

Regulations 34, 35 and 36 of the Regulations under the *Petroleum Act 2000* require that geophysical progress, operations and interpretation reports must be furnished to the Minister for Minerals Resources Development by the holder of a petroleum or geothermal licence on a periodic basis.

Regulation 34 requires geophysical progress reports to include information on activities undertaken, location of campsites, status of processing or reprocessing, and a specific report on any reportable incident that has occurred during the reporting period.

Regulation 35 requires that a geophysical operations report be submitted. A broad listing of the information required is included in the regulation.

Regulation 36 requires that an interpretation report be provided. The report must include according to good industry practice the following: an evaluation of the data; interpretation of horizons and structural mapping; discussion of interpretation methods employed; discussion on leads and prospects; and maps of key horizons.

While the prime geophysical exploration method in the petroleum industry is seismic reflection, it is appreciated that other techniques may also be employed, such as gravity, aeromagnetic, electrical and electromagnetic techniques. The geothermal industry also utilises a similar range of geophysical techniques. Reporting on these activities should follow closely the key components included in this guideline, but appropriately modified to suit the geophysical method in question.

The amount of detail contained in any report will be dependent on the nature of the geophysical survey and/or processing, aerial extent of the program, geological complexity and interpretational methodologies employed. This guideline has been prepared to facilitate the submission of geophysical reports and to indicate what the minister would expect to be included in such a report in order to meet the requirements of the regulations mentioned above.

Regulation 50 requires any report to be in a form satisfactory to the minister. This document provides guidance to operators on what to include in reports to meet the regulations mentioned above. Submission of reports should not be confused with submission of geophysical data which is the subject of regulation 37 and for which a separate guideline is available on the Petroleum Channel of the PIRSA website¹. Geophysical data in this context is essentially the information recorded in the field or subsequently processed.

Other reports, such as incident reports and annual reports, are also required to be submitted to PIRSA under the Petroleum Act. However, this guideline does not address any format or content issues relating to these reports. Liaison between company staff and PIRSA Petroleum and Geothermal Group personnel is encouraged to facilitate effective and efficient information submission.

¹ <www.petroleum.pir.sa.gov.au> Go to Legislation & Compliance, Guidelines, Data and Reports.

GEOPHYSICAL REPORT TYPES

Regulations 34, 35 and 36 detail the types of reports relevant to a geophysical survey. This includes all geophysical techniques employed over the licence area including, but not limited to, seismic, aeromagnetic, other airborne methods, electrical and gravity plus any reprocessing of the above data types.

For any geophysical program undertaken, the reports listed in Table 1 are required to be submitted by the due date.

Table 1 Reports required following a geophysical program

REPORT TYPE	DUE DATE	AVAILABILITY FOR PUBLIC INSPECTION
Progress report (field acquisition and reprocessing)	Periodic basis determined by the minister after consultation with licensee (typically every week)	Never
Operations report	Within 12 months of completion of recording or within 12 months of completion of reprocessing	After 2 years from the date of completion of recording or reprocessing
Interpretation report	Within 12 months of completion of processing or reprocessing	After the licence expires or is surrendered

In the case of seismic surveying, PIRSA defines the 'date of completion of recording' to be the day the recording of subsurface seismic data was completed and the recording crew was released.

As there are different confidentiality periods for the various reports, each report must be submitted as separate entities/volumes.

MEDIA TYPES

Weekly progress reports, because of their simplicity, may be emailed or faxed whichever is deemed suitable.

Other geophysical reports including the operations and interpretation reports must be submitted in both digital form and as a hard copy for validation purposes.

In compiling the digital versions, the following aspects are to be ensured:

1. The integrity of the original hard copy report and associated Information and data is maintained (i.e. the digital version contains the same information as contained in the hard copy version).
2. The report components are structured in a clear and logical order (i.e. as per traditional good oil field practice — as indicated in the attached example contents list).
3. All relevant information is included.

The hard copy report should be generated from the digital version and submitted in conjunction with the electronic form. This provides one form of validation of the integrity of the digital form.

It is preferred that the digital versions of the operations and interpretation reports be submitted on CD/DVD. All submissions should be clearly labelled. A digital backup copy of all digital information submitted to PIRSA should be kept by the licensee for a period of at least 12 months to cover the possibility of information corruption during transfer to PIRSA.

FORMAT

The text in the body of the report and any separate reports that are included as appendixes are required in Adobe Acrobat PDF format. For this, operators will require access to Adobe Acrobat software, which allows conversion of native formats (e.g. MS Word, MS Excel) to PDF format. When creating the PDF files, the report text (including table of contents, abstract etc.) and any figures, tables and small plans (up to A3 size) can be embedded into the PDF document.

Plans larger than A3 should also be submitted in their native format (i.e. in the format of the software application that was used to create the plan) as well as being embedded in the report PDF file. The native format files are to occupy the same directory as the PDF file for the report. Where possible, enclosures (excluding seismic sections) should not exceed A0 in size (1189 x 841 mm).

All photographs are to be submitted as separate JPEG files as well as being embedded in the report PDF file. The preferred minimum resolution of the JPEG file is 300 dpi.

Tabular information (such as listings of lines/stations / areas recorded, survey control points, permanent markers, uphole/downhole locations, tapes and processing information) is also to be submitted as separate spreadsheets or flat ASCII files as well as being embedded in the report PDF file. These files should include explanation of column headings, units and abbreviations as appropriate.

The digital form of the report must be bookmarked to assist in rapid navigation through the document. Recommended book marks are as indicated in the contents listings provided in Appendixes 2 and 3).

FILE NAME CONVENTIONS

File names should conform to the following example for the hypothetical '2008 Eromanga Seismic Survey operations report'. The operations report for the 2008 Eromanga Seismic Survey will have a directory of '2008 Eromanga SS' and contain the following files:

- 2008_Eromanga_Operations_Report.pdf
- Enclosure_1.cgm (or hpgl or tiff etc.)
- Enclosure_2.cgm (or hpgl or tiff etc.)
- Enclosure_3.cgm (or hpgl or tiff etc.)
- Photograph_1.jpeg
- Photograph_2.jpeg
- Photograph_3.jpeg
- Data_Listings.xls (or ascii).

DATA CONTENT

Regulation 51 of the Petroleum Act requires that information provided in a report must:

- be balanced, objective and concise
- state any limitations that apply
- identify areas lacking in information or have significant uncertainty
- identify assumptions which may have significant bearing on outcomes
- allow a reasonable assessment of how conclusions have been reached.

The recommended content and layout for each report type are detailed (but not limited to) in Appendixes 1, 2 and 3 of this guideline. Each report should clearly state the tenement and activity it relates to, the author of the report and the date.

DELIVERY

All geophysical reports submitted pursuant to petroleum legislation should be marked to the attention of the Chief Petroleum Geophysicist, and addressed as follows.

For courier or hand deliveries:

Director Petroleum and Geothermal Group
Division of Minerals and Energy Resources
Level 6, 101 Grenfell Street
Adelaide SA 5000

For postal deliveries:

Director Petroleum and Geothermal Group
Division of Minerals and Energy Resources
GPO Box 1671
Adelaide SA 5001

Geophysical progress reports can be sent by email or facsimile as follows:

To the Chief Petroleum Geophysicist

Fax: (08) 8463 3229

email: cockshell.david@saugov.sa.gov.au

APPENDIX 1

Recommended contents of a geophysical progress report

Regulation 34 states, 'a licensee who is conducting geophysical activities, or activities involving the reprocessing of geophysical data, must furnish to the Minister, on a periodic basis determined by the Minister after consultation with the licensee, a report (a geophysical progress report)'.

This report must include the following:

- date of report
- period of reporting
- identification of the survey name or activity to which the report relates
- for 2D seismic data, a listing of seismic line names involved
- for onshore field acquisition, location of any camps used
- a list of activities undertaken on a daily basis, including (if applicable) lines or access tracks prepared, data recorded and rehabilitation undertaken
- a cumulative tally of activities from the start of relevant survey or program, including, where applicable;
 - source line kilometres (2D and 3D seismic)
 - recorded square kilometres (3D seismic)
 - line kilometres recorded (aeromagnetic, gravity, other)
 - number of stations recorded (gravity, other)
- target tally of activities of relevant survey or program
- status of any processing or reprocessing of geophysical data
- report on any reportable incident that occurred during the period (under s. 85 of the Petroleum Act)
- identification of person in charge of the activity.

An example of an appropriate style of progress report is illustrated in Appendix 1a.



GOOD OIL COMPANY

PEL 1234



2008 Eromanga Seismic Survey

Reporting period 1 January 2008 - 7 January 2008

Report prepared 8 January 2008

Date	Line clearing			Surveying				Uphole drilling					Recording					
	Lines cleared	Line length (km)	Daily total (km)	Line	SP range	Line length (km)	Daily total (km)	Line	Metres drilled	Daily total (m)	No. upholes	Upholes recorded	Line	Length recorded (km)	Daily total (km)			
1/01/2008	08GO-AAA	12.75																
	08GO-AAB	6.5																
			19.25															
2/01/2008	08GO-AAB	12.8																
	08GO-AAC	7.2																
			20															
3/01/2008	08GO-AAC	13.8		08GO-AAA	200-710	12.75												
	08GO-AAD	6.2		08GO-AAB	200-800	15												
			20			27.75												
4/01/2008	08GO-AAD	13.4		08GO-AAB	800-972	19.3		08GO-AAA	210		6	6						
	08GO-AAE	8.2		08GO-AAC	200-1000	21		08GO-AAC	70		2	2						
	08GO-AAF	3.1								280								
			24.7			40.3												
5/01/2007	08GO-AAF	12.75		08GO-AAD	200-984	19.6		08GO-AAB	240		6	6						
	08GO-AAG	6.8		08GO-AAE	200-528	8.2		08GO-AAD	120		3	3						
			19.55			19.6				240								
6/01/2008	08GO-AAG	13.5		08GO-AAF	710-200	12.75		08GO-AAE	160		4	4	08GO-AAA	12.75				
	08GO-AAH	7.6											08GO-AAB	1.25				
			21.1			12.75				160					14			
7/01/2008	08GO-AAJ	8.5		08GO-AAG	1012-200	20.3		08GO-AAF	200		5	5	08GO-AAB	14.25				
	08GO-AAK	9.2						08GO-AAG	60		2	2						
			17.7			20.3				200					14.25			
Total line clearing for week			142.3	Total surveyed for week				120.7	Total drilled					28	Total recorded			28.25
Cumulative total			286	Cumulative total				236	Cumulative total					34	Cumulative total			34
Proposed survey total			350	Proposed survey total				350	Proposed total					52	Proposed total			350
% completed			81.71	% completed				67.43	% completed					65.38	% completed			9.71

Campsites: Line clearing and surveyors campsite located at Duckhole Waterhole, 481122E, 6970123N, GDA94.
Recording crew campsite located at Last Drop Drillhole 1, 480000E, 6970000N, GDA 94.

Reportable incidents: No reportable incidents occurred during the reporting period as defined under section 85 of the *Petroleum Act 2000*.

Comments: Line clearing, surveyors and drillers should finish by end of next week and then proceed to next program in adjacent licence.
Induction was held for the recording crew on the morning of 6 January before departing for the field.

Company contact: For further details on information supplied in this report, or any other queries relating to this survey, please contact Mr G Rease at our Adelaide Office, phone 8000 0000.

APPENDIX 2

Expected contents of a geophysical operations report

The expected contents of a geophysical operations report are listed below. The bold headings are the minimum recommended bookmarks for the digital PDF file.

The list is not meant to be exclusive, but indicates the minimum types of information expected for a field acquisition survey. For reprocessing programs many of the field-based aspects will not be appropriate. Packets of field, processed or re-processed data should not be included in the report. Such data should be submitted at the same time but will be considered as geophysical data (refer to 'Guidelines for submission of geophysical data' on the Petroleum Channel¹).

Appendix 2a expands on the list below to provide more detail on the type of information and content that should be included.

Abstract

Introduction

Objectives of the Activity / Hydrocarbon Targets

Geophysical Exploration History

Planning Methodology

- Aerial Photography / Satellite Imagery
- Environmentally Sensitive Areas
- Statement of Environmental Objectives
- Proposed Survey Equipment
- Special Acquisition Equipment
- Proposed Uphole / Shothole Methodology
- Experimental Program
- Key Documentation or Conditions Controlling Survey Operations

Consultation

- Landholders
- Aboriginal People
- Community Groups / Local Agencies

Line Access/Preparation

Data Acquisition (including surveying)

- Location / Acquisition Program
- Summary of Equipment Used
- Logistics
- Terrain / Weather
- Environmental Issues / Rehabilitation Undertaken
- Field Operations
- Data Recording
- Statistics
- Upholes/Downholes / Weathering Layer Definition
- Data Quality

Data Processing

- Processing Tests
- Processing Sequence

Static Corrections

Archived Data

Conclusion

Recommendations

References

Figures — small scale plans/diagrams, examples as follows

Location Map

Line Location Map

Acquisition Diagrams

Seismic Record Examples/Tests

Tables — examples as follows

Previous Surveys in the Area / Data Summary

Comparison of Seismic Acquisition Parameters

Survey Control Points and Permanent Markers

Uphole/Downhole Drilling Summary

Key Dates / Contractors/Personnel

Geophysical Equipment Used

Vehicular and Logistical Equipment Used

Key Processing Parameters

Processed Products (including tapes, cartridges, sections)

Photographs — of specialised or abnormal operations, conditions or environmental outcomes

Enclosures — large-scale plans, examples as follows

Shotpoint/Topographic Maps etc.

Aerial Photographs / Satellite Imagery

Appendixes — examples as follows

Scouting Report/Information

Proposed Special Operations and Test Procedures

Survey Contractor's Field Operations Report

Crew Supervisor's Operations (Bird Dog) Report

Contractor's Data Processing Report

Contractor's Acquisition and Operations Report

APPENDIX 2a

Expected contents of a geophysical operations report — expanded description

Abstract

Brief summary of activity undertaken, data recorded/processed, data quality, operational highlights and/or particular issues encountered/addressed.

Introduction

Description of petroleum tenement, operators and/or contractors engaged to undertake activities.

Objectives of the Activity/ Hydrocarbon Targets

Targets of investigation/definition, depths/thickness/complexity of petroleum targets, known technical issues needing address.

Geophysical Exploration History

Brief summary of previous geophysical surveying, particularly where this is relevant to parameter selection for current activity.

Planning Methodology

Aerial Photography / Satellite Imagery

Where these have been used as a planning tool, a brief description of what photography/imagery was used (date etc.) and how they were utilised in the planning process.

Environmentally Sensitive Areas

A summary of any environmentally sensitive area(s) in the survey area, the nature of the sensitivity (e.g. national park, heritage site) and management processes utilised to avoid/minimise impacts.

Statement of Environmental Objectives

Define which statement of environmental objectives (SEO) was applicable and approved for any field activity — was it a pre-existing (generic) SEO or was it a newly prepared SEO.

Proposed Survey Equipment

Brief description of the type of field survey undertaken and equipment involved to indicate whether the activity was typical or atypical for that type of surveying.

Special Acquisition Equipment

Where abnormal operating conditions occur or are anticipated, a description of the abnormal condition(s) and specialist techniques/equipment considered to address acquisition difficulty (e.g. hovercraft for hypersaline lakes, shallow explosive sources in salt lakes).

Proposed Uphole/Shothole Methodology

Brief description of the planned drilling operations, consideration of how these may affect underground water or utilities and how potential impacts are planned to be avoided/minimised (e.g. reference to existing aquifer maps, previous survey experience, liaison with utility companies).

Experimental Program

Brief description of how recording parameters were determined (e.g. defined from previous experiences or the undertaking of experimental test program at start of survey).

Key Documentation or Conditions Controlling Survey Operations

Listing of key approvals or notification documents prepared or issued for the survey (e.g. PIRSA notification and/or approval, national parks response regarding reserves access).

Consultation

Landholders

Brief description of method of liaison with landowners/occupiers, identifying key issues of concern raised before and/or after field program (e.g. seed crops, export certification, quarantine).

Aboriginal People

Identify method of address of any heritage and/or native title matters, agreements in place etc.

Community Groups/Local Agencies

Brief description of any other community groups/agencies/individuals consulted and key issues raised (e.g. local councils, police, Country Fire Service, conservation groups).

Line Access/Preparation

Description of methods and equipment used in preparing seismic lines for access. Summary of amount of each type of preparation used (e.g. w km no clearing required, x km bulldozed, y km rolled, z km slashed).

Data Acquisition (including surveying)

Location / Acquisition Program

Description of proposed and actual line/station locations and reasons for any significant amendments for proposed sites.

Summary of Equipment Used

Description of geophysical recording, navigation and ancillary equipment and vehicles used.

Logistics

Identify key operational matters and their address, such as access to area, communications, water supply, accommodation, waste disposal.

Terrain/Weather

Brief description of terrain and land units traversed and climatic conditions encountered during field operations and any issue arising that required specific address.

Environmental Issues/Rehabilitation Undertaken

Description of environmental issues requiring specific consideration. Description of rehabilitation undertaken, either planned (e.g. track reshouldering, line ripping) or due to abnormal circumstances (e.g. wheel rut repair).

Field Operations

Description of each field operation undertaken, its duration, specific issues needing address, and method of such address.

Data Recording

Details of geophysical data acquisition methodology and parameters used.

Statistics

Listing of lines/stations recorded, number/length/area of geophysical data acquired, kilometres of access track prepared, permanent markers erected, coordinates, field tape listing etc.

Upholes/Downholes / Weathering Layer Definition (seismic)

Description of methodology of determining near-surface velocity variations, details of program layout and issues requiring address. Description of drilling undertaken, general geological units intersected, and any particular difficulties encountered (e.g. cavities, lost circulation, power lines and broad summary of weathered layers interpreted).

Data Quality

Discussion on the relative quality of the geophysical data recorded compared to previous data recorded either in the same region or elsewhere.

Data Processing

Processing Tests

Description of any processing trials or tests undertaken in the processing of the field data.

Processing Sequence

Listing of each step in the processing sequence, including a brief description of each step. For specialist or abnormal processing, more information should be provided to indicate the nature of the problem needing address and the efficacy of the step in resolving the issue.

Static Corrections

Brief description of how statics (primary and residual) or other corrections were derived and the method of applying these to the data.

Archived Data

Listing of the output data files, including survey name/line name, station ranges, CDP ranges, data types and tape numbers.

Conclusions

A summary of the survey/activity outcomes, quality of data products and level of achievement of objectives. Can also include pertinent issues addressed and/or raised during the program (e.g. land access, logistical matters).

Recommendations

Any suggestions to improve data quality, productivity or efficacy for future surveys/activities or facilitate address of planning or logistical issues (e.g. land access, water supply, environmental management).

References

Where appropriate, a listing of published or unpublished reports/documents/texts identified in the report.

Figures — small scale plans/diagrams, examples as follows

Location Map

Regional context of program.

Line Location Map

Location of lines/stations.

Acquisition Diagrams

Schematic layout of source/receiver geometry and progression of acquisition.

Seismic Record Examples/Tests

If applicable, layouts of experimental program and comparison of test records.

Tables — examples as follows

Previous Surveys in the Area / Data Summary

Listing of year of acquisition, km/sq km recorded, operator, tenement etc.

Comparison of Previous Seismic Acquisition Parameters

Station spacing, spread lengths etc.

Survey Control Points and Permanent Markers (used or installed in current survey)

Uphole/Downhole Drilling Summary

Listing of holes drilled/sites recorded, location summary. Details such as time-depth pairs, units intersected etc. for each hole to be included as separate data file.

Key Dates/Contractors/Personnel

For example, start and finish dates of operational components, lists of contractors, and key personnel.

Geophysical Equipment Used

Listing of equipment to complement brief description in body of report.

Vehicular and Logistical Equipment Used

Listing of plant to complement brief description in body of report.

Key Processing Sequence/Parameters

For example, as contained in traditional hard copy seismic section side labels.

Processed Products

Including tapes, cartridges, sections; show identification numbers of tapes, line names, ranges of stations, etc.

Photographs — of specialised or abnormal operations, conditions or environmental outcomes

Enclosures — large-scale plans, examples as follows

Shotpoint/Topographic Maps etc.

Showing actual line/survey/station locations, including, where there is significant change from the proposed locations, the original proposed locations, uphole locations, existing seismic lines, wells, licence boundaries, environmental monitoring points etc.

Aerial Photographs / Satellite Imagery

Showing actual line/survey/station locations, including, where there is significant change from the proposed locations, the original proposed locations.

Appendixes — examples which may be included if prepared as follows

Scouting Report/Information

Any special undertaking to site lines in the field and/or arrange land access.

Proposed Special Operations and Test Procedures

When working in a new area or an area with known specific acquisition difficulties, description of consideration of special techniques or equipment and outcomes of use of such equipment.

Survey Contractor's Field Operations Report

Including details of positioning system, equipment and geodetic datum employed computation.

Crew Supervisor's Operations (Bird Dog) Report

It will be assumed that the information in this report will be used in preference to any contractor report should there be any differences.

Contractor's Data Processing Report

This should expand on the details of processing undertaken summarised in the body of this report's text.

Contractor's Acquisition and Operations Report

Any other report from a contractor to the operator may not be needed to be included in this report where pertinent information is already included.

APPENDIX 3

Expected contents of seismic interpretation report

The expected contents of a seismic interpretation report are listed below. The bold headings are the minimum recommended bookmarks for the digital PDF file.

This list is not meant to be exclusive, but indicates the minimum types of information expected for an interpretation report. Packets of field, processed or re-processed data should not be included in the report. Such data should be submitted at the same time but will be considered as geophysical data (refer to 'Guidelines for submission of geophysical data' on the Petroleum Channel¹).

Appendix 3a expands on the list below to provide more detail on the type of information and content that should be included.

Abstract

Introduction

Licence History

Exploration History

Geology and Hydrocarbon Prospectivity

Discussion on Seismic Record Quality

Seismic Mapping

Area Mapped

Seismic Data Interpreted

Interpretation Methodology

Horizons Interpreted

Depth Conversion

Structure Maps Prepared

Play Types

Leads and Prospects

Conclusions and Recommendations

References

Figures — small scale plans/diagrams

Location Map

Stratigraphic Chart

Data Summary Map

Synthetic Seismograms/Well Correlation Diagrams

Structural Elements

Interpreted Seismic Sections

Interpreted Seismic Plans

Tables

Key Well Ties

Seismic Survey / Data Summary

Seismic Horizons Interpreted

Comparison of Seismic Acquisition Parameters

Enclosures — large scale plans

Data Location Map

Interpreted Seismic Plans of Key Horizons

APPENDIX 3a

Expected contents of seismic interpretation report — expanded description

Abstract

Brief summary of interpretation undertaken, data quality, particular interpretation issues encountered/addressed and key findings regarding hydrocarbon prospectivity.

Introduction

Brief description of current licence, licensee(s) and work commitments and overall objectives in carrying out interpretation.

Licence History

Description of previous petroleum tenements and licensees in the area covered.

Exploration History

Description of exploration activities previously undertaken and levels of success in discovering petroleum resources and defining targets.

Geology and Hydrocarbon Prospectivity

Description of known or anticipated geological succession, hydrocarbon reservoirs and seals and trapping mechanisms/migration pathways likely to occur.

Discussion on Data Quality

Discussion on the relative quality of the geophysical and geological data available for interpretation, compared to previous data recorded either in the same region or elsewhere, and efficacy of information to identify any potential petroleum resources.

Seismic Mapping

Area Mapped

Identification of the spatial coverage of the interpretation included in this report.

Seismic Data Interpreted

Identification of the data which has been incorporated into the interpretation (2D seismic, 3D seismic, wells, other geophysical data).

Interpretation Methodology

Description of the steps involved in the interpretation process.

Horizons Interpreted

Description of the seismic horizons identified and used for spatial mapping. Identification and/or discussion of the geological/petrological significance of these horizons.

Depth Conversion

Detailed discussion/description of how any seismic horizon times were converted to depth values.

Structure Maps Prepared

Description of the spatial maps or images prepared, identifying any limitation of data integrity or resolution.

Discussion of overall results of the mapping in terms of achievement of objectives.

Play Types

Identification of the hydrocarbon play types indicated by the data.

Leads and Prospects

Identification of leads and prospects indicated or defined by the data.

Conclusions and Recommendations

A summary of the outcomes of the interpretation, quality of data products and level of achievement objectives. Discussion and/or ranking of prospects and leads, identification of ready-to-drill prospects and targets requiring further definition. Suggestion of the level of further definition required for these.

References

Where appropriate, a listing of published or unpublished reports/documents/texts identified in the report.

Figures — small scale plans/diagrams

Location Map

Regional context of interpretation coverage.

Stratigraphic Chart

Geological correlation chart showing stratigraphic units within the area.

Data Summary Map

Summary of spatial location of key data used in the interpretation.

Synthetic Seismograms/Well Correlation Diagrams

Materials used in tying any well information with the seismic data, particularly seismic horizon correlations.

Structural Elements

Spatial or sectional view of key structural elements in the area.

Interpreted Seismic Sections

Seismic sections with interpreted horizons which typify key structural or stratigraphic elements or play types, leads and prospects.

Interpreted Seismic Plans

Examples or more detailed presentations of plays, prospects and/or leads to complement the enclosed large-scale maps.

Tables

Key Well Ties

Tabular correlation of well depths to seismic horizon times.

Seismic Survey/Data Summary

Listing of existing data sets, including wells and seismic data (e.g. year of acquisition, km/sq km recorded, operator, tenement etc.).

Seismic Horizons Interpreted

Description seismic horizons and seismic characteristics typifying the horizon.

Comparison of Seismic Acquisition Parameters

Tabular comparison of historical seismic data acquisition parameters and data quality comments.

Enclosures — large scale plans

Data Location Map

Detailed location map of data elements used in the interpretation (wells, seismic etc.).

Interpreted Seismic Plans of Key Horizons

Contour maps/images/montages of interpreted seismic data sets in time and/or depth.