

Petroleum and Geothermal Title Information Accessible Through DMP's TENGRAPH® System.

TENGRAPH® is a computerised spatial information system that displays the position of all current petroleum and mining tenements integrated with other spatial land information in Western Australia. It also provides textual information on land tenure and petroleum and mining tenements (Fig. 1). New petroleum/geothermal title grants and boundary changes are recorded in TENGRAPH® to provide a current and accurate picture of land under petroleum and mining tenure. Layers displayed in TENGRAPH®, include: native title claims, conservation reserves, townsites, private property, pastoral leases, aquaculture licences, land use proposals and detailed topographic information. It is possible to view TENGRAPH® data based on a number of queries including latitude/longitude, map sheet, localities and by individual petroleum or geothermal title ID.

TENGRAPH® PETROLEUM/GEOTHERMAL FEATURES:

- The ability to select a valid petroleum or geothermal title and then view the boundary in relation to other selected TENGRAPH® data.
- The ability to select a valid petroleum or geothermal title and then view the boundary seamlessly in Google Earth.
- Petroleum titles are displayed by default on the Department's Public Plan screen. Users have the ability to select a tailored screen that displays petroleum titles with fill patterns to denote different title types.
- Able to individually custom colour petroleum and geothermal titles and create new labels, points, lines and polygons.
- Utilising TENGRAPH® features, users can print accurate Geocentric Datum of Australia (GDA94) coordinates of the external corner boundaries of a petroleum/geothermal title cross referenced to an automatically generated A4 sketch.
- Ability to display the number and position of petroleum 5x5 minute onshore, offshore or territorial blocks.
- Shows gazetted release areas available for application, under the relevant State and Commonwealth Petroleum Acts.
- Users can print maps from predefined screens - TENGRAPH® also provides users with the ability to tailor and customise their own maps to meet their requirements.
- Maps can be printed at A4, A3, A1 or A0 sizes. These can be downloaded in PDF format and printed on your own home or office printer/plotter. A1 plots can also be ordered through the 1st floor Customer Services Information Centre,
- Digital datasets are exported nightly from TENGRAPH into other formats for use in your own GIS or CAD systems.

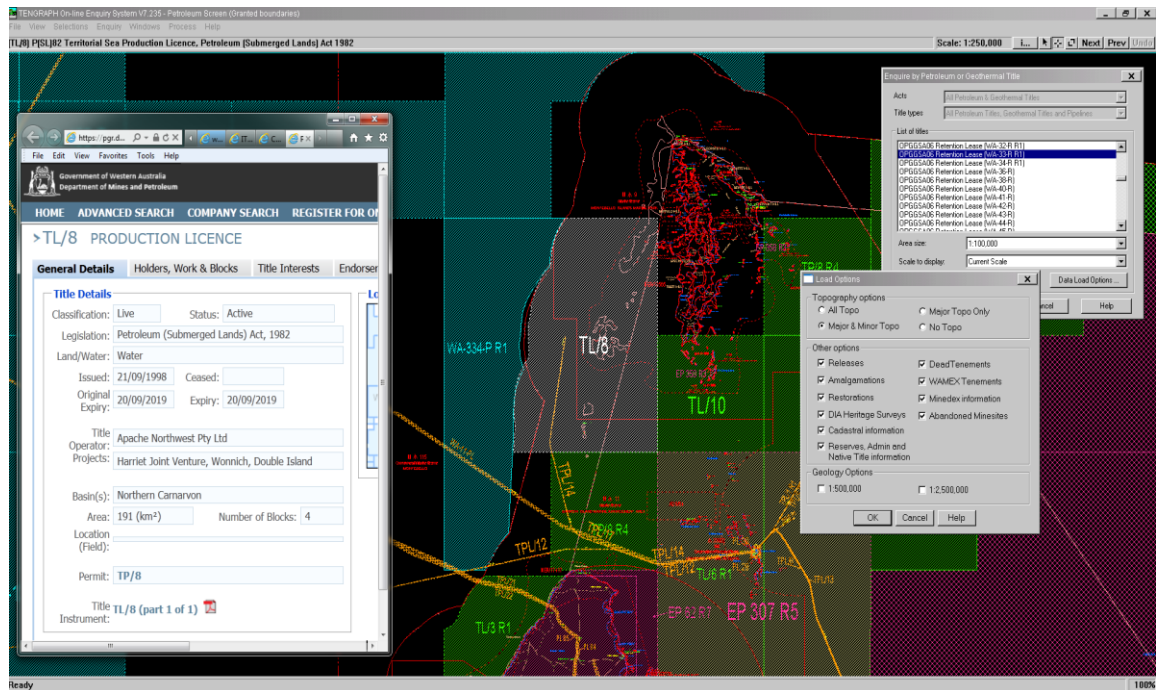


Figure 1. Example of TENGGRAPH® Enquiry System showing PGR title information.

- The petroleum titles displayed in TENGGRAPH® have a hyperlink to the Petroleum & Geothermal Register (PGR) that contains details of each petroleum title, including - status, start and expiry dates, company names and other relevant information. These details can be displayed by clicking on a title in TENGGRAPH® and selecting the 'i...' information button.

TENGGRAPH®

TENGGRAPH® can be accessed through the public counter, at the Department's head office or from one of our 8 regional Mining Registrar Offices. TENGGRAPH® in-house achieves excellent performance. For example information covering a 1:250 000 map centred on Barrow Island is downloaded with all datasets within seconds. The system allows users to pan and zoom in and out with the monitor refreshing the data, in the loaded extent, within 1 second. This high level of performance is achieved using the multi-threading capability of the TENGGRAPH® software and the power of a dedicated workstation to do the graphic manipulation.

TENGGRAPH® Online

TENGGRAPH® can also be accessed through the Internet at:

<http://www.dmp.wa.gov.au/3980.aspx>

The TENGGRAPH® on-line service is only available to customers who have registered with the Department of Mines and Petroleum and down loaded the client software (CITRIX). You can register online at using the above URL. Once your registration request has been accepted you will receive a user id and password by email.

The performance of the TENGRAPH® on-line system is dependent on the speed of your Internet connection. On-line performance is greatly improved using a broadband or other high speed connection. DMP provides free access to the TENGRAPH® on-line system.

ADDITIONAL INFORMATION

Additional information regarding the functions of the TENGRAPH® system is available through the On-line help files found within the application. Public TENGRAPH® computers are located on the 1st floor of the Department of Mining and Petroleum at the Customer Services Information Centre. Customer service officers are available to show new users how to get started and provide them with any continued assistance. A quick reference manual and other useful information is also available from the TENGRAPH® online registration page.

If you require further assistance accessing TENGRAPH® please telephone the DMP IT help desk on +61 (08) 9222 0777 during office hours. For Petroleum related queries regarding TENGRAPH® please telephone Neil Sadlier on +61 (08) 9222 3725 email Neil.Sadlier@dmp.wa.gov.au or Xavier Bezu on +61 (08) 9222 3727 email Xavier.Bezu@dmp.wa.gov.au.

For more detailed functionality of the TENGRAPH® system, with particular emphasis on Petroleum, please read below.

TENGRAPH PETROLEUM / GEOTHERMAL TITLES

Enquiry by Petroleum or Geothermal Title

Under Enquiry choose Petroleum titles. Users have the ability to search by Petroleum Title Id or by individual act.

The user is then able to select a petroleum title from the list. The boundaries of the petroleum title are loaded in the centre of the screen with other selected TENGRAPH® data.

Enquire by Petroleum or Geothermal Title

Acts: All Petroleum & Geothermal Titles

Title types: All Petroleum & Geothermal Titles

List of titles:

- Offshore Petroleum and Greenhouse Gas Storage Act
- Petroleum (Submerged Lands) Act 1982
- Petroleum Act 1936
- Petroleum Pipelines Act 1969
- PGER Act 1967 - Geothermal Titles
- PGER Act 1967 - Petroleum Titles

Area size: 1:100,000

Scale to display: Current Scale

Data Load Options ...

Apply Reset Cancel Help

Enquire by Petroleum or Geothermal Title

Acts: All Petroleum & Geothermal Titles

Title types: All Petroleum Titles, Geothermal Titles and Pipelines

List of titles:

- OPGSSA06 Commonwealth Pipeline Licence (WA-8-PL)
- OPGSSA06 Commonwealth Pipeline Licence (WA-9-PL)
- OPGSSA06 Commonwealth Production Licence (WA-52-L)
- OPGSSA06 Commonwealth Production Licence (WA-53-L)
- OPGSSA06 Commonwealth Production Licence (WA-9-L R1)
- OPGSSA06 Commonwealth Retention Lease (WA-35-R R1)
- OPGSSA06 Commonwealth Retention Lease (WA-48-R)
- OPGSSA06 Commonwealth Retention Lease (WA-49-R)
- OPGSSA06 Commonwealth Retention Lease (WA-50-R)
- OPGSSA06 Commonwealth Retention Lease (WA-6-R R3)

Area size: 1:100,000

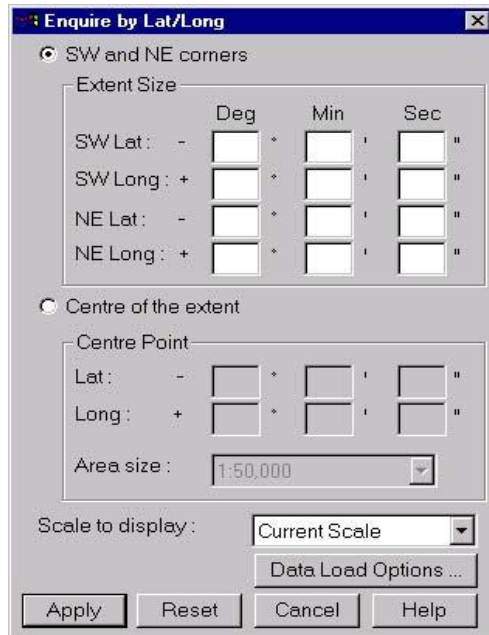
Scale to display: Current Scale

Data Load Options ...

Apply Reset Cancel Help

Enquire by Latitude and Longitude

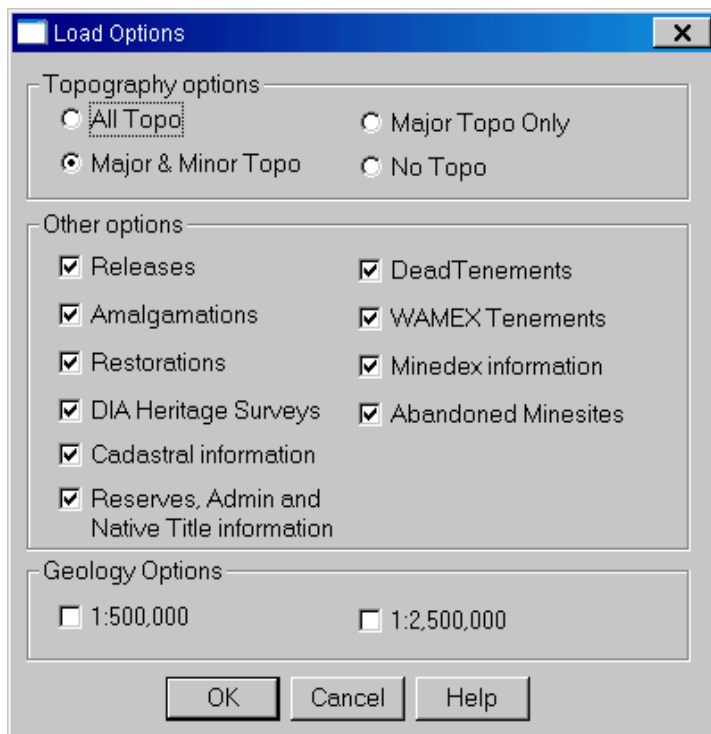
If you are unsure of the Petroleum /Geothermal Title Id or the data extent is insufficient. It is possible to load TENGGRAPH data by Latitude and Longitude.



The 'Enquire by Lat/Long' dialog box has a title bar with a close button. It contains two radio buttons: 'SW and NE corners' (selected) and 'Centre of the extent'. Under 'SW and NE corners', there is a section 'Extent Size' with a table of input fields for SW Lat, SW Long, NE Lat, and NE Long, each with columns for Degrees, Minutes, and Seconds. Under 'Centre of the extent', there is a section 'Centre Point' with input fields for Lat and Long, and an 'Area size' dropdown menu set to '1:50,000'. At the bottom, there is a 'Scale to display' dropdown menu set to 'Current Scale', a 'Data Load Options ...' button, and four buttons: 'Apply', 'Reset', 'Cancel', and 'Help'.

Data Load Options

It is possible to load certain datasets.



The 'Load Options' dialog box has a title bar with a close button. It contains three sections: 'Topography options' with four radio buttons ('All Topo', 'Major Topo Only', 'Major & Minor Topo' (selected), and 'No Topo'); 'Other options' with a list of checkboxes including 'Releases', 'Amalgamations', 'Restorations', 'DIA Heritage Surveys', 'Cadastral information', 'Reserves, Admin and Native Title information', 'DeadTenements', 'WAMEX Tenements', 'Minedex information', and 'Abandoned Minesites'; and 'Geology Options' with two checkboxes for '1:500,000' and '1:2,500,000'. At the bottom, there are three buttons: 'OK', 'Cancel', and 'Help'.

Standard Thematic Default Screens

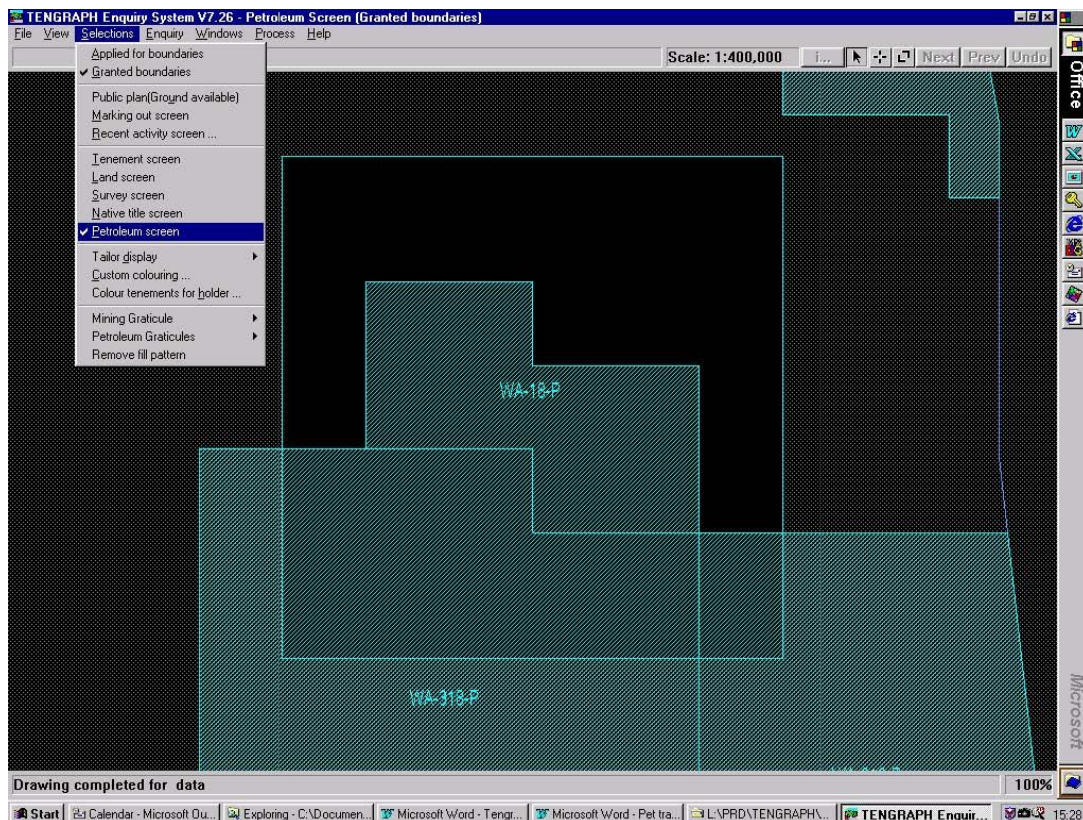
Petroleum or geothermal titles will be displayed by default in the Public plan - ground available screen. Petroleum and geothermal titles are shown without a fill pattern and are not shown in other thematic screens unless tailored on.

Petroleum/Geothermal Screen

The Petroleum/Geothermal Screen will display Petroleum titles as the most dominant information on the screen.

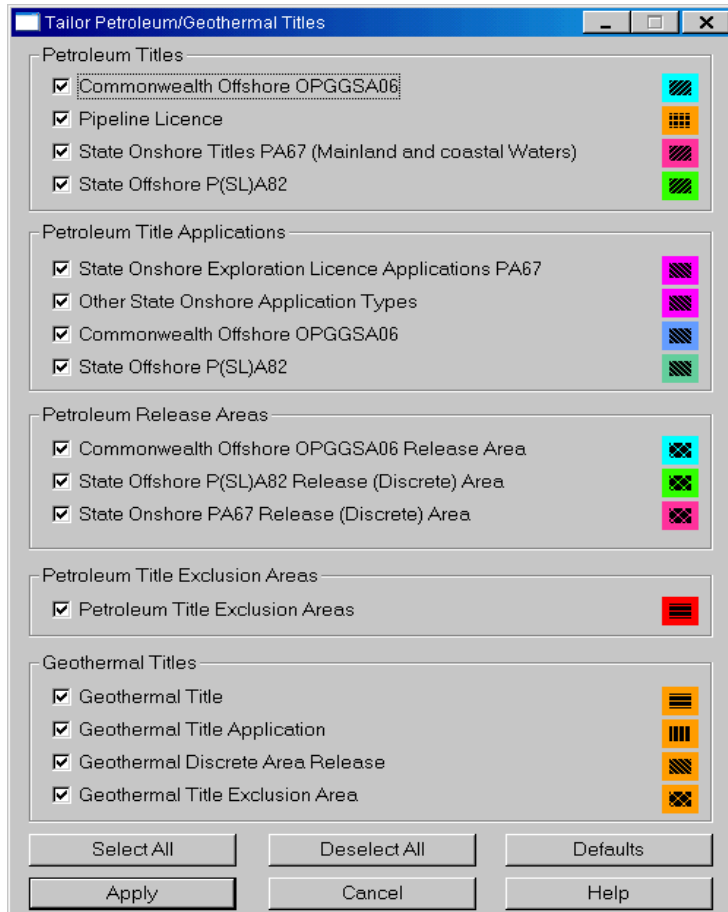
Other information to be displayed on Petroleum/Geothermal Screen: -

- Land Tenure (No pattern)
- Special Category Land (No pattern)
- Administration boundaries. (No pattern)
- Major topographic features



Tailor Display

Under Selections ~ Tailor Display ~ Petroleum The tailor display is used to switch on/off Petroleum Title types.

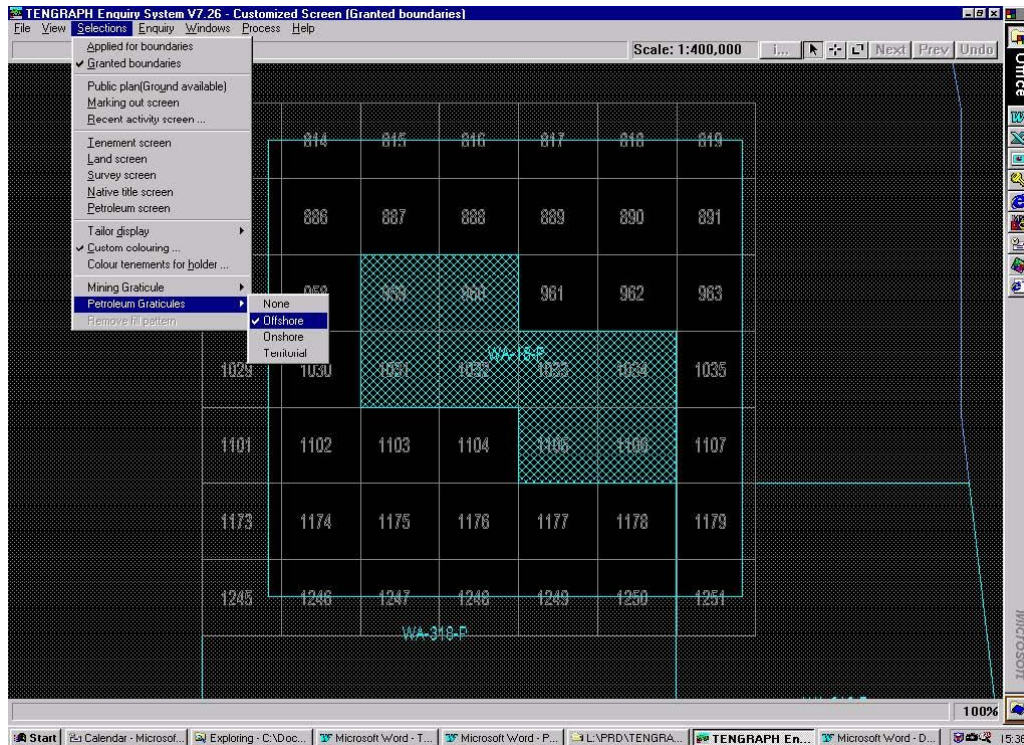


Print Object Details

Under File ~ Print Object Details. Utilising the print object feature users can print the GDA or AGD coordinates of the external boundaries



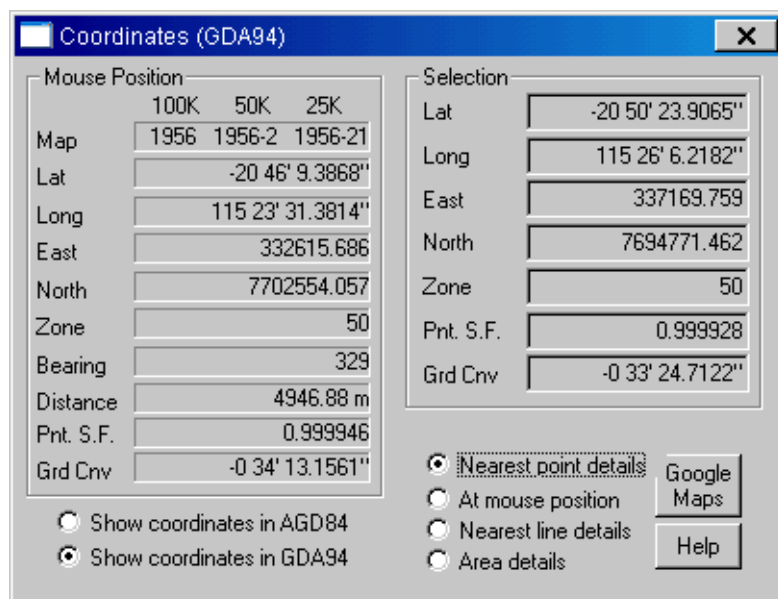
Graticular block display



Offshore, Onshore or Territorial blocks can be displayed through the Selections menu.

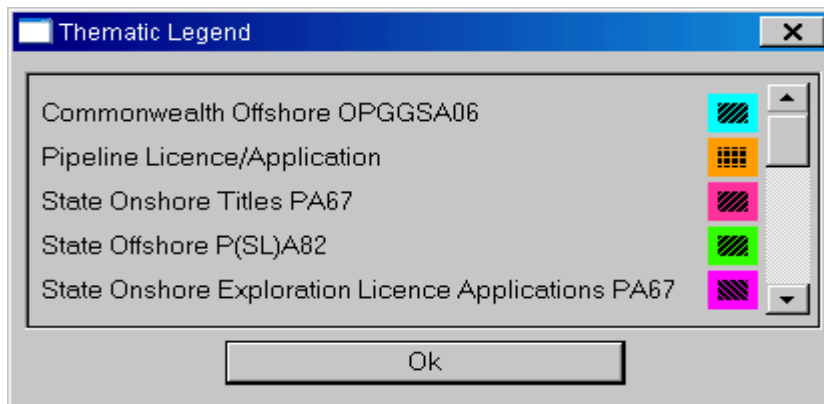
Coordinate display

Under Windows ~ Coordinates, a dialog box will display giving you the ability to obtain coordinates by Nearest Point or Mouse position. You can also obtain line distances and areas of features.



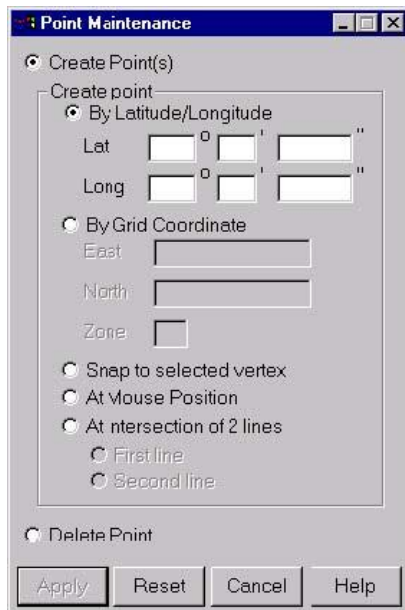
Thematic Legend display

Under Windows ~ Thematic Legend, a dialog box will display showing the current screen legend. The Petroleum screen will show the Thematic Legend below.



Drafting Tools

Under Process ~ Enhanced plot, the user can plot on the TENGRAPH screen either a point, a line or series of lines or a polygon shape.



Line Maintenance

☒ Create Line(s)

☒ By bearing and distance
☐ At bearing to snap to a line
 ☐ Start Pt. ☐ Select Line
☐ Along line for a distance
 ☐ Start Pt. ☐ Select Line
☐ Between points/vertices
 ☐ Start Pt. ☐ End Pt.

Distance (m):

Bearing (dms):

☐ Explode Object
 ☒ Explode strings to lines
☐ Delete Line/String

Polygon Maintenance

☒ Create Polygon

☒ By selecting components
☐ By chaining
☐ Automatic Chaining

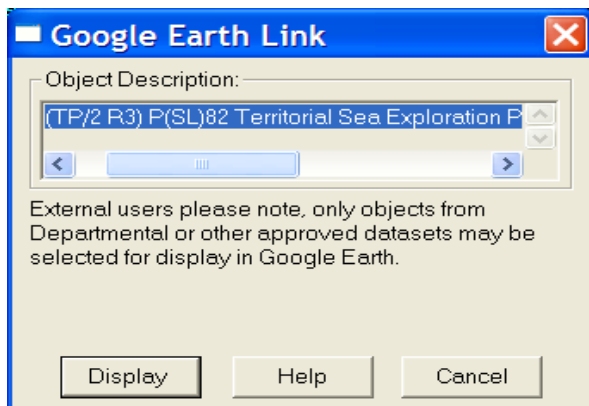
Parts: Points:

☐ Delete polygon

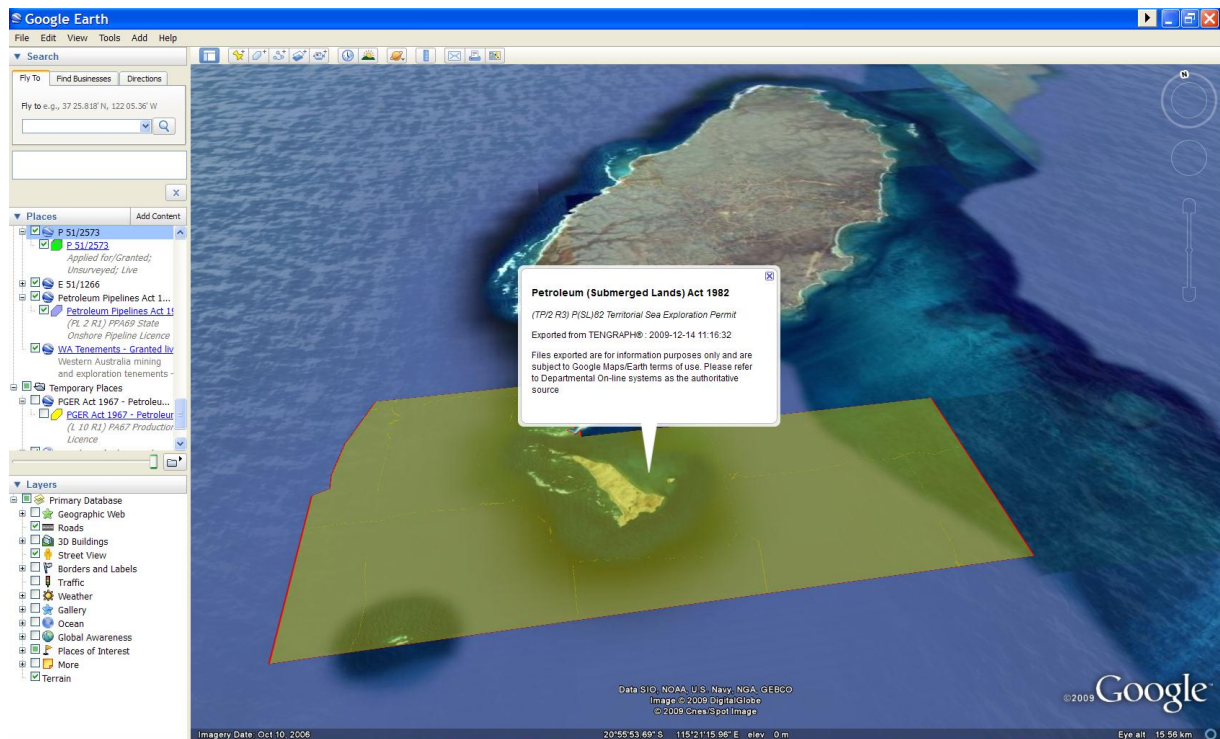
TENGRAPH® to Google Earth

This feature has been provided to view the boundaries of a petroleum or geothermal title over Google imagery. It is easy to use

1. Select File and then Google Earth link from the main menu bar
2. Using the mouse highlight (select) a Petroleum or Geothermal title on the screen
3. Press the Display button



TENGRAPH names and creates a KML (Keyhole Markup Language) file that opens Google Earth displaying the selected object.



1. You must have Google Earth installed on your computer for this feature to work.
2. The Department's help desk cannot provide technical support in the installation or operation of Google Earth software.
3. Google Earth software and instructions are available from the Google Earth web pages or from your own IT provider. Google Earth is a graphic intensive application that may not run on your PC. This TENGRAPH feature may not work if your graphic card does not support clamped polygons.