Appendices

Appendix 1 Glossary

This glossary is made up of some of the more common oil-industry terms and other specialised geological or technical terms used in the Atlas. The explanations are in some case simplified or Atlas-orientated, and the list is not intended to be comprehensive. For terms not listed here, or for greater technical detail, the reader is referred to geological dictionaries such as Whitten and Brooks (1972), the Glossary of Geology (Bates & Jackson, 1987) and the Illustrated Glossary of Petroleum Geochemistry (Miles, 1994), which have been valuable references in the compilation of this glossary. The glossary was compiled by Graham Lott. Gion Kuper and Ken Glennie are thanked for providing much of the information related to the oil industry. Robert Knox is thanked for providing additional advice on the geological definitions.

3D-seismic data. Seismic-reflection profiles collected on a very close grid of 15-25 m spacing allow the generation of cubes of 'three-dimensional data' (3D data); these provide great detail of the sub-surface. More-widely spaced seismic data are termed 2D.

Accommodation space. Any space generated at the land surface or the sea bed within which sediments can accumulate; commonly this is due to subsidence or faulting.

Accretionary prism. A tectonically thickened wedge of sediment scraped off the subducting plate found on the landward side of some oceanic trenches.

Acoustic impedance. The seismic property acoustic impedance (AI) is defined as the velocity multiplied by density. The difference in AI between layers basically determines the amplitude and polarity of seismic reflections.

Aeolian. The erosion, transport or deposition of material by wind.

Alginite. Microscopy term for oil-prone kerogen components composed of recognisable algal remains. Equates chemically with type I kerogen.

Alkanes. Carbon and hydrogen compounds saturated with respect to hydrogen. Alkanes may be straight chain (normal), branched chain (iso-) or cyclic (cyclo-) structures.

Ammonite zones. A non-hierarchical, usually restricted chronostratigraphic unit, based on a type section where specific beds yield characteristic ammonites.

Anisotropy. Term applied to the variation of physical rock properties in different directions.

API Gravity. American Petroleum Institute measure of the specific gravity of crude oils and condensates. The API gravity (in API degrees) is calculated as (141.5/density at 16°C) – 131.5 or may be estimated from oil fluorescence characteristics.

Appraisal. A period of data collection in which a petroleum discovery is assessed for its commerciality. The period can be short or extend to many years.

Appraisal well. A well drilled to appraise the lateral extent and potential commercial viability of a petroleum discovery.

Aromatics. Carbon and hydrogen compounds containing one or more six-membered carbon rings with conjugated (alternating) single and double bonds.

Asphaltenes. The heavy molecular weight component of crude oils or sediment extracts which is insoluble in n-heptane (API definition) or pentane.

Associated gas. Gas that occurs in the same reservoir as oil and is partly dissolved in the oil.

AVO. Amplitude versus offset. The change in amplitude of reflected seismic waves as the angle of incidence on the reflector changes. These amplitude variations can be interpreted to show the differing fluid content of the rocks.

Basin. A depression, usually of large size and generally caused by tectonic subsidence.

Barrel. The standard measure of volume for oil. One barrel equals 0.159 m^3 (159 litres), 5.615 cubic feet, 35 Imperial or 42 US gallons.

Biodegradation. The alteration of sedimentary organic matter, oils and gases by the action of bacteria.

Biogenic gas. Methane that is produced at shallow depths in sediments by the action of bacteria on organic matter.

Bioherms. Build-up of mainly *in situ* organisms that produces a reef or mound.

Biomarkers. Biologically derived molecules such as isoprenoids, steranes and triterpanes that retain structural specificity characteristics of their biological origin. Biomarkers are commonly used for estimating maturity and oil and source rock correlations.

Biostratigraphy. The stratigraphy of rocks based on the fossils and microfossils contained within them.

Bituminite. Microscopy term for macerals generated during maturation, i.e. of secondary origin.

Block. Each 1 degree quadrant in the North Sea is divided into licence blocks. 30 such numbered blocks are in each Quadrant in the UK sector, 18 in each Quadrant in the Netherlands, 32 in Denmark and 18 in Germany.

Blow out. The uncontrolled emission of hydrocarbons from a well. Can occur when the drill bit enters a zone of very high formation pressure, which is not controlled by the mud system in the well. These days, a blow out is a very rare occurrence; controlled by the use of heavy muds and ultimately by mechanical blow out preventers at the wellhead.

Bouguer gravity anomaly. A deviation from the Earth's normal force of gravity after taking account of corrections for latitude and water depth.

Brine. The salty water present in the sub surface both within aquifers (formation water) and hydrocarbon reservoirs; mostly of marine origin and trapped during deposition of the sediment.

Burial history curve. Graphical presentation (depth/time plot) of the variation with geological time of the subsidence and burial within a basin from deposition to present. Used for thermal geohistory modelling, and maturity prediction.

Calcrete. Carbonate bed formed in a soil within semi-arid regions with sparse rainfall.

Caprock. An impervious seal overlying a petroleum bearing reservoir.

Capillary entry pressure. The capillary pressure required to allow the non-wetting phase (typically oil or gas) to enter the pores of the reservoir rock.

Capillary pressure. The difference between the pressures of any two immiscible fluid phases. In an oil reservoir, it is calculated from the density difference between the oil and water multiplied by the height above the Free Water Level (FWL) and the gravity constant.

Carbon number. The number of carbon atoms in a molecule.

Carbon Preference Index (CPI). The ratio of odd numbered normal alkanes to even numbered normal alkanes in a specified part of the carbon number range. Used as maturity index for oil and sediment extracts.

Carrier bed (conduit). A permeable bed along which oil and gas is believed to have migrated from its source.

Catagenesis. The main hydrocarbon generation stage, between the immature stage of diagenesis and the post (oil) mature stage of metagenesis.

Chronostratigraphy. Stratigraphy based on the age of rocks and their time relations.

Clastic sediments (clastics). Sediments formed of fragments of pre-existing rocks. They include conglomerates, sandstones and mudstones.

Closure. The vertical distance between the top of an actual or potential hydrocarbon trap and its lowest closed contour (cf. **spill point**). Coupled with area, reservoir thickness and porosity, it is an important factor in deducing the volume of a hydrocarbon trap.

Coal. A sediment formed dominantly of fossilised organic matter (>50%).

Coal rank. A classification based on the thermal alteration or maturity of coal. Classes range from peat-brown coal (lignite), sub-bituminous coal, and bituminous coal (high, medium, low volatile) to semi-anthracite and anthracite.

Condensate. Hydrocarbons which were gaseous in the reservoir but condense (form liquids and gas) under surface pressure and temperature conditions. The term is frequently used to describe a mixture containing dominantly gaseous and light liquid hydrocarbons.

Couplet. Term given to related pairs of laminae which occur as part of a recurring sedimentary sequence (for example, annual varves).

Creaming curves. Plots of the hydrocarbon resources discovered through time which show the resource growth for each **hydrocarbon play**.

Crude oil. Unrefined liquid petroleum or hydrocarbons.

Debrites. A sedimentary deposit formed from an event such as a landslide, submarine slump or debris flow.

Debris flow. A fast-moving, mass of unconsolidated, water-saturated debris that can include material up to boulder size. Debris flows occur in both subaerial and submarine settings, in slopes or in channels.

Development wells in an oil or gas field are drilled within the productive area defined by appraisal wells after the hydrocarbon accumulation has been proven to be commercial; also known as production wells.

Deviated wells. Wells which are drilled away from a straight vertical track, often as a second or subsequent segment of an originally vertical well.

Diachronous. Describes a lithological unit of varying ages in different places. For instance a prograding, or advancing, sand body is said to be diachronous or to have a diachronous base because its inshore portion was laid down some time before the offshore portion.

Diagenesis. Changes undergone by a sediment after its deposition, including the lithification process by which it is converted to a rock; these are important as they influence porosity and permeability. These changes can include compaction, dissolution, cementation, replacement and recrystallisation. The term is also used to describe the first stage of post-biological organic maturation in the progressive burial (maturation) sequence; diagenesis, catagenesis and metagenesis resulting from temperature induced molecular transformations. (N.B. this usage is distinct from sedimentological usage of pre-metamorphic mineral alteration).

Diapir, diapirism. The density of most rocks increases with depth of burial but salt (halite) does not. At depth, therefore, halite is relatively less dense and more buoyant than its cover, leading to instability. Salt can also flow, so in unstable conditions, a bed of salt may move sideways and locally bulge vertically like a pillow, thus deforming overlying strata into domes and anticlines. Cylindrical salt domes and linear salt walls are created if the rising salt pierces the overlying strata. This process is known as diapirism; its product is a diapir.

Diasteranes. Rearranged steranes produced during diagenesis by acid-catalysed skeletal rearrangement. Biomarker compounds derived from plant and animal sterols.

Dipmeter log. A down-hole geophysical log which measures the angle and direction of dip of the strata within the borehole.

Disconformity. A surface representing a time gap in a stratigraphic succession where the beds both above and below the surface are parallel.

Discovery well. An exploration well that encounters oil or gas which can be developed economically.

Dolomitised, dolomitisation. Process whereby a limestone is transformed into dolomite by the addition of magnesium either soon after deposition or during the process of diagenesis.

Dry gas. Hydrocarbon gas comprising over 95% methane.

Dual porosity. A reservoir rock has dual porosity when it has both primary and secondary porosity, for instance both inter-granular porosity and fracture or solution porosity.

Elemental analysis. Analysis of the elemental composition of organic compounds, in particular with respect to the elements C, H, O, N and S.

En-echelon. Term applied to the parallel or subparallel alignment of individual structural features, which are arranged obliquely to a specific directional axis.

Ephemeral lake. A lake which forms only after rain or snow-melt and disappears in the dry season.

Exploration licence. A permit to conduct exploration work, other than deep drilling, in an area that is not covered by a **production licence**.

Exploration well. A well drilled to discover whether a previously untested trap contains oil or gas. If successful it becomes a **discovery well**.

Expulsion. Term used to describe the process of primary migration, whereby oil or gas leaves its site of generation in the source rock due to the increasing effects of temperature and pressure.

Extension. A pull-apart tectonic strain that is an important component of basin formation. Crustal extension commonly leads to rifting.

Extract. Removed oil and oil-like products from rocks by the use of organic solvents. Used in source rock analysis to provide indications of maturity and/or kerogen type.

Facies. An association of lithology, bedding, sedimentary structures, colour and fossils that characterises a certain environment of deposition.

Fault. A break in rock across which there has been a noticeable displacement. Some fault planes are composed of relatively coarse rubble that can act as a conduit for migrating oil or gas, whereas the surfaces of other faults are smeared with impermeable clays and can act as barriers to migration (fault seal). The high side of the fault is termed the footwall block, the low side is termed the hanging-wall block.

Fault-block rotation. During rifting, large crustal blocks may be faulted, and due to the dip angle of the faults, these blocks rotate from the horizontal.

Fault trap. A hydrocarbon trap in which the lateral seal consists of an impermeable fault gouge or an impermeable lithology on the opposite side of the fault plane.

Fluid gradient. Pressure gradient pertaining to the density of a particular fluid type.

Flysch. Term used to describe a thick sequence of redeposited, deep-sea, clastic material, normally deposited during a major phase of orogeny.

Footwall. The upthrown side of a normal fault.

Formation pressure. The pressure of fluids within a subsurface reservoir. Commonly this is the hydrostatic pressure (equal to a column of water from the formation's depth to sea level). When soft impervious rocks are compacted, the fluids (which can include newly generated oil) cannot always escape and must then support the total overlying rock column, leading to very high formation pressures; if not controlled during drilling; this could lead to a **blow out** in the well bore.

Formation water is the water that normally occurs in the pores within rocks, particularly potential reservoir rocks. It commonly comprises salty water (brine) that filled the pores during deposition of the original sediment.

Fracture. General term given to any break or rupture in a rock.

Fracture porosity. Secondary porosity caused by fracturing of any rock; this allows reservoirs to develop in rocks such as granites.

Free water level (FWL). The level at which water and hydrocarbon pressure gradients cross and the capillary pressure thus becomes zero.

Gamma-ray logs. A common measurement of the natural emission of gamma rays in a rock succession.Gamma-ray logs are particularly helpful because shales and sandstones typically have different gamma-ray signatures that can be correlated readily between wells. A log of the total natural radioactivity, measured in **API** units. The measurement can be made in both open-hole and through casing. See **wireline logs**.

Gas. A mixture of compounds which are gaseous under normal temperatures and pressures. Common gaseous hydrocarbons are methane, ethane, propane and butane.

Gas cap. Free gas that overlies the oil in some reservoirs; in some fields, pressure in the gas cap is sufficient to drive the oil to the surface during initial production, with the gas cap expanding downward. See **primary recovery**.

Gas Chromatography (GC). Method for separating compounds from a mixture, commonly applied to gases, gasoline, and saturated and aromatic fractions of oils and extracts. Separation results from the differential partition of individual molecules between a stationary liquid phase and a mobile gas phase (carrier gas). Various detectors can be used to measure the separated components.

Gas Chromatography-Mass Spectrometry (GC-MS). Analytical technique for the separation, detection and characterisation of organic compounds, mainly used for biomarker analysis (steranes and triterpanes). Compounds are initially separated by gas chromatography, after which the separated molecules pass into a mass spectrometer providing structural information.

Gas Chromatography – Isotope Ratio Mass Spectrometry (GC-IRMS). Method for determining the isotopic composition of individual components separated using a gas chromatograph. An isotope ratio mass spectrometer, sensitive to differences in mass among different isotopes of an element, is used for detection.

Gas-prone. Sedimentary organic matter which at optimum maturity will predominantly generate and expel hydrocarbon gases.

Gas/Oil ratio (GOR). Measure of the volume of produced hydrocarbon gas relative to oil, usually expressed in cubic feet per barrel.

Glacio-eustatic sea-level changes result from the growth and decay of ice sheets.

Glauconitic rocks are those rich in the hydrous potassium-iron-alumino-silicate clay mineral glauconite and indicate a marine origin. Many sandstones rich in this mineral have a green colour.

Graben. A downfaulted area between faults; the opposite of horst.

Grainstone texture. Term applied to limestones in which the granular material is arranged in a self-supporting framework and the interstitial spaces contain little or no calcareous mud matrix.

Hardground. A zone of lithified sediment at, or near, the seabed that indicates a hiatus.

Halite. Common salt, NaCl.

Half-graben. A basin that is downfaulted on one side only.

Halokinesis. The structure and emplacement of salt bodies (also applied to the study of salt tectonics).

Hanging wall. The downthrown side of a fault. A hanging-wall basin lies beside the hanging wall.

Hemipelagic. A fine-grained deep-sea deposit, consisting of at least 25% terrigenous material or derived volcanic ash.

Highstand. Term applied to a period of high relative sea level.

Horst. An uplifted area between faults; the opposite of graben.

Humic. General term for organic matter derived from the lignified tissues of terrigenous higher plants. Chemically equivalent to type III kerogen.

Hyaloclastite. Aggregate of fine glassy debris formed by the sudden contact of hot magma with cold water or water-saturated sediment.

Hydrocarbon generation. The formation of oil and gas from within a source rock through the transformation of organic matter during burial (maturation).

Hydrocarbon migration. The process by which hydrocarbons move from the source rock to the reservoir or to the surface. Primary migration consists of oil and gas leaving the source rock, secondary migration is the movement via carrier beds or fracture conduits to the reservoir, and tertiary migration is the further movement of hydrocarbons to another trap or to the surface.

Hydrocarbon play. A family of prospects, leads, postulated (unmapped) prospects, undeveloped and developed pools and drilled unsuccessful features that are known or believed to share the same gross reservoir, hydrocarbon charge system and regional top seal.

Hydrocarbons. In the restricted sense, chemical compounds consisting of the elements carbon and hydrogen only. In the oil industry the term is used loosely to refer to 'oil and gas' or 'petroleum'.

Hydrogen Index (HI). Source rock quality parameter, measure of the hydrogen richness and hence the oil-proneness of the source rock organic matter. Derived from programmed pyrolysis, especially Rock-Eval, and calculated as 100 × (S_2/%TOC).

Hypersaline. Term applied to a lake that contains a higher than normal concentration of sodium chloride (or other mineral salts), typically exceeding that of ocean water (i.e., 31.5 grams/litre).

Immature. Maturity term applied to the stage at which kerogen has yet to generate hydrocarbons, where rock temperature is insufficiently high or the time of exposure to a sufficiently high temperature too short.

Impermeable. Describes a rock through which water, oil or gas cannot readily pass.

Inertinite. Microscopy term for the maceral group containing carbon-rich kerogen components which have no oil generative potential and only marginal gas potential. Dominant in type IV kerogen.

Injection well. Any well drilled for the purpose of injecting gas, water, steam or other fluid into a hydrocarbon reservoir as part of a secondary or tertiary recovery scheme.

Inter-montane molasse basin. A basin which is being infilled by sediment produced from the erosion of a mountain belt after the final stage of orogenic uplift, consisting of mainly nonmarine or shallow-marine sediments.

Intraclast. A lithified or partially lithified carbonate fragment, eroded and deposited within the same area.

Inversion. A tectonic process that leads to former basins becoming highs, and vice-versa; a term often loosely, and incorrectly, used for uplift.

Isoprenoids. Hydrocarbons composed of multiples of the basic structural unit isoprene, which is composed of five carbon atoms.

Isotopes. Term indicating different nuclear forms of the same element. Atoms of the same element with different numbers of neutrons and thus slightly different atomic weights.

Kelly bushing (KB). The kelly bushing is the point on the drill floor at which all measurements of depth in the hole are referred to, rather than the sea bed or sea level.

Kerogen. The particulate organic matter component of sedimentary rocks that is insoluble in common solvents. It is derived from plant, animal and bacterial tissues, preserved in sedimentary rocks. Classified visually on the basis of morphology into maceral groups, or by pyrolysis and elemental analysis into kerogen types.

Kerogen type. Classification of sedimentary organic matter based on morphology or chemical composition into oil generating algal liptinite (or type I), oil and gas generating amorphous liptinite, exinite (or type II), gas generating vitrinite (or type III) and non-generating inertinite (or type IV).

Kitchen area. A structurally low area where a source rock has reached a depth and temperature at which hydrocarbons are generated. The first stage is that at which oil is generated from it (oil kitchen); carried to greater depths and temperatures it would become a gas kitchen and eventually an over mature or 'burnt out' or exhausted kitchen.

Lacustrine. Term applied to environments and deposits associated with lakes.

Liptinite. Microscopy term for the maceral group containing all oil-prone, hydrogen-rich kerogen components. Equates chemically with type I and type II kerogen.

Lowstand. A period of low relative sea level

Lithostratigraphy. Stratigraphy based on the organisation of strata into units determined by their lithology (i.e. not necessarily time units).

Macerals. Microscopically recognisable components of sedimentary organic matter (kerogen) and coals. Macerals can be divided into three main maceral groups, liptinite, vitrinite and inertinite.

Maturation. The process of chemical and physical change to sedimentary organic matter (kerogen) over geological time, brought about during burial by the action of temperature and pressure.

Mature. Term applied to a sediment that has reached sufficient thermal alteration for hydrocarbon generation (i.e. one that is in the oil or gas generative window).

Maturity. The state of a source rock with respect to its ability to generate oil or gas. Considered to range from immature before any oil or gas has been generated, through early, mid- and late mature, to post mature (or over mature) when no additional oil or gas can be generated from it.

Mesogenetic. A term used to describe the period between which newly deposited sediments are mainly affected by eogenetic stage processes and telogenetic stage processes. This term is also applied to any porosity which develops during the mesogenetic stage.

Metagenesis. The last stage in the maturation sequence of organic matter (diagenesis-catagenesis-metagenesis) before inorganic metamorphism. Associated with dry-gas generation.

Methane, CH_4. The lightest and most common of the hydrocarbon gases.

MFS. Maximum Flooding Surface. A term used in sequence stratigraphy to define regionally correlateable surface indicating a local maximum in sea level.

Microfossils. Fossils that are too small to be studied without the use of a microscope; they include foraminifera, nannofossils and pollen palynomorphs (including dinoflagellate cysts, spores and pollen).

Milankovich Cycles. These are cycles of received solar radiation that vary due to eccentricity of the Earth's orbit, and occur on a range of timescales. The influence of these cycles on past climates is recorded in some sediments.

Moldic porosity. Secondary porosity caused by the preferential dissolution of particles, especially shell fragments, leaving voids.

Net/gross (N:G) ratio. In a stratigraphic interval, that includes a reservoir, this ratio measures the relative thickness of the cumulative effective reservoir beds to the total thickness of the interval. A crude measure of overall reservoir quality.

Net pay. In a hydrocarbon-bearing interval this measures the total thickness of the hydrocarbon filled reservoir (pay).

Normal alkanes (*n*-Alkanes). Straight chain saturated hydrocarbons (general formula C_nH_{2n+2}). Synonymous with the term 'paraffin'.

Oil. Used in petroleum exploration and production to mean a naturally occurring mixture of liquid hydrocarbons and other compounds.

Oilfield. A subsurface accumulation of oil trapped by an impervious caprock; it may comprise one or more oil pools.

Oil in place. The total volume of oil within an oilfield, not all of which can be recovered.

Oil pool. A sub-surface oil accumulation confined to a trap within one reservoir.

Oil prone. Term applied to sedimentary organic matter which at optimum maturity will generate and expel oil.

Oil shale. A shale rich in kerogen, which yields oil on distillation.

Oil-water contact. The interface between the oil-bearing reservoir rock and the underlying water-bearing rock. Usually close to or equal to the FWL, but may be considerably shallower than the FWL in low permeability rocks such as chalk.

Organic matter (OM). Biogenic tissue, when preserved in a sediment (sedimentary organic matter, SOM) it comprises kerogen, parts of which can give rise to oil and gas upon maturation.

Overburden. The column and weight of rock overlying some point in the sub-surface.

Over-mature. See post-mature.

Overpressure is pressure greater than would be expected from a normal hydrostatic gradient.

Oxygen Index. Source rock quality parameter, measure of the oxygen richness of the source rock organic matter. Derived from programmed pyrolysis, especially Rock-Eval, and calculated as 100 × (S_3/%TOC).

Oxygen isotopes. The relative proportion of oxygen isotopes in shells gives an indication of the salinity and temperature of the water in which they were deposited.

Packstone texture. Term applied to limestones in which the granular material is arranged in a self-supporting framework and the interstitial spaces occupied by also contains a little calcareous mud matrix.

Palaeogeography. An inferred geographical distribution of features in an area at a given time in the geological past.

Palaeo-oil column. Used to indicate a reservoir rock that once held hydrocarbons, but which have now escaped.

Palinspastic. Term applied to the restoration of features, presented either on a map or cross-section, to their original position geographically prior to shortening by folding and/or thrusting.

Palynology. The study of organic microfossils including acritarchs, dinoflagellate cysts, pollen and spores.

Paralic. Term applied to deposits laid down on the landward side of a coast, in brackish water or in fresh water subject to marine incursions. Also applied to succession in which marine and nonmarine sediments are interbedded, as, for example, in the lower part of the Coal Measures.

Pedogenesis. The natural process of soil formation. Includes subsidiary processes such as weathering and calcrete formation.

PeeDee belemnite. Limestone from the PeeDee Formation in South Carolina (derived from the Cretaceous marine fossil *Belemnitella americana*), the carbon and oxygen isotope ratios of which are used as an international reference standard. Abbreviated as PDB.

Pelagic. Term applied to deep-sea sediments derived from the overlying water column with negligible input from terrestrial sources. Pelagic sediments are thus commonly composed of biogenic oozes or their lithified equivalents (e.g. chalk).

Permeability. The ability of a porous rock (or other medium) to allow water, oil or gas to pass through it.

Petroleum. Petroleum consists mainly of naturally occurring hydrocarbon molecules that often contain substantial amounts of contaminants such as sulphur, nitrogen, oxygen, trace metals and other elements. Petroleum may occur in gaseous, liquid or solid state depending on the properties of these compounds and the temperature and pressure conditions. The commonly used synonyms for petroleum are 'hydrocarbons' and 'oil and gas'.

Petroleum system. A petroleum system is a conceptual framework that includes a pod, or a group of closely related pods, of active petroleum source rock that has generated oil and gas. A petroleum system also comprises the overlying strata that have subsided to bring the source rock into the temperature range in which petroleum is generated and expelled. These fluids usually begin to migrate, often along discrete pathways within carrier beds or along tectonic fractures. Eventually, a portion of the migrated hydrocarbons may fill a trap and accumulate in economic quantities in one or more reservoirs beneath a seal. A petroleum system includes all formations, processes and products.

Petrophysical. Related to the character of rocks studied from data collected from petrophysical well-logs. Petrophysical analysis allows an estimate of porosity, rock density, gas, oil and water saturation and lithology.

Phytane. A C_{20} branched acyclic isoprenoid hydrocarbon. Used compared to normal alkane ($_nC_{18}$) and pristane as an environmental and maturity parameter.

Playa. A playa constitutes the lowest part of a terrestrial basin in an arid or semi-arid setting. It is often fed by mountain run-off or by local rain-fall. Sediments consist mainly of evaporites and clays.

Polyhalite. A sulphate of potassium, magnesium and calcium that occurs in bedded evaporite deposits. It is highly soluble and is one of the last minerals to be precipitated from evaporating saline water.

Porosity. Term that refers to the voids (pores) between the grains of a rock that are capable of containing fluids. Usually measured as a percentage of total rock volume.
Post-mature. Term applied to the high-maturity stage at which no further hydrocarbon generation occurs.
Post-rift subsidence. Subsidence that occurs after a period of crustal extension or rifting has ceased in an area, when fault blocks and basins become draped by a common blanket of post-rift sediments.
Potential-field data. A term that includes gravity and magnetic data.
Primary recovery. Recovery of hydrocarbons making exclusive use of the inherent energy of the sub-surface fluids, that is, not requiring artificial uplift by pumping or injection of gas or water.
Pristane. A C_{19} branched acyclic isoprenoid hydrocarbon. Used compared to normal alkane ($_nC_{17}$) and phytane as an environmental and maturity parameter.
Production Index (PI). Maturity parameter, measure for the extent of oil generation within a source rock. May indicate the presence of migrated hydrocarbons or contamination. Derived from programmed pyrolysis, especially Rock-Eval, and calculated as $S_1 / (S_1 + S_2)$.
Production licence. A licence that permits the holder to search for, drill and extract any petroleum found in a specified area.
Progradation. The building forward, or outwards towards the sea, of a coastline or depositional unit.
Pyrolysis. Process of heating a source rock or isolated kerogen in the laboratory in the absence of oxygen to generate oil-like materials and simulate maturation. Rock-Eval is the most commonly used pyrolysis instrument.
Pyrolytic yield. Hydrocarbons generated during pyrolysis by cracking of the kerogen. Equates to the remaining hydrocarbon potential of the rock.
Rank. See coal rank.
Recoverable oil is the portion of oil that can be produced from an oilfield.
Recovery factor is the fraction of the original oil or gas in place that is expected to be produced from the reservoir.
Remaining reserves. The reserves of a pool or field which have not yet been produced at the time of the assessment.
Reserves. An estimate of the amount of hydrocarbons which can be recovered from a pool or field during the total production lifetime.
Reservoir rock. Any rock that can contain moveable fluids in its pore spaces or fractures.
Resins. Mixture of complex organic compounds containing various other elements in addition to carbon and hydrogen, in particular nitrogen, sulphur and oxygen.
Rifting. The generation of a graben system, largely, if not wholly, by extensional faulting.
Rim syncline. A localised depression which forms around a salt dome as the stratified salt below is displaced laterally towards the dome.
Risk. An expression for the likelihood of failing to find hydrocarbons in an exploration prospect being evaluated for drilling. Risk is the inverse of probability of success, so a high risk prospect has a low probability of success.
Rock-Eval. Commercially available pyrolysis instrument. Source rock screening tool for rapid evaluation of organic richness, kerogen quality and maturity.
Sabkha. A flat, supratidal environment of sedimentation in arid to semi-arid climates in which evaporites commonly accumulate. A well-known example is the Persian/Arabian Gulf.
S_1, S_2 and S_3 peaks. Peaks produced by Rock-Eval or other pyrolysis instruments (also known as P_1, P_2 and P_3). S_1 is the free hydrocarbons, S_2 the hydrocarbons generated by thermal cracking of the kerogen, S3 is organic carbon dioxide proportional to the oxygen present in the kerogen.
Sapropel. Finely divided oil-prone organic matter often associated with laminated 'black shales' environments and implying derivation from bacterially degraded algal debris preserved in anoxic conditions.
Saturates (saturate fraction). Fraction of an oil or sediment extract containing the saturated hydrocarbons, i.e. normal, branched and cyclic alkanes.
Secondary recovery. A scheme to enhance the recovery of hydrocarbons from a field, by the input of secondary energy (e.g. water or gas injection).
Seismic refraction. A form of seismic survey that relies on the refraction of sound along rock layers; currently not a common survey mode for the oil industry, and normally used to obtain information about deep layers in the Earth's crust.
Sequence stratigraphy, sequence etc. Sequence stratigraphy is used to identify genetically related strata within a time-stratigraphic framework. Sedimentary successions are subdivided on a variety of scales using distinctive bounding surfaces (e.g. **unconformities** and **maximum flooding surfaces**) and the resulting sequence stratigraphic units explained in terms of the effects of relative sea-level change and variations in sediment supply. In hydrocarbon exploration, sequence stratigraphy provides a method of analysing and predicting the spatial and temporal distribution of lithological and stratal patterns in areas between wells. It allows prediction of hydrocarbon source and reservoir rocks, and is particularly suited to the interpretation of seismic data.
Shallow gas. Natural gas accumulation located near to the surface. In petroleum exploration and production defined as any gas zone penetrated before the blowout preventer (BOP) has been installed.
Slump. A relatively fast but sporadically moving body of unconsolidated sediment that has built up slowly into an unstable or marginally stable mass. Slumps commonly occur on continental slopes and within submarine canyons.
Sonic log. A depth related graph that gives a continuous record of the travel time of sound in the rock layers penetrated by a well. One of many **wireline logs** (see definition below).
Source rock. Sedimentary rock sufficiently rich in organic matter of suitable composition to generate significant amounts of hydrocarbons upon maturation. Rocks of marine and lacustrine origin tend to be **oil prone**, whereas terrestrial source rocks, such as coal, are **gas prone**.
Speculative survey. A seismic survey run by a contractor and then sold to more than one oil company. A survey run exclusively for one oil company is called a proprietary survey.
Spill point is the point in an oil or gas field where any addition to its hydrocarbon content will result in the excess spilling out (generally beneath some trap making obstacle). It thus marks the lowest depth at which oil or gas can accumulate within that field.
Spore Colour Index (SCI). Maturity scale based on the change in colour of spores from transparent-pale yellow to dark brown or black.
Steranes. Group of tetracyclic alkanes found in the saturate fraction of oils and sediment extracts. Biomarker compounds derived from plant and animal sterols. Used for oil and source rock correlations, mainly based on depositional environment and maturity.
STOIIP. Stock tank oil initially in place (cf. **recoverable oil**). A measure of the total volume of oil initially in place in a field.
Stylolite. An irregular discontinuity or non-structural fracture in limestones and other sedimentary rocks. Stylolites result from compaction and pressure solution during diagenesis and appear as highly undulating to jagged surfaces often emphasised by an insoluble clay residue.
Stratigraphic trap. A trap for oil or gas that is the result of lithological changes rather than structural deformation. May be the result of a lateral lithological change from, for example, sandstone to shale (pinch out) or an overlying unconformity.
Structural high. An anticlinal, domal or horst like feature where any particular geological horizon is higher (at a shallower depth) than elsewhere.
Structural trap. A trap for oil or gas that is the result of folding, faulting or other deformation (cf. **fault trap**; **stratigraphic trap**).
Subcrop. A 'subsurface outcrop' of a rock unit at a buried surface. Also, the termination of a seismic reflector at such a surface.
Subduction. The process of consumption of lithospheric plates at convergent plate margins.
Tectonostratigraphy. The study of facies affected and influenced by changing tectonic conditions.
Telogenetic. A term to describe the period during which processes such as weathering and subaerial/subaqueous erosion affect long-buried carbonates. This term is also applied to any porosity which develops during this stage.
Temperature gradient. The upward reduction in the temperature of the Earth's crust, which varies from place to place. Generally measured in °C/km. Needed to calculate the depths at which source rocks become mature.
Tephra. Air-fall material produced by a volcanic eruption regardless of composition or fragment size. See also **volcanic ash**.
Thermal Alteration Index (TAI). Maturity scale based upon colour changes of kerogen from yellow to black.
Thermal subsidence. The progressive sinking of the Earth's crust in response to cooling after the removal of an underlying heat source. Sedimentation takes place in the depression as accommodation space is created.
Thermogenic gas. Hydrocarbon gas produced from organic matter by thermal breakdown upon maturation.
Tight reservoir. A tight reservoir is one that may be porous but has little or no permeability, so that it is unable to yield its content of hydrocarbons.
T_{max}. Maturity parameter derived from programmed pyrolysis, especially Rock-Eval, defined as the temperature at which the pyrolytic yield (S_2) reaches its maximum.
Total Organic Carbon (TOC). Measure of the quantity of organic carbon or kerogen present in a sediment, commonly expressed as weight percent organic carbon.
Transfer fault. A strike-slip fault that cuts another fault, thus creating a lateral shift in the line of that fault.
Transformation Ratio (TR). Ratio related to the Production Index. Defined as the difference between the original hydrocarbon potential (prior to maturation) and the measured hydrocarbon potential of a source rock sample, divided by the original hydrocarbon potential.
Transpression. In crustal deformation, this combines the elements of strike-slip and compressional motion.
Transtension. In crustal deformation, this combines the elements of extensional and strike-slip motion.
Trap. Any geometrical relationship between a reservoir rock and overlying or flanking caprock or other (e.g. fault, permeability barrier) seal that prevents the upward escape of oil or gas; **structural trap**; **stratigraphic trap**; **fault trap**.
Triterpanes. Group of pentacyclic alkanes found in the saturate fraction of oils and sediment extracts. Biological markers, but with different origins for different compounds within the group. The most common triteranes (i.e. hopanes) are derived predominantly from bacterial membrane lipids.
Two-way travel time is the time taken for a shock wave to travel from the energy source to the reflector and back to the hydrophone. To calculate actual depth it is necessary to know the velocity of sound through water and those rocks or sediments through which the sound has travelled.
Type I kerogen. Hydrogen-rich, highly oil-prone kerogen derived from algal and bacterial material a nd dominated by amorphous liptinite macerals. Commonly associated with lacustrine depositional environments.
Type II kerogen. Moderately hydrogen-rich, oil-prone kerogen containing algal and bacterial material and dominated by liptinite macerals. Commonly associated with marine depositional environments.
Type III kerogen. Relatively hydrogen-poor, gas-prone kerogen consisting of higher-plant material and dominated by vitrinite macerals. Commonly associated with paralic marine settings.
Type IV kerogen. Non-generative hydrogen-poor kerogen predominantly containing oxidised and reworked higher-plant material, dominated by inertinite.
Type section. An exposure on land or a borehole section from which a lithostratigraphic formation was originally defined. Units may also have reference sections that are of lesser significance in defining the unit, but may be good illustrations of it.
Type section. An outcrop or borehole section in which a lithostratigraphic unit (formation, member, or bed) was originally defined. Lithostratigraphic units may also have reference sections that are of lesser significance in defining the unit, but help define the range of variation in facies and thickness displayed by the unit.
Ultimate Recovery. The total volume of hydrocarbons that are expected eventually to be gained after primary, secondary and tertiary recovery techniques have been applied.
Unconformity. A surface representing a time gap in a stratigraphic succession where the beds above the surface are not parallel to the beds below.
Velocity pushdown. The increase in travel time for reflectors which is caused by an overlying, localised zone of low velocity commonly associated with gas-charged sediments.
Vitrinite. Microscopy term for the gas-prone maceral group containing the kerogen or coal components derived from lignocellulosic land plants tissues. Synonymous with humic, equates chemically with Type III kerogen.
Vitrinite Reflectance (% Ro). Maturity parameter based on the measured reflectance of polished vitrinite, expressed as a percentage of vertically incident green light (546 nm). Reflectance values increase upon maturation.
Volcanic ash. Fine-grained, airborne volcanic material deposited after volcanic eruption.
Vug. A cavity in a rock, especially in limestone, caused by dissolution of the rocks, usually several millimeters or more across. Interconnected vugs give rise to exceptionally good permeability.
Wadi. A steep-sided desert valley in which water flows intermittently, typically during times of heavy rainfall. Wadi deposits are usually poorly sorted gravels and sands, often reworked by aeolian processes.
Wet gas. Hydrocarbon gas containing a significant percentage of ethane, propane and heavier hydrocarbons and less than 95% methane.
Wireline logs. Continuous records of rock properties made in the borehole by use of various sondes on the end of a long cable – usually recorded while pulling the sonde towards the surface. Includes among others are neutron density, acoustic transit time (sonic), resistivity and natural-gamma radiation (**gamma-ray logs**).

Appendix 2 GIS maps presented in the Atlas and available on DVD

All grid and vector data presented in the SPBA are available on a DVD. The DVD includes all GIS maps listed in this Appendix as ESRI Arc Map Document (MXD) and Adobe Portable Document Format (PDF). Also included are attribute data of the SPBA Project Database in tabular format (see Chapter 1, Section 4.3).

Figure number	Map title	Scale 3M	6M	other
1.2	Topography and bathymetry	■		
1.3	Pre-Quaternary subcrop	■		
1.4	The distribution of about 1240 oil and gasfields in the Southern Permian Basin Atlas area including the 35 hydrocarbon field examples	■		
1.6	Locations of well and seismic data used to produce the 1 : 3 million scale lithostratigraphic depth maps	■		
2.1	Crustal structure of the Southern Permian Basin area and its surroundings		■	
2.2	Depth to the Moho Discontinuity		■	
2.19	Gravity. Bouguer (onshore) and free-air (offshore) anomaly		■	
2.20	Gravity. Free-air anomal		■	
2.21	Gravity. Residual 1 (upward 2 km – upward 10 km)		■	
2.22	Gravity. Residual 2 (upward 5 km – upward 40 km)		■	
2.23	Magnetics. Total field		■	
2.24	Magnetics. Total field reduced to the North Pole		■	
2.25	Magnetics. Total field – pseudogravity		■	
2.26	Geothermal. Heat-flow density (uncorrected)		■	
2.27	Geothermal. Temperature level - 1000 m		■	
2.28	Geothermal. Temperature level - 2000 m		■	
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3.3	Terranes amalgamated to form Laurussia			■
3.5	Terranes amalgamated to form Pangea			■
3.9	Early Permian (lower Rotliegend) tectonic evolution: Artinskian (280 Ma)		■	
3.11	Late Permian (Zechstein Z2) tectonic evolution: Wuchiapingian (255 Ma)		■	
3.13a	Early Triassic tectonic evolution: Olenekian (248 Ma)		■	
3.13b	Mid-Triassic tectonic evolution: Ladinian (237 Ma)		■	
3.15	Late Triassic tectonic evolution: Norian (216 Ma)		■	
3.17	Early Jurassic tectonic evolution: Sinemurian (195 Ma)		■	
3.19a	Late Jurassic tectonic evolution: Kimmeridgian (152 Ma)		■	
3.19b	Early Cretaceous tectonic evolution: Hauterivian (132 Ma)		■	
3.21	Late Cretaceous tectonic evolution: Santonian (85 Ma)		■	
3.25	Late Paleocene tectonic evolution: Selandian (59 Ma)		■	
3.26	Early Miocene tectonic evolution: Aquitanian (23 Ma)		■	
3.30	Salt tectonics		■	
3.31	Locations of regional seismic lines shown in Figures 3.32 to 3.43		■	
4.2	Locations of boreholes and pre-Devonian outrcops (with geology and chronostratigraphy)	■		
4.3	Depth to the top of the pre-Devonian basement	■		
4.18	Posible maximum extent of the Upper Cambrian 'Upper Alum Shale'. Fields with pre-Devonian reservoir		■	
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8.18a	Facies distribution of the Stassfurt Carbonates and equivalents. Fields with Zechstein reservoir		■	
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8.19	Thickness and palaeogeography of the Platy Dolomite Limestone deposits			■
8.22	Distribution of the youngest Zechstein salts			■
9.2	Depth to near base of the Lower Triassic (base of the Buntsandstein)	■		
9.3	Thickness of the Lower Triassic	■		
9.4	Depth to near base of the Middle Triassic (base of the Röt evaporites)	■		
9.5	Thickness of the Middle Triassic	■		
9.6	Depth to near base of the Upper Triassic	■		
9.7	Thickness of the Upper Triassic	■		
9.11	Present-day distribution and facies of the Middle Buntsandstein Subgroup and equivalents. Fields with Triassic reservoir			■
10.2	Depth to near base of the Lower Jurassic (base of the Lias Group)	■		
10.3	Thickness of the Lower Jurassic	■		
10.4	Depth to near base of the Middle Jurassic (top of the Lias Group)	■		
10.5	Thickness of the Middle Jurassic	■		
10.6	Depth to near base of the Upper Jurassic	■		
10.7	Thickness of the Upper Jurassic	■		
10.8	Paleogeographical evolution in the Southern Permian Basin area during the Jurassic			■
10.11	Distribution of Jurassic hydrocarbon reservoirs. Fields with Jurassic reservoir			■
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11.4	Thickness of the Lower Cretaceous	■		
11.5	Subcrop at the base of the Lower Cretaceous			■
11.6	Thickness of the Upper Cretaceous	■		
11.7	Subcrop at the base of the post-Chalk Group (near the base of the Tertiary)			■
11.22	Fluid overpressure at top Chalk level in the central North Sea			■
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13.18	The Pomeranian petroleum province with fields and accumulations charged by Early Carboniferous and/or Namurian black shales			■
13.22	The Fore-Sudetic Monocline petroleum province with fields and accumulations charged by Early Carboniferous and/or Namurian black shales			■
13.26	The Lublin Basin petroleum province with fields and accumulations charged by Early Carboniferous and/or Namurian black shales			■
13.30	The Anglo-Dutch and North German basins petroleum province with fields and accumulations charged by Westphalian Coal Measures			■
13.33	The Pomeranian petroleum province with fields and accumulations charged by Zechstein source rocks			■
13.36	The Fore-Sudetic Monocline and Brandenburg petroleum province with fields and accumulations charged by Zechstein source rocks			■
13.40	The Weald Basin petroleum province with fields and accumulations charged by Lower Jurassic source rocks			■
13.44	The Dutch Central Graben petroleum province with fields and accumulations charged by the Posidonia Shale Formation			■
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13.54	The Lower Saxony Basin and Dogger Troughs petroleum province with fields and accumulations charged by the Posidonia Shale Formation			■
13.58	The Tail End Graben petroleum province with fields and accumulations charged by Jurassic source rocks			■
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15.11a	The Pomeranian petroleum province. Fields charged by Early Carboniferous source rocks / Namurian black shales. Main reservoir: Rotliegend			■
15.11b	The Pomeranian petroleum province. Fields charged by Zechstein source rocks. Main reservoirs: Carboniferous, Zechstein			■
15.13a	The Fore-Sudetic Monocline and Brandenburg petroleum province. Fields charged by Early Carboniferous source rocks / Namurian black shales. Main reservoir: Rotliegend			■
15.13b	The Fore-Sudetic Monocline and Brandenburg petroleum province. Fields charged by Zechstein source rocks. Main reservoir: Zechstein			■
15.15	The Lublin Basin petroleum province. Fields charged by Early Carboniferous source rocks / Namurian black shales. Main reservoir: Carboniferous			■
15.17	The Weald Basin petroleum province. Fields charged by Lower Jurassic source rocks. Main reservoir: Jurassic			■
15.19	The Tail End Graben petroleum province. Fields charged by Jurassic source rocks. Main reservoir: Cretaceous			■
15.21	The Dutch Central Graben petroleum province. Fields charged by the Posidonia Shale Formation. Main reservoir: Jurassic			■
15.23	The West Netherlands and Broad Fourteens basins petroleum province. Fields charged by the Posidonia Shale Formation. Main reservoirs: Jurassic, Cretaceous			■
15.25	The Lower Saxony Basin and Dogger Troughs petroleum province. Fields charged by the Posidonia Shale Formation and the Wealden. Main reservoirs: Jurassic, Cretaceous			■
15.27	The shallow gas petroleum province (Netherlands offshore). Main reservoir: Cenozoic. Fields with Cenozoic reservoir			■

Appendix 3 SPBA oil and gasfields database

This appendix provides a full list of the 1392 oil and gas accumulations (grouped into 1244 fields) and their associated attributes, sorted by petroleum province as defined in Chapter 15. The SPBA oil and gasfields database has been compiled from public and industry[1] sources. All data are as of 1st January 2007. The 35 hydrocarbon fields described in detail in the stratigraphic chapters (**Figure 1.4**) are marked (■).

The rows in the table represent individual hydrocarbon accumulations; when a field consists of more than one accumulation (e.g. Akkrum in petroleum province 2) the total ultimate recovery and/or cumulative production for the field is indicated.

The dataset is the basis for the various maps in the Atlas, where fields are shown, and has been used to construct the discovery history plots (creaming curves) presented in Chapter 15.

Country abbreviations are:

DK	Denmark	LI	Lithuania	PL	Poland	UK	United Kingdom
GE	Germany	NL	The Netherlands	RU	Russia		

Reservoir age is assigned according to the stratigraphic conventions used in this Atlas.

Ultimately recoverable volumes (proven and probable) are estimates as of 1st January 2007. It was beyond the scope of the Atlas to classify the resources in detail according to the many existing country or company-specific classification schemes.

Appendix 3.1 Petroleum province 1: Baltic Basin

■ Onshore ■ Offshore ■ Gas ■ Oil ■ Field example

Accumulation name	Discovery year	Country	Reservoir age		UR oil (mln m³)	UR gas (bcm)	Production start year	CP oil (mln m³)	CP gas (bcm)	Development status
Ablinga	1976	LI	Cambrian	■	0.14		2000	0.05		in production
Agluonenai	2005	LI	Cambrian	■	0.13		2006			in production
Aleshkinskoye (Kaliningrad)	1995	RU	Cambrian	■■	0.88	0.04	1996	0.57	0.02	in production
Antkoptis 1	2004	LI	Cambrian	■■						unknown
Armeyskoye	2000	RU	Cambrian	■	0.02					redeveloping after abandonment
B-16	1985	PL	Cambrian	■		0.11				undeveloped
B-21	1996	PL	Cambrian	■		1.04				undeveloped
B3	1981	PL	Cambrian	■■	6.36	1.14	1995	3.70	0.17	in production
B-34	1985	PL	Cambrian	■■	0.29	0.13				undeveloped
B4	1981	PL	Cambrian	■		2.01				redeveloping after abandonment
B-5 1	2001	PL	Cambrian	■■	0.99	0.11				undeveloped
B6	1982	PL	Cambrian	■		1.81				redeveloping after abandonment
B8	1983	PL	Cambrian	■■	0.89	0.14				redeveloping after abandonment
Białogóra	1993	PL	Cambrian	■■ (cap)			1994			in production
Chekhovskoye (Kaliningrad)	1997	RU	Cambrian	■■	0.09	0.00	1998	0.07		in production
Chekhovskoye Zapadnoye	2000	RU	Cambrian	■	0.01					redeveloping after abandonment
Dębki	1971	PL	Cambrian	■■ (cap)	0.06	0.01	1972	0.04	0.01	in production
Degliai	1972	LI	Cambrian	■	0.46		1999	0.31		in production
Deyminskoye	1979	RU	Cambrian	■■	1.67	0.03	1980	1.37	0.01	in production
Domnovskoye	2003	RU	Cambrian	■	0.04					redeveloping after abandonment
Druzhbinskoye (Kaliningrad)	2003	RU	Cambrian	■	0.24		2005			in production
Gayevskoye	1977	RU	Cambrian	■■	0.30		1989	0.25		in production
Genciai	1984	LI	Cambrian	■	1.57		1990	1.46		in production
Girkaliai	1993	LI	Cambrian	■	0.91		1994	0.19		in production
Gorinskoye Vostochnoye		RU	Cambrian	■■						unknown
Gusevskoye		RU	pre-Cambrian	■						unknown
Isakovskoye (Kaliningrad)	1973	RU	Cambrian	■■	0.59	0.02	1977	0.37	0.01	in production
Kaliningradskoye (C-9)	1984	RU	Cambrian	■■	0.46	0.09				undeveloped
Krasnoborskoye	1968	RU	Cambrian	■■	11.35	0.09	1975	10.38	0.08	in production
Krasnoborskoye Severnoye	1975	RU	Cambrian	■■	0.17		1993	0.14		in production
Kravtsovskoye (D-6)		RU	Cambrian	■■						unknown
Kretinga	1988	LI	Cambrian	■	0.45		1990	0.19		in production
Ladushkinskoye	1971	RU	Cambrian	■■	2.88	0.90	1982	1.74	0.33	in production
Malinovskoye (Kaliningrad)	1975	RU	Cambrian	■■	4.96	0.08	1977	4.42	0.07	in production
Nausodis	1988	LI	Cambrian	■	0.61		1993	0.53		in production
Novo-Iskrinskoye	1996	RU	Cambrian	■	0.06		1996	0.05		in production
Novo-Pavenkovskoye	2001	RU	Cambrian	■	0.01					redeveloping after abandonment
Novo-Serebryanka		RU	Cambrian	■						unknown
Oktyabrskoye Yuzhnoye (Kaliningrad)	2004	RU	Cambrian	■	0.70		2004			in production
Olimpiyskoye (Kaliningrad)	1997	RU	Cambrian	■■	0.06	0.01	1998	0.06		in production
Olimpiyskoye Yuzhnoye	1994	RU	Cambrian	■■	0.19		1995	0.14		in production
Ozerskoye Severnoye (Kaliningrad)		RU	Cambrian	■						unknown
Pietu Siupariai	1968	LI	Cambrian	■	1.34		1994	0.51		in production
Pociai	1976	LI	Cambrian	■	0.19		2000	0.18		in production
Poymennoye (Kaliningrad)		RU	Cambrian	■						unknown
Ratnoye	2000	RU	Cambrian	■	0.01		2001			in production
Rozhdestvenskoye (Kaliningrad)	2004	RU	Cambrian	■	0.08					undeveloped
Sakuciai	1977	LI	Cambrian	■	0.48		2002	0.10		in production
Sechenovskoye	2004	RU	Cambrian	■	0.01					undeveloped
Semenovskoye (Kaliningrad)	2000	RU	Cambrian	■■	0.38		2000	0.26		in production
Siupariai	1967	LI	Cambrian	■	0.59		2002	0.04		in production
Slavinskoye	1971	RU	Cambrian	■■	0.25		1986	0.19		in production
Slavinskoye Severnoye	1994	RU	Cambrian	■■	0.19		1997	0.13		in production
Slavskoye	1964	RU	Cambrian	■■	0.28		1993	0.17		in production
Uoksai	2004	LI	Cambrian	■	0.03		2006			in production
Ushakovskoye (Kurshskaya)	1969	RU	Cambrian	■■	9.81	0.17	1976	8.69	0.15	in production
Veselovskoye (Kaliningrad)	1972	RU	Cambrian	■■	0.41	0.02	1992	0.13	0.01	in production
Vezaiciai	1972	LI	Cambrian	■	0.67		1995	0.16		in production
Vilkyciai	1969	LI	Cambrian	■	1.27		1990	0.92		in production
Yagodnenskoye	1972	RU	Cambrian	■	0.06					undeveloped
Yershovskoye (Kaliningrad)		RU	Cambrian	■						unknown
Zapadno Krasnoborskoye	1970	RU	Cambrian	■■	7.47	0.07	1975	6.52	0.06	in production
Zapadno Ushakovskoye	1995	RU	Cambrian	■■	0.18		1996	0.15		in production
Zapadno-Ozerskoye (Kaliningrad)	2002	RU	Cambrian	■	0.01					redeveloping after abandonment
Zapadno-Rakitinskoye (Kaliningrad)	2001	RU	Cambrian	■	0.10					redeveloping after abandonment
Žarnowiec	1971	PL	Cambrian	■■ (cap)	0.05	0.01	1972			in production
Żarnowiec W	1994	PL	Cambrian	■■ (cap)	0.03	0.03	1995		0.02	in production
Zaytsevskoye (Kaliningrad)	2002	RU	Cambrian	■■	0.78	1.93	2003	0.13		in production

Appendix 3.2 Petroleum province 2: Anglo-Dutch and North German basins

■ Onshore ■ Offshore ■ Gas ■ Oil ■ Field example

Accumulation name	Discovery year	Country	Reservoir age		UR oil (mln m³)	UR gas (bcm)	Production start year	CP oil (mln m³)	CP gas (bcm)	Development status
Adorf (Buntsandstein)	1955	GE	Triassic	■		0.71	1955		0.65	in production
Adorf-Dalum-Ringe (Zechstein)	1955	GE	Zechstein	■		3.60	1955		2.45	in production
Ahlhorn	1972	GE	Zechstein	■		0.61	1972		0.61	abandoned
Akkrum										
– Akkrum 1	1965	NL	Rotliegend	■	1.15		1971	7.41		abandoned
– Akkrum 11	1978	NL	Rotliegend	■	0.31		1983			abandoned
– Akkrum 13	1980	NL	Rotliegend	■	3.67		1982			abandoned
– Akkrum 3	1965	NL	Rotliegend	■	2.29		1971			abandoned
– Akkrum 09	1979	NL	Rotliegend	■			1980			ceased production (temporarily)
Alfeld-Elze	1972	GE	Rotliegend	■	2.83		1972	1.86		abandoned
Alison (+ Alison KX)	1987	UK	Rotliegend	■	1.50		1995	1.40		in production
Alkmaar-ZE	1965	NL	Zechstein	■	3.40		1979	2.90		gas storage
Alvern/Munsterlager	1978	GE	Rotliegend	■	0.42		1978	0.30		in production
Ameland East-RO	1964	NL	Rotliegend	■	59.47		1986			in production
Ameland North-RO	1965	NL	Rotliegend	■	4.67		1996			ceased production (temporarily)
Ameland Westgat-RO	1975	NL	Rotliegend	■	3.68		1993	1.15		in production
Amethyst (East+West)	1972	UK	Rotliegend	■	23.68		1990	18.88		in production
Andel-RNUB	1991	NL	Triassic	■	0.06		2009			in production
Anglia	1972	UK	Rotliegend	■	6.32		1991	5.10		in production
Anjum-RO	1992	NL	Rotliegend	■	19.82		1997	3.77		in production
Ann	1966	UK	Rotliegend	■	3.02		1994	2.55		in production
Annaveen (Buntsandstein)	1963	GE	Triassic	■	0.51		1963	0.74		in production
Annaveen -Emslage (Karbon)	1963	GE	Carboniferous	■	0.34		1963	0.07		abandoned
Annerveen-RO	1962	NL	Rotliegend	■	76.46		1973	103.27		in production
Apeldorn	1963	GE	Triassic	■	5.66		1963	4.66		in production
Apollo	1987	UK	Rotliegend	■	2.75		2003	1.01		in production
Appelscha-RO	1971	NL	Rotliegend	■	2.41		1999	0.54		in production
Artemis	1974	UK	Rotliegend	■						in production
Arthur	1989	UK	Rotliegend	■	2.52		2005	0.86		in production
Assen-RO	1982	NL	Rotliegend	■	1.13					development expected
Audrey	1976	UK	Rotliegend	■	20.81		1988	19.19		in production
Bahnsen	1969	GE	Rotliegend	■	0.17		1969	0.14		in production
Bahnsen-Nordwest	1974	GE	Rotliegend	■	0.03		1974	0.03		abandoned
Bahrenborstel										
– Bahrenborstel (Buntsandstein)	1962	GE	Triassic	■	3.11		1962	2.56		in production
– Bahrenborstel (Zechstein)	1962	GE	Zechstein	■	4.81		1962	3.89		in production
Baird	1993	UK	Rotliegend	■	3.92		1993	3.36		in production
Barenburg (Zechstein)	1961	GE	Zechstein	■	9.34		1961	8.34		in production
Barenburg/Buchhorst (Buntsandstein)	1959	GE	Triassic	■	5.66		1959	4.96		in production
Barendrecht										
– Barendrecht-Aerdenhout	1984	NL	Jurassic	■	0.47			0.20		undeveloped
– Barendrecht-De Lier	1984	NL	Cretaceous	■■	0.08		2002			in production
– Barendrecht-IJsselmonde	1984	NL	Cretaceous	■■			1999			abandoned
Barendrecht-Ziedewij										
– Barendrecht-Ziedewij-RBBM	1993	NL	Triassic	■	7.02		1997	0.55		in production
– Barendrecht-Ziedewij-RNUB	1993	NL	Triassic	■			1997			in production
Barque	1966	UK	Rotliegend	■	23.72		1990	17.84		in production
Barque South	1992	UK	Rotliegend	■	0.02		1995	0.02		in production
Barrien	1964	GE	Triassic	■	13.76		1964	12.15		in production
Beaufort	1991	UK	Rotliegend	■	0.81		1996			ceased production
Becklingen/Wardböhmen	1983	GE	Rotliegend	■	2.72		1983	2.14		in production
Bedum-RO	1977	NL	Rotliegend	■	12.74		1985	2.21		in production
Beerta-ROSL	1992	NL	Rotliegend	■	2.12					undeveloped
Bell	1994	UK	Rotliegend	■	4.18		1999	3.13		in production
Bentheim	1938	GE	Zechstein	■	4.25		1938	3.53		in production
Bergen										
– Bergen Bunter	1965	NL	Triassic	■			1978			in production
– Bergen Rotliegend	1965	NL	Rotliegend	■	7.93		1978	7.45		in production
Bergermeer Rotliegend	1969	NL	Rotliegend	■	20.39		1972	17.76		in production
Bessemer	1989	UK	Rotliegend	■	5.34		1995	5.23		in production
Bethermoor	1972	GE	Zechstein	■	7.08		1972	0.65		abandoned
Big Dotty	1967	UK	Rotliegend	■	Part of Hewett		1976			in production
Blesdijke	1998	NL	Zechstein	■	2.27					undeveloped
Blija-Ferwerderadeel-RO	1963	NL	Rotliegend	■	2.12		1985			in production

1 UK operators have given permission to use their field volume data under the following disclaimer: *"All UK ultimate recoverable volumes quoted are the opinion of the operator at the time of the request to publish, and do not necessarily reflect the views of our partners in the relevant joint ventures"*.

Blija-Zuidoost-ROSLU	1997	NL	Rotliegend		0.99	2001	0.47	in production
Blijham-RO	1972	NL	Rotliegend		2.12	1984		in production
Blythe	1966	UK	Rotliegend					undeveloped
Blythe NW	1991	UK	Rotliegend					undeveloped
Boeddenstedt	1985	GE	Rotliegend		0.03	1985	0.03	abandoned
Boekel Bunter	2006	NL	Triassic		0.28	2006		in production
Boerakker-RO	1984	NL	Rotliegend		2.83	1998	1.04	in production
Boskoop-BS	1995	NL	Triassic					undeveloped
Botlek								
– Botlek-RBBM	1984	NL	Triassic		9.91	1992	6.94	in production
– Botlek-RNUB	1984	NL	Triassic			1992		in production
Boulton	1984	UK	Carboniferous		6.83	1997	4.71	in production
Boyle	2002	UK	Rotliegend		1.68	2002	1.19	in production
Bozum	1982	NL	Cretaceous		0.35	1989	0.01	in production
Brakel-RBM	1992	NL	Triassic		0.14			development expected
Brettorf/Brinkholz/Neerstedt	1977	GE	Zechstein		9.92	1977	8.63	in production
Brigantine A	1986	UK	Rotliegend		2.82	2001	2.54	in production
Brigantine B	1997	UK	Rotliegend		1.59	2001	1.46	in production
Brigantine C	1998	UK	Rotliegend		2.69	2001	1.52	in production
Brigantine D	2001	UK	Rotliegend		0.09	2002	0.03	in production
Brown	1998	UK	Rotliegend		0.28	1998	0.16	in production
Buchhorst (Zechstein)	1959	GE	Zechstein		10.48	1959	7.83	in production
Buma	1997	NL	Zechstein		1.42			undeveloped
Bure	1983	UK	Rotliegend	Part of Thames		1986	1.98	in production
Burgmoor/Uchte (Zechstein)	1981	GE	Zechstein		7.11	1981	8.37	in production
Burum-RO	2002	NL	Rotliegend		0.30			development expected
Cador	1988	UK	Rotliegend	Part of Camelot		1993	6.85	in production
Caister (Bunter)	1967	UK	Triassic			1993	2.98	in production
Caister	1984	UK	Carboniferous		7.90	1993	4.52	in production
Callisto	1990	UK	Rotliegend		1.68	1995	1.27	in production
Camelot (C, S + N)	1987	UK	Rotliegend		7.42	1990	7.42	in production
Camelot North East	1967	UK	Rotliegend		0.50	1992	0.50	in production
Cappeln								
– Cappeln (Zechstein)	1970	GE	Zechstein		9.06	1970	8.15	in production
– Cappeln (Carboniferous)	1970	GE	Carboniferous			1970	0.32	in production
Caravel	2002	UK	Rotliegend		4.61	2008		in production
Carrack	1999	UK	Rotliegend		5.72	2003	2.39	in production
Castricum Zee	2000	NL	Triassic		0.20	2001	0.15	abandoned
Cavendish	1989	UK	Carboniferous		3.29	2007		in production
Chiswick	1984	UK	Carboniferous		4.82	2007		in production
Cleeton	1982	UK	Rotliegend		10.43	1990	10.27	ceased production
Clipper N + S	1983	UK	Rotliegend		12.86	1990	11.65	in production
Cloppenburg	1971	GE	Zechstein		0.34	1971	0.35	abandoned
Coevorden								
– Coevorden-RNMU	1983	NL	Triassic		34.83	1984	57.43	ceased production (temporarily)
– Coevorden-ZEZ2C	1948	NL	Zechstein			1950		in production
– Coevorden-DC	1951	NL	Carboniferous			1981		in production
Collendoorn-DC	1974	NL	Carboniferous		0.28	2006		in production
Collendoornerveen-ZEZ2C	1990	NL	Zechstein		1.13	1994	0.04	in production
Corvette	1996	UK	Rotliegend		5.03	1999	4.50	in production
Cutter	1994	UK	Rotliegend		3.53	2006	0.64	in production
D12-A	2002	NL	Carboniferous		2.83	2005	2.12	in production
D15-A	1985	NL	Carboniferous		6.00	1999	3.99	in production
D15-A-104	2004	NL	Carboniferous			2004		in production
D15/Minke	1993	NL/UK	Carboniferous		2.66	2007		in production
D18A-DC / Orca	1993	NL/UK	Carboniferous		4.25			development expected
Dagefoerde	1990	GE	Rotliegend			1990		abandoned
Dalen								
– Dalen-ZEZ2C	1972	NL	Zechstein		22.65	1974	0.61	in production
– Dalen-DC	1972	NL	Carboniferous			1983		in production

Dalum (Zechstein, Rotliegend, Karbon)	1959	GE	complex		0.74	1959	0.24	abandoned
Davy	1989	UK	Rotliegend		5.55	1995	5.27	in production
Davy East	1996	UK	Rotliegend		0.61	2007		in production
Dawn	1994	UK	Rotliegend		0.49	1995	0.49	ceased production
De Blesse	1988	NL	Zechstein		1.13	1999	0.88	in production
De Lier-KNGLG	1955	NL	Cretaceous		0.24	1958	0.20	abandoned
De Lutte								
– De Lutte-ZEZ2C	1989	NL	Zechstein		1.42	1992	0.04	abandoned
– De Lutte-ZEZ3C	1956	NL	Zechstein			1958		abandoned
De Wijk								
– De Wijk-NLFFT	1951	NL	Cenozoic		2.38	1959	13.67	ceased production (temporarily)
– De Wijk-RN	1949	NL	Triassic		11.78	1955		in production
– De Wijk Carboon	1953	NL	Carboniferous					undeveloped
Deben	1974	UK	Rotliegend	Part of Thames		1998	0.46	in production
Deblinghausen	1958	GE	Zechstein		3.96	1958	2.34	in production
Deborah	1968	UK	Rotliegend	Part of Hewett		1979		in production
Delilah	1968	UK	Rotliegend		0.84	1998	0.43	in production
Della	1987	UK	Rotliegend	Part of Hewett		1988	0.75	in production
Den Velde-ZEZ2C-West	1993	NL	Zechstein		0.01			undeveloped
Den Velde-ZEZ2C-East	1986	NL	Zechstein			1997	1.09	ceased production (temporarily)
Den Velde-DC-East	1986	NL	Carboniferous		1.42	1995		in production
Den Velde-DC-West	1993	NL	Carboniferous					undeveloped
Dethlingen	1971	GE	Rotliegend		25.29	1971	20.58	in production
Deurningen-ZEZ2C	1997	NL	Zechstein		2.83			undeveloped
Donkerbroek	1991	NL	Rotliegend		1.70			undeveloped
Dötlingen								
– Dötlingen (Buntsandstein)	1964	GE	Triassic		5.69	1964	5.69	abandoned
– Dötlingen (Zechstein)	1965	GE	Zechstein		20.95	1965	15.99	in production
Dreilingen	1978	GE	Rotliegend		0.34	1978	0.27	in production
Dudgeon	1967	UK	Rotliegend					undeveloped
Düste								
– Düste (Buntsandstein)	1957	GE	Triassic		1.42	1957	0.77	in production
– Düste (Zechstein)	1957	GE	Zechstein		0.32	1957	0.32	abandoned
– Düste (Carboniferous)	1957	GE	Carboniferous		0.08	1957	0.03	in production
E12 Lelie	1996	NL	Carboniferous		0.85			undeveloped
E12 Tulp East	1991	NL	Carboniferous		0.66			undeveloped
E13 Epidoot	1984	NL	Carboniferous		0.86			undeveloped
E17A-DC	1996	NL	Carboniferous		3.00			undeveloped
E18-DF	2006	NL	confidential		2.83			development expected
East Sean	1983	UK	Rotliegend		3.16	1994	2.22	in production
Ebstorf	1974	GE	Rotliegend		0.23	1974	0.18	abandoned
Ebstorf-Nord	1971	GE	Rotliegend		0.04	1971	0.05	abandoned
Een-ROCLT	2005	NL	Rotliegend		0.14	2005	0.06	in production
Eesveen-RO	1986	NL	Rotliegend		0.08			development expected
Egmond Binnen-RBMV	1997	NL	Triassic		0.42			development expected
Einloh	1988	GE	Rotliegend		0.42	1988	0.27	in production
Eleveld-RO	1971	NL	Rotliegend		3.11	1975	0.29	in production
Emlichheim								
– Emlichheim (Zechstein)	1956	GE	Zechstein		9.2	1956	3.19	in production
– Emlichheim (Carboniferous)	1956	GE	Carboniferous			1956	0.89	in production
Emlichheim-Nord								
– Emlichheim-Nord (Zechstein)	1967	GE	Zechstein			1967	3.56	in production
– Emlichheim-Nord (Carboniferous)	1967	GE	Carboniferous			1967	0.17	in production
Emmen-Nieuw Amsterdam-ZEZ2C	1969	NL	Zechstein		1.98	1975		in production
Emmen-ZEZ2C	1969	NL	Zechstein		25.49	1977		in production

Emshörn/Emshoern-RO	1978	GE/NL	Rotliegend		3.65	1981	3.65	abandoned
Engerhafe	1976	GE	Rotliegend		0.41	1976	0.41	abandoned
Engwierum								
– Engwierum-ROSLU	1999	NL	Rotliegend		0.41	2001		abandoned
– Engwierum-ROSLL	1999	NL	Rotliegend			2001	0.04	ceased production (temporarily)
Ensign	1986	UK	Rotliegend					undeveloped
Esche								
– Esche (Zechstein)	1959	GE	Zechstein		0.28	1959	0.10	abandoned
– Esche (Karbon)	1964	GE	Carboniferous			1964	0.13	abandoned
Esmond	1982	UK	Triassic		8.86	1985	8.87	ceased production
Europa	1972	UK	Rotliegend		1.76	2000	1.53	in production
Excalibur	1988	UK	Rotliegend		6.09	1994	5.67	in production
Exloo-ZEZ2C	1972	NL	Zechstein		0.71			undeveloped
Ezumazijl-ROSLU	1998	NL	Rotliegend		1.42	2000	0.27	in production
F15-A	1986	NL	Triassic		7.28	1993	6.43	in production
F15-B	1998	NL	Jurassic		1.70	1998	0.93	in production
F16-E-RO	2001	NL	Rotliegend		8.92	2005	2.14	in production
F16-P	2004	NL	Rotliegend		0.85			development expected
Feerwerd-ROSLU	1998	NL	Rotliegend		0.40	2000	0.08	ceased production (temporarily)
Fehndorf								
– Fehndorf (Buntsandstein)	1965	GE	Triassic		1.92	1965	0.99	abandoned
– Fehndorf (Carboniferous)	1965	GE	Carboniferous		0.85	1965	0.85	in production
Fizzy	1995	UK	Rotliegend					undeveloped
Forbes	1970	UK	Triassic		1.47	1985	1.47	ceased production
Franeker	1978	NL	Cretaceous		0.14	1997	0.01	in production
Frenswegen								
– Frenswegen (Zechstein)	1951	GE	Zechstein		0.45	1951	0.18	abandoned
– Frenswegen (Carboniferous)	1951	GE	Carboniferous			1951	0.21	in production
G14-A								
– G14-A-RBMD	2005	NL	Triassic		5.01	2006		in production
– G14-A-RBMV	2003	NL	Triassic			2006	0.87	in production
G14-B-RBMV	2004	NL	Triassic		3.54	2006	0.90	in production
G16A								
– G16A-SGGS	1985	NL	Jurassic		1.33	2006	0.20	in production
– G16A-ZECP	1985	NL	Zechstein		3.11	2006	0.20	in production
G17-A-RBMVL	1999	NL	Triassic		3.68	2002	2.15	in production
G17A-S1-RBMVL	2004	NL	Triassic		7.93	2006	0.75	in production
Gaag								
– Gaag-RNUB	1982	NL	Triassic		7.93			undeveloped
– Gaag-RBBM	1982	NL	Triassic			1989	1.28	in production
Galahad	1975	UK	Rotliegend		4.29	1995	3.92	in production
Galleon	1985	UK	Rotliegend		21.43	1994	15.07	in production
Ganymede	1989	UK	Rotliegend		7.79	1995	7.15	in production
Garrow	1992	UK	Rotliegend		1.42	2007		in production
Gasselternijveen-ZEZ2C	1979	NL	Zechstein		0.99			undeveloped
Gawain	1988	UK	Rotliegend		6.06	1995	5.87	in production
Geesbrug								
– Geesbrug-ZEZ2C	1992	NL	Zechstein		3.40			development expected
– Geesbrug-RO	1992	NL	Rotliegend		2.27			development expected
– Geesbrug-DC	1992	NL	Carboniferous					development expected
Geestvaartpolder								
– Geestvaartpolder-RB	2005	NL	Triassic		0.71	2005	0.23	in production
– Geestvaartpolder-RN	2005	NL	Triassic			2005		in production
Gieterveen	1981	NL	Zechstein	0.03				undeveloped
Goldenstedt (Buntsandstein)	1959	GE	Triassic		1.42	1959	1.26	in production
Goldenstedt/Oythe (Carboniferous)	1959	GE	Carboniferous		3.40	1959	2.34	in production
Goldenstedt/Visbek (Zechstein)	1959	GE	Zechstein		66.54	1959	49.71	in production

Gordon	1969	UK	Triassic		3.99	1985	3.99	ceased production	
Greetsiel	1972	GE	Rotliegend		1.84	1972	1.68	in production	
Grenzbereich Emsmuendung	1965	GE	Rotliegend		59.54	1965	59.55	abandoned	
Grijpskerk-RO	1990	NL	Rotliegend		8.50	1993		gas storage	
Groet Oost Rotliegend	2006	NL	Rotliegend		0.57	2007		in production	
Groet Rotliegend	1965	NL	Rotliegend		7.08	1974	5.15	in production	
Grolloo-DC	1980	NL	Carboniferous		3.51			development expected	
Groningen-RO	1959	NL	Rotliegend		2825.74	1963	1888.44	in production	
Grootegast-RO	1960	NL	Rotliegend		5.66	1979	0.90	in production	
Groothusen (Z5, Z7)	1965	GE	Rotliegend		9.06	1965	7.35	abandoned	
Großes Meer	1978	GE	Rotliegend		0.42	1978	0.40	in production	
Grouw	1965	NL	Cretaceous		0.85	1971		in production	
Grove	1971	UK	Rotliegend		2.29	2007		in production	
Guinevere	1988	UK	Rotliegend		2.60	1993		in production	
Haakswold-ZEZ2C	1998	NL	Zechstein					undeveloped	
Hademsdorf	1941	GE	Cretaceous		0.18	1941	0.18	abandoned	
Halfweg	1975	NL	Rotliegend		2.77	1995	2.45	in production	
Hamwiede									
– Hamwiede (Rotliegend)	1990	GE	Rotliegend		0.37	1990	0.05	abandoned	
– Hamwiede (Carboniferous)	1968	GE	Carboniferous		2.46	1968	1.88	in production	
Hannibal	1987	UK	Carboniferous					undeveloped	
Hardenberg-DC	1967	NL	Carboniferous		7.08	1975	1.33	in production	
Hardenberg-East	1988	NL	Carboniferous			1975		in production	
Harlingen									
– Harlingen Upper Cretaceous	1965	NL	Chalk		2.27	1988		in production	
– Harlingen Lower Cretaceous	1964	NL	Cretaceous		0.71	1995		in production	
Hawksley	1998	UK	Carboniferous		1.46	2002	1.46	in production	
Heiloo	1965	NL	Triassic		1.13			undeveloped	
Hekelingen									
– Hekelingen-RBBM	1993	NL	Triassic		0.57	2006	0.20	in production	
– Hekelingen-RNUB	1993	NL	Triassic			2006		in production	
Helvellyn	1985	UK	Rotliegend		0.57	2004	0.33	in production	
Hemmelte (Buntsandstein)	1964	GE	Triassic		0.25	1964	0.20	in production	
Hemmelte/Kneheim/Vahren (Zechstein)	1980	GE	Zechstein		60.34	1980	26.76	in production	
Hengstlage (Buntsandstein)	1963	GE	Triassic		76.46	1963	60.61	in production	
Hengstlage/Sage/Sagermeer (Zechstein)	1968	GE	Zechstein		43.49	1968	23.97	in production	
Hesterberg (Zechstein)	1967	GE	Zechstein		7.50	1967	6.21	in production	
Hewett	1966	UK	Triassic and Zechstein		121.55	1969	120.40	in production	
Hollum Ameland-RO	1964	NL	Rotliegend		8.50			undeveloped	
Hoogenweg-ZEZ2C	1988	NL	Zechstein		0.42	1999		ceased production (temporarily)	
Horne	1992	UK	Rotliegend		1.19	2005	0.25	in production	
Horstberg Z1	1988	GE	Rotliegend		0.00	1988	0.00	abandoned	
Hoton	1989	UK	Rotliegend		3.67	2001	1.28	in production	
Houwerzijl-RO	1998	NL	Rotliegend		0.28	1999	0.03	ceased production (temporarily)	
Hunter	1992	UK	Triassic		0.03	2006	0.03	in production	
Husum Schneeren	1986	GE	Carboniferous		7.50	1986	7.92	in production	
Hyde	1982	UK	Rotliegend		3.61	1993	3.09	in production	
IJsselmonde									
– IJsselmonde-NLFFD	1956	NL	Cenozoic		0.08	1972	0.08	abandoned	
– IJsselmonde-KNGLG	1956	NL	Cretaceous		0.28	1960	0.28	abandoned	
– IJsselmonde-KNNSL	1956	NL	Cretaceous		4.77	0.34	1958	4.77	0.34	abandoned
– IJsselmonde-KNNSY	1956	NL	Cretaceous		10.71	0.73	1956	10.71	0.73	abandoned
Imbrock	1995	GE	Rotliegend		1.70	1995	0.87	in production	
Indefatigable	1966	UK	Rotliegend		80.92	1989	131.43	in production	
Indefatigable South West	1967	UK	Rotliegend		1.71	1995	1.53	in production	
J03C-RO	1995	NL	Rotliegend		4.25	1996	4.19	in production	
Johnston	1990	UK	Rotliegend		6.44	1994	5.50	in production	
K1-A	1986	NL	Rotliegend		9.91	2002	4.70	in production	
K02A									
– K02A-ROSLL	1987	NL	Rotliegend		3.96	2005	1.21	in production	
– K02A-DC	1987	NL	Carboniferous			2005		in production	
K04-A Unit-DC	1991	NL	Carboniferous		8.50	1998	6.90	in production	
K04-B	1997	NL	Carboniferous					in production	
K04-D	1989	NL	Carboniferous		1.42	1997	0.63	in production	
K04-E-RO	1997	NL	Rotliegend		2.83	2001	1.29	in production	
K04-N	1998	NL	Rotliegend		7.08	2001	1.29	in production	
K04-Z	1974	NL	Carboniferous		1.98			undeveloped	
K05A-B	1992	NL	Rotliegend		3.61	1995	1.57	in production	
K05A-D	1991	NL	Rotliegend		6.86	1994	1.35	in production	
K05A-EN	1992	NL	Rotliegend		2.55	1997	0.73	in production	
K05A-ES	1996	NL	Rotliegend			1996		in production	
K05A-RO	1988	NL	Rotliegend		11.33	1994	20.41	in production	
K05-C Unit-RO	1974	NL	Rotliegend		0.14	1997		in production	
K05-EC2	1994	NL	Rotliegend		2.55	1997	0.92	in production	
K05-FE	1999	NL	Rotliegend		2.12	2008		in production	
K05-FW	1999	NL	Rotliegend			2008		in production	
K05-G	1998	NL	Rotliegend		0.57	1998	0.11	in production	
K05-U	2002	NL	Rotliegend		0.87			undeveloped	
K06-A	2000	NL	Rotliegend		0.85	2000	0.21	in production	
K06-C	1986	NL	Rotliegend		3.40	1992	1.93	in production	
K06-D	1988	NL	Rotliegend		5.66	1992	2.64	in production	
K06-DN	1989	NL	Rotliegend		7.08	1992	2.47	in production	
K06-G	1990	NL	Rotliegend		8.50	1999	1.42	in production	
K06-N	1992	NL	Rotliegend		1.27	1993	0.16	in production	
K06-T	1991	NL	Rotliegend		3.11	1999	0.14	in production	
K07A-RO	1969	NL	Rotliegend		5.27	1982	5.04	in production	
K07B-RO	1970	NL	Rotliegend		2.83	2003	1.77	in production	
K07C-RO	1996	NL	Rotliegend		8.50	1998	4.07	in production	
K07D-ROSLU	1996	NL	Rotliegend		7.36	1998	1.58	in production	
K07E-ROSLU	2000	NL	Rotliegend			2000		in production	
K08A-RO	1970	NL	Rotliegend		62.30	1978	54.02	in production	
K08B-RO	1972	NL	Rotliegend		1.70			development expected	
K08C-RO	1979	NL	Rotliegend		2.83	1987		ceased production (temporarily)	
K08D-RO	1997	NL	Rotliegend		1.42			undeveloped	
K08F-ROSLU	2004	NL	Rotliegend		1.36			undeveloped	
K09AB-A	1983	NL	Rotliegend		5.95	1987	5.33	in production	
K09AB-B	1998	NL	Rotliegend		5.10	1999	1.72	in production	
K09C-A	1985	NL	Rotliegend		5.38	1987	5.11	in production	
K10-B	1979	NL	Rotliegend		16.13	1983	16.13	abandoned	
K10-C	1980	NL	Rotliegend		5.95	1983	0.20	abandoned	
K10-V	1988	NL	Rotliegend		2.12	1993	1.56	abandoned	
K11A-RO	1971	NL	Rotliegend		1.54	1980	1.54	abandoned	
K11B-RO	1985	NL	Rotliegend		3.68	1995	0.13	abandoned	
K11C-RO	1990	NL	Rotliegend			1995		abandoned	
K12-17-RO	2005	NL	Rotliegend		1.70	2007		in production	
K12-A	1975	NL	Rotliegend		3.96	1983	18.68	abandoned	
K12B-RO	1982	NL	Rotliegend		18.12	1987	0.96	in production	
K12-C	1984	NL	Rotliegend		3.40	1984		in production	
K12-D	1984	NL	Rotliegend		1.70	1985		in production	
K12-E	1985	NL	Rotliegend		1.42	1986		abandoned	
K12-Flax	2001	NL	Rotliegend		7.93	2002		in production	
K12-Grape	2000	NL	Rotliegend			2002		in production	
K12-S1	1989	NL	Rotliegend		1.13	1991		abandoned	
K12-S2	2001	NL	Rotliegend		0.57	2002		in production	
K12-S3	2001	NL	Rotliegend		1.13	2004		in production	
K13-A	1972	NL	Triassic		12.90	1976	12.90	abandoned	
K13-B	1973	NL	Triassic		3.61	1977	2.67	abandoned	
K13-Cf	1977	NL	Rotliegend		3.65	1978	3.65	abandoned	
K13-De	1976	NL	Rotliegend		3.75	1979	2.81	abandoned	
K14A-RO	1970	NL	Rotliegend		18.41	1977	18.77	in production	
K14B-RO	1979	NL	Rotliegend		7.99	1997	4.54	in production	
K14C-RO	1991	NL	Rotliegend		0.57			undeveloped	
K15A-RO	1974	NL	Rotliegend		15.57	1979	45.03	in production	
K15B-RO	1975	NL	Rotliegend		33.98	1983	1.25	ceased production (temporarily)	
K15C-RO	1978	NL	Rotliegend		4.81	1991	0.27	ceased production (temporarily)	
K15D-RO	1979	NL	Rotliegend		0.28			undeveloped	
K15E-RO	1983	NL	Rotliegend		0.85	2006		in production	
K15-FA-SW	2006	NL	Rotliegend		1.42			development expected	
K15-FB-NE	2006	NL	Rotliegend		0.42	2007		in production	
K15F-RO	1983	NL	Rotliegend		0.00			undeveloped	
K15G-RO	1988	NL	Rotliegend		1.56	1990	1.22	in production	
K15H-RO	1992	NL	Rotliegend		1.70			undeveloped	
K15I-RO	1992	NL	Rotliegend		1.70			undeveloped	
K15J-ROSL	1993	NL	Rotliegend		0.71	2007		in production	
K15K-ROSL-EXT	2001	NL	Rotliegend		7.71	2003	3.74	in production	
K15K-ROSLL	2001	NL	Rotliegend			2003		in production	
K15L-RO	2003	NL	Rotliegend		5.00	2003	1.11	in production	
K15M-RO	2004	NL	Rotliegend		0.57	2004	0.57	in production	
K16-5	1987	NL	Zechstein		0.57			undeveloped	
K17B-RO	1980	NL	Rotliegend		0.42			undeveloped	
K17FA-RO	1972	NL	Rotliegend		5.66	2006	0.64	in production	
K18B-RO	1992	NL	Rotliegend					undeveloped	
Kalle									
– Kalle (Zechstein)	1958	GE	Zechstein		2.46	1958	3.36	in production	
– Kalle (Carboniferous)	1958	GE	Carboniferous		1.64	1958	0.47	in production	
Kelvin	2005	UK	Carboniferous					undeveloped	
Kepler	1989	UK	Carboniferous					undeveloped	
Kerkwijk-RNUB	1988	NL	Triassic		0.28			undeveloped	
Ketch	1984	UK	Carboniferous		6.99	1999	3.93	in production	
Kijkduin Zee-RBBM	1986	NL	Triassic					undeveloped	
Kilmar	1992	UK	Carboniferous		2.69	2006	0.52	in production	
Kirchhatten	1970	GE	Zechstein		1.78	1970	1.78	abandoned	
Kirchseelte	1992	GE	Zechstein		5.66	1992	0.77	in production	
Klosterseelte	1985	GE	Zechstein		11.33	1985	9.14	in production	
Kneheim (Buntsandstein)	1985	GE	Triassic		5.10	1985	0.14	in production	
Kollumerland-RO	1981	NL	Rotliegend		0.51	1989	0.33	in production	
Kollum-Noord-RO	1997	NL	Rotliegend		7.93	2001	2.48	in production	
Kollum-RO	1991	NL	Rotliegend		5.27	1993	0.23	in production	
Kommerzijl-RO	2000	NL	Rotliegend		2.83	2001	0.76	in production	
L01-A	1985	NL	Rotliegend		2.27	2000	0.74	in production	
L02A-RBM	1968	NL	Triassic		8.50	1992	6.35	in production	
L02B-RBM	1976	NL	Triassic		0.85	2006	0.50	in production	
L02C-RBMVL	1997	NL	Triassic		0.99			undeveloped	
L04-A	1974	NL	Rotliegend		24.07	1982	17.00	in production	
L04-B	1972	NL	Rotliegend		1.25	1985	0.14	in production	
L04-D	1981	NL	Rotliegend		0.57			undeveloped	
L04-F	1994	NL	Rotliegend		2.12	2000	0.52	in production	
L04-G	1999	NL	Rotliegend		2.83	2006	0.40	in production	
L04-I	1995	NL	Rotliegend		1.70	2000	0.42	in production	
L05A-RBMVL	1988	NL	Triassic		12.74	1992	14.93	in production	
L05-B Central	2002	NL	Rotliegend		5.66	2003	2.56	in production	
L06A-SLCFT	1990	NL	Jurassic		0.67	2006	0.27	in production	
L07-A	1971	NL	Rotliegend		2.83	1985		abandoned	
L07-B-TUS	1973	NL	Rotliegend		28.32	1977	44.46	ceased production (temporarily)	
L07-C	1973	NL	Rotliegend		4.25	1977	0.19	in production	
L07-D	1974	NL	Rotliegend		1.42			undeveloped	
L07-F	1974	NL	Rotliegend		0.57			undeveloped	
L07-FN	1978	NL	Rotliegend					undeveloped	
L07-G	1986	NL	Rotliegend		1.42	2002	0.45	in production	
L07-H ROSLL	1987	NL	Rotliegend		1.98	1989	0.02	in production	

L07-HLS	1987	NL	Rotliegend		0.71	1989	0.16	in production
L07-N	1985	NL	Rotliegend		2.55	1988		in production
L08-A	1972	NL	Rotliegend		2.12	1989	0.35	in production
L08-A-West	1998	NL	Rotliegend		2.83	2001	0.73	in production
L08-D	2004	NL	Rotliegend		1.98			undeveloped
L08-G	1984	NL	Rotliegend		5.66	1988	5.54	in production
L08-H	1986	NL	Rotliegend		2.12	1988	0.18	in production
L08-P1	1992	NL	Rotliegend		7.36	1994	6.98	in production
L08-P3	1996	NL	Rotliegend			1994		in production
L08-P4	1996	NL	Rotliegend			1994		in production
L09A-RO	1988	NL	Rotliegend		7.08			development expected
L09B-RBMVL	1991	NL	Triassic		0.57			development expected
L09C								
– L09C-RBMDL	1992	NL	Triassic		2.12	2002	0.41	in production
– L09C-RBMVL	1992	NL	Triassic			1998		in production
L09E-ROSLL	1993	NL	Rotliegend		3.40			development expected
L09D-RNSOF	1993	NL	Triassic		25.49	1998	10.15	in production
L09F-RNSOF	1994	NL	Triassic			1998		in production
L09G								
– L09G-RBMH	1994	NL	Triassic			1998		in production
– L09G-RBMVL	1994	NL	Triassic			1998		in production
L09H-RBMVL	1995	NL	Triassic					development expected
L09J-RBMVL	1996	NL	Triassic		4.25			development expected
L10-19	1979	NL	Rotliegend		0.57			undeveloped
L10-6	1972	NL	Rotliegend		0.28			undeveloped
L10-A	1970	NL	Rotliegend		52.39	1975	49.41	in production
L10-B	1970	NL	Rotliegend			1975		in production
L10-C	1970	NL	Rotliegend			1975		in production
L10-D	1970	NL	Rotliegend			1975		in production
L10-E	1970	NL	Rotliegend			1975		in production
L10-F	1972	NL	Rotliegend			1980		in production
L10-G	1970	NL	Rotliegend		1.27	1984	0.07	in production
L10-K	1973	NL	Rotliegend		1.98	1986		abandoned
L10-L	1972	NL	Rotliegend			1975		in production
L10-M	1999	NL	Rotliegend		5.66	2000	3.15	in production
L10-S1	1987	NL	Rotliegend		0.99	1989		abandoned
L10-S2	1996	NL	Rotliegend		0.42	1997	0.11	in production
L10-S3	1997	NL	Rotliegend		0.57	1997	0.05	abandoned
L10-S4	1970	NL	Rotliegend		0.85	1997	0.07	in production
L11-1	1971	NL	Rotliegend		0.28			undeveloped
L11-11	1990	NL	Rotliegend		1.85	1990	1.84	in production
L11-B-RO	1978	NL	Rotliegend			1986		in production
L11-7	1981	NL	Rotliegend		0.57			undeveloped
L11-A	1984	NL	Rotliegend		0.57	1990	0.25	abandoned
L11-Lark	1996	NL	Rotliegend			1996		abandoned
L12A-RO	1969	NL	Rotliegend		0.85			undeveloped
L12B-RO	1976	NL	Rotliegend		0.99			development expected
L12C-RO	1979	NL	Rotliegend		1.13	2001	0.20	in production
L12D-RO	1988	NL	Rotliegend		1.56			undeveloped
L13A-RO	1970	NL	Rotliegend		0.42			undeveloped
L13B-RO	1975	NL	Rotliegend		0.48	1989		abandoned
L13C-RO	1984	NL	Rotliegend		21.24	1986	21.51	in production
L13D-RO	1985	NL	Rotliegend		2.97	1990	0.30	in production
L13E-RO	1986	NL	Rotliegend		2.97	1990	0.94	in production
L13FF-RO	1986	NL	Rotliegend		1.42	1990	0.04	in production
L13G-RO	1987	NL	Rotliegend		2.97	1990	0.98	in production
L13H								
– L13H-ROSLL	1988	NL	Rotliegend		1.08	1995		abandoned
– L13H-ROSLU	1988	NL	Rotliegend			1995	0.15	ceased production (temporarily)
L13I-ROSLU	1988	NL	Rotliegend		1.13			development expected
L13J-ROSLU	1991	NL	Rotliegend		2.12			development expected
L13K-ROSLU	1994	NL	Rotliegend		2.83			undeveloped
L14-6	1991	NL	Rotliegend		0.20			undeveloped
L14-S Rotliegend	1975	NL	Rotliegend		0.05	1991	0.05	abandoned
L15A-RO	1978	NL	Rotliegend		8.50	1993	5.13	in production
L16-Alpha	2002	NL	Rotliegend		0.71			undeveloped
L16A-RO	1977	NL	Rotliegend		0.28			undeveloped
L16-Bravo	2001	NL	Rotliegend		0.71			undeveloped
L5-C	2003	NL	Rotliegend		4.30	2006		in production
L7-HSE	1996	NL	Rotliegend		0.71	1996	0.16	in production
Laarwald								
– Laarwald (Zechstein)	1995	GE	Zechstein			1995	0.03	in production
– Laarwald (Carboniferous)	1995	GE	Carboniferous			1995	0.03	in production
Lancelot	1986	UK	Rotliegend		8.14	1993	7.61	in production
Langebrug-ROSLU	1998	NL	Rotliegend		1.42			development expected
Lauwersoog Central-RO	1997	NL	Rotliegend		28.32			development expected
Lauwersoog East-ROSLU	1996	NL	Rotliegend					development expected
Lauwersoog West-ROSLU	1999	NL	Rotliegend					development expected
Leens-RO	2001	NL	Rotliegend		2.27	2003	1.16	in production
Leer	1984	GE	Rotliegend		1.13	1984	0.28	in production
Leeuwarden 101 Rotliegend	1978	NL	Rotliegend		0.28	1978		abandoned
Leidschendam-KNNSR	1956	NL	Cretaceous		0.02	1957	0.02	abandoned
Leman	1966	UK	Rotliegend		328.63	1968	313.78	in production
Lemgow	1987	GE	Rotliegend		0.06	1987	0.06	abandoned
Leybucht	1976	GE	Rotliegend		0.57	1976	0.55	in production
Little Dotty	1967	UK	Triassic and Rotliegend		Part of Hewett		1979	in production
Loon Op Zand	1991	NL	Triassic		0.57	1996	0.53	ceased production (temporarily)
Loon Op Zand South	2004	NL	Triassic			2005		in production
Lula-RO	1997	NL	Rotliegend		0.85	2003	0.28	in production
LW - Nijega	1965	NL	Cretaceous		7.08	1971	18.31	in production
M01A-RBMVL	1993	NL	Triassic		0.99			development expected
M07A								
– M07A-SLCFT	1996	NL	Jurassic		0.91			development expected
– M07A-RBMVL	1996	NL	Triassic					development expected
M09A-RO	1997	NL	Rotliegend		1.84			undeveloped
M09B-ROSLU	1998	NL	Rotliegend		1.98			development expected
M11A-ROSLU	1982	NL	Rotliegend		4.64			undeveloped
Maasdijk-RBBM	1998	NL	Triassic		0.08	2000	0.01	in production
Maasgeul-RBBM	1993	NL	Triassic		0.08			undeveloped
Malory	1997	UK	Rotliegend		3.58	1998	2.96	in production
Manslagt	1990	GE	Rotliegend		1.42	1993	1.13	in production
Markham	1984	NL/UK	Rotliegend		20.25	1992	16.51	in production
Marumerlage-RO	1984	NL	Rotliegend		0.06			development expected
Marum-RO	1975	NL	Rotliegend		7.08	1978	0.13	in production
Mcadam	1990	UK	Carboniferous		3.60	2003	1.09	in production
Mercury	1983	UK	Rotliegend		3.06	1999	2.52	in production
Metslawier-ROSL	1994	NL	Rotliegend		9.57	1997	1.17	in production
Middelburen	1979	NL	Rotliegend		0.14	1980	0.01	abandoned
Middelie								
– Middelie-ZEZ3C	1975	NL	Zechstein		0.14	1976		abandoned
– Middelie-RO	1964	NL	Rotliegend		3.40	1975	3.26	abandoned
Middenmeer								
– Middenmeer Zechstein	1975	NL	Zechstein		0.14	1977	0.02	in production
– Middenmeer Rotliegend	1975	NL	Rotliegend		0.28	1977		in production
Midlaren								
– Midlaren-ROCLT	1985	NL	Rotliegend		0.14			undeveloped
– Midlaren-ROSL	1985	NL	Rotliegend					undeveloped
Mimas	1989	UK	Rotliegend		1.22	2007		in production
Minerva	1969	UK	Rotliegend		3.43	2003	1.56	in production
Moddergat-ROSL	1995	NL	Rotliegend		10.34	2007	0.38	in production
Molenaarsgraaf-RNUB	1986	NL	Triassic					undeveloped
Molenpolder-ROSLU	1999	NL	Rotliegend		1.42	2001	0.41	in production
Monkwell	1989	UK	Rotliegend					undeveloped
Monster-RBBM	1982	NL	Triassic		2.83	1990	0.57	in production
Mordred	1989	UK	Rotliegend		0.41	1996	0.35	in production
Munnekezijl-RO	1992	NL	Rotliegend		5.66	1995	1.24	in production
Munro	2004	UK	Carboniferous		1.66	2005	0.15	in production
Murdoch	1985	UK	Carboniferous		12.91	1995	11.22	in production
Murdoch K	2001	UK	Carboniferous		5.58	2003	4.41	in production
Neptune	1985	UK	Rotliegend		12.17	1999	8.57	in production
Nes Noord-RO	1970	NL	Rotliegend		1.84			undeveloped
Nes-ROSL	1995	NL	Rotliegend		7.36	2007		in production
Neubruchhausen	1993	GE	Zechstein		0.71	1993	0.38	in production
Newsham	1966	UK	Rotliegend		0.86	1996	0.65	in production
Niendorf-II	1972	GE	Rotliegend			1972		abandoned
Nieuweschans-ROSL	1994	NL	Rotliegend		4.25			undeveloped
Nijega_ZE	1965	NL	Zechstein					undeveloped
Nijensleek								
– Nijensleek-KNNS	1987	NL	Cretaceous		0.23	2000	0.14	in production
– Nijensleek-ZEZ2C	1987	NL	Zechstein					undeveloped
Noorderdam-RBBM	1998	NL	Triassic		0.99	2006		in production
Noordwijk-KNNSR	1983	NL	Jurassic					undeveloped
Noordwolde	1985	NL	Cretaceous		0.11	1999	0.10	in production
Norg-RO	1965	NL	Rotliegend		7.08	1983		Gas storage
Norg-Zuid-RO	1984	NL	Rotliegend		0.57	1999	0.22	in production
North Davy	2000	UK	Rotliegend		0.98	2001	0.97	in production
North Inde	1995	UK	Rotliegend					undeveloped
North Valiant	1970	UK	Rotliegend		5.85	1995	5.40	in production
Ochtrup	1990	GE	Carboniferous		0.57	1990	0.25	in production
Oldelamer	1985	NL	Zechstein		2.62	1993	2.45	in production
Oldenzaal-DC	1976	NL	Carboniferous		0.38	1990	0.37	ceased production (temporarily)
Oosterhesselen								
– Oosterhesselen-ZEZ2C	1973	NL	Zechstein		3.40	1976		in production
– Oosterhesselen-DC	1973	NL	Carboniferous		2.27	1990		in production
Oosterwolde	1993	NL	Rotliegend		0.25			development expected
Oostrum-ROSLU	1994	NL	Rotliegend		1.42	2001	0.76	in production
Opeinde Sud	1965	NL	Cretaceous			1971		in production
Opende-Oost-RO	1979	NL	Rotliegend		3.11	1993	0.59	in production
Oppenhuizen-ZEZ2C	1972	NL	Zechstein		0.01			undeveloped
Ortholz	1987	GE	Zechstein		1.08	1987	1.08	abandoned
Orwell	1990	UK	Triassic		8.73	1993	8.32	in production
Ostervesede	1983	GE	Rotliegend		0.17	1983	0.15	in production
Ottoland-RBBM	1988	NL	Triassic		0.06			development expected
Oud-Beijerland Noord	2006	NL	Triassic		0.14			development expected
Oud Beijerland Zuid								
– Oud Beijerland Zuid-RBBM	1990	NL	Triassic		0.58	2003		abandoned
– Oud Beijerland Zuid-RNUB	1990	NL	Triassic			2003	0.58	in production
Oude Pekela-RO	1990	NL	Rotliegend		2.83	1995	0.45	in production
P01-FA								
– P01-FA Zechstein	1977	NL	Zechstein					undeveloped
– P01-FA Rotliegend	1977	NL	Rotliegend		7.20			undeveloped
P01-FB	1980	NL	Rotliegend		0.40			undeveloped

P02-1	1979	NL	Triassic	■		1.27				undeveloped	
P02-5	1983	NL	Rotliegend	■		0.28	1997			abandoned	
P02-NE	1982	NL	Rotliegend	■			1997		0.28	abandoned	
P02-E	1987	NL	Rotliegend	■		0.12				undeveloped	
P02-SE	1985	NL	Triassic	■			1998		0.12	abandoned	
P06-A Rotliegend	1997	NL	Rotliegend	■			1997			abandoned	
P06-D-Bunter	2000	NL	Triassic	■		2.38	2001		1.73	in production	
P6											
– P06-Main-Bunter	1968	NL	Triassic	■		8.50	1983		10.37	in production	
– P06-Main-Platten Dolomite	1968	NL	Zechstein	■		2.83	1985			in production	■
P06-South											
– P06-South-Bunter	1990	NL	Triassic	■		0.28	1997		0.29	in production	
– P06-South-Platten Dolomite	1990	NL	Zechstein	■		0.14	1997			in production	
P11-3	1996	NL	Triassic	■■		0.47	2006			in production	
P12-C Bunter	1987	NL	Triassic	■		1.70	1991		0.01	abandoned	
P12-SW Bunter	1986	NL	Triassic	■		3.26	1990		3.83	in production	
P14-A	1989	NL	Triassic	■		2.90	1993		2.90	in production	
P15-10	1988	NL	Triassic	■		0.28	1993		0.03	ceased production (temporarily)	
P15-11	1989	NL	Triassic	■		7.08	1993		0.68	in production	
P15-12	1990	NL	Triassic	■		1.27	1993		0.09	in production	
P15-13	1990	NL	Triassic	■		3.68	1993		0.17	in production	
P15-14	1991	NL	Triassic	■		0.99	1993		0.07	in production	
P15-15	2001	NL	Triassic	■			2001			ceased production (temporarily)	
P15-9											
– P15-9 Rijnland/Delfland	1987	NL	Cretaceous	■						undeveloped	
– P15-9 Bunter	1987	NL	Triassic	■		11.33	1993		0.85	in production	
P15-C	2003	NL	Triassic	■			2003			in production	
P15-E	2003	NL	Triassic	■			2003			in production	
P18-2	1989	NL	Triassic	■		10.62	1993		13.08	in production	
P18-6	2003	NL	Triassic	■			2003			in production	
P18-4	1991	NL	Triassic	■		1.70	1993		0.56	in production	
P6-NW Bunter	1980	NL	Triassic	■		4.25				development expected	
Papekop-RN	1986	NL	Triassic	■■	1.94	1.12				development expected	
Pasop-RO	1991	NL	Rotliegend	■		4.96	1997		0.32	in production	
Pernis											
– Pernis-KNGL	1989	NL	Cretaceous	■		1.13	2003		1.03	in production	
– Pernis-KNNSL	1989	NL	Cretaceous	■■		0.28	2004			in production	
Pernis-West-BS	1987	NL	Triassic	■■	9.95	5.55	1995	1.52	3.02	in production	■
Pickerill	1984	UK	Rotliegend	■		12.03	1992		11.60	in production	
Pijnacker-SLD	1955	NL	Jurassic	■■	1.04	0.15	1955	1.04	0.15	abandoned	
Q01-B	2001	NL	Triassic	■		14.16	2003		6.72	in production	
Q02-A-ZE	1991	NL	Zechstein	■		0.57				development expected	
Q04-A	1999	NL	Triassic	■		2.12	2000		1.97	in production	
Q04-B	1998	NL	Triassic	■		4.25	2002		1.29	in production	
Q05-A	1988	NL	Zechstein	■		1.56	2004		0.13	in production	
Q07-FA	1973	NL	Zechstein	■		0.25				undeveloped	
Q08-A Bunter	1976	NL	Triassic	■		3.25	1986		3.25	ceased production (temporarily)	
Q08-B_RB	1982	NL	Triassic	■		0.51	1994		0.50	abandoned	
Q13-FC	1988	NL	Zechstein	■		0.25				undeveloped	
Q16A-RBBM	1989	NL	Triassic	■		4.26	1998		3.08	in production	
Quaadmoor/Wöstendöllen (Zechstein)	1969	GE	Zechstein	■		14.44	1969		8.26	in production	
R2	2001	UK	Rotliegend	■						undeveloped	
Rammelbeek											
– Rammelbeek-ZEZ2C	1970	NL	Zechstein	■		0.08				development expected	
– Rammelbeek-ZEZ3C	1970	NL	Zechstein	■		0.20				development expected	
Ratzel											
– Ratzel (Zechstein)	1961	GE	Zechstein	■		1.42	1961		0.87	in production	
– Ratzel (Carboniferous)	1960	GE	Carboniferous	■			1960		0.44	in production	
Rauwerd	1965	NL	Cretaceous	■		0.53	1971		0.86	in production	
Ravenspurn	1983	UK	Rotliegend	■		45.21	1990		41.01	in production	
Rechterfeld (Zechstein)	1988	GE	Zechstein	■		1.70	1988		1.06	in production	
Reedijk-RNUB	1992	NL	Triassic	■		1.42	2003		0.90	in production	
Rehden											
– Rehden (Buntsandstein)	1962	GE	Triassic	■		2.83	1964		2.50	in production	■
– Rehden (Zechstein, Gasspeicher)	1952	GE	Zechstein	■		5.81	1954		5.81	in production	
– Rehden (Carboniferous)	1961	GE	Carboniferous	■		9.06	1964		8.31	in production	
Ried											
– Ried	1980	NL	Cretaceous	■		0.85	1988			in production	
– Ringe (Carboniferous)	1998	GE	Carboniferous	■		0.57	1998		0.28	in production	
Roden-RO	1971	NL	Rotliegend	■		2.83	1976			abandoned	
Rodewolt-ROSLU	1998	NL	Rotliegend	■		1.47				undeveloped	
Rose	1998	UK	Rotliegend	■		0.72	2004		0.43	in production	
Rossum-Weerselo											
– Rossum-Weerselo-ZE	1955	NL	Zechstein	■		6.37	1958		7.97	in production	
– Rossum-Weerselo-DC	1968	NL	Carboniferous	■		1.42	1988			in production	
Roswinkel-RBM	1976	NL	Triassic	■		15.15	1980		0.13	in production	
Rotenburg/Taaken	1984	GE	Rotliegend	■		67.75	1984		43.63	in production	
Rotterdam-KNNSL	1984	NL	Cretaceous	■■	14.63	1.70	1984	10.30		in production	
Rough	1968	UK	Rotliegend	■		10.92	1983		4.81	in production	
Rustenburg-RO	1981	NL	Rotliegend	■		1.13				development expected	
Rütenbrock											
– Rütenbrock (Rotliegend)	1969	GE	Rotliegend	■		1.42	1969		0.57	in production	
– Rütenbrock (Zechstein)	1969	GE	Zechstein	■		2.27	1969		2.75	in production	
Rijswijk-KNNSL	1954	NL	Cretaceous	■■		0.47	1954		2.01	abandoned	
's-Gravenzande											
– 's-Gravenzande-KNNSL	1997	NL	Cretaceous	■						undeveloped	
– 's-Gravenzande-RNUB	1997	NL	Triassic	■		5.66	2002		3.38	in production	
– 's-Gravenzande-RBBM	1998	NL	Triassic	■			2002			in production	
Saaksum-Oost-ROSLU	1993	NL	Rotliegend	■		2.13	2000		1.45	in production	
Saaksum-West-ROSLU	1998	NL	Rotliegend	■			1999			in production	
Sagermeer Z3 (Buntsandstein)	1968	GE	Triassic	■		0.04	1968		0.04	abandoned	
Salzwedel	1968	GE	Rotliegend	■		264.00	1968		206.16	in production	■
Saturn	1987	UK	Rotliegend	■		10.66	2005		0.43	in production	
Schermer Platten	1964	NL	Zechstein	■		1.16	1992		2.66	in production	
Schermer Rotliegend	1976	NL	Rotliegend	■		1.56	1979			ceased production (temporarily)	
Schiermonnikoog Wad	1996	NL	Triassic	■						undeveloped	
Schoonebeek Gas-ZEZ2C	1957	NL	Zechstein	■		9.91	1958		3.23	in production	■
Schooner	1986	UK	Carboniferous	■		8.78	1996		7.18	in production	
Sean	1969	UK	Rotliegend	■		24.80	1986		10.53	in production	
Sebaldeburen-RO	1990	NL	Rotliegend	■		3.96	1997		1.11	in production	
Shamrock	2004	UK	Rotliegend	■		2.46	2008			in production	
Siedenburg (Buntsandstein)	1963	GE	Triassic	■		16.99	1963		11.02	in production	
Siedenburg-Ost (Zechstein)	1964	GE	Zechstein	■		28.32	1964		21.21	in production	
Siedenburg-West (Zechstein)	1964	GE	Zechstein	■		24.07	1964		15.36	in production	
Sinope	1994	UK	Rotliegend	■		0.37	1999		0.37	in production	
Skiff	1995	UK	Rotliegend	■		7.79	2000		6.32	in production	
Sleen-RBM	1965	NL	Triassic	■		8.50	1981			abandoned	
Slootdorp	1964	NL	Zechstein	■		1.42	1977		1.74	in production	
Spijkenisse Oost											
– Spijkenisse Oost-RBBM	1990	NL	Triassic	■■	0.08	2.83	2006	0.02	0.27	in production	
– Spijkenisse Oost-RNUB	1990	NL	Triassic	■■			2006			in production	
Spijkenisse West											
– Spijkenisse West-RBBM	1992	NL	Triassic	■■	0.03	0.42	2006	0.01	0.13	in production	
– Spijkenisse West-RNUB	1992	NL	Triassic	■■			2006			in production	
Söhlingen	1979	GE	Rotliegend	■		56.63	1980		21.13	in production	■
Söhlingen-Ost/Grauen	1981	GE	Rotliegend	■		16.28	1981		11.79	in production	
Soltau/Friedrichseck	1984	GE	Rotliegend	■		8.52	1984		5.76	in production	
Sonnega-Weststellingwerf	1963	NL	Cretaceous	■						undeveloped	
South Valiant	1970	UK	Rotliegend	■		9.01	1995		8.58	in production	
Sprang	1987	NL	Triassic	■		0.42	1991		0.29	in production	
Stadskanaal											
– Stadskanaal-ZEZ2C	1981	NL	Zechstein	■	0.08					undeveloped	
– Stadskanaal-RO	1981	NL	Rotliegend	■						undeveloped	
Staffhorst (Buntsandstein)	1964	GE	Triassic	■		1.98	1964		1.32	in production	
Staffhorst/Borstel (Zechstein)	1963	GE	Zechstein	■		13.31	1963		11.65	in production	
Staffhorst-Nord/Päpsen (Zechstein)	1973	GE	Zechstein	■		1.42	1973		0.87	in production	
Starnmeer Platten	2001	NL	Zechstein	■		0.12	2001		0.12	ceased production (temporarily)	
Suawoude-RO	1965	NL	Rotliegend	■		5.27	1984		0.18	in production	
Surhuisterveen-RO	1991	NL	Rotliegend	■		0.99				development expected	
SW Cavendish	1986	UK	Carboniferous	■						undeveloped	
Syke	1981	GE	Zechstein	■		0.56	1981		0.56	abandoned	
Ternaard-RO	1991	NL	Rotliegend	■		0.14				undeveloped	
Terschelling Noord-ROSLU	1993	NL	Rotliegend	■		3.40				undeveloped	
Terschelling West	1989	NL	Rotliegend	■		0.25				undeveloped	
Tethys	1991	UK	Rotliegend	■		2.00	2007			in production	
Thames	1969	UK	Rotliegend	■		11.98	1987		6.76	in production	
Thurne	1987	UK	Rotliegend	■		0.26	2007			in production	
Tietjerksteradeel											
– Tietjerksteradeel-KNNS	1975	NL	Cretaceous	■			1977			in production	
– Tietjerksteradeel-RO	1965	NL	Rotliegend	■		32.36	1974		40.69	in production	
Trent	1990	UK	Carboniferous	■		3.28	1996		2.50	in production	■
Tristan	1976	UK	Rotliegend	■		1.06	1992		1.06	ceased production	
Tristan NW	1987	UK	Rotliegend	■						undeveloped	
Tubbergen-Mander-ZE	1968	NL	Zechstein	■		2.83	1974		0.17	in production	
Tubbergen/Itterbeck-Halle/Getelo											
– Tubbergen-ZE/ Itterbeck-Halle	1951	NL/GE	Zechstein	■		5.37	1951		8.09	in production	
– Tubbergen-DC/ Itterbeck-Halle/Getelo	1951	NL/GE	Carboniferous	■		8.50	1951		10.79	in production	
Tyne S & N	1992	UK	Carboniferous	■		4.02	1996		3.63	in production	
Uchte (Buntsandstein)	1981	GE	Triassic	■		7.36	1981		0.29	in production	
Uelsen											
– Uelsen (Buntsandstein)	1964	GE	Triassic	■		0.85	1964		1.00	abandoned	
– Uelsen (Zechstein)	1964	GE	Zechstein	■		0.28	1964		0.30	abandoned	
– Uelsen (Karbon)	1964	GE	Carboniferous	■		0.42	1964		0.25	abandoned	
unknown	1969	UK	Zechstein	■						undeveloped	
unknown	1969	UK	Zechstein	■						undeveloped	
unknown	1984	UK	Triassic	■						undeveloped	
unknown	1992	UK	Carboniferous	■						undeveloped	
unknown	1989	UK	Carboniferous	■						undeveloped	
unknown	1994	UK	Rotliegend	■						undeveloped	
Uphuser Meer	1981	GE	Rotliegend	■		0.20	1981		0.15	in production	
Ureterp-RO	1966	NL	Rotliegend	■		5.27	1978		0.71	in production	
Usquert-RO	1968	NL	Rotliegend	■		0.28				development expected	
Uttum	1970	GE	Rotliegend	■		1.27	1970		0.96	in production	
Valkyrie	2003	UK	Rotliegend	■		1.69	2004		0.81	in production	
Valthermond-ZEZ2C	1977	NL	Zechstein	■		0.03				undeveloped	
Vampire	1993	UK	Rotliegend	■		1.65	1999		1.65	in production	
Vanguard	1982	UK	Rotliegend	■		3.69	1995		3.13	in production	
Varenesch (Carboniferous)	1992	GE	Carboniferous	■		0.14	1992		0.10	in production	
Varnhorn											
– Varnhorn (Zechstein)	1968	GE	Zechstein	■		14.16	1968		11.63	in production	
– Varnhorn (Karbon)	1968	GE	Carboniferous	■			1968		0.06	abandoned	
Victor	1972	UK	Rotliegend	■		29.14	1984		25.66	in production	
Vierhuizen-ROSLU	1994	NL	Rotliegend	■		12.74				development expected	
Viking	1969	UK	Rotliegend	■		89.87	1983		87.67	in production	
Visbek T1	1962	GE	Triassic	■		0.57	1962		0.09	abandoned	

Viscount	2001	UK	Rotliegend			0.01	2002	0.01	in production
Vixen	1999	UK	Rotliegend			3.80	2000	3.34	in production
Vlagtwedde-ZEZ2C	1988	NL	Zechstein			0.85			undeveloped
Voigtei T1 (Buntsandstein)	1963	GE	Triassic			0.01	1963	0.01	abandoned
Völkersen/Völkersen-Nord	1992	GE	Rotliegend			21.10	1992	9.08	in production
Volzendorf	1985	GE	Rotliegend			0.22	1985	0.22	abandoned
Vries-RO-Central	1970	NL	Rotliegend			4.25	1982		in production
Vries-RO-North	1970	NL	Rotliegend				1982		in production
Vries-RO-South	1968	NL	Rotliegend				1976		in production
Vulcan	1983	UK	Rotliegend			18.22	1995	16.40	in production
Waalwijk-Noord	1987	NL	Triassic			3.68	1991	2.41	in production
Wagenfeld (Zechstein)	1954	GE	Zechstein			0.47	1954	0.47	abandoned
Walsrode Z-2-Block	1980	GE	Rotliegend			7.08	1980	0.33	in production
Walsrode Z4-Block / Idsingen	1990	GE	Rotliegend			5.95	1990	5.52	in production
Walsrode-West	1990	GE	Rotliegend			5.66	1990	3.51	in production
Wanneperveen									
– Wanneperveen-NLFFT	1980	NL	Cenozoic				1988	1.42	ceased production (temporarily)
– Wanneperveen-KNNS	1949	NL	Cretaceous			1.41	1951		abandoned
– Wanneperveen-RBSH	1951	NL	Triassic			5.66	1956		in production
Wardenburg	1971	GE	Zechstein			0.08	1971	0.08	abandoned
Warffum-RO	1977	NL	Rotliegend			8.50	1986	1.02	ceased production (temporarily)
Zuidwal	1970	NL	Cretaceous			16.00	1988	14.49	in production
Warga	1965	NL	Cretaceous			1.13	1971		in production
Wartena	1965	NL	Cretaceous				1971		in production
Wassenaar-Deep-RNUB	1988	NL	Triassic			0.29			undeveloped
Watt	1990	UK	Carboniferous			0.02	2003	0.02	in production
Waveney	1996	UK	Rotliegend			2.34	1998	2.25	in production
Weissenmoor	1996	GE	Rotliegend			2.83	1996	0.83	in production
Welland North West	1984	UK	Rotliegend			5.38	1990	5.38	ceased production
Welland South	1984	UK	Rotliegend			2.28	1990	2.28	ceased production
Wenlock	1974	UK	Rotliegend			1.70	2007		in production
Wensum	1985	UK	Rotliegend		Part of Thames		1990	0.05	in production
Werkendam Diep-RNUB	1991	NL	Triassic						undeveloped
West Beemster-ROSLU	1993	NL	Rotliegend			2.83	2007		in production
West Boulton	2005	UK	Carboniferous						undeveloped
West Sole	1965	UK	Rotliegend			59.16	1967	53.59	in production
Weststellingwerf	1983	NL	Zechstein			0.11	1999	0.04	abandoned
Whittle	1990	UK	Rotliegend			1.72	2002	1.30	in production
Wielen									
– Wielen (Zechstein)	1959	GE	Zechstein			1.47	1959	3.05	in production
– Wielen (Carboniferous)	1959	GE	Carboniferous			2.21	1959	0.31	in production
Wietingsmoor									
– Wietingsmoor (Zechstein)	1968	GE	Zechstein			4.30	1968	3.84	in production
– Wietingsmoor (Carboniferous)	1968	GE	Carboniferous			0.50	1968	0.43	in production
Wimmenum Egmond-RBM	1963	NL	Triassic			1.13	1984	0.02	abandoned
Windermere	1989	UK	Rotliegend			2.11	1997	1.93	in production
Winkelsett	1979	GE	Zechstein			1.13	1979	0.10	abandoned
Wissey	1967	UK	Zechstein						undeveloped
Witten-ROSL	1995	NL	Rotliegend			0.59			undeveloped
Wittorf	1981	GE	Carboniferous			0.01	1981	0.01	abandoned
Wollaston	1989	UK	Rotliegend			0.21	2003		in production
Wren	1997	UK	Rotliegend			1.06	2005	0.14	in production
Wustrow (Gas)	1966	GE	Rotliegend			4.62	1966	10.62	abandoned
Wybelsum	1983	GE	Rotliegend			0.09	1983	0.09	abandoned
Yare	1969	UK	Rotliegend		Part of Thames		1986	1.85	in production
Zevenhuizen West-RO	1993	NL	Rotliegend			0.28			undeveloped
Zevenhuizen-RO	1984	NL	Rotliegend			0.50			undeveloped
Zoetermeer-KNNSR	1957	NL	Cretaceous		1.71	0.12	1957	1.71 0.12	abandoned
Zuid Schermer Platten	1997	NL	Zechstein			0.04	2001	0.03	ceased production (temporarily)
Zuidwal	1970	NL	Cretaceous			16.00	1988	14.49	in production
Zuidwending East	2006	NL	Rotliegend			2.12	2006	0.28	in production
Zweelo	1953	NL	Cretaceous						undeveloped

Appendix 3.3 Petroleum province 3: East Midlands and Cleveland Basin

Onshore Offshore Gas Oil Field example

Accumulation name	Discovery year	Country	Reservoir age	UR oil (mln m³)	UR gas (bcm)	Production start year	CP oil (mln m³)	CP gas (bcm)	Development status
Appleyhead	1960	UK	Carboniferous						undeveloped
Beckering	1990	UK	Carboniferous						undeveloped
Beckingham	1964	UK	Carboniferous	0.28		1987	0.27		in production
Belvoir	1986	UK	Carboniferous						undeveloped
Bothamsall	1958	UK	Carboniferous			1958			ceased production
Brigg	1981	UK	Carboniferous						undeveloped
Broughton	1984	UK	Carboniferous						undeveloped
C.Hanworth	1997	UK	Carboniferous	0.18		1998	0.05		in production
Calow	1958	UK	Carboniferous		0.05	1963			abandoned
Caunton	1940	UK	Carboniferous	0.04					ceased production
Caythorpe	1987	UK	Rotliegend		0.12	1992			in production
Cleveland Hills	1941	UK	Zechstein						undeveloped
Cloughton	1986	UK	Carboniferous						undeveloped
Corringham	1958	UK	Carboniferous	0.04		1958	0.04		ceased production
Cropwell Butler	1958	UK	Carboniferous						undeveloped
Crosby Warren	1986	UK	Carboniferous	0.05		1987	0.06		in production
Eakring	1940	UK	Carboniferous	0.73			0.73		ceased production
East Glentworth	1987	UK	Carboniferous	0.04		1993	0.01		in production
Egmanton	1955	UK	Carboniferous	0.37		1955	0.35		ceased production
Eskdale	1939	UK	Zechstein			1960			ceased production
Everton	1988	UK	Carboniferous						undeveloped
Farleys Wood	1943	UK	Carboniferous	0.03		1985	0.02		in production
Fiskerton Airfield	1997	UK	Carboniferous	0.25		1999	0.04		in production
Fordon	1956	UK	Carboniferous						undeveloped
Gainsborough	1959	UK	Carboniferous	0.40			0.38		ceased production
Glentworth	1961	UK	Carboniferous	0.02		1961	0.02		ceased production
Hardstoft	1919	UK	Carboniferous						undeveloped
Hatfield	1976	UK	Carboniferous		0.12	1986			in production
Heath	1919	UK	Carboniferous						undeveloped
High Hutton	1987	UK	Zechstein and Rotliegend						undeveloped
Ironville	1956	UK	Carboniferous			2002			in production
Keddington	1997	UK	Carboniferous	0.01		1998	0.01		in production
Kelham Hills	1941	UK	Carboniferous	0.33		1941	0.33		ceased production
Kinoulton	1986	UK	Carboniferous						undeveloped
Kirby Misperton	1985	UK	Zechstein		0.49	1995			in production
Kirklington	1986	UK	Carboniferous	0.01		1991			in production
Langar	1957	UK	Carboniferous						undeveloped
Lockton	1966	UK	Zechstein			1971			ceased production
Long Clawson	1986	UK	Carboniferous	0.17		1991	0.11		in production
Malton	1970	UK	Zechstein		0.28	1995			in production
Marishes	1988	UK	Zechstein		0.23	1995			in production
Nettleham	1997	UK	Carboniferous	0.18		1985	0.16		in production
Newton-On-Trent	1998	UK	Carboniferous	0.02		1999			in production
Nocton	1943	UK	unknown						undeveloped
Pickering	1992	UK	Zechstein			2001			in production
Plungar	1953	UK	Carboniferous						development expected
Ralph Cross	1966	UK	unknown						undeveloped
Ranskill	1965	UK	unknown						undeveloped
Reepham	1998	UK	Carboniferous						undeveloped
Rempstone	1995	UK	Carboniferous	0.19		1991	0.02		in production
Robin Hoods Bay	1957	UK	Zechstein						undeveloped
Saltfleetby	1996	UK	Carboniferous		2.08	1999			in production
Scampton	1985	UK	Carboniferous			1996			in production
Scampton North	1985	UK	Carboniferous	0.18		1989	0.17		in production
South Leverton	1960	UK	Carboniferous	0.06		1960	0.04		ceased production
Stainton	1984	UK	Carboniferous	0.02		1987	0.02		in production
Tickhill	1958	UK	unknown						undeveloped
Torksey	1963	UK	Carboniferous			1963			ceased production
Trumfleet	1957	UK	Carboniferous		0.01	1998			in production
Walkeringham	1959	UK	unknown						undeveloped
Welton	1981	UK	Carboniferous	1.86		1984	1.73		in production
West Drayton	1941	UK	unknown						ceased production
West Firsby	1988	UK	Carboniferous	0.23		1991	0.13		in production
Whisby	1985	UK	Carboniferous	0.10		1990	0.04		in production
Widmerpool	1945	UK	unknown						undeveloped
Wykeham	1971	UK	unknown						undeveloped

Appendix 3.4 Petroleum province 4: Thüringian and Sub-Hercynian basins

Onshore Offshore Gas Oil Field example

Accumulation name	Discovery year	Country	Reservoir age	UR oil (mln m³)	UR gas (bcm)	Production start year	CP oil (mln m³)	CP gas (bcm)	Development status
Allmenhausen	1960	GE	Triassic		0.25	1960		0.24	abandoned
Behringen	1962	GE	Zechstein		2.84	1962		2.84	abandoned
Fahner Höhe	1960	GE	Zechstein		0.25	1960		0.08	in production
Hainich-Berka		GE	Zechstein						unknown
Holzsussra	1970	GE	Zechstein		0.03	1970			abandoned
Holzthaleben	1969	GE	Zechstein			1969			abandoned
Kirchheilingen	1958	GE	Zechstein		0.57	1958		0.30	in production
Kirchheilingen (Zentral-Scholle)	1958	GE	Zechstein		0.08	1958		0.06	abandoned
Kleiner Fallstein	1934	GE	Zechstein	0.02		1934	0.03		abandoned
Kraja		GE	Zechstein						unknown
Kranberg		GE	Zechstein						unknown
Langensalza-Nord	1935	GE	Zechstein		0.30	1935		0.26	in production
Langensalza-Sud		GE	Triassic						unknown
Mehrstedt	1970	GE	Zechstein	0.00		1970			abandoned
Mühlhausen	1932	GE	Zechstein		2.12	1932		1.81	in production
Neudietendorf		GE	Zechstein						unknown
Rockensussra	1969	GE	Zechstein			1969			abandoned
Volkenroda	1930	GE	Zechstein	0.11		1930	0.01		abandoned

Appendix 3.5a Petroleum province 5: Pomerania – Carboniferous sourced fields

Onshore Offshore Gas Oil Field example

Accumulation name	Discovery year	Country	Reservoir age	UR oil (mln m³)	UR gas (bcm)	Production start year	CP oil (mln m³)	CP gas (bcm)	Development status
Białogard	1982	PL	Rotliegend		0.56	1984		0.45	in production
Ciechnowo	1981	PL	Rotliegend		0.27	1992		0.07	in production
Daszewo N	1980	PL	Carboniferous			1990			in production
Gorzysław N	1976	PL	Carboniferous		1.35	1979		0.76	in production
Gorzysław S	1976	PL	Carboniferous		0.47	1982		0.04	in production
Heringsdorf	1981	GE	Zechstein		7.36	1981		0.01	abandoned
Międzyzdroje	1971	PL	Rotliegend		0.31	1971		0.01	ceased production
Międzyzdroje E	1970	PL	Rotliegend		0.30				developing
Przytór	1972	PL	Rotliegend		0.36				developing
Trzebusz	1978	PL	Carboniferous		0.11	1982		0.06	in production
Wierzchowo	1972	PL	Carboniferous			1973			in production
Wrzosowo	1975	PL	Carboniferous		0.60				developing

Appendix 3.5b Petroleum province 5: Pomerania – Permian (Zechstein) sourced fields

■ Onshore ■ Offshore ■ Gas ■ Oil ■ Field example

Accumulation name	Discovery year	Country	Reservoir age		UR oil (mln m³)	UR gas (bcm)	Production start year	CP oil (mln m³)	CP gas (bcm)	Development status
Bansin	1983	GE	Zechstein	■			1983			abandoned
Barth	1966	GE	Zechstein	■			1966	0.00		abandoned
Błotno	1980	PL	Zechstein	■■ (cap)	0.05	0.01	1981	0.04	0.01	in production
Brzozówka	1989	PL	Zechstein	■	0.03		1991	0.03		unknown
Daszewo	1980	PL	Zechstein	■■ (cap)	0.26	0.12	1981	0.25	0.09	in production
Daszewo N	1980	PL	Zechstein	■■ (cap)	0.02	1.42	1987	0.02	0.34	in production
Grimmen	1963	GE	Zechstein	■	0.12		1963	0.18		abandoned
Grimmen-Südwest	1970	GE	Zechstein	■	0.06		1970	0.06		abandoned
Kamień Pomorski	1971	PL	Zechstein	■■ (cap)	2.36	0.29	1972	2.35	0.29	in production
Krummin	1987	GE	Rotliegend	■		0.17	1987		0.01	abandoned
Lütow	1965	GE	Zechstein	■	1.60		1965	1.59		in production
Mesekenhagen (Kirchdorf-)	1988	GE	Zechstein	■	0.21		1988	0.12		in production
Międzyzdroje	1971	PL	Zechstein	■	0.03		1973	0.03		unknown
Papenhagen	1980	GE	Zechstein	■	0.02		1980			abandoned
Petrykozy	1974	PL	Zechstein	■			1993			unknown
Reinkenhagen	1961	GE	Zechstein	■	0.64		1961	0.46		abandoned
Rekowo	1975	PL	Zechstein	■■ (cap)	0.03		1975	0.03		in production
Richtenberg-Nord	1964	GE	Zechstein	■	0.03		1964	0.03		abandoned
Richtenberg-Südwest	1966	GE	Zechstein	■	0.01		1966	0.01		abandoned
Sławoborze	2001	PL	Zechstein	■■ (cap)			2001			ceased production
Tychowo	1989	PL	Zechstein	■	0.01		1994	0.01		unknown
Wustrow (Öl)	1977	GE	Zechstein	■	0.01		1977	0.01		abandoned
Wysoka Kamieńska	1978	PL	Zechstein	■■ (cap)	0.49	0.03	1979	0.41	0.03	in production

Appendix 3.6a Petroleum province 6: Fore-Sudetic Monocline and Brandenburg – Carboniferous sourced fields

■ Onshore ■ Offshore ■ Gas ■ Oil ■ Field example

Accumulation name	Discovery year	Country	Reservoir age		UR oil (mln m³)	UR gas (bcm)	Production start year	CP oil (mln m³)	CP gas (bcm)	Development status
Aleksandrówka	1994	PL	Rotliegend	■		0.59	1995		0.35	in production
Bad Lauchstädt	1971	GE	Rotliegend	■		0.47	1971		0.45	abandoned
Bogdaj Uciechów	1969	PL	Zechstein	■		15.37	1970		10.88	in production
Bonikowo	1998	PL	Zechstein	■		0.69	1999		0.34	in production
Borowo	1980	PL	Rotliegend	■		0.06				developing
Borzęcin	1971	PL	Zechstein	■		4.33	1972		4.13	in production
Brońsko	1998	PL	Zechstein	■		14.84	2001		1.71	in production
Brzostowo	1979	PL	Zechstein	■		1.54	1980		1.46	ceased production (temporarily)
Buk E	1977	PL	Rotliegend	■		0.01	1987		0.01	ceased production
Buk Se	1983	PL	Rotliegend	■		0.09	1987		0.09	ceased production
Buk W	1977	PL	Rotliegend	■		0.01	1990		0.01	ceased production
Bukowiec	1977	PL	Rotliegend	■		2.05	1978		1.98	in production
Ceradz	1987	PL	Rotliegend	■		0.12	1988		0.04	abandoned
Chraplewo	1977	PL	Rotliegend	■		0.05	1984		0.05	ceased production
Czeszów	1972	PL	Zechstein	■		1.64	1973		1.20	in production
Czmoń	1977	PL	Rotliegend	■		0.02	1981		0.02	ceased production
Dębina	1994	PL	Rotliegend	■		0.19				developing
Dobrzeń	1969	PL	Zechstein	■		0.02	1974		0.02	ceased production
Duszniki E	1985	PL	Rotliegend	■		0.05	1986		0.04	in production
Duszniki W	1985	PL	Rotliegend	■		0.07	1986		0.05	in production
Góra	1982	PL	Rotliegend	■		0.97	1983		0.84	in production
Gorzyce	1997	PL	Rotliegend	■						developing
Grabówka E	1986	PL	Zechstein	■		0.06				developing
Grabówka W	1974	PL	Zechstein	■		0.17				developing
Grochowice	1996	PL	Rotliegend	■		2.39	1997		0.75	in production
Grodzisk	1977	PL	Rotliegend	■		1.97	1978		1.96	abandoned
Großer Fallstein	1961	GE	Rotliegend	■		0.34	1961		0.27	abandoned
Henrykowice E	1974	PL	Zechstein	■		0.27	1973		0.27	ceased production
Henrykowice W	1974	PL	Zechstein	■		0.04				ceased production
Jankowice	1987	PL	Rotliegend	■		0.12	1988		0.09	in production
Janowo	1972	PL	Zechstein	■		0.26	1977		0.26	ceased production
Jarocin	1997	PL	Rotliegend	■		0.79	1998		0.34	in production
Kaleje	1974	PL	Rotliegend	■		0.12	1975		0.12	ceased production (temporarily)
Kaleje E	1974	PL	Rotliegend	■			1975			abandoned
Kandlewo	1991	PL	Rotliegend	■		0.24				developing
Klęka	1975	PL	Rotliegend	■		0.75	1977		0.75	ceased production
Klęka E	2000	PL	Rotliegend	■		0.06	2001		0.05	in production
Kopanki	1978	PL	Rotliegend	■		0.47	1979		0.47	ceased production
Kopanki E	1978	PL	Rotliegend	■		0.08	1978		0.08	ceased production
Kościan										
– Kościan	1975	PL	Zechstein	■		10.38	1977		2.57	unknown
– Kościan	2001	PL	Zechstein	■			2002			in production
Kulów	1980	PL	Rotliegend	■		0.03				developing
Łagwy	1983	PL	Rotliegend	■			1990			ceased production
Lipowiec E	2001	PL	Rotliegend	■		0.63	2002		0.05	in production
Lipowiec W	1976	PL	Rotliegend	■			2002			unknown
Młodasko	1991	PL	Rotliegend	■		0.42	1992		0.26	in production
Naratów	1997	PL	Rotliegend	■		0.46	1998			in production
Niechlów	1997	PL	Rotliegend	■		0.58	1998		0.25	in production
Niemierzyce	1986	PL	Rotliegend	■		0.06	1987		0.06	in production
Pakosław	1994	PL	Rotliegend	■		0.25				ceased production
Paproć										
– Paproć	1984	PL	Rotliegend	■		2.84	1985		3.12	in production
– Paproć (C)	1993	PL	Carboniferous	■		1.70	1994			in production
Paproć W (Ca1)	1983	PL	Zechstein	■		2.12				developing
Piekary	1986	PL	Rotliegend	■		0.03	1987		0.03	abandoned
Podrzewie	1985	PL	Rotliegend	■		0.52	1986		0.15	in production
Porażyn	1983	PL	Rotliegend	■		0.31	1984		0.18	in production
Radlin	1982	PL	Rotliegend	■		11.07	1992		5.27	in production
Radziądz	1975	PL	Rotliegend	■		3.17	1976		0.58	in production
Radziądz W	1969	PL	Zechstein	■						developing
Rawicz P1	1974	PL	Rotliegend	■		0.47				developing
Rokietnica	1974	PL	Rotliegend	■						ceased production
Rüdersdorf	1964	GE	Rotliegend	■		0.04	1964		0.48	abandoned
Sątopy	1977	PL	Rotliegend	■		0.03	1982		0.03	ceased production
Sędziny	1978	PL	Rotliegend	■		0.08				developing
Ślubów	1996	PL	Rotliegend	■		0.20	1997		0.15	in production
Solec	1974	PL	Rotliegend	■		0.08				developing
Stęszew	1982	PL	Rotliegend	■		0.52	1983		0.48	in production
Strykowo	1982	PL	Rotliegend	■		0.29	1983		0.29	in production
Strzępiń	1982	PL	Rotliegend	■		0.01	1987			ceased production
Szewce E	1982	PL	Rotliegend	■		0.05	1990			abandoned
Szewce W	1989	PL	Rotliegend	■		0.30	1990		0.08	in production
Szlichtyngowa	1999	PL	Rotliegend	■		0.58	2000		0.15	in production
Turkowo	1982	PL	Rotliegend	■		0.05				developing
Ujazd	1977	PL	Rotliegend	■		1.45	1978		1.34	in production
Wielichowo	1971	PL	Zechstein	■		1.40				developing
Wierzchowice	1971	PL	Zechstein	■		11.6	1994			abandoned
Wierzowice	1994	PL	Rotliegend	■		0.47	1995		0.05	in production
Wiewierz	1976	PL	Rotliegend	■		0.30	1977		0.28	in production
Wiewierz S	1971	PL	Rotliegend	■		0.08	1980		0.06	unknown
Wiewierz W	1976	PL	Rotliegend	■			1977			in production
Wilcze	1993	PL	Rotliegend	■		0.49				developing
Wilków	1987	PL	Rotliegend	■		4.39	1988		2.65	in production
Załęcze	1972	PL	Rotliegend	■		21.12	1973		19.17	in production
Żuchlów	1978	PL	Rotliegend	■		22.18	1979		20.70	in production

Appendix 3.6b Petroleum province 6: Fore-Sudetic Monocline and Brandenburg – Permian (Zechstein) sourced fields

■ Onshore ■ Offshore ■ Gas ■ Oil ■ Field example

Accumulation name	Discovery year	Country	Reservoir age		UR oil (mln m³)	UR gas (bcm)	Production start year	CP oil (mln m³)	CP gas (bcm)	Development status
Antonin	1969	PL	Zechstein	■		0.12	1978		0.12	ceased production
Atterwasch	1968	GE	Zechstein	■	0.07		1968	0.07		abandoned
Babimost	1972	PL	Zechstein	■		0.91				developing
Barnówko-Mostno-Buszewo										
– Barnówko-Mostno-Buszewo	1992	PL	Zechstein	■		9.87	1995		1.36	in production
– Barnówko-Mostno-Buszewo	1992	PL	Zechstein	■■ (cap)	14.94		1995	3.06		in production
Bartniki	1985	PL	Zechstein	■		0.02	1993		0.02	ceased production
Breslack	1990	GE	Zechstein	■	0.02		1990	0.02		abandoned
Breslack-Nordost/Kosarzyn S	1989	GE/PL	Zechstein	■■ (cap)	0.17	0.01	1989	0.15		abandoned
Buk	1973	PL	Zechstein	■■ (cap)	0.32	0.03	1974	0.31	0.03	in production
Burg	1964	GE	Zechstein	■		0.01	1964		0.01	abandoned
Cychry	1997	PL	Zechstein	■		12.05	1998			in production
Czeklin	1965	PL	Zechstein	■		0.09				developing
Czerwieńsk	1970	PL	Zechstein	■■ (cap)	0.02		1971	0.01		in production
Doebern	1962	GE	Zechstein	■	0.20		1962	0.20		abandoned
Dornswalde	1992	GE	Zechstein	■		0.03	1992			abandoned
Drebkau-Branitz	1964	GE	Zechstein	■		0.07	1964		0.07	abandoned
Drewitz	1971	GE	Zechstein	■	0.10		1971	0.07		abandoned
Dzieduszyce	1998	PL	Zechstein	■■ (cap)	0.62	0.07	2006			ceased production
Fürstenwalde	1990	GE	Zechstein	■	0.03		1990	0.03		abandoned
Gaj	1980	PL	Zechstein	■	0.02		1984	0.02		unknown
Gomunice	1983	PL	Zechstein	■	0.00		1988			unknown
Górzyca	1989	PL	Zechstein	■	0.32		1990	0.02		unknown
Grotów	2003	PL	Zechstein	■■ (cap)	2.28	0.18				ceased production
Gryżyna										
– Gryżyna	1994	PL	Zechstein	■		0.42				ceased production
– Gryżyna	1994	PL	Zechstein	■	0.09					ceased production
Guben I	1963	GE	Zechstein	■	0.03		1963	0.03		abandoned
Guben Ii	1968	GE	Zechstein	■	0.09		1968	0.10		abandoned
Jastrzębsko										
– Jastrzębsko	1990	PL	Zechstein	■		0.10				developing
– Jastrzębsko	1995	PL	Zechstein	■	0.02					unknown
Jeniniec	1985	PL	Zechstein	■■ (cap)	0.17	0.02	1986	0.12	0.01	in production
Kąkolewo	1973	PL	Zechstein	■		0.48				developing
Kargowa	1985	PL	Zechstein	■		2.65				developing
Kietz	1987	GE	Zechstein	■	0.28		1987	0.16		in production
Kije N	1985	PL	Zechstein	■■ (cap)			1986			in production
Kije S	1985	PL	Zechstein	■■ (cap)	0.09	0.01	1986	0.08	0.01	in production
Komptendorf	1967	GE	Zechstein	■			1967			abandoned
Kosarzyn	1990	PL	Zechstein	■■ (cap)	0.12	0.01	1991	0.08	0.01	in production
Kosarzyn N	1994	PL	Zechstein	■■ (cap)			1995			in production
Kościan S (Ca2)	2000	PL	Zechstein	■			1977			in production
Książ Śląski	1963	PL	Zechstein	■	0.01		1968	0.01		unknown
Lakoma	1978	GE	Zechstein	■	0.01		1978	0.01		abandoned
Leibsch	1980	GE	Zechstein	■		0.01	1980		0.01	abandoned
Lelechów										
– Lelechów	1974	PL	Zechstein	■			1974			ceased production
– Lelechów	1974	PL	Zechstein	■			1974	0.01		unknown
Lubiatów	2003	PL	Zechstein	■■ (cap)	5.43	2.50	2004	0.03	0.01	ceased production
Lubiszyn	1997	PL	Zechstein	■■ (cap)	0.19	0.03	1998	0.16	0.03	in production
Luebben	1965	GE	Zechstein	■		0.08	1965		0.08	abandoned
Maerkisch-Buchholz	1986	GE	Zechstein	■		1.90	1986		0.02	abandoned
Maszewo	1969	PL	Zechstein	■	0.04		1970	0.04		abandoned
Michorzewo	2001	PL	Zechstein	■■ (cap)	0.12	0.01				ceased production

Miedzychód	2001	PL	Zechstein			4.53	2004			ceased production	
Mittweide-Trebatsch	1978	GE	Zechstein		0.01		1978	0.01		abandoned	
Mozów N	1995	PL	Zechstein	(cap)	0.01					abandoned	
Mozów S	1991	PL	Zechstein	(cap)	0.01		1992			in production	
Namyślin	1994	PL	Zechstein	(cap)	0.02	0.02	1995			ceased production (temporarily)	
Nowa Sól	1963	PL	Zechstein			0.01				undeveloped	
Otyń											
– Otyń	1963	PL	Zechstein			0.04	1968		0.04	ceased production	
– Otyń	1963	PL	Zechstein		0.02		1968	0.02		unknown	
Paproć W (Ca2)	1982	PL	Zechstein			1.02				in production	
Pillgram	1988	GE	Zechstein				1988			abandoned	
Pomorsko	1967	PL	Zechstein		0.01		1967	0.01		unknown	
Racot	2000	PL	Zechstein			0.03	2001		0.02	in production	
Raden	1965	GE	Zechstein			0.04	1965		0.04	abandoned	
Radoszyn	1994	PL	Zechstein	(cap)	0.10	0.01	1995	0.08	0.01	in production	
Ratzdorf	1988	GE	Zechstein		0.08		1988	0.08		abandoned	
Rawicz Ca2	1974	PL	Zechstein			0.23				developing	
Retno	1993	PL	Zechstein	(cap)	0.02		1994			in production	
Różańsko	1999	PL	Zechstein			2.40	2000		0.17	in production	
Rybaki	1962	PL	Zechstein	(cap)	0.16	0.02	1963	0.15	0.02	in production	
Rybaki-Połęcko		PL	Zechstein							unknown	
Schenkendoebern-Ost	1979	GE	Zechstein			0.03	1979		0.03	abandoned	
Schlagsdorf/Sękowice	1965	GE/PL	Zechstein			0.35	1970		0.11	abandoned	
Stanowice	2003	PL	Zechstein			0.60				developing	
Steinsdorf	1986	GE	Zechstein		0.03		1986	0.03		abandoned	
Steinsdorf-N1/N2	1990	GE	Zechstein		0.05		1990	0.05		abandoned	
Sulęcin											
– Sulęcin	1973	PL	Zechstein			0.03				undeveloped	
– Sulęcin	1973	PL	Zechstein		0.09		1973	0.09		unknown	
Tarchały	1972	PL	Zechstein			3.44	1973		1.74	in production	
Tauer	1966	GE	Zechstein		0.26		1966	0.18		abandoned	
Tauer-No	1966	GE	Zechstein			0.08	1966		0.08	abandoned	
Uników	1973	PL	Zechstein			0.17				developing	
Wellmitz	1981	GE	Zechstein		0.09		1981	0.07		abandoned	
Wellmitz-Nordwest	1983	GE	Zechstein		0.00		1983			abandoned	
Wellmitz-Südost	1980	GE	Zechstein		0.02		1980	0.02		abandoned	
Wilcze	1990	PL	Zechstein			0.28				developing	
Wysocko	1989	PL	Zechstein			0.05	1990		0.04	in production	
Wysocko Małe	1998	PL	Zechstein			0.05	1999		0.05	in production	
Żakowo	1968	PL	Zechstein			2.15				developing	
Zakrzewo	1967	PL	Zechstein			0.21				ceased production	
Zbąszyń	1974	PL	Zechstein			2.40				developing	
Zielin	1996	PL	Zechstein	(cap)	0.28	0.23	1997	0.14	0.23	in production	

Appendix 3.7 Petroleum province 7: Lublin Basin

Onshore Offshore Gas Oil Field example

Accumulation name	Discovery year	Country	Reservoir age		UR oil (mln m³)	UR gas (bcm)	Production start year	CP oil (mln m³)	CP gas (bcm)	Development status	
Minkowice	1972	PL	Carboniferous				1978			abandoned	
Stężyca	1993	PL	Carboniferous	(cap)	0.10	0.80	2002			in production	
Swidnik	1982	PL	Carboniferous				1982			abandoned	
Wilga	1999	PL	Carboniferous			0.28	2006			in production	

Appendix 3.8 Petroleum province 8: Weald Basin

Onshore Offshore Gas Oil Field example

Accumulation name	Discovery year	Country	Reservoir age		UR oil (mln m³)	UR gas (bcm)	Production start year	CP oil (mln m³)	CP gas (bcm)	Development status	
Albury	1987	UK	Jurassic			0.05	1994			in production	
Ashdown	1955	UK	Jurassic							undeveloped	
Avington	2003	UK	Jurassic							undeveloped	
Balcombe	1987	UK	Jurassic							undeveloped	
Baxters Copse	1983	UK	Jurassic							undeveloped	
Bletchingley	1965	UK	Jurassic			0.07				undeveloped	
Brockham	1987	UK	Jurassic				2002			in production	
Cowden	1999	UK	Jurassic							undeveloped	
Godley Bridge	1983	UK	Jurassic							undeveloped	
Goodworth	1987	UK	Jurassic		0.07		1997			in production	
Heathfield	1986	UK	unknown							undeveloped	
Horndean	1983	UK	Jurassic		0.29		1988			in production	
Humbly Grove	1980	UK	Jurassic		0.74		1986			in production	
Lidsey	1987	UK	Jurassic				2008			in production	
Lingfield	1999	UK	Jurassic							undeveloped	
Palmers Wood	1983	UK	Jurassic		0.31		1990			in production	
Singleton	1989	UK	Jurassic		0.36		1991			in production	
Stockbridge	1984	UK	Jurassic		1.43		1990			in production	
Storrington	1986	UK	Jurassic		0.11		1998			in production	

Appendix 3.9 Petroleum province 9: Tail End Graben

Onshore Offshore Gas Oil Field example

Accumulation name	Discovery year	Country	Reservoir age		UR oil (mln m³)	UR gas (bcm)	Production start year	CP oil (mln m³)	CP gas (bcm)	Development status	
Adda	1977	DK	Cretaceous		0.48		2010			developing	
Alma	1990	DK	Jurassic			1.05	2009				
Boje Area	1982	DK	Cenozoic and Cretaceous		0.95		2011			developing	
Dagmar	1983	DK	Cenozoic, Cretaceous and Zechstein		1.01		1991	1.01		in production	
Dan	1971	DK	Cenozoic and Cretaceous		146.15		1972	86.35		in production	
Elly	1984	DK	Cretaceous and Jurassic			5.27	2009			in production	
Fergus	1994	UK	Jurassic		2		1996			in production	
Gorm	1971	DK	Cenozoic and Cretaceous		66		1981	54.40		in production	
Halfdan	1999	DK	Cenozoic and Cretaceous		105	15.90	1999	29.61	9.60	in production	
Igor	1968	DK	Cenozoic and Cretaceous			2.60	2007			in production	
Kraka	1966	DK	Cenozoic and Cretaceous		7.40		1991	4.60		in production	
Lola U1	1975	DK	Cenozoic, Cretaceous and Jurassic							unknown	
Nordsee A6 / B4	1974	GE	Jurassic			12.74	2000		5.83	in production	
Ravn 1	1986	DK	Jurassic							unknown	
Regnar	1979	DK	Chalk		1.03		1993	0.93		in production	
Roar	1968	DK	Cenozoic and Cretaceous			16.02	1996		13.32	in production	
Rolf	1981	DK	Cenozoic, Cretaceous and Zechstein		11.77		1986			in production	
Sif	1999	DK	Cenozoic and Cretaceous			7.90	2004			in production	
Skjold	1977	DK	Cenozoic, Cretaceous and Zechstein		47.96		1982	39.56		in production	
Tyra	1968	DK	Cenozoic and Cretaceous		28.85	4.11	1984	23.45	42.55	in production	
Tyra Se	1991	DK	Cenozoic and Cretaceous		5.08	16.68	2003	2.48	4.58	in production	
Valdemar	1977	DK	Cenozoic and Cretaceous		12.80		1993	3.45		in production	

Appendix 3.10 Petroleum province 10: Dutch Central Graben

Onshore Offshore Gas Oil Field example

Accumulation name	Discovery year	Country	Reservoir age		UR oil (mln m³)	UR gas (bcm)	Production start year	CP oil (mln m³)	CP gas (bcm)	Development status	
B18A-SLCL	1982	NL	Jurassic		0.79					undeveloped	
F02-Hanze	1996	NL	Chalk		8.90		2001	7.33		in production	
F03-FA											
– F03-FA-SGGS	1971	NL	Jurassic							undeveloped	
– F03-FA-SLC	1982	NL	Jurassic			1.70				undeveloped	
F03-FB											
– F03-FB-SLCL	1974	NL	Jurassic		6.10		1993	5.70		in production	
– F03-FB-SLCMS	1992	NL	Jurassic				1996			in production	
– F03-FB-SLCU	1974	NL	Jurassic			18.40	1993		15.40	in production	
F03-FC	1981	NL	Jurassic		0.32					undeveloped	
F14-A	1986	NL	Jurassic		0.25					undeveloped	
F17-FA	1982	NL	Jurassic		2.70	1.20				undeveloped	
F17-FB	1982	NL	Jurassic		0.25					undeveloped	
F18-FA	1970	NL	Jurassic		1.50					undeveloped	
L01-FB	1985	NL	Jurassic		0.75					undeveloped	
L05A-SLC	1983	NL	Jurassic		0.48					undeveloped	

Appendix 3.11 Petroleum province 11: West Netherlands and Broad Fourteens basins

Onshore Offshore Gas Oil Field example

Accumulation name	Discovery year	Country	Reservoir age		UR oil (mln m³)	UR gas (bcm)	Production start year	CP oil (mln m³)	CP gas (bcm)	Development status	
Alblasserdam-SLD	1957	NL	Jurassic				1957			abandoned	
Barendrecht											
– Barendrecht-De Lier	1984	NL	Cretaceous		0.08	0.47	2002		0.20	in production	
– Barendrecht-IJsselmonde	1984	NL	Cretaceous				1999			abandoned	
Berkel											
– Berkel-KNGLG	1978	NL	Cretaceous							undeveloped	
– Berkel-KNNSB	1977	NL	Cretaceous		4.77		1981	1.90		in production	
– Berkel-KNNSL	1954	NL	Cretaceous				1954			in production	
– Berkel-SLD	1951	NL	Jurassic							undeveloped	
Botlek-RBBM	1984	NL	Triassic			9.91	1992		6.94	in production	
Brakel-SLD	1949	NL	Jurassic		0.01					development expected	
De Lier											
– De Lier-KNGLG	1955	NL	Cretaceous		2.86	0.24	1958	2.83	0.20	abandoned	
– De Lier-KNNSL	1955	NL	Cretaceous				1957			abandoned	
Gaag-RBBM	1982	NL	Triassic			7.93	1989		1.28	in production	
Haven	1980	NL	Cretaceous		1.23		1989	1.17		in production	
Hekelingen-RBBM	1993	NL	Triassic			0.57	2006		0.20	in production	
Helder	1980	NL	Cretaceous		6.98		1982	6.70		in production	
Helm	1980	NL	Cretaceous		2.18		1982	2.13		in production	
Hoorn	1980	NL	Cretaceous		4.77		1983	4.73		in production	

Horizon	1981	NL	Cretaceous		2.70		1993	2.56		in production
IJsselmonde											
– IJsselmonde-KNNSL	1956	NL	Cretaceous		4.77	0.34	1958	4.77	0.34	abandoned
– IJsselmonde-KNNSY	1956	NL	Cretaceous		10.71	0.73	1956	10.71	0.73	abandoned
Kotter											
– Kotter Vlieland	1981	NL	Cretaceous		12.08		1984	11.36		in production
– Kotter Delfland	1980	NL	Jurassic				1984			in production
Lekkerkerk-SLD	1959	NL	Jurassic							undeveloped
Logger	1982	NL	Cretaceous		5.56		1985	5.26		in production
Maasdijk-RBBM	1998	NL	Triassic			0.08	2000		0.01	in production
Moerkapelle											
– Moerkapelle-ATWDM	1955	NL	Jurassic		0.11		1958	0.10		abandoned
– Moerkapelle-SLD	1957	NL	Jurassic				1957			abandoned
Monster-RBBM	1982	NL	Triassic			2.83	1990		0.57	in production
Noordwijk											
– Noordwijk-KNNSR	1983	NL	Jurassic							undeveloped
– Noordwijk-SLD	1983	NL	Jurassic							undeveloped
Ottoland											
– Ottoland-RBBM	1988	NL	Triassic		1.11	0.06				development expected
– Ottoland-RNUB	1988	NL	Triassic							development expected
Oud Beijerland Zuid											
– Oud Beijerland Zuid-RBBM	1990	NL	Triassic			0.58	2003			abandoned
– Oud Beijerland Zuid-RNUB	1990	NL	Triassic				2003		0.58	in production
P08-A	1981	NL	Cretaceous		1.18					development expected
P11-3	1996	NL	Triassic		4.13	0.47	2006			in production
P11-4	1997	NL	Zechstein				2006			in production
P12-03 Vlieland	1982	NL	Cretaceous		0.04					undeveloped
Papekop-RN	1986	NL	Triassic		1.94	1.12				development expected
Pernis-KNNSL	1989	NL	Cretaceous			0.28	2004		1.03	in production
Pernis-West-BS	1987	NL	Triassic		9.95	5.55	1995	1.52	3.02	in production
Pijnacker-SLD	1955	NL	Jurassic		1.04	0.15	1955	1.04	0.15	abandoned
Q13B-KNNS	1986	NL	Cretaceous		0.22					undeveloped
Q13-FA	1985	NL	Cretaceous		1.73					development expected
Rijn	1982	NL	Cretaceous		4.13		1985	3.99		abandoned
Rotterdam											
– Rotterdam-KNNSL	1984	NL	Cretaceous		14.63	1.70	1984	10.30		in production
– Rotterdam-KNNSY	1984	NL	Cretaceous				1984			in production
Rijswijk											
– Rijswijk-KNNSL	1954	NL	Cretaceous		0.56	0.47	1954	0.56	2.01	abandoned
– Rijswijk-KNNSR	1954	NL	Cretaceous				1954			abandoned
Spijkenisse Oost											
– Spijkenisse Oost-RBBM	1990	NL	Triassic		0.08	2.83	2006	0.02	0.27	in production
– Spijkenisse Oost-RNUB	1990	NL	Triassic				2006			in production
Spijkenisse West											
– Spijkenisse West-RBBM	1992	NL	Triassic		0.03	0.42	2006	0.01	0.13	in production
– Spijkenisse West-RNUB	1992	NL	Triassic				2006			in production
Wassenaar Zee-KNNSR	1980	NL	Cretaceous		0.08					undeveloped
Wassenaar											
– Wassenaar-KNNSR	1956	NL	Cretaceous		7.47		1956	7.47		abandoned
– Wassenaar-SLD	1956	NL	Jurassic				1956			abandoned
Werkendam Diep											
– Werkendam Diep-ATWDM	1958	NL	Jurassic		0.04		1958	0.04		abandoned
– Werkendam Diep-RNUB	1991	NL	Triassic							undeveloped
Woubrugge-SLD	1966	NL	Jurassic							undeveloped
Zoetermeer-KNNSR	1957	NL	Cretaceous		1.71	0.12	1957	1.71	0.12	abandoned

Appendix 3.12 Petroleum province 12: Lower Saxony Basin and Dogger Troughs

Onshore Offshore Gas Oil Field example

Accumulation name	Discovery year	Country	Reservoir age		UR oil (mln m³)	UR gas (bcm)	Production start year	CP oil (mln m³)	CP gas (bcm)	Development status
Abbensen	1929	GE	Cretaceous		0.01		1929	0.01		abandoned
Adorf (Öl)	1948	GE	Cretaceous		2.38		1948	1.94		in production
Ahrensheide	1964	GE	Cretaceous and Jurassic		1.68		1964	1.65		abandoned
Aldorf	1952	GE	Jurassic		2.94		1952	2.80		in production
Aldorf-Südwest	1960	GE	Jurassic		0.08		1960	0.08		abandoned
Allermöhe	1979	GE	Jurassic		0.10		1979	0.10		in production
Annaveen	1963	GE	Jurassic		0.08		1963	0.08		abandoned
Barenburg (Jurassic)	1953	GE	Jurassic		8.59		1953	7.76		in production
Barsfleth	1963	GE	Jurassic		0.02		1963	0.02		abandoned
Barver	1963	GE	Jurassic		0.07		1963	0.08		abandoned
Berkhoepen	1927	GE	Jurassic		0.17		1927	0.20		abandoned
Blumenhagen	1957	GE	Jurassic		0.28		1957			abandoned
Bockstedt	1954	GE	Cretaceous		4.05		1954	3.89		in production
Bollermoor	1961	GE	Jurassic		0.04		1961	0.04		abandoned
Boostedt/Ploen	1952	GE	Jurassic		3.97		1952	3.84		abandoned
Börger / Werlte	1977	GE	Jurassic		0.14		1977	0.15		abandoned
Bosse	1957	GE	Jurassic				1957	0.00		abandoned
Bramberge	1958	GE	Cretaceous		30.40		1958	21.24		in production
Bramstedt	1954	GE	Jurassic		0.95		1954	0.92		abandoned
Broistedt	1937	GE	Cretaceous		0.21		1937	0.22		abandoned
Calberlah	1945	GE	Jurassic		0.01		1945	0.01		abandoned
Curslack	1957	GE	Jurassic		0.00		1957			abandoned
Dachtmissen	1959	GE	Cretaceous		0.32		1959	0.19		abandoned
Dickel										
– Dickel (Wealden)	1953	GE	Cretaceous		0.05		1953	0.05		abandoned
– Dickel (Jura)	1953	GE	Jurassic		1.13		1953	1.09		abandoned
Dickel-Kellenberg	1984	GE	Jurassic		0.05		1984	0.05		abandoned
Diepholz	1958	GE	Cretaceous and Jurassic		0.04		1958	0.05		abandoned
Düste										
– Düste-Valendis	1954	GE	Cretaceous		2.07		1954	1.97		in production
– Düste (Jura)	1955	GE	Jurassic		0.18		1955	0.17		abandoned
Eddesse-Nord	1876	GE	complex		1.03		1876	0.98		in production
Eddesse-Ölheim	1879	GE	complex		0.10		1879	0.09		abandoned
Ehra	1939	GE	Jurassic		0.01		1939	0.01		abandoned
Eicklingen-Sandlingen	1937	GE	Cretaceous and Jurassic		0.60		1937	0.59		abandoned
Eilte	1947	GE	Jurassic		1.15		1947	1.00		abandoned
Eldingen	1949	GE	Jurassic		3.97		1949	3.81		in production
Elsfleth	1956	GE	Jurassic		0.46		1956	0.47		abandoned
Emlichheim (Öl)	1944	GE	Cretaceous		12.72		1944	9.97		in production
Emlichheim-Süd	1959	GE	Cretaceous				1959	0.01		abandoned
Emlichheim-West	1957	GE	Cretaceous				1957	0.05		abandoned
Esperke	1960	GE	Cretaceous and Jurassic		0.00		1960			abandoned
Etzel	1942	GE	Jurassic		0.06		1942	0.06		abandoned
Eystrup	1959	GE	Jurassic		0.23		1959	0.23		abandoned
Farwick	1958	GE	Jurassic			0.01	1980		0.01	abandoned
Fuhrberg/Hambühren	1939	GE	Jurassic		1.21		1939	1.21		abandoned
Garen	1954	GE	Cretaceous		0.13		1954	0.01		abandoned
Georgsdorf	1944	GE	Cretaceous		21.46		1944	20.18		in production
Gifhorn	1935	GE	Cretaceous		0.07		1935	0.07		abandoned
Groß Lessen	1969	GE	Cretaceous		3.97		1969	3.86		in production
Hademsdorf	1941	GE	Cretaceous		0.18		1941	0.18		abandoned
Hagen	1957	GE	Jurassic		0.19		1957	0.16		in production
Hänigsen	1927	GE	Cretaceous		2.76		1927	2.79		abandoned
Hankensbüttel	1954	GE	Jurassic		18.12		1954	14.63		in production
Hardesse										
– Hardesse (Dogger, gas)	1957	GE	Jurassic			0.93	1957		0.43	abandoned
– Hardesse (Öl)	1957	GE	Triassic and Jurassic		1.72		1957	1.16		abandoned
Harme	1956	GE	Jurassic		0.41		1956	0.40		in production
Hebelermeer	1955	GE	Cretaceous		0.76		1955	0.74		abandoned
Heide	1935	GE	Cretaceous		2.80		1935	2.77		abandoned
Hemmelte-West	1951	GE	Jurassic		2.62		1951	2.59		in production
Hillerse-Nord	1958	GE	Cretaceous		0.12		1958	0.12		abandoned
Hillerse-West	1957	GE	Jurassic		0.28		1957			abandoned
Hohenassel	1943	GE	Jurassic		0.57		1943	0.57		abandoned
Hohenhorn	1949	GE	Jurassic		0.00		1949	0.00		abandoned
Hohenkörben	1963	GE	Cretaceous			0.17	1963		0.15	abandoned
Hohne	1951	GE	Jurassic		6.83		1951	6.64		abandoned
Hope	1936	GE	Triassic		0.00		1936	0.00		abandoned
Horst-Wipshausen	1940	GE	Jurassic				1940			abandoned
Höver (Lehrte)	1956	GE	Jurassic		0.45		1956	0.39		in production
Kiel	1955	GE	Jurassic		0.19		1955	0.18		abandoned
Knesebeck	1958	GE	Jurassic		3.97		1958	3.82		in production
Kronsberg	1953	GE	Jurassic		0.42		1953	0.43		abandoned
Lahn	1983	GE	Jurassic				1983			abandoned
Lahner-Heide	1982	GE	Jurassic				1982			abandoned
Lehrte	1952	GE	Jurassic		0.51		1952	0.51		abandoned
Leiferde	1956	GE	Cretaceous		3.58		1956	3.32		abandoned
Liener	1953	GE	Jurassic		0.13		1953	0.12		in production
Lingen	1942	GE	Jurassic		2.75		1942	2.77		abandoned
Löningen/Löningen-Südost	1963	GE	Jurassic		0.59		1963	0.55		in production
Löningen-Südost/Menslage	1963	GE	Jurassic			2.49	1963		2.28	in production
Löningen-West	1960	GE	Jurassic		0.27		1960	0.22		in production
Löningen-West/Holte/ Menslage-Westrum	1961	GE	Jurassic			0.89	1961		0.42	in production
Lüben	1955	GE	Jurassic		2.95		1955	2.70		in production
Matrum	1982	GE	Jurassic		0.24		1982	0.20		in production
Meckelfeld-Alt	1938	GE	Cretaceous		0.07		1938	0.08		abandoned
Meckelfeld-Nord/-Süd	1938	GE	Jurassic		2.31		1938	2.31		abandoned
Meerdorf	1954	GE	Jurassic		0.28		1954	0.25		abandoned
Meppen/Meppen-Schwefingen	1960	GE	Jurassic		6.11		1960	3.41		in production
Messingen	1970	GE	Jurassic			0.17	1970		0.17	abandoned
Mittelplate	1980	GE	Jurassic		47.70		1987	17.71		in production
Molbergen	1953	GE	Jurassic		0.22		1953	0.22		abandoned
Molbergen-West	1957	GE	Jurassic		0.11		1957	0.06		abandoned
Mölme	1935	GE	Cretaceous and Triassic		0.36		1935	0.35		abandoned
Neuengamme	1910	GE	Cenozoic		0.23		1910		0.23	abandoned
Nienhagen (-Elwerath)	1861	GE	Cretaceous		6.47		1861	4.17		in production
Nienhagen-West	1861	GE	Cretaceous				1861	0.03		abandoned
Nienhagen-Wintershall	1861	GE	Cretaceous				1861	1.58		abandoned
Oberg	1919	GE	Cretaceous and Jurassic		0.51		1919	0.41		abandoned
Ölheim-Süd	1968	GE	Cretaceous		1.99		1968	1.69		in production
Örrel-Südwesendorf-Nord	1954	GE	Jurassic		2.33		1954	2.37		abandoned
Ortland	1956	GE	Jurassic		0.36		1956	0.36		abandoned
Ostenwalde	1953	GE	Jurassic		0.51		1953	0.52		abandoned
Oythe	1956	GE	Jurassic		0.01		1956	0.01		abandoned
Pattensen	1953	GE	Jurassic		0.18		1953	0.18		abandoned
Ploen-Ost	1958	GE	Jurassic		8.74		1958	8.24		abandoned
Poetrau	1959	GE	Jurassic		0.01		1959	0.01		abandoned
Preetz	1962	GE	Jurassic		1.96		1962	1.98		abandoned
Quakenbrueck	1950	GE	Cretaceous		0.16		1950	0.06		abandoned
Rautheim	1955	GE	Jurassic				1955			abandoned
Reitbrook-Alt	1937	GE	Cretaceous and Cenozoic		3.18		1937	2.71		in production
Reitbrook-West	1960	GE	Jurassic		3.97		1960	3.76		in production
Rietze	1956	GE	Jurassic		0.02		1956			abandoned
Ringe (Öl)	2001	GE	Cretaceous		0.25		2001	0.09		in production

Rühle									
– Rühlermoor (Valendis)	1949	GE	Cretaceous		42.93	1949	28.91		in production
– Rühlermoor (Malm)	1962	GE	Jurassic			1962	1.06		abandoned
– Rühlertwist (Valendis)	1949	GE	Cretaceous			1949	5.92		in production
– Rühlertwist (Malm)	1962	GE	Jurassic			1962	0.03		abandoned
Rühme	1954	GE	Jurassic		2.70	1954	2.35		in production
Scheerhorn	1949	GE	Jurassic		10.33	1949	10.13		in production
Schledehausen	1957	GE	Jurassic		0.04	1957	0.04		abandoned
Schlesen	1981	GE	Jurassic			1981			abandoned
Schoonebeek-KNNSP	1943	NL	Cretaceous		59.30	1944	40.24		ceased production (temporarily)
Schwedeneck	1956	GE	Jurassic		0.87	1956	0.86		abandoned
Schwedeneck-See	1978	GE	Jurassic		3.93	1984	3.91		abandoned
Siedenburg	1957	GE	Cretaceous		1.27	1957	1.16		in production
Sinstorf (Hh-Anteil)	1960	GE	Jurassic		3.97	1960	0.49		in production
Sinstorf (Ns-Anteil)	1960	GE	Jurassic			1960	2.88		in production
Sögel	1983	GE	Jurassic		0.03	1983	0.03		in production
Sottorf	1937	GE	Chalk		0.01	1937	0.01		abandoned
Steimbke-Alt	1936	GE	Cretaceous and Jurassic		1.59	1936	0.93		abandoned
Steimbke-Nord	1958	GE	Jurassic		0.64	1958	0.35		abandoned
Steimbke-Ost	1943	GE	Jurassic		0.32	1943	0.59		abandoned
Stemmerberg	1948	GE	Jurassic			1948			abandoned
Suderbruch	1949	GE	Cretaceous and Jurassic		3.93	1949	3.88		abandoned
Sulingen (Valendis)	1973	GE	Cretaceous		1.19	1973	1.11		in production
Thoeren	1941	GE	Cretaceous and Jurassic		0.40	1941			abandoned
Thönse									
– Thönse (Jura)	1951	GE	Jurassic		5.66	1957	2.22		in production
– Thönse (Rhät)	1951	GE	Triassic			1957	1.16		in production
Varel	1957	GE	Jurassic		0.95	1957	0.95		abandoned
Varloh	1984	GE	Jurassic		0.12	1984	0.09		abandoned
Vechelde	1954	GE	Triassic		0.00	1954			abandoned
Vestrup	1955	GE	Jurassic		0.11	1955	0.10		abandoned
Voigtei	1953	GE	Jurassic		5.10	1953	4.73		in production
Volkensen	1960	GE	Jurassic		0.15	1960	0.14		abandoned
Vorhop	1952	GE	Cretaceous and Jurassic		3.99	1952	3.34		in production
Warnau	1957	GE	Jurassic		0.05	1957	0.05		abandoned
Wathlingen	1950	GE	Cretaceous		0.23	1950	0.23		abandoned
Wehrbleck/Wehrbleck-Ost	1957	GE	Jurassic		3.77	1957	3.03		in production
Welpe	1957	GE	Jurassic		2.23	1957	2.22		in production
Wense	1957	GE	Jurassic		0.28	1957			abandoned
Wesendorf/Wesendorf-Süd	1958	GE	Jurassic		2.76	1958	2.35		abandoned
Wienhausen	1941	GE	Cretaceous		0.01	1941	0.01		abandoned
Wietingsmoor	1954	GE	Cretaceous		2.54	1954	2.38		in production
Wietze (Bohrungen und Schacht)	1874	GE	complex		2.97	1874	2.97		abandoned
Wittingen-Süd	1963	GE	Jurassic			1963			abandoned
Wittingen-Südost	1970	GE	Jurassic		0.10	1970	0.09		in production

Appendix 3.13 Petroleum province 13: Shallow gas

Onshore Offshore Gas Oil Field example

Accumulation name	Discovery year	Country	Reservoir age		UR oil (mln m³)	UR gas (bcm)	Production start year	CP oil (mln m³)	CP gas (bcm)	Development status	
A12A-NU	1988	NL	Cenozoic			6.00				development expected	
A15-A	1999	NL	Cenozoic			1.90				development expected	
A18A-NU	1987	NL	Cenozoic			1.42				development expected	
B10A-NU	1991	NL	Cenozoic			0.71				development expected	
B13A-NU	1990	NL	Cenozoic			0.71				development expected	
B16A-NU	1992	NL	Cenozoic			0.57				development expected	
B17A-NU	1991	NL	Cenozoic			0.14				undeveloped	

Appendix 4 Units of measurement

The table shows the units of measurement commonly used in the Atlas. Where appropriate, comments on their application are given. The SI system (Systeme Internationale) of units has been used in most cases and the prefixes used for decimal multiples of units are defined. However, note that many of the so-called 'oil field units' refer to the Imperial System of measurement. The table also explains units that relate to specific laboratory measurements (e.g. vitrinite reflectance) or the measuring equipment (e.g. the API unit). All gas and liquid volumes in the Atlas are given at normal conditions, i.e. a temperature of 0°C and pressure of 1 bar.

SI System	Prefix	Meaning		Prefix	Meaning	
	n	nano	(10^{-9})	k	kilo	(10^{3})
	µ	micro	(10^{-6})	M	mega	(10^{6})
	m	milli	(10^{-3})	G	giga	(10^{9})
	c	centi	(10^{-2})	T	tera	(10^{12})
	d	deci	(10^{-1})			

Numeric definitions	Abbreviation	Definition	
	B	billion	(10^{9})
	T	trillion	(10^{12})

Physical quantity	Unit	Name	Comment
Length	m	metre	
Volume	m^3	cubic metre	1 cubic metre is equivalent to 6.29 barrels of oil
	l	litre	
	Nm^3	normal cubic metre	volume at 1 bar and 0°C
	mln m^3	million cubic metres	
	bcm	billion cubic metres	
	bbl	barrel	1 barrel of oil is equivalent to 0.15898 cubic metres
Mass	kg	kilogram	
	t (= 10^3 kg)	tonne	
Density	kg/m^3		
	g/cm^3	gram per cubic cm	
Concentration	g/dm^3	gram per cubic dm	dissolved solids
	g/l	gram per litre	dissolved solids
Mass ratio	mg/g	milligram per gram	
	g/kg	gram per kilogram	
	kg/t	kilogram per tonne	pyrolytic yield (S2)
	kg HC/t	kilogram of hydrocarbon per tonne	source-rock genetic potential
Time	s	second	
	min	minute	
	h	hour	
	d	day	
	yr or a	year	Ma: million year
Velocity	m/s	metres per second	
Interval transit time	µs/ft	microsecond per foot	used in sonic logs (Dt)
Production rate	Nm^3/h	normal cubic metre per hour	
	bopd	barrels of oil per day	
	Mmcfd	million cubic feet per day	
Temperature	K	Kelvin	thermodynamic temperature
	°C	degree Celsius	
Pressure	Pa (= $kg/(m{\cdot}s^2)$)	Pascal	
	bar (= 10^5 Pa)	bar	
Productivity	$m^3/(h{\cdot}MPa)$		e.g. geothermal wells
Energy	J	Joule	
	Wh	Watt hour	
	TOE	tonne of oil equivalent	equals 41.87 GJ
Power	W (= J/s)	Watt	
Energy flux	mW/m^2	milliWatt per sq. metre	heat flow
Magnetic flux density	T	Tesla	earth magnetic field (nT's)
Acceleration	Gal (= 0.01 m/s^2)	gal	acceleration due to earth's gravity = 976-983 gal; variations in the order of mGal's
Permeability	D (= $9.869.10^{-13}$ m^2)	Darcy	rock permeability
Radioactivity	API°	degree API	used for gamma-ray logs (GR)
Reflectance	% Ro		rock maturity

Appendix 5 References

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