OIL AND GAS RESOURCE POTENTIAL OF THE NECHAKO-CHILCOTIN AREA OF BRITISH COLUMBIA

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SUMMARY

There are fifteen exploration hydrocarbon plays identified in the Nechako-Chilcotin area of central and south-central British Columbia. The plays are:

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2. Nechako Tertiary Structural Oil Play,
3. Nechako Upper Cretaceous Structural Gas Play,
4. Nechako Upper Cretaceous Structural Oil Play,
5. Nechako Skeena Structural Gas Play,
6. Nechako Skeena Structural Oil Play,
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8. Tyaughton-Methow Upper Cretaceous Structural Gas Play,
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12. Tyaughton-Methow Relay Mountain/Ladner Structural Gas Play,
13. Quesnel Tertiary/Cretaceous Structural Gas Play,
14. Quesnel Tertiary/Cretaceous Structural Oil Play, and
15. Quesnel Jura-Triassic Structural Gas Play.

The Nechako Tertiary, Nechako Upper Cretaceous, Nechako Skeena, Tyaughton-Methow Skeena, and Quesnel Tertiary/Cretaceous Structural Oil and Gas Plays have no established reserves or production and are, therefore, conceptual. The remaining five plays are classified as speculative, meaning insufficient petroleum geological information was available to properly assess potential hydrocarbon reserves. In addition, increased levels of metamorphism with accompanying decreases in porosity in these speculative plays preclude any significant hydrocarbon accumulation. The conceptual plays were assessed using current practices employed at the Petroleum Resources Subdivision of the Geological Survey of Canada.

The most favourable and important play recognized in the Nechako-Cariboo assessment is the Nechako Skeena Structural Oil and Gas Play. Ninety oil and ten gas shows were reported from well cuttings in these rocks. Very good to fair oil and gas-generating capabilities were recognized in numerous interbedded bituminous and carbonaceous shales. A mean value of $2.47x10^{11}$ m^3 (8.74 TCF) discloses the gas potential of the play while the expected oil resource is determined to be $7.74x10^{8}$ m^3 (4870.6 million barrels).

Tertiary sediment fill in extensional grabens and a thin veneer-like deposit underneath the Eocene volcanic cover constitute the rocks incorporated into the Nechako Tertiary Structural Oil and Gas Play. The ultimate mean play potential is $1.42x10^{10}$ m^3 (502 BCF) for gas and $2.17x10^{7}$ m^3 (136.4 million barrels) of oil.

Oil and gas prospects in the Nechako Upper Cretaceous Structural Plays are present in open

to transitional marine and terrestrial easterly-derived clastic sediments. Mean play potential for gas is $6.49 x 10^8$ m^3 (23 BCF) and the oil resource is $2.0 x 10^6$ m^3 (12.8 million barrels). Negligible hydrocarbon potential is predicted for this play.

The Skeena Assemblage is also represented in the Tyaughton-Methow Basin in the south and southwest portion of the study area. Although no wells have been drilled and no shows or seeps have been reported in the basin, it was concluded that oil and gas potential is present in the play due to similarity with Skeena Group sedimentation to the north. The mean oil potential for the Tyaughton-Methow Skeena Structural Play is $1.0 x 10^5$ m^3 (0.8 million barrels). The total mean gas potential has been determined to be $4.2 x 10^7$ m^3 (1 BCF). Negligible hydrocarbon potential prevails in the play.

The petroleum potential in the youngest group of sediments found in the Quesnel Trough located to the east of the previous basins, is represented by the conceptual Quesnel Tertiary/Cretaceous Structural Oil and Gas Plays. Terrestrial fluvial and lacustrine sedimentation prevailed. Gas shows have been reported from drill reports. The total mean gas potential is statistically determined to be $8.37 x 10^9$ m^3 (296 BCF). Oil potential is $1.21 x 10^7$ m^3 (76.3 million barrels).

The total oil and gas potential for the entire Nechako-Chilcotin area is $8.10 x 10^8$ m^3 (5096.6 million barrels) and $2.71 x 10^{11}$ m^3 (9.56 TCF), respectively.

Good hydrocarbon potential is recognized in Skeena sediments deposited in the central and southern portions of the Nechako Basin. Grabens with Tertiary fill in southern Quesnel Trough and along the Fraser River are favourable areas for hydrocarbon accumulation.

INTRODUCTION

In October, 1992, John MacRae, Director of the Petroleum Geology Branch of British Columbia's Ministry of Energy, Mines and Petroleum Resources requested that the Institute of Sedimentary and Petroleum Geology of the Geological Survey of Canada assess the hydrocarbon potential of certain sedimentary basins in British Columbia. Consequently, an assessment of the sedimentary basins surrounding Vancouver Island was completed and submitted to the Ministry in January 1993. This work constituted Phase I of the information requested by the Ministry. Phase II, which involved the oil and gas potential of the Kootenay area of southeastern British Columbia, was submitted in April of 1993. This particular report deals with Phase III, which describes the results obtained from an oil and gas assessment of the Nechako-Chilcotin region of west-central British Columbia. Results from these assessments are to be employed by British Columbia's Commission on Resources and Environment, which is currently performing a detailed land-use planning study of selected areas in the Province.

G. S. C. hydrocarbon resource assessments are computer-generated by an internally formulated statistical program known as PETRIMES (Lee and Wang, 1990). These assessments can be applied to mature, immature and conceptual hydrocarbon plays. A play is defined as a family of hydrocarbon pools or prospects with similar histories of hydrocarbon generation and migration as well as similar trapping mechanisms and reservoir configurations. A mature play has sufficient discoveries and pool definitions for analysis by the "discovery process model" while an immature play has too few discoveries to allow analysis by this method. A conceptual play has no defined pools, just prospects.

All of the plays analyzed statistically in this assessment were defined as conceptual and the pool-size distributions were generated using probability distributions of geological variables substituted into the standard pool-size equation. Prospect-level and play-level risks were assigned to each play prior to analysis. Speculative plays were also defined in this assessment. These plays are ones where little or no pertinent petroleum geological information is available. In addition, it was deemed that sufficient negative conditions are present that significant accumulations of hydrocarbons are not likely to occur. These speculative plays were not statistically analyzed but were included in this report for the sake of completeness.

Following compilation of pertinent geological information in the Nechako-Chilcotin area of British Columbia as well as adjacent Washington State (see reference list), fifteen geological hydrocarbon plays were recognized. Six of these plays have oil potential while the remainder are gas prospects. However, five of these plays are speculative and consequently were not assessed. The play boundaries are illustrated in Maps 1 to 3.

Basins included in the study are the Nechako Basin, Tyaughton Trough, Methow Basin and the Quesnel Trough. Immediately apparent on the tectonic map of the Cordillera is the cover of Tertiary volcanics overlying a major part of the study area (Wheeler and McFeely, 1991). This volcanic cover as well as limited well control and complex tectonic and structural histories complicate the definition of the physical boundaries of the basins. Before defining any petroleum plays, it was necessary to compile and analyze the numerous tectonic and orogenic episodes and depositional events in the Intermontane Belt of the Cordillera. The affiliation of basins with exotic terrane as well as the timing of accretion onto the continent were important criteria used to determine the tectonic histories of each basin. Transgressive and regressive cycles were significant sequences in the formulation of depositional histories. Thicknesses of sedimentary and volcanic successions and identification of major unconformities were important geological criteria required to properly establish petroleum exploration plays.

At the beginning of the Mesozoic Era off the west coast of ancestral North America, there were widely scattered volcanic arcs associated with oceanic plateaus separated from the continent by back-arc basins. In the study area, the arc is represented by the Nicola calc-alkaline assemblage of volcanics while the Cache Creek assemblage constitutes the oceanic platform in the fore-arc (Souther,1991). In Late Triassic, the terrane known as Quesnellia is represented by a continuous west-facing arc west of the craton while the Cache Creek Terrane is subducting under the arc. The oceanic Slide Mountain Terrane to the east represents back-arc basin material (Gabrielse and Yorath, 1991c). Stikinia Terrane where both Bowser and Nechako Basins later developed, lay west of the arc in Panthalassa. Amalgamation of Stikinia, Cache Creek and Quesnellia terranes commenced during the Late Triassic to form the Intermontane Superterrane. The amalgamation was encouraged by the Cache Creek subduction (Gabrielse and Yorath, 1991c).

The Early Jurassic embraces a fundamental shift from terrane-specific geological processes of plutonism, volcanism and sedimentation, to the development of overlap assemblages starting in the Middle Jurassic.

Lower to Middle Jurassic volcanic and volcaniclastic Hazelton Group rocks represent a complex of island arcs surrounding Bowser and Nechako Basins (Gabrielse and Yorath, 1991c). The Skeena and Stikine Arches developed at this time in Stikinia. These arches separated and delineated the proto-Bowser and Nechako Basins. Accretion of the Intermontane Superterrane onto North America most likely terminated in the mid-Jurassic. Meanwhile, deposition of the Early to mid-Jurassic Ladner Group sediments was occurring in the Methow Terrane on extra-continental Wrangellia. The Methow Terrane encompasses both the Methow Basin and the Tyaughton Trough. The deposition of non-marine coarse clastics of the Relay Mountain Group in the Tyaughton Trough represents the sedimentation caused by and resulting from accretion of the Insular Superterrane onto North America in the Late Jurassic. Uplift in western Quesnellia due to this accretionary event provided the sedimentary material for the easterly-derived Relay Mountain and Ashcroft package in the Tyaughton-Methow Basin. This accretionary episode also contracted the back-arc oceanic basin and uplifted the Slide Mountain oceanic rocks onto the miogeocline. Cordillera-wide erosion and the development of a major unconformity occurred in the Early Cretaceous before another episode of uplift in the Cordillera facilitated the deposition of the Aptian to Cenomanian Skeena Group sedimentary assemblage in the Cordillera and equivalent Blairmore Group sedimentary succession in the Rocky Mountain foredeep. Thick clastic marine and non-marine sediments were shed eastward from the Omineca Belt into the Sustut, Skeena and Tyaughton-Methow basins (Gabrielse and Yorath, 1991c). The Skeena Assemblage is an accretionary response assemblage (see Map 4 for interpreted Cretaceous sediment distribution). Post-accretionary deposition of Late Cretaceous to

Paleocene marine and non-marine sediments are represented by Upper Cretaceous westerly-derived rocks in the Sustut and Nechako Basins and the Brazeau Assemblage in the foredeep of the Rocky Mountain Foreland Belt. During Early to mid-Eocene time, extensional tectonics prevailed and Early Eocene deposition of sediments in extensional basins took place before the major episode of mid-Eocene extrusion of volcanic piles. Extensional tectonics has continued until Recent time with concomitant block-faulting producing fault-bounded valleys where non-marine sediments have accumulated.

The Nechako Basin, located in the Cariboo-Chilcotin area of south-central British Columbia, contains seven oil and gas geological plays defined in Tertiary to Jurassic-aged sediments. (Maps 1-3).

The Tyaughton Trough and Methow Basin have been combined in this study and five oil and gas plays have been recognized (Maps 1-3).

Three oil and gas plays in the Quesnel Trough area in Tertiary to Jurassic sediments have been proposed (Maps 1-3).

Fifteen plays have been defined in the area. They are the:

1) Conceptual Nechako Tertiary Structural Gas Play,
2) Conceptual Nechako Tertiary Structural Oil Play,
3) Conceptual Nechako Upper Cretaceous Structural Gas Play,
4) Conceptual Nechako Upper Cretaceous Structural Oil Play,
5) Conceptual Nechako Skeena Structural Gas Play,
6) Conceptual Nechako Skeena Structural Oil Play,
7) Speculative Nechako Jurassic Structural Gas Play,
8) Speculative Tyaughton-Methow Upper Cretaceous Structural Gas Play,
9) Speculative Tyaughton-Methow Upper Cretaceous Structural Oil Play,
10) Conceptual Tyaughton-Methow Skeena Structural Gas Play,
11) Conceptual Tyaughton-Methow Skeena Structural Oil Play,
12) Speculative Tyaughton-Methow Relay Mountain/Ladner Structural Gas Play,
13) Conceptual Quesnel Tertiary/Cretaceous Structural Gas Play,
14) Conceptual Quesnel Tertiary/Cretaceous Structural Oil Play, and the
15) Speculative Quesnel Jura-Triassic Structural Gas Play.

GEOLOGICAL SETTING AND PLAY PARAMETERS

Nechako Tertiary Structural Gas Play

This play is located in the Nechako Basin within the Intermontane Belt of south-central British Columbia. It is bounded to the north and northwest by the Skeena Arch, to the east by the dextral strike-slip Fraser Fault, and to the south and southwest by the Yalakom-Hungry Valley fault system (Map 1). The stratigraphic interval of interest encompasses sediments of Early Eocene to Pliocene age (Hunt, 1992; Mathews and Rouse,1984; Rouse and Mathews, 1988,1989).

The Nechako Tertiary Structural Gas Play covers an area of about 23,300 square kilometres exclusively located in British Columbia (Map 1). Four exploratory wells have penetrated the Tertiary sediments in this play. No shows were encountered in the wells although two surface asphalt (?) shows have been recorded (Koch, 1973; Tipper, 1963). The Tertiary sediments vary greatly in thickness throughout the play area. In the Nechako River area, Rouse and Mathews, 1989, state that Tertiary sediments are 250 metres thick in two diamond drillholes. Eocene sediments are 160 metres thick in the Chilcotin b-22-K well in the Nazko area (Hunt, 1992, Figure 1, this report), while in the Churn Creek area to the southeast, the Tertiary volcanic and sedimentary sequence varies from 1600 to 2000 metres with sediments occupying about 400 to 900 metres of the succession (Mathews and Rouse, 1984). Estimates of reservoir thickness vary from 0 to 2% of the total succession. Porous sands and conglomerates are thin and usually stacked. Porosity in sands range from 7 to 14% with an average value of 8%. Secondary porosity occurs below +800 metres subsea in open fractures. The majority of fractures, however, are plugged with cementing material.

Prospects can be found in traps formed by small-scale antithetic and synthetic normal and reverse faults within extensional grabens. Sandstone and conglomerate pinchouts and facies changes may produce stratigraphic traps as well. Due to the lack of seismic information, the inference of the area of closure as well as vertical relief of the traps are poorly constrained. The largest estimated closure is 90 square kilometres while the smallest is 1.0 square kilometre (see Appendix 1). There are estimated to be about 175 prospects throughout the play.

Fair to very good source rock potential for gas is present in Tertiary carbonaceous and bituminous shales and claystones in the Nechako Basin. Type III kerogens are the dominant organic matter in the basin with minor amounts of Type I and II. Vitrinite reflectance on surface outcrops vary from 0.41 to 1.43 (Hunt, 1992; Mathews and Rouse, 1984). Thermal alteration values in Tertiary sediments in well cuttings range from 0.25 to 4.0 (Hunt, 1992) which rank the samples as unmetamorphosed to subgreenschist facies metamorphic grade material. In outcrop, TOC varies from 0.00 to 55.13. One very good value (TOC>2.0) occurs in outcrop in the southeastern part of the basin. One very good TOC value was also encountered in the Chilcotin well at 147.5 metre depth (+1244 metres subsea). Three out of 12 samples in outcrop show fair to good gas potential in the southeast part of the basin near the Gang Ranch. Two out of 45 samples in the well are fair to very good potential gas sources (+1244 and +1181 metres subsea).

Block faulting occurred in the mid-Eocene when extensional tectonics commenced. Tertiary sediments have been tilted after deposition. Antithetic and synthetic faults were formed subsequent to extensional faulting. Therefore, structures developed previous to, contemporaneous with, and subsequent to deposition. The presence of numerous faults and fractures, some of which are open, provide opportunity for the migration of fluids. Numerous interbedded and overlying shales as well as a cap of Eocene volcanics over large areas may provide seal.

Nechako Tertiary Structural Oil Play

This oil play pertains to the same rock succession as the gas component. The play parameters described for the Nechako Tertiary gas play would also apply to the oil play, for the most part.

Two surface asphalt shows indicate oil potential in these rocks. One well sample, out of 45, has sufficient TOC and Type II kerogen to indicate moderate oil and gas source material. Trap formation, migration and seal are all present.

Nechako Upper Cretaceous Structural Gas Play

This conceptual petroleum play consists of the Santonian (or older?) to Maastrichtian assemblage of open and transitional marine to terrestrial easterly-derived sediments in the Nechako Basin. This sedimentary package is defined by a palynological study completed in the Chilcotin b-22-K well (Hunt, 1992)(see Figure 1, this report). These sediments are dominated by volcanic detritus. Sediments of this age are not known to outcrop in the basin. However, similar-aged sediments are exposed north of the region in the Sustut Basin, as well as to the south in the Methow Basin (Wheeler and McFeeley, 1991). It was noted that the Chilcotin well was drilled on an anomaly of low gravity (Canadian Hunter, 1981). This gravity low may represent the preservation of these rocks under the volcanic cover. The Redstone gravity low was thus interpreted as representing the same assemblage of sediments underlying volcanic flows (Canadian Hunter, 1981; Maps 2 and 4, this report).

The play occupies an area of 3700 square kilometres and varies from 850 to 1700 metres thick (Hunt, 1992). Two wells were drilled into this succession and no hydrocarbon shows were reported.

Structures encountered in this play are simple compressional folds, drag folds over thrust faults and normal block fault traps. Simple and drag folds formed as a result of compressional tectonics were developed during, and subsequent to deposition. In the Late to Middle Eocene, extensional tectonics prevailed, and normal block fault traps were formed in the Upper Cretaceous rocks.

Structural mapping of the equivalent succession is published in a paper describing the Sustut Basin to the north (Eisbacher, 1974). Structural characteristics of this basin were used as an analogue for the play. Area of closures vary from 10 to 90 square kilometres on the Sustut Basin map. Presumably, smaller structures are also present and would not be represented on a map of this scale (1:250,000). It was thus, estimated that the minimum structural closure area for this play is one square kilometre. The range of vertical closure was interpreted to range from 20 to 300 metres. Five prospects were counted in the Sustut Basin. Ten major prospects were interpreted to occur in the Nechako Basin. However, there are many more smaller potential traps, possibly 100.

Very little primary porosity was recognized from well logs in these rocks. However, secondary fracture porosity does occur. Thin stacked reservoir sands are present in the succession.

Thermal alteration values in the two wells vary from 1.5 to 3.0. These alteration values indicate unmetamorphosed to zeolite-grade metamorphosed rocks. Two out of 82 samples from the two wells penetrating these sediments show fair to good gas-generating potential. Type III kerogens dominate; there are minor amounts of Type I and II. Carbonaceous and bituminous shales and sandstones and minor coal are the source rock-types in the play.

The presence of numerous faults and fractures, some of which are open, would provide opportunities for migration. Abundant overlying and interbedded shales as well as a volcanic cap would provide seal in some instances.

Nechako Upper Cretaceous Structural Oil Play

One dead oil show was encountered in the wells intersecting the Upper Cretaceous assemblage. However, all 82 geochemical samples in these wells indicate poor oil potential. As noted above, Type III kerogens dominate while there are minor amounts of Type I and II organic material. Other reservoir parameters are similar to the gas play.

Nechako Skeena Structural Gas Play

The most significant petroleum plays in this assessment are the ones evaluating the oil and gas potential found in the Skeena Assemblage of sediments. Mid-Cretaceous uplift of the Omineca Belt resulting from the collision of Stikinia with the Cache Creek Terrane provided the source material for westerly-directed deposition of the Skeena Group in the Sustut Basin to the north and Nechako and Tyaughton-Methow Basins to the south (Gabrielse et al, 1991d). Skeena Group sedimentation is thus characterized as an accretionary response assemblage. Transgression of a sea in the Early Cretaceous provided marine to nearshore depositional sites for Skeena Group rocks. This Group ranges in age from Hauterivian to Cenomanian. The interpreted extent of the Skeena sedimentary assemblage is illustrated on Map 4. Map 4 incorporates outcrop information gathered from many published reports and subsurface data from well reports. Skeena deposition under Eocene volcanics and younger sediments are interpreted where there is no well control. The boundaries for the play are delineated on Map 2.

The play encompasses an area of 17,600 square kilometres. Five wells penetrate the sediments and ten gas shows in three of the wells have been reported. Prospects are present throughout the Skeena assemblage so the thickness of the prospect succession corresponds with the thickness of the total succession. Thicknesses varies from 400 to 3000 metres (Hunt, 1992; Gabrielse et al, 1991d; Hickson et al, 1991; Mahoney et al, 1992; Diakow and Koyanagi, 1988).

If one compares Map 3 with Map 2 and studies the structural cross-section in Figure 1 through the Nazko structure, the major Skeena preservation area shows no underlying Jurassic-aged material while on either side of the preservation area, Jurassic rock directly underlies the Tertiary and/or Upper Cretaceous sequence. This represents an inverted feature in this part of the Nechako Basin. After widespread deposition of Skeena sediments in the Albian-Aptian sea, faulting preserved the Skeena rocks in a large north-south trending graben structure. Erosion then removed the Skeena sediments on either side of the graben. Extensive deposition of younger sediments then occurred preceding uplift of Skeena sediments within the graben. Later erosion removed the younger sediments overlying the uplifted Skeena succession. Thus, the preseved Skeena succession is an inverted structure.

Petroleum traps that developed within the play reflect the compressional tectonic regime that commenced in the mid-Jurassic and continued to mid-Eocene, succeeded then by extension until Recent time. Structure trap-types encountered in the Skeena play are simple compressional anticlinal folds, folds associated with thrust faults, and normal block fault traps. Compressional tectonics form the anticlinal and thrust fault traps while block fault structures formed during extension. The Sustut Basin located to the northeast of the Bowser Basin was used as an analogue in identifying and limiting trap sizes and estimating number of prospects. An anticlinal trap tested by two wells near the village of Nazko has been identified as the largest structure with an area of closure of 175 square kilometres and a vertical closure of 1000 metres. Average estimated areas of closure vary from 10 to 90 square kilometres as measured from the structural map of the Sustut Basin (Eisbacher, 1974). Block fault traps have a minimum area of closure of one square kilometre. The estimated mean amplitude for the numerous folds identified in the Sustut Basin varies from 100 to 300 metres (Eisbacher, 1974). The minimum vertical closure is interpreted to be one metre. Eleven major structures were identified in the Skeena assemblage in the Nechako Basin according to the Canhunter geophysical study of the region. If one determines the number of structures encountered in the Sustut Basin and apply it proportionately to the Nechako area, 1000 possible hydrocarbon-bearing traps are estimated. The approximate maximum number of structures in the area is inferred to be 2000.

Thin reservoir sands within the marine to non-marine shale and sandstone succession are characteristic of this play. Estimated proportion of reservoirs compared to total thickness varies from 0 to 7%. Porosity ranges from 5 to 15% in the porous sands with a 10% average. The development of numerous fractures, the majority of which are plugged with cementing material, occurs below about +800 metres subsea in drillholes. A few fractures, however, remain open and produce secondary porosity in parts.

Vitrinite reflectance on surface outcrops of Skeena Group rocks vary from 0.41 to 2.71% (Hunt, 1992). Most samples are mature to overmature with respect to hydrocarbon generation and preservation. Thermal alteration values in well cuttings vary from 0.5 to 3.75 which indicate a range of metamorphism from unmetamorphosed material to zeolite-grade (Hunt, 1992). Previous published material had proposed that subgreenschist to greenschist metamorphic grades prevail in Lower Cretaceous sediments in the Nechako Basin (Read, 1988). These grades imply that these rocks are overmature with respect to hydrocarbon generation and have no potential. The measured thermal alteration values by Hunt, 1992, however, show lower-grade metamorphism of the Skeena Group in the Nechako Basin and hydrocarbon potential consequently could be significant. The fact that both oil and gas shows have been observed in well cuttings further implies that these sediments are not overmature. Heat flows may have been somewhat lower in the Nechako Basin due to a lack of plutonism in the immediate area (Hunt, 1992). In outcrop, TOC varies from 0.00 to 49.67.

Thirteen out of 136 samples exhibit very good TOC values ranging from 2.24 to 49.67. These anomalous values are found in the Ootsa Lake area in the northern part of the basin, in the centrally-located Nazko region, and in the Redstone and Churn Creek areas to the south. These 13 samples are categorized as moderate to good gas generators. In wells, TOC ranges from 0.00 to 9.12 with good to very good values occurring throughout the vertical succession. Thirty-six of 324 geochemical samples were identified as fair to good potential gas sources. These 36 samples, principally carbonaceous and bituminous shales with minor coal partings, are found in three wells, the same three wells containing gas shows. Subsea elevations of gas source beds range from +1307.9 to -1602.4. Organic matter is dominantly classified as Type III material, with lesser amounts of Type I and II.

Structures were developed during mid-Jurassic to Recent time in this play. Structures, thus, evolved previous to, contemporaneously and subsequent to deposition and hydrocarbon generation. The presence of numerous faults and fractures identified in wells, some of which are open, would produce opportunities for migration of fluids in these sediments. Geochemical maturity factors in numerous individual samples indicate that migration has taken place. In these samples, Tmax values of greater than 435^{o}C. are indicative of mature source rocks while production index (S1/S1+S2) values of <0.1 disclose immature source material. Low production index values imply that migration of earlier formed S1 hydrocarbon out of the source strata has occurred. Low risk has been assigned to seal because of the presence of numerous overlying and interbedded shales and the cap of Eocene volcanics. A greater risk has been assigned to adequate preservation of hydrocarbons reflecting the possibility of breaching of structures (Appendix 1).

Nechako Skeena Structural Oil Play

This play occupies the same play area and incorporates the same package of sediments as the Nechako Skeena Gas reservoir. Among the five wells that penetrate the succession, 26 live oil, 49 dead oil, and 15 possible dead oil occurrences were encountered during drilling. One surface asphalt show was noted in these rocks. Reservoir parameters are similar to the previous play.

In outcrop, Hydrogen Index values range from 0.00 to 400 (Hunt, 1992). Oil potential (HI>150), occurs in five out of 136 samples. Three of these samples have sufficient TOC in order to be considered good oil-source rocks.

The Hydrogen Index varies from 0.00 to 700 in the well samples. Type I or II oil-generating organic matter occur in 16 out of 191 samples. However, only 8 of these samples have sufficient TOC to be considered good source material. These samples are found in two wells at relatively shallow depths.

Nechako Jurassic Structural Gas Play

The Nechako Jurassic Gas Play is classified as a speculative play because the rocks are generally too metamorphosed and overmature to be considered as a significant hydrocarbon-bearing package of sediments. For completeness, this play has been included, but statistical analysis was not performed due to little or no hydrocarbon potential.

As illustrated on Map 3, the Nechako Jurassic Structural Play, consisting of the Hazelton Group of intermixed volcanic and volcanogenic sedimentary rock, covers a large area of the Nechako Basin; about 54,200 square kilometres.

The Lower to Middle Jurassic Hazelton Group can be divided into four formations. The Sinemurian Telkwa Formation is the oldest and most widespread volcanic unit in the Skeena Arch area. One thousand metres of interbedded clastic sediments and tuffs comprise the overlying Pliensbachian to Toarcian Nilkitkwa Formation. Above the Nilkitkwa succession is a 500 to 800 metre thick sedimentary and volcanogenic assemblage called the Smithers Formation of Toarcian to Bajocian age. The Whitesail Formation is of Aalenian to Bajocian age and consists of 600 metres of intermixed marine volcanics and sediments (Monger et al, 1991). These sediments and volcanics were deposited in fore-arc basins previous to accretion of the Intermontane Superterrane onto North America. During deposition of the Hazelton Group, both the Skeena and Stikine Arch were uplifted (during the Bajocian in Stikinia), separating the Bowser and Nechako Basins (Tipper and Richards, 1976). Subsequent to deposition of the Hazelton Group, a hiatus occurred over most of the basin before the Skeena Group was deposited. However, there was Ashman deposition in the northwest and Relay Mountain Group sedimentation in the southeast of the basin during the hiatus.

One well intersected the Jurassic succession in the Nechako Basin (Punchaw c-38-J). No oil or gas shows were encountered in the well.

Thicknesses of Jurassic clastic and volcanogenic sediments vary from 250 to 2400 metres throughout the basin. Like the Skeena play, structural-type traps are represented by simple compressional folds, drag folds over thrust faults, and minor block fault traps. The deformation of rocks underlying Skeena Group follow the tectonic history that characterizes that play. It was discussed above.

Recent mapping in the northeast quadrant of the Taseko Lakes map-sheet indicate the presence of numerous stacked folded thrust slices that incorporate the Jurassic rocks (Mahoney et al, 1992; Read, 1992, 1993)(Figure 2, this report). Repetition of sequences in the Punchaw well also implies thrust faulting in the area. Figure 2 is a cartoon of an interpreted structural cross-section in the northeast quadrant of the Taseko Lakes map-sheet. A major unconformity where the Middle Jurassic succession is directly overlain by mid-Eocene rocks is shown in the diagram. Compressional thrusting and folding occured subsequent to Middle Jurassic deposition. Fraser Fault movement occurred post-mid-Eocene. West of Fraser Fault, pre-Late Permian rocks are well-foliated and veined while younger rocks are not. This foliation represents another earlier deformation episode. Area of closures defined by recent mapping range from a maximum of 60 square kilometres (Wineglass Slice, Read, 1993) down to 1 square kilometre. Two major structures were noted in half of the northeast Taseko map-sheet. There are probably at least 20 major structures throughout the basin and many more smaller structures. The range of vertical closure in the various structures is unknown.

A major play-level risk is the lack of primary porosity. Very little primary porosity has been reported in these rocks although fracture porosity may occur. Most fractures are cemented with clay minerals derived from the volcanic material intermixed in the sedimentary succession. Sandstones and conglomerates that may be reservoir quality with regard to porosity are very thin. Proportional representation of reservoir material compared to total thickness of the Jurassic assemblage would be minor.

In the well, TOC varies from 0.59 to 12.39. Potewntial gas-generating sources with a Hydrogen Index of less than 300 occur in all shale samples in this well. Only one sample at 1290 metre depth (-585.3 subsea) has sufficient TOC and hydrocarbon potential to be considered a good gas generator. Almost all samples consist of Type III kerogens, with minor amounts of Type I and II. All samples and rocks are metamorphosed to at least a subgreenschist facies. Carbonaceous and bituminous shales are present within the sequence and could possibly serve as source material.

Tyaughton-Methow Upper Cretaceous Structural Gas Play

The Tyaughton Trough and Methow Basin constitute a large proportion of the relatively small Methow Terrane which had already accreted to North America by Upper Cretaceous time. The Tyaughton-Methow Upper Cretaceous Structural speculative play is equivalent to the Nechako Upper Cretaceous succession described above as a post-accretionary assemblage.

The play area is only 680 square kilometres (Map 2). No wells and gas shows have been reported in these rocks. The thickness of the total succession has been estimated to vary from 600 metres in British Columbia to 7400 metres in Washington (Trexler, 1985). Maxson, (1992) reports a sequence of Late Cretaceous sedimentary rocks in the Taseko River area with a thickness of over 1000 metres.

Structure trap-types found in this play vary from simple compressional folds to drag folds over thrust faults and normal block fault traps. Simple compressional folding and thrusting occurred previous to Upper Cretaceous sedimentation. Transpressional deformation occurred in Late Cretaceous time and produced both sinistral strike-slip faults and compressive structures (Schiarizza et al, 1990). Dextral strike-slip faults and normal faults were developed during extensional episodes in the post-mid-Eocene. Folds are reported to be large-scale both in the Tyaughton and Methow Basins (McLaren, 1986; Tennyson and Cole, 1978) with wavelengths up to 10 kilometres. Vertical relief is not known, however. Many small-scale anticlinal and fault-trap structures are probably present.

There have been no descriptions of any porosity in these rocks and no geochemical samples taken. The rocks are dominantly non-marine and are derived from uplift of the Hozameen and Bridge River successions to the west and Spences Bridge volcanics to the east (Woodsworth and Monger, 1991). The volcanic-rich nature of these sediments imply little or no primary porosity. Secondary fracture porosity may be present in parts. Disseminated organic debris is present in parts within these sediments (Trexler, 1985). Structures were developed previous to, contemporaneous with, and subsequent to hydrocarbon generation.

This play is highly speculative due to no shows reported and no porosity described. No assessment was completed on this play because of its speculative nature.

Tyaughton-Methow Upper Cretaceous Structural Oil Play

Play parameters are basically the same as the previous one. No oil shows are reported in the play and it was deemed to be another highly speculative play. Again, no assessment was performed on these rocks.

Tyaughton-Methow Skeena Structural Gas Play

The Tyaughton-Methow Skeena Group of rocks cover a substantially larger area than that of the Upper Cretaceous sediments. It encompasses an area of 6950 square kilometres. Barremian to Albian sediments of the Jackass Mountain and Taylor Creek Group represent the Skeena Assemblage in the Tyaughton-Methow Basin. No wells and no gas shows have been reported in the area. The total succession ranges up to 5700 metres thick (Woodsworth and Monger, 1991).

Reservoir and play parameters derived from the study of the Skeena assemblage in the Nechako Basin were also applied to this play. Area of closures, vertical relief, porosity limits and trap fill parameters were obtained from the Nechako Skeena Play. We speculated that one hundred possible traps are present in the Tyaughton-Methow Play.

Forty-one outcrop samples were collected for geochemical analysis from Skeena Group rocks in the basin. TOC values range from 0.00 to 0.63 which shows that these samples are poor potential hydrocarbon generators. None of the 41 samples were identified as fair to good gas generators. The organic matter encountered was dominantly Type III. Carbonaceous and bituminous shales and organic partings in sandstones may represent source rock material.

Timing of structure with respect to hydrocarbon generation, the presence of migration and seal all have been assigned relatively low prospect-level risk factors. Adequate source and preservation have somewhat higher levels of risk (Appendix 1).

Tyaughton-Methow Skeena Structural Oil Play

No oil shows have been reported in this play and no geochemical samples have been recognized as fair to good oil generators. All samples are immature and dominantly Type III. Reservoir and play parameters are similar to the gas play.

Tyaughton-Methow Relay Mountain/Ladner Structural Gas Play

This speculative play illustrated on Map 3 includes sediments of the Early to Middle Jurassic Ladner Group combined with the Late Jurassic to Early Cretaceous Relay Mountain Group. The Ladner Group varies in thickness from 1800 to 3600 metres (Woodsworth and Monger, 1991). The

Relay Mountain Group, which consists of shale and siltstone in the centre of the basin and grades to sandstone and conglomerate on the margins, range in thickness from 1500 to 2700 metres in the Tyaughton Trough in British Columbia (Jeletzky and Tipper, 1968) and up to 9800 metres in the Methow Graben of Washington State (Trexler, 1985). Therefore, total thickness varies from 3300 to 11,100 metres throughout the basin. The play area encompasses 5850 square kilometres. Marine conditions prevailed throughout deposition of the sediments (O'Brien, 1986; Mahoney, 1993; Garver et al, 1988; Woodsworth and Monger, 1991).

Structure-types reveal the complicated structural history in the Tyaughton-Methow Basin. Compressional folding occurred in the Albian and continued into the Cenomanian. In Late Cretaceous time, transpressional deformation commenced which produced sinistral strike-slip faulting and compressional folding. Dextral strike-slip faulting and normal faults reveal extensional episodes of deformation that were activated in the mid-Eocene (Schiarizza et al, 1990). Simple compressional anticlines, fault-propagation and fault bend folds associated with thrust faults, and normal fault traps are derived from the above structural history. The structures developed subsequent to any hydrocarbon generation that may have been involved with primary burial metamorphism.

Closure area is likely comparable to Nechako Cretaceous prospect areas, that is, ranging from 90 to 1 square kilometre. Vertical relief varies from 1000 metres to 1 metre. The play area is approximately one half of the Tyaughton-Methow Skeena area, so prospect numbers are halved to a maximum of 50.

Reservoir sands are probably very thin and sparse due to little or no primary porosity (0-3% range, average- 0.5%). Numerous fractures are present throughout the succession. However, most fractures, if not all, are plugged with cementing material.

Vitrinite reflectance on surface outcrops in the Tyaughton area of the basin reveal a range of 1.48 to 1.73%. These values indicate that the organic matter is overmature with respect to oil generation but gas generation is possible. In outcrop, TOC varies from 0.00 to 1.13. One good TOC value (>1.0) was found at Tatlayoko Lake. Three out of 11 samples show geochemical characteristics that indicate fair to good gas generation. However, these sediments have been metamorphosed to at least a subgreenschist facies and oil or gas potential is reduced. Organic matter is dominantly Type III. Carbonaceous shales are the source rocks in the play.

This play has been classified as speculative because of lack of porosity, metamorphic effects and the lack of any hydrocarbon shows. No assessment was performed on these rocks.

Quesnel Tertiary/Cretaceous Structural Gas Play

The Quesnel Tertiary/Cretaceous Structural Gas Play involve sedimentary rocks located in the Quesnel Trough and environs that were deposited in basins on Quesnellia subsequent to accretion of the Intermontane Superterrane onto the continent. Within the Omineca Belt scattered fault-controlled basins containing Upper Cretaceous to Paleogene sediments occur (Gabrielse, 1991a).

Examples are the Quesnel, Princeton and Hat Creek basins. Neogene sediments are also present in places along the Fraser Valley (Souther and Yorath, 1991). Map 1 illustrates the extent of the play area, about 8650 square kilometres. Four wells have been drilled into these rocks. Five gas shows in one well were encountered. Total succession thickness varies from a few centimetres to in excess of 2300 metres.

Potential petroleum accumulations in this play may be located in the crests of anticlines or in stratigraphic traps of sandstone and conglomerate pinchouts. In addition, traps associated with block faulting may be present as the result of formation of grabens, into which a great proportion of the sediments have accumulated. Folds developed from mid-Jurassic to early Late Cretaceous while block faulting and dextral strike-slip faulting occurred post-mid-Eocene. Areas of closure vary from 10 to 0.5 square kilometres while vertical relief ranges from 10 to 1500 metres. There are at least 6 major structures that would be prospective and probably about 100 lesser structures that are yet to be identified.

Fluvial and lacustrine sedimentary rocks are prevalent in the play area. Sandstones, conglomerates and minor shales along with coal seams and a diatomite sequence are present. Reservoir sands and conglomerates are thin and lenticular in nature. It was estimated that reservoir thickness compared to total succession thickness varies from 0 to 5%. The porosity range was estimated to be 7 to 14% in reservoir material, with an 8% average. The diatomite near the top of the succession was described to be very porous (Cockfield, 1932).

Abundant coal seams are present mostly in the lower part of the succession. The coal is generally high in ash and water content and low in calorific value. Rank is sub-bituminous B to C (Graham, 1978). The seams are lenticular in nature. Aggregate thicknesses of coal vary from nine metres at Merritt to 370 metres at Hat Creek. Carbonaceous and bituminous shales provide additional potential source material for the play.

Compressional structures developed previous to some of the sedimentary deposition, but extensional tectonic processes took over and continue to the present day. Therefore, hydrocarbon generation occurred both subsequent and contemporaneously with deformation and trap formation. The opportunity for migration is possible in these rocks due to the presence of open fracturing. However, the lenticular nature of the porous sandstone beds may produce barriers to migration. Seal may at times be risky because the sediments frequently outcrop and leakage may consequently occur. A prospect-level risk of 0.25 was assigned to adequate prospect conditions to reflect possible seal, closure and migration problems.

Quesnel Tertiary/Cretaceous Structural Oil Play

Oil potential in Tertiary and Cretaceous rocks in the Quesnel Trough is probable due to the presence of oil shows in a well (Australian No. 1). The fact that lacustrine sequences are now recognized as important petroleum hosts as well as potential source material for oil and gas (Powell, 1986), gives this play significant oil potential. Depositional environments obtained from spore and pollen studies (Rouse and Mathews, 1979), range from humid flood-plain deposits to rift valley lakes in humid environments. Lacustrine sequences deposited in similar environments contain significant oil reserves in other basins around the world (eg. Daqing Oil Field in Songliao Basin of northeastern China)(Powell, 1986). Sufficient maturation levels have been attained in these rocks so that significant hydrocarbon generation could occur.

Quesnel Jura-Triassic Structural Gas Play

This highly speculative play includes sediments of Upper Triassic (Carnian) to Middle Jurassic (Callovian) age. Map 3 illustrates the play covering an area of 11,275 square kilometres. The thickness of the total succession ranges from 1200 to 3500 metres (Travers, 1982). Volcanogenic sediments of the Nicola Group as well as marine sedimentary rocks of the overlying Ashcroft Formation are represented. No wells or gas shows have been reported in the play.

Compressional tectonics produce simple folds and thrust fault traps in these rocks (Travers, 1982). Normal fault traps related to extensional block faulting also affect the succession.

Travers, 1982 argues that potential reservoir sandstones and conglomerates of the Lower Jurassic Ashcroft Formation have been deformed by low-angle thrusting and are capped by impermeable marine shales. Thus, a potential trap for petroleum was created. No porosity measurements have been recorded for the Ashcroft but organic matter does exist in these rocks. Interpreted burial depths of these reservoir rocks are sufficient for oil and gas generation. Koch (1973) states, however, that these rocks have been metamorphosed to a higher degree compared to contemporaneous rocks in the adjacent Nechako Basin. This metamorphism would have been sufficient to heat and degrade any petroleum that may have been present.

The lack of porosity, oil and gas shows, as well as the metamorphic effects categorizes this play as speculative and, consequently, no assessment was run.

ASSESSMENT TECHNIQUE

After compiling relevant material for each hydrocarbon play, an assessment committee assigned objective and subjective probabilities and risk factors for ten of the hydrocarbon plays (see Appendix 1 for probabilities and risk factors and Appendix 2 for the statistical data retrieved). The risk factors were defined by analyzing the geological characteristics of various play parameters, comparing them to analogous settings, and then deciding upon reasonable limits for these parameters. Once the probabilities and risk factors were compiled, Monte Carlo and lognormal approximation options in PETRIMES were used to model the conceptual plays (Lee and Wang, 1990).

RESOURCE APPRAISAL

Following is a discussion of statistical results obtained for each play (see Appendix 2 for output data).

Nechako Tertiary Structural Gas Play

Overall, the play-level risk is 0.90, which signifies the high probability that this hydrocarbon play exists. At the prospect-level, relatively high risk factors were assigned to the presence of reservoir-type rock, adequate seal and especially adequate preservation. The overall prospect-level risk was determined to be 0.03 (see Appendix 1). Preservation was considered risky because of the scarce information concerning the actual distribution of Tertiary sediments underlying the Eocene volcanic flows in the Nechako Basin. Widespread, but sparse, drillhole and subordinate Tertiary outcrop data were used in interpreting the distribution of Tertiary sediment cover illustrated on Map 1 and Figure 1.

Complicated tectonic histories with numerous depositional histories prevail in the Nechako assessment area of south-central British Columbia. Structural deformation is inferred to have occurred previous to, contemporaneous with, and subsequent to hydrocarbon generation and accumulation depending on location. Some hydrocarbon accumulations may have been affected by these deformation episodes. Such accumulations may have been cut by many faults and subsequently remigrated. Fields, rather than pools, are interpreted as representing these composite structurally-complex hydrocarbon accumulations. Thus, the largest undiscovered hydrocarbon accumulation in this assessment is considered to be a field, rather than a pool. We emphasize that readers consider the range of possible sizes for the largest recoverable field size (90% confidence interval) rather than simply quoting the median of the largest field size. This range more accurately describes the largest field size.

In this assessment, the mean of the expected number of fields present in the play is recorded. In addition, values representing the probability of one or more fields existing in a play and the number of fields at 1% are presented. The number of fields at 1% indicate the probable maximum of expected number of fields in a play and it would be 99% certain that no greater number of fields would be found.

The total mean play potential of in-place resources in the Nechako Tertiary Structural Gas Play is 1.42×10^{10} m^3 (502 BCF) of gas (Appendix 2). The in-place resource estimate for the largest field size varies from 3.48×10^8 to 2.93×10^{10} m^3 (12.3 to 1033.9 BCF)(Figure 3). The median of the largest in-place field size is 4.60×10^9 m^3 (162.3 BCF)(Figure 3). Using standard recovery factors (0.70), we suggest a largest field size of 2.44×10^8 to 2.05×10^{10} m^3 (8.6 to 723.7 BCF)(recoverable) occurs in the play. The probability of one or more fields existing in the play is 0.80. A mean of seven gas fields are expected to occur in the play. It is 99% certain that no more than 23 fields are expected.

All plays in the Nechako Basin and Quesnel Trough are entirely within British Columbia.

All values in this section associated with the two basins are applicable exclusively to British Columbia. Sixty percent of the area of the Tyaughton-Methow plays is located in British Columbia while the remainder is found in Washington State. Resource figures quoted for B.C. are reduced by 40%.

Nechako Tertiary Structural Oil Play

Adequate play conditions are present so that a play-level risk of 0.90 can be assigned to the oil component of the Nechako Tertiary geological play. A risk factor of 0.02 has been applied to prospect conditions. The Nechako Tertiary Oil Play has a mean in-place oil potential of $2.17x10^7$ m^3 (136.4 million barrels). In-place oil resources show the largest undiscovered field size limits ranging from $8.0x10^5$ to $4.99x10^7$ m^3 (4.8 to 313.7 million barrels)(see Fig. 4). The median of the largest undiscovered field is $8.40x10^6$ m^3 (52.8 million barrels). The range of the largest undiscovered recoverable oil field varies from $2.5x10^5$ to $1.65x10^7$ m^3 or 1.6 to 103.5 million barrels. There is a 75% chance that one or more oil fields would be found in the play. The mean number of fields expected to occur is 4. No more than sixteen oil fields are expected in the play.

Nechako Upper Cretaceous Structural Gas Play

A risk factor of 0.90 assigned to adequate play conditions signifies the highly probable consideration that the play actually exists. Prospect-level risks, however, are much lower (0.02) principally due to presence of closure, presence of a reservoir-type rock, adequate seal, and adequate preservation. The play area is rather limited and interpreted boundaries only are shown (Map 2).

The mean in-place gas potential is $6.49x10^8$ m^3 or 23 BCF. The range of the largest undiscovered in-place gas field varies from $5.30x10^7$ to $3.56x10^9$ m^3 (1.9 to 125.8 BCF)(recoverable - $3.7x10^7$ to $2.49x10^9$ m^3 (1.3-88.10 BCF)). The median of the largest field is $4.87x10^8$ m^3 (17.2 BCF)(see Fig. 5). The chance of one or more gas fields existing in the play is calculated to be 50%. If gas fields are present, the analysis suggests that only a single field is expected to be found and it is very unlikely that more than 4 fields would be found in the play.

Nechako Upper Cretaceous Structural Oil Play

Play parameters are similar to the gas component and play-level and prospect-level risks are identical. The mean number of expected fields, probability of one or more fields existing, and the number of fields at 1% are identical with the oil play. The Nechako Upper Cretaceous Oil Play has a mean in-place potential of $2.0x10^6$ m^3 or 12.8 million barrels of oil. The largest in-place undiscovered oil field from the field-size-by-rank diagram (Fig. 6) ranges from $3.0x10^5$ to $9.90x10^6$ m^3 (1.6 to 62.4 million barrels). The median of this range is $1.8x10^6$ m^3 (11.1 million barrels). The range for the largest recoverable oil field in the play is $8.0x10^4$ m^3 to $3.28x10^6$ m^3 (0.5 - 20.6 BCF).

Nechako Skeena Structural Gas Play

Adequate preservation of hydrocarbons is assigned the greatest risk in the play because of the extensive outcrop exposure of Skeena Group sediments which may provide opportunities for leakage of hydrocarbons. Timing of hydrocarbon generation with respect to trap formation has been interpreted to be unfavourable in some cases, and in such instances the play is appropriately risked. Risk has also been assigned to the presence of closure in some prospects. All of the above risks are applied at the prospect level. An overall prospect risk of 0.06 has been calculated for the Nechako Skeena Structural Gas Play. However, a play-level risk of 1.00 has been assigned which implies total confidence in the existence of the play.

The total mean in-place gas potential of the play is $2.47x10^{11}$ m^3 or 8.7 TCF. The median of the largest undiscovered field (in-place resources) is statistically determined to be $3.26x10^{10}$ m^3 (1150.3 BCF). The median has been extracted from a range of $8.88x10^9$ to $1.07x10^{11}$ m^3 (313.5-3771.9 BCF) for the largest undiscovered field (Fig. 7). The recoverable limits of largest field size are $6.21x10^9$ to $7.48x10^{10}$ m^3 (219.4-2640.4 BCF). The probability of one or more gas fields existing in the play is greater than 99%. If gas fields do exist, the expected mean number of fields is 58. It is extremely unlikely that more than 122 gas fields are present.

Nechako Skeena Structural Oil Play

Play parameters are similar for the oil component in the Nechako Skeena group of rocks. Therefore, play-level and prospect-level risks are identical. The mean in-place play potential is $7.74x10^8$ m^3 (4870.6 million barrels). The in-place range of the largest undiscovered field is $2.78x10^7$ to $2.40x10^8$ m^3 (174.8 to 1512.0 million barrels). The median would be $8.58x10^7$ m^3 (539.8 million barrels)(Fig. 8). The range of the largest undiscovered field (recoverable) varies from $9.17x10^6$ to $7.93x10^7$ m^3 (57.7 to 499.0 million barrels).

Tyaughton-Methow Skeena Structural Gas Play

A play-level risk of 0.60 has been assigned. The fact that no hydrocarbon shows have been recorded in the play is a major contributing factor to the elevated play risk. At the prospect-level, relatively high risk factors have been assigned to the presence of closure, adequate source material, and adequate preservation. The overall prospect risk factor is 0.05. There is only a 40% chance that one or more gas fields exist in this play. If any fields do exist, the mean expected number is 1, and it is extremely unlikely that more than seven gas fields are present.

The mean play potential is $4.2x10^7$ m^3 (1 BCF)(in-place). The largest undiscovered gas field according to the field-size-by-rank diagram (Fig. 9) ranges from $8.0x10^6$ to $1.63x10^8$ m^3 (0.3 to 5.8 BCF). The median of the largest field size is $4.1x10^7$ m^3 (1.5 BCF). Recoverable largest undiscovered field size varies from $5.0x10^6$ to $1.14x10^8$ m^3 (0.2 to 4.0 BCF).

This particular play extends into Washington in the United States. Sixty percent of the play is located in British Columbia. If resources are evenly distributed throughout, then the mean play potential for B. C. would be $2.5x10^7$ m^3 (0.6 BCF).

Tyaughton-Methow Skeena Structural Oil Play

Play conditions are similar to the gas component in the oil play. The mean in-place play potential is 1.0×10^5 m^3 (0.8 million barrels). The range of the largest undiscovered field (in-place) according to the field-size-by-rank diagram within a 90% interval varies from 3.9×10^4 to 4.0×10^5 m^3 (0.2 to 2.4 million barrels) (Figure 10). The median of the largest field size is calculated to be 1.0×10^5 m^3 (0.8 million barrels). Recoverable largest undiscovered field size range is 1.0×10^4 to 1.2×10^5 m^3 (0.1 to 0.8 million barrels).

Even distribution of resources indicates that 60% of the mean potential would occur in British Columbia. Therefore, the mean play potential in B.C. is 6.0×10^4 m^3 (0.5 million barrels).

Quesnel Tertiary/Cretaceous Structural Gas Play

The Tertiary and Cretaceous sedimentary succession in the Quesnel Trough is extensively deformed by extensional block faults that often produce grabens which may be potential sites for hydrocarbon accumulation. Five gas shows have been reported from a well drilled in the succession so an appropriate risk factor is 0.90. Migration, seal and closure is problematic on certain prospects and consequently a prospect-level risk of 0.25 was assigned to the gas portion of the play.

The expected mean number of gas fields (N) is statistically determined to be 25. It is 99% certain that no more than 56 fields would be found in the play. It is also 80-90% certain that one or more fields are present. The mean play potential for gas is 8.37×10^9 m^3 (296 BCF). According to the field-size-by-rank diagram (Fig. 11), the median of the largest undiscovered field size (in-place) is 1.90×10^9 m^3 (67.1 BCF). The median is derived from a range of 5.87×10^8 to 7.42×10^9 m^3 (20.7 to 262.0 BCF). The largest recoverable field size varies from 4.11×10^8 m^3 to 5.19×10^9 m^3 (14.5 - 183.4 BCF).

Quesnel Tertiary/Cretaceous Structural Oil Play

Play parameters are similar to the gas portion of the play. However, since no oil shows have been reported, a greater prospect risk was assigned to adequate prospect conditions (0.15 versus 0.25 for gas). A mean of fifteen oil fields can be expected in the play. There is a probable maximum of 36 fields present. The mean play potential is 1.21×10^7 m^3 (76.3 million barrels)(in-place). The field-size-by-rank diagram (Fig. 12) indicates the range of the largest in-place field size (1.0×10^6 to 1.14×10^7 m^3 (6.0 to 71.9 million barrels)). The median of the largest field size (in-place) is 3.1×10^6 m^3 (19.7 million barrels). Recoverable largest oil field size ranges from 3.10×10^5 m^3 to 3.77×10^6 m^3 or 2.0 to 23.7 million barrels.

HYDROCARBON POTENTIAL DISTRIBUTION

Map 5 illustrates a qualitative interpretation of the distribution of potential for hydrocarbon accumulation in the Nechako-Chilcotin assessment area. Good potential is indicative of favourable locations for hydrocarbon accumulations and should be the major focus for any future exploration activities. Medium potential signifies secondary and less important areas for oil and gas prospects but significant resources may occur. Fair and poor potential mark areas where little or no hydrocarbon reserves are expected and would likely not be of interest to oil companies.

The dominant depositional expanse of Skeena sedimentation in the central and southern part of the Nechako Basin is included in the area of good hydrocarbon potential (Maps 2 & 5). The outliers of Skeena rocks in the northwest of the basin have a reduced potential. In addition, good hydrocarbon potential is recognized in Tertiary sediments deposited along the Fraser River from Quesnel to Big Bar Creek (Maps 1 & 5). Extensive coal deposits and oil and gas shows along the Fraser River are major factors in determining the area of good hydrocarbon potential. Good potential is also interpreted in the numerous, often coal-bearing grabens in the southern portion of the Quesnel Trough; namely Hat Creek, Merritt, and Princeton basins.

Medium potential areas include the Skeena outliers in the northwest of the Nechako Basin as well as the Fraser Tertiary sediments to the north of Quesnel.

Areas of fair to poor potential include the Nechako Tertiary Veneer region, the Nechako and Quesnel Jurassic as well as the Tyaughton-Methow play areas.

SUMMARY AND CONCLUSIONS

The Nechako Tertiary Structural Gas Play consists of Tertiary sediment fill in extensional grabens and a thin veneer-like deposit immediately underlying the Eocene volcanic cover. A general lack of available geological information needed to accurately map out the distribution of these sediments was reflected in the high risk factor attributed to adequate preservation at the prospect level. The mean potential of this conceptual play is computed to be $1.42x10^{10}$ m^3 (502 BCF). These figures represent in-place petroleum resource potential. Similar geological and reservoir parameters can be applied to the Nechako Tertiary Structural Oil Play. The total mean play potential is $2.17x10^7$ m^3 (136.4 million barrels).

In the conceptual Nechako Upper Cretaceous Structural Gas Play, potential gas prospects are found in open to transitional marine and terrestrial easterly-derived clastic sediments containing abundant volcanic detritus. Primary porosity is generally low, but secondary fracture porosity can occur. This play has a total mean potential of $6.49x10^8$ m^3 (23 BCF) of gas. The Nechako Upper Cretaceous Structural Oil Play within the same package of rocks has a mean potential of $2.0x10^6$ m^3 (12.8 million barrels).

The most widespread and favourable petroleum play recognized in the assessment incorporates the oil and gas components of the Nechako Skeena Structural Play. Marine to nearshore deposition of Skeena Assemblage rocks occurred in the Early Cretaceous period. Ten gas shows were reported in well cuttings. The total mean play potential for gas is $2.47x10^{11}$ m^3 (8.74 TCF). The mean potential of the Nechako Skeena Structural Oil Play is $7.74x10^8$ m^3 (4870.6 million barrels).

The Nechako Jurassic Structural Gas Play is considered to be speculative rather than a conceptual petroleum play. Metamorphism to at least subgreenschist facies and the inherent loss of porosity resulted in the probable expulsion of any volatiles from these rocks.

The Tyaughton-Methow group of petroleum plays occupy the Tyaughton Trough located to the southwest of the Nechako Basin and the Methow Basin found along the Fraser Fault in south-central British Columbia and continuing to the south into Washington State. About 60% of the play area is found in British Columbia. Upper Cretaceous to Jurassic sediments were studied in the basin.

The youngest group of sediments considered as a possible petroleum play is the Upper Cretaceous succession. The Tyaughton-Methow Upper Cretaceous Structural Oil and Gas Play is classified as a speculative play. The lack of sufficient petroleum geological information and the fact that no oil or gas seeps or shows are reported indicates little or no confidence for hydrocarbon potential. Thus, no statistical computations were performed for these sediments.

The Skeena Assemblage is also present in the Tyaughton-Methow Basin. Although no wells have been drilled and no shows or seeps are known, it was surmised that there are sufficient similarities to the important Nechako Skeena Play to the north to justify classifying the play as conceptual. Statistical analysis was thus performed on the Skeena Group of rocks. The total mean play potential for gas is $4.2x10^7$ m^3 or 1 BCF. The Tyaughton-Methow Skeena Structural Oil Play has a total mean play potential of $1.0x10^5$ m^3 (0.8 million barrels).

The Jurassic Ladner Group and Jura-Cretaceous Relay Mountain Group is a significant sedimentary succession in the Tyaughton-Methow Basin. The structural gas play is classified as speculative in this assessment due to lack of porosity, significant metamorphism and the lack of any hydrocarbon show. Marine conditions prevailed during deposition of these sediments.

The conceptual Quesnel Tertiary/Cretaceous Structural Oil and Gas Play represents the youngest group of sediments containing petroleum plays in the Quesnel Trough. Fault-controlled basins that developed during extensional tectonics provided sites for deposition. Fluvial and lacustrine terrestrial sedimenatation prevails. Gas shows have been encountered during drilling. The ultimate mean play potential for gas in the play is $8.37x10^9$ m^3 or 296 BCF. For oil, the potential is determined to be $1.21x10^7$ m^3 (76.3 million barrels).

The highly speculative Quesnel Jura-Triassic Structural Gas Play includes volcanogenic sediments within the Nicola Group and the overlying marine sedimentary rocks of the Ashcroft Formation. Lack of porosity and heating due to metamorphism signifies the speculative nature of the play.

The total gas potential for all plays in this assessment is $2.71x10^{11}$ m^3 (9.56 TCF).

Total oil potential for all plays is $8.10x10^8$ m^3 or 5096.9 million barrels.

Good hydrocarbon potential is recognized in the principal area of Skeena deposition in the Nechako Basin. Tertiary and Cretaceous sediments along the Fraser River south of Quesnel and in graben features in south Quesnel Trough are also considered to be good sites for potential hydrocarbon accumulations.

Secondary or medium potential is interpreted in Skeena outliers in northwestern Nechako Basin and in Tertiary sediments along the Fraser River to the north of Quesnel.

Poor and fair potential is applied to the remainder of the assessment area.

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APPENDIX 1: PROBABILITY DISTRIBUTIONS AND RISK FACTORS
(INPUT DATA)

APPENDIX 2: STATISTICAL OUTPUT

FIGURE CAPTIONS

Map 1: Nechako Oil & Gas Assessment - Tertiary Plays (Nechako Tertiary Structural (Oil & Gas), and Quesnel Tertiary/Cretaceous Structural (Oil & Gas))
Map 2: Nechako Oil & Gas Assessment - Cretaceous Plays (Nechako Upper Cretaceous Structural (Oil & Gas), Nechako Skeena Structural (Oil & Gas), Tyaughton-Methow Upper Cretaceous Structural (Oil & Gas), and Tyaughton-Methow Skeena Structural (Oil & Gas))
Map 3: Nechako Oil & Gas Assessment - Jurassic Plays (Nechako Jurassic Structural (Gas), Tyaughton-Methow Relay Mountain/Ladner Structural (Gas), and Quesnel Jura-Triassic Structural (Gas))
Map 4: Cretaceous Sedimentation in Intermontane Basins
Map 5: Nechako Oil & Gas Assessment - Hydrocarbon Potential Map

Figure 1: Structural cross-section in the Nazko area
Figure 2: Structural cross-section in the Alkali Lake/Riske Creek area
Figure 3: Field size by rank diagram of Nechako Tertiary Structural Gas Play
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Figure 12: Field size by rank diagram of Quesnel Tertiary/Cretaceous Structural Oil Play

APPENDIX 1: PROBABILITY DISTRIBUTIONS AND RISK FACTORS
(INPUT DATA)

Nechako Tertiary Structural Gas Play

Table 5-2. Format for entry of probability distributions.

Geological variable	Unit of measurement	Probability in upper percentiles 1.0	0.5	0.02/0.01	0.0
Area of closure/pool	$mile^2$ / km^2	1	10	90	175
Net pay/no of pay zones	m / ft / no				
Reservoir/ formation thickness	m / ft	5	20	160	300
Porosity	decimal fraction	0.05	0.08	0.15	0.30
Trap fill	decimal fraction	0.005	0.2	0.5	1.0
Favourable facies	decimal fraction				
Water saturation	decimal fraction				
Oil/gas saturation	decimal fraction	—	0.85	—	
Shrinkage factor	decimal fraction				
Formation volume factor	decimal fraction	0.0024	0.0042	0.019	0.02
Reservoir temperature	Celsius/ Fahrenheit				
Reservoir pressure	kPa/psi				
Recovery factor	decimal fraction	—	0.7	—	

Table 5-3. Format for entry of geological risk factors and their marginal probability.

Geological factors	Marginal probability	Level Play	Level Prospect
Presence of closure		-	0.80
Presence of reservoir facies			0.50
Presence of porosity			
Adequate seal			0.50
Adequate timing			0.60
Adequate source			0.80
Adequate maturation			
Adequate preservation			0.33
Adequate recovery		0.90	
Adequate play conditions			
Adequate prospect conditions			

Table 5-4. Format for entry of number of prospects and pools.

Geological variable	Probability in upper percentiles 0.99	0.5	0.0
No of prospects	10	175	600
No of pools			

Table 5-2. Format for entry of probability distributions.

Geological variable	Unit of measurement	Probability in upper percentiles 1.0	0.5	0.02/0.01	0.0
Area of closure/pool	mile^2 / km^2	1	10	90	175
Net pay/no of pay zones	m / ft / no				
Reservoir/ formation thickness	m / ft	5	20	160	300
Porosity	decimal fraction	0.05	0.08	0.15	0.30
Trap fill	decimal fraction	0.005	0.2	0.5	1.0
Favourable facies	decimal fraction				
Water saturation	decimal fraction				
Oil/gas saturation	decimal fraction	0.35	0.50	0.60	0.70
Shrinkage factor	decimal fraction		— 1.2 —		
Formation volume factor	decimal fraction				
Reservoir temperature	Celsius/ Fahrenheit				
Reservoir pressure	kPa/psi				
Recovery factor	decimal fraction	0.15	0.2	0.29	0.3

Table 5-3. Format for entry of geological risk factors and their marginal probability.

Geological factors	Marginal probability	Level Play	Level Prospect
Presence of closure			
Presence of reservoir facies			
Presence of porosity			
Adequate seal			
Adequate timing			
Adequate source			
Adequate maturation			
Adequate preservation			
Adequate recovery			
Adequate play conditions		0.90	
Adequate prospect conditions			0.02

Table 5-4. Format for entry of number of prospects and pools.

Geological variable	Probability in upper percentiles 0.99	0.5	0.0
No of prospects	10	175	600
No of pools			

Table 5-2. Format for entry of probability distributions.

Geological variable	Unit of measurement	Probability in upper percentiles 1.0	0.5	0.02/0.01	0.0
Area of closure/pool	mile² / km²	1	10	90	175
Net pay/no of pay zones	m / ft / no				
Reservoir/ formation thickness	m / ft	20	100	300	1000
Porosity	decimal fraction	0.05	0.10	0.15	0.20
Trap fill	decimal fraction	0.005	0.015	0.035	0.05
Favourable facies	decimal fraction				
Water saturation	decimal fraction				
Oil/gas saturation	decimal fraction	—	0.85	—	
Shrinkage factor	decimal fraction				
Formation volume factor	decimal fraction	0.0042	0.0024	0.019	0.02
Reservoir temperature	Celsius/ Fahrenheit				
Reservoir pressure	kPa/psi				
Recovery factor	decimal fraction	—	0.7	—	

Nechako Upper Cretaceous Structural Gas Play

Table 5-3. Format for entry of geological risk factors and their marginal probability.

Geological factors	Marginal probability	Level Play	Level Prospect
Presence of closure			0.50
Presence of reservoir facies			0.50
Presence of porosity			
Adequate seal			0.50
Adequate timing			0.60
Adequate source			0.80
Adequate maturation			
Adequate preservation			0.33
Adequate recovery			
Adequate play conditions		0.90	
Adequate prospect conditions			

Table 5-4. Format for entry of number of prospects and pools.

Geological variable	Probability in upper percentiles 0.99	0.5	0.0
No of prospects	5	50	100
No of pools			

Table 5-2. Format for entry of probability distributions.

Geological variable	Unit of measurement	Probability in upper percentiles 1.0	0.5	0.02/0.01	0.0
Area of closure/pool	mile^2 / km^2	1	10	90	175
Net pay/no of pay zones	m / ft / no				
Reservoir/ formation thickness	m / ft	20	100	300	1000
Porosity	decimal fraction	0.05	0.10	0.15	0.20
Trap fill	decimal fraction	0.005	0.015	0.035	0.05
Favourable facies	decimal fraction				
Water saturation	decimal fraction				
Oil/gas saturation	decimal fraction	—	0.65	—	
Shrinkage factor	decimal fraction	—	1.2	—	
Formation volume factor	decimal fraction				
Reservoir temperature	Celsius/ Fahrenheit				
Reservoir pressure	kPa/psi				
Recovery factor	decimal fraction	0.15	0.20	0.29	0.30

Nechako Upper Cretaceous Structural Oil Play

Table 5-3. Format for entry of geological risk factors and their marginal probability.

Geological factors	Marginal probability	Level: Play	Level: Prospect
Presence of closure		-	0.50
Presence of reservoir facies			0.50
Presence of porosity			
Adequate seal			0.50
Adequate timing			0.60
Adequate source			0.80
Adequate maturation			
Adequate preservation			0.33
Adequate recovery			
Adequate play conditions		0.90	
Adequate prospect conditions			

Table 5-4. Format for entry of number of prospects and pools.

Geological variable	Probability in upper percentiles: 0.99	0.5	0.0
No of prospects	5	50	100
No of pools			

Table 5-2. Format for entry of probability distributions.

Geological variable	Unit of measurement	Probability in upper percentiles 1.0	0.5	0.02/0.01	0.0
Area of closure/pool	mile² / km²	1	10	90	175
Net pay/no of pay zones	m / ft / no				
Reservoir/ formation thickness	m / ft	20	100	300	1000
Porosity	decimal fraction	0.05	0.10	0.15	0.20
Trap fill	decimal fraction	0.015	0.09	0.21	0.30
Favourable facies	decimal fraction				
Water saturation	decimal fraction				
Oil/gas saturation	decimal fraction	—	0.85	—	
Shrinkage factor	decimal fraction				
Formation volume factor	decimal fraction	0.0024	0.0042	0.019	0.02
Reservoir temperature	Celsius/ Fahrenheit				
Reservoir pressure	kPa/psi				
Recovery factor	decimal fraction	—	0.70	—	

Nechako Skeena Structural Gas Play

Table 5-3. Format for entry of geological risk factors and their marginal probability.

Geological factors	Marginal probability	Level: Play	Level: Prospect
Presence of closure			0.50
Presence of reservoir facies			0.80
Presence of porosity			
Adequate seal			0.90
Adequate timing			0.60
Adequate source			0.80
Adequate maturation			
Adequate preservation			0.33
Adequate recovery			
Adequate play conditions			
Adequate prospect conditions			

Table 5-4. Format for entry of number of prospects and pools.

Geological variable	Probability in upper percentiles 0.99	0.5	0.0
No of prospects	100	1000	2000
No of pools			

Nechako Skeena Structural Oil Play

Table 5-2. Format for entry of probability distributions.

Geological variable	Unit of measurement	Probability in upper percentiles 1.0	0.5	0.02/0.01	0.0
Area of closure/pool	mile^2 / km^2	1	10	90	175
Net pay/no of pay zones	m / ft / no				
Reservoir/ formation thickness	m / ft	20	100	300	1000
Porosity	decimal fraction	0.05	0.10	0.15	0.20
Trap fill	decimal fraction	0.015	0.09	0.21	0.30
Favourable facies	decimal fraction				
Water saturation	decimal fraction				
Oil/gas saturation	decimal fraction	——	0.65	——	
Shrinkage factor	decimal fraction	——	1.2	——	
Formation volume factor	decimal fraction				
Reservoir temperature	Celsius/ Fahrenheit				
Reservoir pressure	kPa/psi				
Recovery factor	decimal fraction	0.15	0.20	0.29	0.30

Nechako Skeena Structural Oil Play

Table 5-3. Format for entry of geological risk factors and their marginal probability.

Geological factors	Marginal probability	Level: Play	Level: Prospect
Presence of closure			0.50
Presence of reservoir facies			0.80
Presence of porosity			
Adequate seal			0.90
Adequate timing			0.60
Adequate source			0.80
Adequate maturation			
Adequate preservation			0.33
Adequate recovery			
Adequate play conditions			
Adequate prospect conditions			

Table 5-4. Format for entry of number of prospects and pools.

Geological variable	Probability in upper percentiles 0.99	0.5	0.0
No of prospects	100	1000	2000
No of pools			

Table 5-2. Format for entry of probability distributions.

Geological variable	Unit of measurement	Probability in upper percentiles 1.0	0.5	0.02/0.01	0.0
Area of closure/pool	mile² / km²	0.5	2	5	10
Net pay/no of pay zones	m / ft / no				
Reservoir/ formation thickness	m / ft	3	18	50	160
Porosity	decimal fraction	0.05	0.10	0.15	0.20
Trap fill	decimal fraction	0.005	0.03	0.07	0.10
Favourable facies	decimal fraction				
Water saturation	decimal fraction				
Oil/gas saturation	decimal fraction	——	0.85	——	
Shrinkage factor	decimal fraction				
Formation volume factor	decimal fraction	0.0024	0.0042	0.019	0.02
Reservoir temperature	Celsius/ Fahrenheit				
Reservoir pressure	kPa/psi				
Recovery factor	decimal fraction	——	0.70	——	

Table 5-3. Format for entry of geological risk factors and their marginal probability.

Geological factors	Marginal probability	Level Play	Level Prospect
Presence of closure			0.50
Presence of reservoir facies			0.80
Presence of porosity			
Adequate seal			0.75
Adequate timing			
Adequate source			0.50
Adequate maturation			
Adequate preservation			0.33
Adequate recovery			
Adequate play conditions		0.60	
Adequate prospect conditions			

Table 5-4. Format for entry of number of prospects and pools.

Geological variable	Probability in upper percentiles 0.99	0.5	0.0
No of prospects	2	30	100
No of pools			

Tyaughton-Methow Skeena Structural Oil Play

Table 5-2. Format for entry of probability distributions.

Geological variable	Unit of measurement	Probability in upper percentiles 1.0	0.5	0.02/0.01	0.0
Area of closure/pool	mile² / km²	0.5	2	5	10
Net pay/no of pay zones	m / ft / no				
Reservoir/ formation thickness	m / ft	3	18	50	160
Porosity	decimal fraction	0.05	0.10	0.15	0.20
Trap fill	decimal fraction	0.005	0.03	0.07	0.10
Favourable facies	decimal fraction				
Water saturation	decimal fraction				
Oil/gas saturation	decimal fraction	—	0.65	—	
Shrinkage factor	decimal fraction	—	1.2	—	
Formation volume factor	decimal fraction				
Reservoir temperature	Celsius/ Fahrenheit				
Reservoir pressure	kPa/psi				
Recovery factor	decimal fraction	0.15	0.20	0.29	0.30

Tyaughton-Methow Skeena Structural Oil Play

Table 5-3. Format for entry of geological risk factors and their marginal probability.

Geological factors	Marginal probability	Level	
		Play	Prospect
Presence of closure			0.50
Presence of reservoir facies			0.80
Presence of porosity			
Adequate seal			0.75
Adequate timing			
Adequate source			0.50
Adequate maturation			
Adequate preservation			0.33
Adequate recovery			
Adequate play conditions		0.60	
Adequate prospect conditions			

Table 5-4. Format for entry of number of prospects and pools.

Geological variable	Probability in upper percentiles		
	0.99	0.5	0.0
No of prospects	2	30	100
No of pools			

Table 5-2. Format for entry of probability distributions.

Geological variable	Unit of measurement	Probability in upper percentiles 1.0	0.5	0.02/0.01	0.0
Area of closure/pool	$mile^2$ / km^2	0.5	1	5	10
Net pay/no of pay zones	m / ft / no				
Reservoir/ formation thickness	m / ft	10	150	700	1500
Porosity	decimal fraction	0.05	0.08	0.15	0.30
Trap fill	decimal fraction	0.01	0.05	0.30	1.00
Favourable facies	decimal fraction				
Water saturation	decimal fraction				
Oil/gas saturation	decimal fraction	—	0.85	—	
Shrinkage factor	decimal fraction				
Formation volume factor	decimal fraction	0.0024	0.0042	0.019	0.02
Reservoir temperature	Celsius/ Fahrenheit				
Reservoir pressure	kPa/psi				
Recovery factor	decimal fraction	—	0.70	—	

Table 5-3. Format for entry of geological risk factors and their marginal probability.

Geological factors	Marginal probability	Level Play	Level Prospect
Presence of closure			
Presence of reservoir facies			
Presence of porosity			
Adequate seal			
Adequate timing			
Adequate source			
Adequate maturation			
Adequate preservation			
Adequate recovery			
Adequate play conditions		0.90	
Adequate prospect conditions			0.25

Table 5-4. Format for entry of number of prospects and pools.

Geological variable	Probability in upper percentiles 0.99	0.5	0.0
No of prospects	50	100	200
No of pools			

Quesnel Tertiary/Cretaceous Structural Oil Play

Table 5-2. Format for entry of probability distributions.

Geological variable	Unit of measurement	Probability in upper percentiles 1.0	0.5	0.02/0.01	0.0
Area of closure/pool	$mile^2$ / km^2	0.5	1	5	10
Net pay/no of pay zones	m / ft / no				
Reservoir/formation thickness	m / ft	10	150	700	1500
Porosity	decimal fraction	0.05	0.08	0.15	0.30
Trap fill	decimal fraction	0.01	0.05	0.30	1.00
Favourable facies	decimal fraction				
Water saturation	decimal fraction				
Oil/gas saturation	decimal fraction	0.35	0.50	0.60	0.70
Shrinkage factor	decimal fraction	—	1.2	—	
Formation volume factor	decimal fraction				
Reservoir temperature	Celsius/Fahrenheit				
Reservoir pressure	kPa/psi				
Recovery factor	decimal fraction	0.15	0.20	0.29	0.30

Table 5-3. Format for entry of geological risk factors and their marginal probability.

Geological factors	Marginal probability	Level Play	Level Prospect
Presence of closure			
Presence of reservoir facies			
Presence of porosity			
Adequate seal			
Adequate timing			
Adequate source			
Adequate maturation			
Adequate preservation			
Adequate recovery			
Adequate play conditions		0.90	
Adequate prospect conditions			0.15

Table 5-4. Format for entry of number of prospects and pools.

Geological variable	Probability in upper percentiles 0.99	0.5	0.0
No of prospects	50	100	200
No of pools			

APPENDIX 2: STATISTICAL OUTPUT

PETRIMES MODULE MPRO

NO. OF POOLS DISTRIBUTION AND RISKS
****

UAI	C5539402
PLAY	Nechako Tertiary Structural gas play
Assessor	BC assessment team
Geologist	P. Hannigan, K. Osadetz
Operator	KOH
Run date	FRI, MAR 11, 1994, 10:03 AM

A) Risks

	GEOLOGICAL FACTOR		MARGINAL PROBABILITY
PLAY LEVEL	Adequacy of Recovery	(9)	.90
	Overall Play Level Risk	=	.90
PROSPECT LEVEL	Presence of Closure	(1)	.80
	Presence of Reservoir Facies	(2)	.50
	Adequate Seal	(4)	.50
	Adequate Timing	(5)	.60
	Adequate Source	(6)	.80
	Adequate Preservation	(8)	.33
	Overall Prospect Level Risk	=	.03
EXPLORATION RISK:		=	.03

B) No. of Prospects Distribution

Minimum = 10
Maximum = 600
Mean = 239.67
S.D. = 175.23

Frequency	No. of Prospects
99.00	10
95	24
90	41
80	74
75	91
60	142
50	175

40	260
25	388
20	430
10	515
5	558
1	592
0	600

C) No. of Pools Distribution

Minimum	=	0
Maximum	=	38
Mean	=	6.83
S.D.	=	6.29

Frequency	No. of Pools
83.44	0
80	1
75	2
60	3
50	5
40	7
25	11
20	13
10	16
5	19
1	23
0	38

PETRIMES MODULE PSRK

INDIVIDUAL POOL SIZES BY RANK
WHERE N IS A RANDOM VARIABLE
****

UAI	C5539402
PLAY	Nechako Tertiary Structural gas play
Assessor	BC assessment team
Geologist	P. Hannigan, K. Osadetz
Operator	KOH
Run date	THU, MAR 31, 1994, 2:23 PM

A) Basic Information

TYPE OF RESOURCE =Gas In Place
SYSTEM OF MEASUREMENT =S.I.
UNIT OF MEASUREMENT =M cu m (19)

B) Lognormal Pool Size Distribution

Summary Statistics	mu	= 6.4707	MEAN	= 2081.4		
	sig. sq	= 2.3402	S.D.	= 6375.8		
Upper Percentiles	99.99%	= 2.1846	60.00%	= 438.40	15.00%	= 3153.3
	99.00%	= 18.392	55.00%	= 532.96	10.00%	= 4587.9
	95.00%	= 52.166	50.00%	= 645.93	8.00%	= 5542.1
	90.00%	= 90.940	45.00%	= 782.83	6.00%	= 6968.4
	85.00%	= 132.31	40.00%	= 951.70	5.00%	= 7998.0
	80.00%	= 178.25	35.00%	= 1164.6	4.00%	= 9403.5
	75.00%	= 230.18	30.00%	= 1440.7	2.00%	= 14950.
	70.00%	= 289.59	25.00%	= 1812.6	1.00%	= 22685.
	65.00%	= 358.25	20.00%	= 2340.6	.01%	= .19098E+06

C) No. of Pools Distribution

Lower Support	= 0
Upper Support	= 38
Expectation	= 6.83
Standard Deviation	= 6.29

D) Pool Sizes By Rank

Pool Rank			Distribution			
1	MEAN	= 8717.7	S.D.	= 15995.	P(N>=r)	= .83445
	99%	= 85.494	75%	= 1896.9	10%	= 19323.
	95%	= 348.08	50%	= 4594.8	5%	= 29277.
	90%	= 696.91	25%	= 9852.3	1%	= 66385.
2	MEAN	= 3302.0	S.D.	= 3865.4	P(N>=r)	= .75299
	99%	= 48.319	75%	= 904.30	10%	= 7402.0
	95%	= 172.83	50%	= 2184.6	5%	= 10095.
	90%	= 333.94	25%	= 4322.5	1%	= 18063.
3	MEAN	= 2019.8	S.D.	= 2084.5	P(N>=r)	= .67277
	99%	= 35.793	75%	= 593.66	10%	= 4491.8
	95%	= 118.90	50%	= 1429.1	5%	= 5904.3

	90%	= 223.24	25%	= 2750.4	1%	= 9709.0
4	MEAN	= 1443.1	S.D.	= 1392.5	P(N>=r)	= .59802
	99%	= 29.656	75%	= 449.62	10%	= 3171.7
	95%	= 94.067	50%	= 1061.7	5%	= 4087.8
	90%	= 172.95	25%	= 1996.0	1%	= 6432.9
5	MEAN	= 1111.5	S.D.	= 1022.1	P(N>=r)	= .53107
	99%	= 26.190	75%	= 367.68	10%	= 2409.6
	95%	= 80.507	50%	= 841.06	5%	= 3067.3
	90%	= 145.52	25%	= 1545.3	1%	= 4699.0
6	MEAN	= 891.67	S.D.	= 790.16	P(N>=r)	= .47292
	99%	= 23.962	75%	= 311.90	10%	= 1908.0
	95%	= 71.864	50%	= 688.26	5%	= 2409.2
	90%	= 127.78	25%	= 1239.8	1%	= 3626.8
7	MEAN	= 732.07	S.D.	= 631.22	P(N>=r)	= .42296
	99%	= 22.218	75%	= 267.72	10%	= 1550.3
	95%	= 65.102	50%	= 572.15	5%	= 1947.4
	90%	= 113.76	25%	= 1015.9	1%	= 2898.5
8	MEAN	= 609.52	S.D.	= 516.03	P(N>=r)	= .37955
	99%	= 20.560	75%	= 229.86	10%	= 1281.8
	95%	= 58.811	50%	= 479.47	5%	= 1605.4
	90%	= 100.96	25%	= 843.76	1%	= 2372.5
9	MEAN	= 512.52	S.D.	= 429.29	P(N>=r)	= .34070
	99%	= 18.860	75%	= 196.96	10%	= 1073.7
	95%	= 52.647	50%	= 404.04	5%	= 1343.0
	90%	= 88.903	25%	= 707.89	1%	= 1976.6
10	MEAN	= 434.52	S.D.	= 362.09	P(N>=r)	= .30475
	99%	= 17.165	75%	= 168.77	10%	= 908.92
	95%	= 46.782	50%	= 342.33	5%	= 1136.7
	90%	= 77.847	25%	= 598.97	1%	= 1669.8
11	MEAN	= 371.25	S.D.	= 308.86	P(N>=r)	= .27059
	99%	= 15.560	75%	= 145.03	10%	= 776.44
	95%	= 41.456	50%	= 291.81	5%	= 971.58
	90%	= 68.094	25%	= 510.78	1%	= 1426.7
12	MEAN	= 319.60	S.D.	= 265.98	P(N>=r)	= .23769
	99%	= 14.103	75%	= 125.28	10%	= 668.71
	95%	= 36.789	50%	= 250.44	5%	= 837.67
	90%	= 59.729	25%	= 438.85	1%	= 1230.9
13	MEAN	= 277.18	S.D.	= 230.94	P(N>=r)	= .20594
	99%	= 12.817	75%	= 108.95	10%	= 580.27
	95%	= 32.785	50%	= 216.51	5%	= 727.85
	90%	= 52.668	25%	= 379.81	1%	= 1070.9
14	MEAN	= 242.17	S.D.	= 202.01	P(N>=r)	= .17556
	99%	= 11.698	75%	= 95.476	10%	= 507.11
	95%	= 29.385	50%	= 188.59	5%	= 636.98
	90%	= 46.750	25%	= 331.08	1%	= 938.84
15	MEAN	= 213.10	S.D.	= 177.90	P(N>=r)	= .14691
	99%	= 10.729	75%	= 84.336	10%	= 446.17
	95%	= 26.509	50%	= 165.55	5%	= 561.22

	90%	= 41.798	25%	= 290.65	1%	= 828.72
16	MEAN	= 188.85	S.D.	= 157.66	P(N>=r)	= .12043
	99%	= 9.8931	75%	= 75.100	10%	= 395.14
	95%	= 24.076	50%	= 146.46	5%	= 497.64
	90%	= 37.651	25%	= 256.96	1%	= 736.19
17	MEAN	= 168.53	S.D.	= 140.56	P(N>=r)	= .96536E-01
	99%	= 9.1719	75%	= 67.411	10%	= 352.17
	95%	= 22.014	50%	= 130.56	5%	= 443.98
	90%	= 34.166	25%	= 228.76	1%	= 657.92
18	MEAN	= 151.40	S.D.	= 126.04	P(N>=r)	= .75550E-01
	99%	= 8.5484	75%	= 60.979	10%	= 315.83
	95%	= 20.260	50%	= 117.28	5%	= 398.46
	90%	= 31.225	25%	= 205.03	1%	= 591.32
19	MEAN	= 136.90	S.D.	= 113.64	P(N>=r)	= .57647E-01
	99%	= 8.0077	75%	= 55.568	10%	= 284.94
	95%	= 18.762	50%	= 106.11	5%	= 359.67
	90%	= 28.731	25%	= 184.99	1%	= 534.33
20	MEAN	= 124.56	S.D.	= 103.01	P(N>=r)	= .42839E-01
	99%	= 7.5372	75%	= 50.988	10%	= 258.58
	95%	= 17.475	50%	= 96.671	5%	= 326.46
	90%	= 26.604	25%	= 167.98	1%	= 485.33
21	MEAN	= 114.01	S.D.	= 93.843	P(N>=r)	= .30977E-01
	99%	= 7.1259	75%	= 47.088	10%	= 235.97
	95%	= 16.365	50%	= 88.647	5%	= 297.89
	90%	= 24.778	25%	= 153.46	1%	= 442.99
22	MEAN	= 104.93	S.D.	= 85.908	P(N>=r)	= .21782E-01
	99%	= 6.7647	75%	= 43.744	10%	= 216.49
	95%	= 15.400	50%	= 81.784	5%	= 273.20
	90%	= 23.202	25%	= 141.01	1%	= 406.24
23	MEAN	= 97.086	S.D.	= 79.005	P(N>=r)	= .14887E-01
	99%	= 6.4458	75%	= 40.858	10%	= 199.61
	95%	= 14.557	50%	= 75.878	5%	= 251.77
	90%	= 21.833	25%	= 130.27	1%	= 374.17

E) The mean of the potential = 14221.

PETRIMES MODULE MPRO

NO. OF POOLS DISTRIBUTION AND RISKS
****

UAI	C5549402
PLAY	Nechako Tertiary Structural oil play
Assessor	BC assessment team
Geologist	P. Hannigan, K. Osadetz
Operator	KOH
Run date	WED, MAR 16, 1994, 2:33 PM

A) Risks

	GEOLOGICAL FACTOR		MARGINAL PROBABILITY
PLAY LEVEL	Adequate Play Conditions	(19)	.90
	Overall Play Level Risk	=	.90
PROSPECT LEVEL	Adequate Prospect Conditions	(20)	.02
	Overall Prospect Level Risk	=	.02
EXPLORATION RISK:		=	.02

B) No. of Prospects Distribution

Minimum	=	10
Maximum	=	600
Mean	=	239.67
S.D.	=	175.23

Frequency	No. of Prospects
99.00	10
95	24
90	41
80	74
75	91
60	142
50	175
40	260
25	388

20	430
10	515
5	558
1	592
0	600

C) No. of Pools Distribution

Minimum	=	0
Maximum	=	28
Mean	=	4.31
S.D.	=	4.17

Frequency	No. of Pools
78.79	0
75	1
60	2
50	3
40	4
25	7
20	8
10	11
5	12
1	16
0	28

PETRIMES MODULE PSRK

INDIVIDUAL POOL SIZES BY RANK
WHERE N IS A RANDOM VARIABLE
****

UAI	C5549402
PLAY	Nechako Tertiary Structural oil play
Assessor	BC assessment team
Geologist	P. Hannigan, K. Osadetz
Operator	KOH
Remarks	RESOURCES
Run date	WED, MAR 16, 1994, 3:19 PM

A) Basic Information

TYPE OF RESOURCE =Oil In Place
SYSTEM OF MEASUREMENT =S.I.
UNIT OF MEASUREMENT =M cu m (19)

B) Lognormal Pool Size Distribution

Summary Statistics	mu = .65233	MEAN = 5.0279		
	sig. sq= 1.9254	S.D. = 12.169		
Upper Percentiles	99.99% = .11020E-01	60.00% = 1.3509	15.00% = 8.0886
	99.00% = .76104E-01	55.00% = 1.6128	10.00% = 11.365
	95.00% = .19592	50.00% = 1.9200	8.00% = 13.490
	90.00% = .32435	45.00% = 2.2857	6.00% = 16.605
	85.00% = .45575	40.00% = 2.7288	5.00% = 18.816
	80.00% = .59721	35.00% = 3.2772	4.00% = 21.792
	75.00% = .75308	30.00% = 3.9748	2.00% = 33.184
	70.00% = .92745	25.00% = 4.8951	1.00% = 48.439
	65.00% = 1.1249	20.00% = 6.1727	.01% = 334.53

C) No. of Pools Distribution

Lower Support = 0
Upper Support = 28
Expectation = 4.31
Standard Deviation= 4.17

D) Pool Sizes By Rank

Pool Rank		Distribution	
1	MEAN = 15.120	S.D. = 24.823	P(N>=r)= .78794
	99% = .22491	75% = 3.6020	10% = 33.573
	95% = .75900	50% = 8.4022	5% = 49.878
	90% = 1.4187	25% = 17.575	1% = 108.05
2	MEAN = 6.0462	S.D. = 6.6909	P(N>=r)= .66600
	99% = .14142	75% = 1.8301	10% = 13.343
	95% = .42311	50% = 4.1181	5% = 18.020
	90% = .75246	25% = 7.9170	1% = 31.537
3	MEAN = 3.7703	S.D. = 3.6878	P(N>=r)= .55778
	99% = .11184	75% = 1.2586	10% = 8.1827

	95%	= .31426	50%	= 2.7387	5%	= 10.689
	90%	= .54067	25%	= 5.0775	1%	= 17.343
4	MEAN	= 2.7030	S.D.	= 2.4729	P(N>=r)	= .46711
	99%	= .96019E-01	75%	= .96740	10%	= 5.7748
	95%	= .25867	50%	= 2.0315	5%	= 7.4168
	90%	= .43366	25%	= 3.6711	1%	= 11.586
5	MEAN	= 2.0633	S.D.	= 1.8107	P(N>=r)	= .39216
	99%	= .84743E-01	75%	= .77582	10%	= 4.3553
	95%	= .22050	50%	= 1.5807	5%	= 5.5410
	90%	= .36140	25%	= 2.8073	1%	= 8.4719
6	MEAN	= 1.6300	S.D.	= 1.3944	P(N>=r)	= .32870
	99%	= .75086E-01	75%	= .63280	10%	= 3.4138
	95%	= .18930	50%	= 1.2612	5%	= 4.3209
	90%	= .30420	25%	= 2.2166	1%	= 6.5246
7	MEAN	= 1.3182	S.D.	= 1.1105	P(N>=r)	= .27284
	99%	= .66504E-01	75%	= .52223	10%	= 2.7478
	95%	= .16292	50%	= 1.0246	5%	= 3.4689
	90%	= .25741	25%	= 1.7902	1%	= 5.2009
8	MEAN	= 1.0868	S.D.	= .90668	P(N>=r)	= .22236
	99%	= .59112E-01	75%	= .43675	10%	= 2.2583
	95%	= .14113	50%	= .84633	5%	= 2.8475
	90%	= .21977	25%	= 1.4732	1%	= 4.2522
9	MEAN	= .91160	S.D.	= .75491	P(N>=r)	= .17666
	99%	= .52946E-01	75%	= .37086	10%	= 1.8890
	95%	= .12357	50%	= .71074	5%	= 2.3806
	90%	= .19000	25%	= 1.2331	1%	= 3.5471
10	MEAN	= .77692	S.D.	= .63891	P(N>=r)	= .13607
	99%	= .47879E-01	75%	= .31992	10%	= 1.6049
	95%	= .10954	50%	= .60657	5%	= 2.0220
	90%	= .16657	25%	= 1.0485	1%	= 3.0085
11	MEAN	= .67185	S.D.	= .54840	P(N>=r)	= .10121
	99%	= .43726E-01	75%	= .28019	10%	= 1.3828
	95%	= .98310E-01	50%	= .52562	5%	= 1.7415
	90%	= .14804	25%	= .90447	1%	= 2.5883
12	MEAN	= .58875	S.D.	= .47661	P(N>=r)	= .72504E-01
	99%	= .40303E-01	75%	= .24882	10%	= 1.2066
	95%	= .89246E-01	50%	= .46192	5%	= 1.5187
	90%	= .13323	25%	= .79071	1%	= 2.2547
13	MEAN	= .52215	S.D.	= .41885	P(N>=r)	= .49928E-01
	99%	= .37459E-01	75%	= .22373	10%	= 1.0651
	95%	= .81847E-01	50%	= .41112	5%	= 1.3394
	90%	= .12125	25%	= .69971	1%	= 1.9859
14	MEAN	= .46810	S.D.	= .37180	P(N>=r)	= .33011E-01
	99%	= .35072E-01	75%	= .20338	10%	= .95006
	95%	= .75736E-01	50%	= .37009	5%	= 1.1934
	90%	= .11144	25%	= .62603	1%	= 1.7665
15	MEAN	= .42372	S.D.	= .33304	P(N>=r)	= .20942E-01
	99%	= .33048E-01	75%	= .18665	10%	= .85551

	95%	= .70627E-01	50%	= .33653	5%	= 1.0731
	90%	= .10330	25%	= .56566	1%	= 1.5853
16	MEAN	= .38686	S.D.	= .30077	P(N>=r)	= .12745E-01
	99%	= .31315E-01	75%	= .17273	10%	= .77696
	95%	= .66308E-01	50%	= .30872	5%	= .97305
	90%	= .96461E-01	25%	= .51565	1%	= 1.4341

E) The mean of the potential = 21.685

PETRIMES MODULE MPRO

NO. OF POOLS DISTRIBUTION AND RISKS
****

UAI	C5559402
PLAY	Nechako Upper Cretaceous Structural gas play
Assessor	BC assessment team
Geologist	P. Hannigan, K. Osadetz
Operator	KOH
Run date	THU, APR 7, 1994, 2:04 PM

A) Risks

	GEOLOGICAL FACTOR		MARGINAL PROBABILITY
PLAY LEVEL	Adequate Play Conditions	(19)	.90
	Overall Play Level Risk	=	.90
PROSPECT LEVEL	Presence of Closure	(1)	.50
	Presence of Reservoir Facies	(2)	.50
	Adequate Seal	(4)	.50
	Adequate Timing	(5)	.60
	Adequate Source	(6)	.80
	Adequate Preservation	(8)	.33
	Overall Prospect Level Risk	=	.02
EXPLORATION RISK:		=	.02

B) No. of Prospects Distribution

Minimum	=	5
Maximum	=	100
Mean	=	51.52
S.D.	=	27.69

Frequency	No. of Prospects
99.00	5
95	9
90	14
80	23
75	28
60	41
50	50

40	60
25	75
20	80
10	90
5	95
1	99
0	100

C) <u>No. of Pools Distribution</u>

Minimum	=	0
Maximum	=	10
Mean	=	.92
S.D.	=	1.12

Frequency	No. of Pools
52.77	0
50	1
40	1
25	1
20	2
10	2
5	3
1	4
0	10

PETRIMES MODULE PSRK

INDIVIDUAL POOL SIZES BY RANK
WHERE N IS A RANDOM VARIABLE
****

UAI	C5559402
PLAY	Nechako Upper Cretaceous Structural gas play
Assessor	BC assessment team
Geologist	P. Hannigan, K. Osadetz
Operator	KOH
Run date	THU, APR 7, 1994, 2:10 PM

A) Basic Information

TYPE OF RESOURCE =Gas In Place
SYSTEM OF MEASUREMENT =S.I.
UNIT OF MEASUREMENT =M cu m (19)

B) Lognormal Pool Size Distribution

Summary Statistics	mu = 5.7130	MEAN = 708.08	
	sig. sq= 1.6991	S.D. = 1496.9	
Upper Percentiles	99.99% = 2.3756	60.00% = 217.62	15.00% = 1169.1
	99.00% = 14.594	55.00% = 257.03	10.00% = 1609.2
	95.00% = 35.479	50.00% = 302.78	8.00% = 1890.3
	90.00% = 56.969	45.00% = 356.67	6.00% = 2297.7
	85.00% = 78.415	40.00% = 421.26	5.00% = 2583.9
	80.00% = 101.08	35.00% = 500.33	4.00% = 2966.1
	75.00% = 125.69	30.00% = 599.78	2.00% = 4403.1
	70.00% = 152.85	25.00% = 729.38	1.00% = 6281.7
	65.00% = 183.23	20.00% = 906.92	.01% = 38590.

C) No. of Pools Distribution

Lower Support = 0
Upper Support = 10
Expectation = .92
Standard Deviation= 1.12

D) Pool Sizes By Rank

Pool Rank		Distribution	
1	MEAN = 1013.4	S.D. = 1888.6	P(N>=r)= .52775
	99% = 20.058	75% = 202.87	10% = 2304.5
	95% = 52.620	50% = 486.93	5% = 3563.0
	90% = 87.934	25% = 1113.6	1% = 8148.0
2	MEAN = 356.95	S.D. = 450.54	P(N>=r)= .24766
	99% = 13.289	75% = 101.75	10% = 802.73
	95% = 31.373	50% = 217.75	5% = 1134.8
	90% = 49.162	25% = 441.38	1% = 2142.9
3	MEAN = 211.10	S.D. = 229.78	P(N>=r)= .97521E-01
	99% = 10.562	75% = 70.068	10% = 462.66
	95% = 23.660	50% = 140.76	5% = 631.42

	90%	= 35.882		25%	= 268.74		1%	= 1108.2
4	MEAN	= 149.77		S.D.	= 148.91		P(N>=r)=	.32680E-01
	99%	= 9.0314		75%	= 54.684		10%	= 320.76
	95%	= 19.572		50%	= 105.28		5%	= 428.52
	90%	= 29.076		25%	= 193.00		1%	= 721.04

E) The mean of the potential = 648.69

PETRIMES MODULE MPRO

NO. OF POOLS DISTRIBUTION AND RISKS
****

UAI	C5569402
PLAY	Nechako Upper Cretaceous Structural oil play
Assessor	BC assessment team
Geologist	P. Hannigan, K. Osadetz
Operator	KOH
Run date	THU, APR 7, 1994, 2:49 PM

A) Risks

	GEOLOGICAL FACTOR		MARGINAL PROBABILITY
PLAY LEVEL	Adequate Play Conditions	(19)	.90
	Overall Play Level Risk	=	.90
PROSPECT LEVEL	Presence of Closure	(1)	.50
	Presence of Reservoir Facies	(2)	.50
	Adequate Seal	(4)	.50
	Adequate Timing	(5)	.60
	Adequate Source	(6)	.80
	Adequate Preservation	(8)	.33
	Overall Prospect Level Risk	=	.02
EXPLORATION RISK:		=	.02

B) No. of Prospects Distribution

Minimum	=	5
Maximum	=	100
Mean	=	51.52
S.D.	=	27.69

Frequency	No. of Prospects
99.00	5
95	9
90	14
80	23
75	28
60	41
50	50

40	60
25	75
20	80
10	90
5	95
1	99
0	100

C) <u>No. of Pools Distribution</u>

Minimum	=	0
Maximum	=	10
Mean	=	.92
S.D.	=	1.12

Frequency	No. of Pools
52.77	0
50	1
40	1
25	1
20	2
10	2
5	3
1	4
0	10

PETRIMES MODULE PSRK

INDIVIDUAL POOL SIZES BY RANK
WHERE N IS A RANDOM VARIABLE
****

UAI	C5569402
PLAY	Nechako Upper Cretaceous Structural oil play
Assessor	BC assessment team
Geologist	P. Hannigan, K. Osadetz
Operator	KOH
Run date	THU, APR 7, 1994, 2:54 PM

A) Basic Information

TYPE OF RESOURCE =Oil In Place
SYSTEM OF MEASUREMENT =S.I.
UNIT OF MEASUREMENT =M cu m (19)

B) Lognormal Pool Size Distribution

Summary Statistics	mu = .15700		MEAN = 2.2168		
	sig. sq= 1.2781		S.D. = 3.5675		

Upper Percentiles	99.99%	= .17466E-01	60.00%	= .87861	15.00%	= 3.7763
	99.00%	= .84329E-01	55.00%	= 1.0151	10.00%	= 4.9821
	95.00%	= .18221	50.00%	= 1.1700	8.00%	= 5.7287
	90.00%	= .27476	45.00%	= 1.3486	6.00%	= 6.7852
	85.00%	= .36250	40.00%	= 1.5580	5.00%	= 7.5126
	80.00%	= .45181	35.00%	= 1.8087	4.00%	= 8.4674
	75.00%	= .54578	30.00%	= 2.1167	2.00%	= 11.928
	70.00%	= .64671	25.00%	= 2.5081	1.00%	= 16.233
	65.00%	= .75683	20.00%	= 3.0298	.01%	= 78.375

C) No. of Pools Distribution

Lower Support = 0
Upper Support = 10
Expectation = .92
Standard Deviation= 1.12

D) Pool Sizes By Rank

Pool Rank			Distribution			
1	MEAN	= 3.0597	S.D.	= 4.4130	P(N>=r)	= .52775
	99%	= .11111	75%	= .82671	10%	= 6.8027
	95%	= .25648	50%	= 1.7666	5%	= 9.9268
	90%	= .40037	25%	= 3.6202	1%	= 20.341
2	MEAN	= 1.2727	S.D.	= 1.3227	P(N>=r)	= .24766
	99%	= .77749E-01	75%	= .45438	10%	= 2.7255
	95%	= .16378	50%	= .87905	5%	= 3.6799
	90%	= .24179	25%	= 1.6224	1%	= 6.3871
3	MEAN	= .81500	S.D.	= .74226	P(N>=r)	= .97521E-01
	99%	= .63706E-01	75%	= .32879	10%	= 1.6900
	95%	= .12822	50%	= .60211	5%	= 2.2132

	90%	= .18401	25%	= 1.0550	1%	= 3.6049
4	MEAN	= .60866	S.D.	= .51008	P(N>=r)	= .32680E-01
	99%	= .55618E-01	75%	= .26518	10%	= 1.2300
	95%	= .10878	50%	= .46803	5%	= 1.5813
	90%	= .15333	25%	= .79172	1%	= 2.4832

E) The mean of the potential = 2.0293

PETRIMES MODULE MPRO

NO. OF POOLS DISTRIBUTION AND RISKS
****

UAI	C5579402
PLAY	Nechako Skeena Structural gas play
Assessor	BC assessment team
Geologist	P. Hannigan, K. Osadetz
Operator	KOH
Run date	WED, APR 6, 1994, 2:17 PM

A) Risks

	GEOLOGICAL FACTOR		MARGINAL PROBABILITY
PLAY LEVEL	Overall Play Level Risk	=	1.00
PROSPECT LEVEL	Presence of Closure	(1)	.50
	Presence of Reservoir Facies	(2)	.80
	Adequate Seal	(4)	.90
	Adequate Timing	(5)	.60
	Adequate Source	(6)	.80
	Adequate Preservation	(8)	.33
	Overall Prospect Level Risk	=	.06
EXPLORATION RISK:		=	.06

B) No. of Prospects Distribution

Minimum = 100
Maximum = 2000
Mean = 1021.00
S.D. = 553.76

Frequency	No. of Prospects
99.00	100
95	174
90	266
80	449
75	541
60	817
50	1000
40	1200

25	1500
20	1600
10	1800
5	1900
1	1980
0	2000

C) No. of Pools Distribution

Minimum	=	0
Maximum	=	154
Mean	=	58.22
S.D.	=	32.44

Frequency	No. of Pools
99.99	0
99	5
95	9
90	15
80	25
75	30
60	46
50	57
40	68
25	85
20	91
10	103
5	111
1	122
0	154

PETRIMES MODULE PSRK

INDIVIDUAL POOL SIZES BY RANK
WHERE N IS A RANDOM VARIABLE
****

UAI	C5579402
PLAY	Nechako Skeena Structural gas play
Assessor	BC assessment team
Geologist	P. Hannigan, K. Osadetz
Operator	KOH
Run date	WED, APR 6, 1994, 2:22 PM

A) Basic Information

TYPE OF RESOURCE =Gas In Place
SYSTEM OF MEASUREMENT =S.I.
UNIT OF MEASUREMENT =M cu m (19)

B) Lognormal Pool Size Distribution

Summary Statistics	mu	= 7.5048	MEAN	= 4248.5		
	sig. sq	= 1.6991	S.D.	= 8981.4		
Upper Percentiles	99.99%	= 14.254	60.00%	= 1305.7	15.00%	= 7014.6
	99.00%	= 87.564	55.00%	= 1542.2	10.00%	= 9655.3
	95.00%	= 212.87	50.00%	= 1816.7	8.00%	= 11342.
	90.00%	= 341.81	45.00%	= 2140.0	6.00%	= 13786.
	85.00%	= 470.49	40.00%	= 2527.5	5.00%	= 15504.
	80.00%	= 606.50	35.00%	= 3002.0	4.00%	= 17797.
	75.00%	= 754.13	30.00%	= 3598.7	2.00%	= 26419.
	70.00%	= 917.09	25.00%	= 4376.3	1.00%	= 37690.
	65.00%	= 1099.4	20.00%	= 5441.5	.01%	= .23154E+06

C) No. of Pools Distribution

Lower Support = 0
Upper Support = 154
Expectation = 58.22
Standard Deviation= 32.44

D) Pool Sizes By Rank

Pool Rank	Distribution					
1	MEAN	= 42451.	S.D.	= 39800.	P(N>=r)	= .99995
	99%	= 4143.4	75%	= 20529.	10%	= 80094.
	95%	= 8876.0	50%	= 32573.	5%	= .10681E+06
	90%	= 12599.	25%	= 51404.	1%	= .19275E+06
2	MEAN	= 23072.	S.D.	= 14753.	P(N>=r)	= .99960
	99%	= 2202.6	75%	= 13179.	10%	= 40800.
	95%	= 5215.7	50%	= 20415.	5%	= 49714.
	90%	= 7737.7	25%	= 29542.	1%	= 73350.
3	MEAN	= 16796.	S.D.	= 9746.3	P(N>=r)	= .99844
	99%	= 1341.1	75%	= 9919.7	10%	= 29076.
	95%	= 3558.3	50%	= 15552.	5%	= 34330.

	90%	= 5528.7	25%	= 21943.	1%	= 47140.
4	MEAN	= 13459.	S.D.	= 7551.4	P(N>=r)	= .99584
	99%	= 890.79	75%	= 7991.4	10%	= 23126.
	95%	= 2618.7	50%	= 12757.	5%	= 26860.
	90%	= 4248.7	25%	= 17825.	1%	= 35529.
5	MEAN	= 11331.	S.D.	= 6274.9	P(N>=r)	= .99140
	99%	= 645.89	75%	= 6706.0	10%	= 19420.
	95%	= 2041.7	50%	= 10893.	5%	= 22326.
	90%	= 3431.1	25%	= 15162.	1%	= 28852.
6	MEAN	= 9836.6	S.D.	= 5416.1	P(N>=r)	= .98508
	99%	= 508.68	75%	= 5789.2	10%	= 16846.
	95%	= 1672.9	50%	= 9544.0	5%	= 19230.
	90%	= 2880.1	25%	= 13267.	1%	= 24454.
7	MEAN	= 8720.4	S.D.	= 4786.4	P(N>=r)	= .97727
	99%	= 428.09	75%	= 5103.1	10%	= 14932.
	95%	= 1427.9	50%	= 8513.5	5%	= 16957.
	90%	= 2491.8	25%	= 11834.	1%	= 21308.
8	MEAN	= 7848.6	S.D.	= 4298.9	P(N>=r)	= .96848
	99%	= 377.44	75%	= 4568.8	10%	= 13440.
	95%	= 1256.7	50%	= 7695.0	5%	= 15201.
	90%	= 2205.0	25%	= 10702.	1%	= 18927.
9	MEAN	= 7144.1	S.D.	= 3907.7	P(N>=r)	= .95916
	99%	= 342.75	75%	= 4138.5	10%	= 12236.
	95%	= 1129.3	50%	= 7025.0	5%	= 13795.
	90%	= 1983.0	25%	= 9779.1	1%	= 17051.
10	MEAN	= 6559.6	S.D.	= 3585.2	P(N>=r)	= .94963
	99%	= 316.75	75%	= 3782.4	10%	= 11239.
	95%	= 1029.1	50%	= 6463.6	5%	= 12639.
	90%	= 1804.0	25%	= 9008.7	1%	= 15528.
11	MEAN	= 6064.7	S.D.	= 3314.0	P(N>=r)	= .94004
	99%	= 295.78	75%	= 3481.5	10%	= 10397.
	95%	= 946.75	50%	= 5983.8	5%	= 11667.
	90%	= 1655.3	25%	= 8353.0	1%	= 14263.
12	MEAN	= 5639.0	S.D.	= 3081.9	P(N>=r)	= .93046
	99%	= 278.04	75%	= 3223.3	10%	= 9674.2
	95%	= 877.18	50%	= 5567.9	5%	= 10836.
	90%	= 1529.2	25%	= 7786.5	1%	= 13192.
13	MEAN	= 5268.1	S.D.	= 2880.5	P(N>=r)	= .92088
	99%	= 262.64	75%	= 2999.1	10%	= 9044.9
	95%	= 817.38	50%	= 5203.6	5%	= 10115.
	90%	= 1420.7	25%	= 7291.0	1%	= 12271.
14	MEAN	= 4941.6	S.D.	= 2703.6	P(N>=r)	= .91132
	99%	= 249.09	75%	= 2802.3	10%	= 8491.2
	95%	= 765.37	50%	= 4881.6	5%	= 9483.8
	90%	= 1326.5	25%	= 6852.9	1%	= 11469.
15	MEAN	= 4651.5	S.D.	= 2546.7	P(N>=r)	= .90175
	99%	= 237.04	75%	= 2628.3	10%	= 7999.4
	95%	= 719.74	50%	= 4594.9	5%	= 8924.6

	90%	= 1243.8	25%	= 6462.1	1%	= 10764.
16	MEAN	= 4391.9	S.D.	= 2406.3	P(N>=r)	= .89218
	99%	= 226.27	75%	= 2473.5	10%	= 7559.1
	95%	= 679.40	50%	= 4338.6	5%	= 8425.3
	90%	= 1170.8	25%	= 6110.8	1%	= 10138.
17	MEAN	= 4158.0	S.D.	= 2279.8	P(N>=r)	= .88261
	99%	= 216.56	75%	= 2334.9	10%	= 7162.2
	95%	= 643.53	50%	= 4107.7	5%	= 7976.2
	90%	= 1105.9	25%	= 5793.7	1%	= 9578.0
18	MEAN	= 3945.9	S.D.	= 2165.0	P(N>=r)	= .87303
	99%	= 207.78	75%	= 2210.1	10%	= 6802.2
	95%	= 611.47	50%	= 3898.8	5%	= 7569.6
	90%	= 1047.8	25%	= 5506.4	1%	= 9073.4
19	MEAN	= 3752.7	S.D.	= 2060.3	P(N>=r)	= .86344
	99%	= 199.80	75%	= 2097.0	10%	= 6474.6
	95%	= 582.70	50%	= 3708.6	5%	= 7199.6
	90%	= 995.59	25%	= 5244.7	1%	= 8615.9
20	MEAN	= 3575.8	S.D.	= 1964.3	P(N>=r)	= .85384
	99%	= 192.54	75%	= 1993.7	10%	= 6176.0
	95%	= 556.77	50%	= 3534.5	5%	= 6861.5
	90%	= 948.37	25%	= 5005.2	1%	= 8199.0
21	MEAN	= 3413.2	S.D.	= 1875.8	P(N>=r)	= .84423
	99%	= 185.93	75%	= 1899.1	10%	= 5901.7
	95%	= 533.32	50%	= 3373.9	5%	= 6551.5
	90%	= 905.44	25%	= 4783.9	1%	= 7817.2
22	MEAN	= 3263.1	S.D.	= 1794.0	P(N>=r)	= .83462
	99%	= 179.89	75%	= 1812.0	10%	= 5648.5
	95%	= 512.00	50%	= 3225.7	5%	= 6267.4
	90%	= 866.18	25%	= 4578.7	1%	= 7466.2
23	MEAN	= 3124.1	S.D.	= 1718.1	P(N>=r)	= .82502
	99%	= 174.37	75%	= 1731.6	10%	= 5413.0
	95%	= 492.50	50%	= 3087.6	5%	= 6003.9
	90%	= 830.06	25%	= 4387.1	1%	= 7142.2
24	MEAN	= 2994.8	S.D.	= 1647.5	P(N>=r)	= .81543
	99%	= 169.30	75%	= 1657.1	10%	= 5192.3
	95%	= 474.54	50%	= 2958.8	5%	= 5758.2
	90%	= 796.60	25%	= 4208.1	1%	= 6842.4
25	MEAN	= 2874.3	S.D.	= 1581.6	P(N>=r)	= .80586
	99%	= 164.60	75%	= 1588.0	10%	= 4985.1
	95%	= 457.83	50%	= 2838.5	5%	= 5527.3
	90%	= 765.43	25%	= 4040.3	1%	= 6563.3
26	MEAN	= 2761.6	S.D.	= 1520.0	P(N>=r)	= .79632
	99%	= 160.21	75%	= 1523.5	10%	= 4790.4
	95%	= 442.16	50%	= 2725.9	5%	= 5310.2
	90%	= 736.24	25%	= 3882.8	1%	= 6301.0
27	MEAN	= 2655.9	S.D.	= 1462.2	P(N>=r)	= .78681
	99%	= 156.06	75%	= 1463.4	10%	= 4607.6
	95%	= 427.35	50%	= 2620.5	5%	= 5105.9

	90%	= 708.78	25%	= 3734.8	1%	= 6053.1
28	MEAN	= 2556.6	S.D.	= 1407.9	P(N>=r)	= .77733
	99%	= 152.08	75%	= 1407.0	10%	= 4435.8
	95%	= 413.25	50%	= 2521.4	5%	= 4913.9
	90%	= 682.87	25%	= 3595.7	1%	= 5818.3
29	MEAN	= 2463.1	S.D.	= 1356.7	P(N>=r)	= .76787
	99%	= 148.24	75%	= 1354.1	10%	= 4274.0
	95%	= 399.80	50%	= 2428.2	5%	= 4734.0
	90%	= 658.39	25%	= 3464.7	1%	= 5598.7
30	MEAN	= 2374.8	S.D.	= 1308.4	P(N>=r)	= .75843
	99%	= 144.51	75%	= 1304.6	10%	= 4121.6
	95%	= 386.95	50%	= 2340.5	5%	= 4564.6
	90%	= 635.27	25%	= 3341.0	1%	= 5392.8
31	MEAN	= 2291.5	S.D.	= 1262.7	P(N>=r)	= .74899
	99%	= 140.90	75%	= 1257.8	10%	= 3977.8
	95%	= 374.70	50%	= 2257.6	5%	= 4405.0
	90%	= 613.44	25%	= 3224.1	1%	= 5200.1
32	MEAN	= 2212.6	S.D.	= 1219.4	P(N>=r)	= .73954
	99%	= 137.40	75%	= 1213.8	10%	= 3841.7
	95%	= 363.06	50%	= 2179.2	5%	= 4254.1
	90%	= 592.87	25%	= 3113.3	1%	= 5019.6
33	MEAN	= 2137.9	S.D.	= 1178.3	P(N>=r)	= .73007
	99%	= 134.04	75%	= 1172.6	10%	= 3712.7
	95%	= 352.04	50%	= 2105.0	5%	= 4111.4
	90%	= 573.49	25%	= 3008.2	1%	= 4850.2
34	MEAN	= 2067.1	S.D.	= 1139.2	P(N>=r)	= .72059
	99%	= 130.82	75%	= 1133.5	10%	= 3590.2
	95%	= 341.64	50%	= 2034.6	5%	= 3975.9
	90%	= 555.27	25%	= 2908.4	1%	= 4690.1
35	MEAN	= 1999.8	S.D.	= 1101.9	P(N>=r)	= .71108
	99%	= 127.76	75%	= 1096.7	10%	= 3473.6
	95%	= 331.84	50%	= 1967.8	5%	= 3847.1
	90%	= 538.14	25%	= 2813.4	1%	= 4538.3
36	MEAN	= 1935.8	S.D.	= 1066.3	P(N>=r)	= .70154
	99%	= 124.85	75%	= 1061.9	10%	= 3362.6
	95%	= 322.62	50%	= 1904.3	5%	= 3724.5
	90%	= 522.00	25%	= 2722.9	1%	= 4394.1
37	MEAN	= 1874.9	S.D.	= 1032.3	P(N>=r)	= .69199
	99%	= 122.11	75%	= 1028.9	10%	= 3256.6
	95%	= 313.93	50%	= 1843.9	5%	= 3607.5
	90%	= 506.79	25%	= 2636.5	1%	= 4256.7
38	MEAN	= 1816.9	S.D.	= 999.78	P(N>=r)	= .68242
	99%	= 119.50	75%	= 997.67	10%	= 3155.5
	95%	= 305.72	50%	= 1786.2	5%	= 3495.9
	90%	= 492.41	25%	= 2554.0	1%	= 4125.7
39	MEAN	= 1761.4	S.D.	= 968.63	P(N>=r)	= .67284
	99%	= 117.04	75%	= 967.91	10%	= 3058.7
	95%	= 297.95	50%	= 1731.2	5%	= 3389.1

	90%	= 478.79	25%	= 2475.1	1%	= 4000.5
40	MEAN	= 1708.4	S.D.	= 938.77	P(N>=r)	= .66327
	99%	= 114.69	75%	= 939.55	10%	= 2966.1
	95%	= 290.57	50%	= 1678.6	5%	= 3287.0
	90%	= 465.85	25%	= 2399.5	1%	= 3880.9
41	MEAN	= 1657.6	S.D.	= 910.13	P(N>=r)	= .65369
	99%	= 112.44	75%	= 912.61	10%	= 2877.3
	95%	= 283.54	50%	= 1628.2	5%	= 3189.1
	90%	= 453.53	25%	= 2327.1	1%	= 3766.3
42	MEAN	= 1609.0	S.D.	= 882.63	P(N>=r)	= .64413
	99%	= 110.29	75%	= 886.79	10%	= 2792.2
	95%	= 276.82	50%	= 1580.0	5%	= 3095.3
	90%	= 441.79	25%	= 2257.6	1%	= 3656.5
43	MEAN	= 1562.4	S.D.	= 856.21	P(N>=r)	= .63457
	99%	= 108.21	75%	= 862.13	10%	= 2710.4
	95%	= 270.39	50%	= 1533.7	5%	= 3005.2
	90%	= 430.58	25%	= 2190.8	1%	= 3551.1
44	MEAN	= 1517.6	S.D.	= 830.80	P(N>=r)	= .62503
	99%	= 106.22	75%	= 838.54	10%	= 2631.8
	95%	= 264.23	50%	= 1489.2	5%	= 2918.7
	90%	= 419.86	25%	= 2126.7	1%	= 3450.0
45	MEAN	= 1474.5	S.D.	= 806.34	P(N>=r)	= .61550
	99%	= 104.29	75%	= 815.97	10%	= 2556.2
	95%	= 258.33	50%	= 1446.4	5%	= 2835.4
	90%	= 409.62	25%	= 2065.0	1%	= 3352.8
46	MEAN	= 1433.1	S.D.	= 782.78	P(N>=r)	= .60598
	99%	= 102.43	75%	= 794.35	10%	= 2483.5
	95%	= 252.66	50%	= 1405.2	5%	= 2755.4
	90%	= 399.81	25%	= 2005.5	1%	= 3259.4
47	MEAN	= 1393.2	S.D.	= 760.08	P(N>=r)	= .59649
	99%	= 100.64	75%	= 773.60	10%	= 2413.4
	95%	= 247.23	50%	= 1365.6	5%	= 2678.2
	90%	= 390.43	25%	= 1948.2	1%	= 3169.4
48	MEAN	= 1354.8	S.D.	= 738.17	P(N>=r)	= .58701
	99%	= 98.908	75%	= 753.66	10%	= 2345.8
	95%	= 242.02	50%	= 1327.4	5%	= 2603.9
	90%	= 381.44	25%	= 1893.0	1%	= 3082.7
49	MEAN	= 1317.7	S.D.	= 717.04	P(N>=r)	= .57755
	99%	= 97.240	75%	= 734.47	10%	= 2280.6
	95%	= 237.02	50%	= 1290.5	5%	= 2532.2
	90%	= 372.82	25%	= 1839.7	1%	= 2999.2
50	MEAN	= 1281.9	S.D.	= 696.62	P(N>=r)	= .56812
	99%	= 95.631	75%	= 715.96	10%	= 2217.7
	95%	= 232.21	50%	= 1254.9	5%	= 2463.0
	90%	= 364.54	25%	= 1788.2	1%	= 2918.6
51	MEAN	= 1247.3	S.D.	= 676.90	P(N>=r)	= .55872
	99%	= 94.079	75%	= 698.08	10%	= 2156.9
	95%	= 227.59	50%	= 1220.4	5%	= 2396.1

	90%	= 356.57	25%	= 1738.5	1%	= 2840.8
52	MEAN	= 1213.9	S.D.	= 657.84	P(N>=r)	= .54934
	99%	= 92.580	75%	= 680.79	10%	= 2098.1
	95%	= 223.15	50%	= 1187.1	5%	= 2331.5
	90%	= 348.90	25%	= 1690.4	1%	= 2765.6
53	MEAN	= 1181.5	S.D.	= 639.41	P(N>=r)	= .54000
	99%	= 91.130	75%	= 664.02	10%	= 2041.2
	95%	= 218.85	50%	= 1154.9	5%	= 2269.0
	90%	= 341.48	25%	= 1643.8	1%	= 2692.9
54	MEAN	= 1150.2	S.D.	= 621.58	P(N>=r)	= .53070
	99%	= 89.725	75%	= 647.75	10%	= 1986.2
	95%	= 214.70	50%	= 1123.6	5%	= 2208.6
	90%	= 334.30	25%	= 1598.7	1%	= 2622.7
55	MEAN	= 1119.8	S.D.	= 604.33	P(N>=r)	= .52143
	99%	= 88.359	75%	= 631.93	10%	= 1932.8
	95%	= 210.67	50%	= 1093.3	5%	= 2150.0
	90%	= 327.33	25%	= 1555.0	1%	= 2554.7
56	MEAN	= 1090.3	S.D.	= 587.63	P(N>=r)	= .51221
	99%	= 87.029	75%	= 616.53	10%	= 1881.2
	95%	= 206.75	50%	= 1063.8	5%	= 2093.3
	90%	= 320.54	25%	= 1512.7	1%	= 2488.8
57	MEAN	= 1061.7	S.D.	= 571.47	P(N>=r)	= .50303
	99%	= 85.728	75%	= 601.51	10%	= 1831.1
	95%	= 202.93	50%	= 1035.2	5%	= 2038.3
	90%	= 313.92	25%	= 1471.6	1%	= 2425.0
58	MEAN	= 1033.9	S.D.	= 555.82	P(N>=r)	= .49389
	99%	= 84.452	75%	= 586.86	10%	= 1782.5
	95%	= 199.19	50%	= 1007.4	5%	= 1985.0
	90%	= 307.43	25%	= 1431.7	1%	= 2363.2
59	MEAN	= 1006.8	S.D.	= 540.67	P(N>=r)	= .48479
	99%	= 83.197	75%	= 572.54	10%	= 1735.3
	95%	= 195.51	50%	= 980.38	5%	= 1933.3
	90%	= 301.07	25%	= 1393.0	1%	= 2303.2
60	MEAN	= 980.54	S.D.	= 525.98	P(N>=r)	= .47573
	99%	= 81.957	75%	= 558.55	10%	= 1689.6
	95%	= 191.89	50%	= 954.07	5%	= 1883.1
	90%	= 294.82	25%	= 1355.4	1%	= 2245.0
61	MEAN	= 954.96	S.D.	= 511.75	P(N>=r)	= .46671
	99%	= 80.731	75%	= 544.87	10%	= 1645.1
	95%	= 188.33	50%	= 928.47	5%	= 1834.3
	90%	= 288.68	25%	= 1318.8	1%	= 2188.5
62	MEAN	= 930.05	S.D.	= 497.95	P(N>=r)	= .45773
	99%	= 79.514	75%	= 531.48	10%	= 1601.9
	95%	= 184.80	50%	= 903.54	5%	= 1786.9
	90%	= 282.63	25%	= 1283.3	1%	= 2133.7
63	MEAN	= 905.79	S.D.	= 484.57	P(N>=r)	= .44878
	99%	= 78.306	75%	= 518.37	10%	= 1559.9
	95%	= 181.32	50%	= 879.25	5%	= 1740.9

	90%	= 276.66	25%	= 1248.7	1%	= 2080.4
64	MEAN	= 882.16	S.D.	= 471.60	P(N>=r)	= .43987
	99%	= 77.103	75%	= 505.55	10%	= 1519.0
	95%	= 177.88	50%	= 855.59	5%	= 1696.2
	90%	= 270.78	25%	= 1215.1	1%	= 2028.6
65	MEAN	= 859.14	S.D.	= 459.00	P(N>=r)	= .43097
	99%	= 75.907	75%	= 492.99	10%	= 1479.3
	95%	= 174.46	50%	= 832.53	5%	= 1652.6
	90%	= 264.99	25%	= 1182.4	1%	= 1978.3
66	MEAN	= 836.70	S.D.	= 446.78	P(N>=r)	= .42211
	99%	= 74.716	75%	= 480.70	10%	= 1440.6
	95%	= 171.09	50%	= 810.03	5%	= 1610.3
	90%	= 259.28	25%	= 1150.5	1%	= 1929.3
67	MEAN	= 814.82	S.D.	= 434.90	P(N>=r)	= .41326
	99%	= 73.530	75%	= 468.66	10%	= 1403.0
	95%	= 167.75	50%	= 788.07	5%	= 1569.1
	90%	= 253.65	25%	= 1119.5	1%	= 1881.7
68	MEAN	= 793.49	S.D.	= 423.37	P(N>=r)	= .40443
	99%	= 72.350	75%	= 456.88	10%	= 1366.4
	95%	= 164.45	50%	= 766.62	5%	= 1529.0
	90%	= 248.11	25%	= 1089.3	1%	= 1835.3
69	MEAN	= 772.69	S.D.	= 412.16	P(N>=r)	= .39562
	99%	= 71.177	75%	= 445.35	10%	= 1330.7
	95%	= 161.18	50%	= 745.66	5%	= 1489.9
	90%	= 242.65	25%	= 1059.9	1%	= 1790.2
70	MEAN	= 752.41	S.D.	= 401.27	P(N>=r)	= .38681
	99%	= 70.010	75%	= 434.07	10%	= 1295.9
	95%	= 157.96	50%	= 725.06	5%	= 1451.9
	90%	= 237.28	25%	= 1031.3	1%	= 1746.3
71	MEAN	= 732.61	S.D.	= 390.68	P(N>=r)	= .37802
	99%	= 68.852	75%	= 423.02	10%	= 1262.1
	95%	= 154.77	50%	= 705.09	5%	= 1414.8
	90%	= 231.99	25%	= 1003.3	1%	= 1703.5
72	MEAN	= 713.30	S.D.	= 380.38	P(N>=r)	= .36923
	99%	= 67.701	75%	= 412.20	10%	= 1229.1
	95%	= 151.63	50%	= 685.68	5%	= 1378.7
	90%	= 226.79	25%	= 976.13	1%	= 1661.8
73	MEAN	= 694.46	S.D.	= 370.36	P(N>=r)	= .36045
	99%	= 66.559	75%	= 401.61	10%	= 1197.0
	95%	= 148.52	50%	= 666.99	5%	= 1343.5
	90%	= 221.67	25%	= 949.60	1%	= 1621.1
74	MEAN	= 676.07	S.D.	= 360.61	P(N>=r)	= .35167
	99%	= 65.426	75%	= 391.24	10%	= 1165.6
	95%	= 145.46	50%	= 649.08	5%	= 1309.2
	90%	= 216.63	25%	= 923.74	1%	= 1581.5
75	MEAN	= 658.12	S.D.	= 351.12	P(N>=r)	= .34290
	99%	= 64.302	75%	= 381.08	10%	= 1135.1
	95%	= 142.43	50%	= 631.44	5%	= 1275.8

	90%	= 211.68	25%	= 898.52	1%	= 1542.9
76	MEAN	= 640.59	S.D.	= 341.88	P(N>=r)	= .33413
	99%	= 63.187	75%	= 371.14	10%	= 1105.3
	95%	= 139.45	50%	= 614.25	5%	= 1243.2
	90%	= 206.81	25%	= 873.92	1%	= 1505.2
77	MEAN	= 623.47	S.D.	= 332.89	P(N>=r)	= .32535
	99%	= 62.080	75%	= 361.39	10%	= 1076.2
	95%	= 136.50	50%	= 597.13	5%	= 1211.3
	90%	= 202.01	25%	= 849.94	1%	= 1468.5
78	MEAN	= 606.76	S.D.	= 324.14	P(N>=r)	= .31659
	99%	= 60.982	75%	= 351.84	10%	= 1047.8
	95%	= 133.60	50%	= 580.21	5%	= 1180.3
	90%	= 197.29	25%	= 826.54	1%	= 1432.7
79	MEAN	= 590.43	S.D.	= 315.61	P(N>=r)	= .30782
	99%	= 59.892	75%	= 342.48	10%	= 1020.2
	95%	= 130.73	50%	= 563.64	5%	= 1150.0
	90%	= 192.64	25%	= 803.71	1%	= 1397.7
80	MEAN	= 574.49	S.D.	= 307.31	P(N>=r)	= .29905
	99%	= 58.810	75%	= 333.31	10%	= 993.18
	95%	= 127.89	50%	= 547.62	5%	= 1120.5
	90%	= 188.07	25%	= 781.44	1%	= 1363.6
81	MEAN	= 558.91	S.D.	= 299.23	P(N>=r)	= .29029
	99%	= 57.736	75%	= 324.32	10%	= 966.84
	95%	= 125.09	50%	= 532.02	5%	= 1091.6
	90%	= 183.56	25%	= 759.72	1%	= 1330.3
82	MEAN	= 543.70	S.D.	= 291.36	P(N>=r)	= .28153
	99%	= 56.669	75%	= 315.52	10%	= 941.14
	95%	= 122.32	50%	= 516.81	5%	= 1063.5
	90%	= 179.12	25%	= 738.52	1%	= 1297.8
83	MEAN	= 528.84	S.D.	= 283.69	P(N>=r)	= .27277
	99%	= 55.610	75%	= 306.88	10%	= 916.06
	95%	= 119.59	50%	= 501.96	5%	= 1036.0
	90%	= 174.75	25%	= 717.85	1%	= 1266.0
84	MEAN	= 514.32	S.D.	= 276.23	P(N>=r)	= .26402
	99%	= 54.557	75%	= 298.42	10%	= 891.59
	95%	= 116.89	50%	= 487.46	5%	= 1009.2
	90%	= 170.44	25%	= 697.68	1%	= 1235.1
85	MEAN	= 500.14	S.D.	= 268.96	P(N>=r)	= .25527
	99%	= 53.511	75%	= 290.14	10%	= 867.71
	95%	= 114.22	50%	= 473.31	5%	= 983.05
	90%	= 166.20	25%	= 678.00	1%	= 1204.8
86	MEAN	= 486.30	S.D.	= 261.88	P(N>=r)	= .24653
	99%	= 52.473	75%	= 282.02	10%	= 844.41
	95%	= 111.59	50%	= 459.50	5%	= 957.51
	90%	= 162.03	25%	= 658.81	1%	= 1175.3
87	MEAN	= 472.78	S.D.	= 254.98	P(N>=r)	= .23779
	99%	= 51.441	75%	= 274.08	10%	= 821.67
	95%	= 108.98	50%	= 446.03	5%	= 932.58

	90%	= 157.92	25%	= 640.06	1%	= 1146.4
88	MEAN	= 459.59	S.D.	= 248.26	P(N>=r)	= .22907
	99%	= 50.417	75%	= 266.30	10%	= 799.49
	95%	= 106.41	50%	= 432.89	5%	= 908.25
	90%	= 153.88	25%	= 621.70	1%	= 1118.3
89	MEAN	= 446.71	S.D.	= 241.72	P(N>=r)	= .22036
	99%	= 49.401	75%	= 258.69	10%	= 777.86
	95%	= 103.88	50%	= 420.08	5%	= 884.52
	90%	= 149.90	25%	= 603.63	1%	= 1090.8
90	MEAN	= 434.16	S.D.	= 235.35	P(N>=r)	= .21167
	99%	= 48.394	75%	= 251.26	10%	= 756.77
	95%	= 101.38	50%	= 407.61	5%	= 861.36
	90%	= 146.00	25%	= 585.90	1%	= 1064.0
91	MEAN	= 421.91	S.D.	= 229.15	P(N>=r)	= .20300
	99%	= 47.396	75%	= 244.00	10%	= 736.20
	95%	= 98.917	50%	= 395.45	5%	= 838.76
	90%	= 142.16	25%	= 568.86	1%	= 1037.8
92	MEAN	= 409.98	S.D.	= 223.11	P(N>=r)	= .19436
	99%	= 46.408	75%	= 236.91	10%	= 716.15
	95%	= 96.493	50%	= 383.62	5%	= 816.73
	90%	= 138.40	25%	= 552.85	1%	= 1012.2
93	MEAN	= 398.35	S.D.	= 217.23	P(N>=r)	= .18576
	99%	= 45.431	75%	= 230.00	10%	= 696.61
	95%	= 94.110	50%	= 372.11	5%	= 795.24
	90%	= 134.71	25%	= 537.55	1%	= 987.22
94	MEAN	= 387.03	S.D.	= 211.51	P(N>=r)	= .17720
	99%	= 44.467	75%	= 223.26	10%	= 677.58
	95%	= 91.770	50%	= 360.93	5%	= 774.30
	90%	= 131.10	25%	= 522.13	1%	= 962.86
95	MEAN	= 376.02	S.D.	= 205.94	P(N>=r)	= .16869
	99%	= 43.515	75%	= 216.71	10%	= 659.05
	95%	= 89.475	50%	= 350.06	5%	= 753.89
	90%	= 127.57	25%	= 506.86	1%	= 939.10
96	MEAN	= 365.31	S.D.	= 200.52	P(N>=r)	= .16024
	99%	= 42.578	75%	= 210.34	10%	= 641.02
	95%	= 87.226	50%	= 339.51	5%	= 734.01
	90%	= 124.13	25%	= 492.08	1%	= 915.93
97	MEAN	= 354.90	S.D.	= 195.24	P(N>=r)	= .15187
	99%	= 41.656	75%	= 204.14	10%	= 623.47
	95%	= 85.027	50%	= 329.28	5%	= 714.65
	90%	= 120.77	25%	= 477.78	1%	= 893.33
98	MEAN	= 344.79	S.D.	= 190.11	P(N>=r)	= .14358
	99%	= 40.751	75%	= 198.14	10%	= 606.41
	95%	= 82.879	50%	= 319.37	5%	= 695.81
	90%	= 117.50	25%	= 463.91	1%	= 871.30
99	MEAN	= 334.99	S.D.	= 185.12	P(N>=r)	= .13540
	99%	= 39.864	75%	= 192.32	10%	= 589.82
	95%	= 80.784	50%	= 309.77	5%	= 677.47

	90%	= 114.31	25%	= 450.46	1%	= 849.83
100	MEAN	= 325.48	S.D.	= 180.26	P(N>=r)	= .12733
	99%	= 38.996	75%	= 186.69	10%	= 573.68
	95%	= 78.745	50%	= 300.49	5%	= 659.64
	90%	= 111.22	25%	= 437.42	1%	= 828.92
101	MEAN	= 316.27	S.D.	= 175.54	P(N>=r)	= .11940
	99%	= 38.147	75%	= 181.24	10%	= 557.89
	95%	= 76.761	50%	= 291.51	5%	= 642.31
	90%	= 108.22	25%	= 424.80	1%	= 808.55
102	MEAN	= 307.35	S.D.	= 170.95	P(N>=r)	= .11161
	99%	= 37.319	75%	= 175.98	10%	= 542.07
	95%	= 74.835	50%	= 282.85	5%	= 625.47
	90%	= 105.32	25%	= 412.57	1%	= 788.73
103	MEAN	= 298.72	S.D.	= 166.49	P(N>=r)	= .10400
	99%	= 36.513	75%	= 170.91	10%	= 526.72
	95%	= 72.968	50%	= 274.49	5%	= 609.11
	90%	= 102.51	25%	= 400.75	1%	= 769.43
104	MEAN	= 290.38	S.D.	= 162.16	P(N>=r)	= .96582E-01
	99%	= 35.728	75%	= 166.02	10%	= 512.25
	95%	= 71.160	50%	= 266.43	5%	= 593.24
	90%	= 99.800	25%	= 389.33	1%	= 750.66
105	MEAN	= 282.33	S.D.	= 157.96	P(N>=r)	= .89370E-01
	99%	= 34.966	75%	= 161.31	10%	= 499.06
	95%	= 69.412	50%	= 258.67	5%	= 577.84
	90%	= 97.183	25%	= 378.29	1%	= 732.41
106	MEAN	= 274.55	S.D.	= 153.88	P(N>=r)	= .82388E-01
	99%	= 34.227	75%	= 156.78	10%	= 486.07
	95%	= 67.724	50%	= 251.20	5%	= 562.91
	90%	= 94.660	25%	= 367.64	1%	= 714.68
107	MEAN	= 267.05	S.D.	= 149.92	P(N>=r)	= .75654E-01
	99%	= 33.511	75%	= 152.43	10%	= 473.11
	95%	= 66.096	50%	= 244.01	5%	= 548.43
	90%	= 92.232	25%	= 357.36	1%	= 697.45
108	MEAN	= 259.83	S.D.	= 146.08	P(N>=r)	= .69187E-01
	99%	= 32.818	75%	= 148.26	10%	= 460.52
	95%	= 64.526	50%	= 237.11	5%	= 534.26
	90%	= 89.896	25%	= 347.46	1%	= 680.71
109	MEAN	= 252.86	S.D.	= 142.36	P(N>=r)	= .63002E-01
	99%	= 32.148	75%	= 144.25	10%	= 448.40
	95%	= 63.016	50%	= 230.49	5%	= 520.27
	90%	= 87.652	25%	= 337.92	1%	= 664.47
110	MEAN	= 246.16	S.D.	= 138.75	P(N>=r)	= .57117E-01
	99%	= 31.502	75%	= 140.41	10%	= 436.69
	95%	= 61.562	50%	= 224.12	5%	= 506.01
	90%	= 85.496	25%	= 328.73	1%	= 648.70
111	MEAN	= 239.71	S.D.	= 135.26	P(N>=r)	= .51542E-01
	99%	= 30.878	75%	= 136.73	10%	= 425.39
	95%	= 60.165	50%	= 218.02	5%	= 492.64

	90% = 83.428		25% = 319.90		1% = 633.41	
112	MEAN = 233.50		S.D. = 131.87		P(N>=r)= .46290E-01	
	99% = 30.276		75% = 133.20		10% = 414.49	
	95% = 58.824		50% = 212.18		5% = 480.63	
	90% = 81.445		25% = 311.40		1% = 618.59	
113	MEAN = 227.54		S.D. = 128.60		P(N>=r)= .41367E-01	
	99% = 29.696		75% = 129.83		10% = 403.97	
	95% = 57.535		50% = 206.57		5% = 469.27	
	90% = 79.544		25% = 303.23		1% = 604.22	
114	MEAN = 221.81		S.D. = 125.43		P(N>=r)= .36779E-01	
	99% = 29.138		75% = 126.60		10% = 393.84	
	95% = 56.299		50% = 201.21		5% = 457.94	
	90% = 77.723		25% = 295.38		1% = 590.30	
115	MEAN = 216.30		S.D. = 122.37		P(N>=r)= .32528E-01	
	99% = 28.601		75% = 123.52		10% = 384.06	
	95% = 55.113		50% = 196.07		5% = 446.83	
	90% = 75.978		25% = 287.84		1% = 576.82	
116	MEAN = 211.01		S.D. = 119.41		P(N>=r)= .28612E-01	
	99% = 28.084		75% = 120.56		10% = 374.65	
	95% = 53.976		50% = 191.15		5% = 436.10	
	90% = 74.307		25% = 280.60		1% = 563.77	
117	MEAN = 205.94		S.D. = 116.54		P(N>=r)= .25027E-01	
	99% = 27.586		75% = 117.74		10% = 365.58	
	95% = 52.885		50% = 186.44		5% = 425.77	
	90% = 72.708		25% = 273.66		1% = 551.13	
118	MEAN = 201.06		S.D. = 113.77		P(N>=r)= .21767E-01	
	99% = 27.108		75% = 115.04		10% = 356.86	
	95% = 51.839		50% = 181.94		5% = 415.80	
	90% = 71.176		25% = 266.99		1% = 538.90	
119	MEAN = 196.38		S.D. = 111.10		P(N>=r)= .18820E-01	
	99% = 26.648		75% = 112.46		10% = 348.45	
	95% = 50.837		50% = 177.62		5% = 406.18	
	90% = 69.710		25% = 260.59		1% = 527.06	
120	MEAN = 191.89		S.D. = 108.52		P(N>=r)= .16174E-01	
	99% = 26.206		75% = 109.99		10% = 340.36	
	95% = 49.875		50% = 173.50		5% = 396.91	
	90% = 68.306		25% = 254.45		1% = 515.61	
121	MEAN = 187.58		S.D. = 106.02		P(N>=r)= .13815E-01	
	99% = 25.780		75% = 107.63		10% = 332.58	
	95% = 48.954		50% = 169.55		5% = 387.97	
	90% = 66.961		25% = 248.56		1% = 504.52	
122	MEAN = 183.44		S.D. = 103.61		P(N>=r)= .11726E-01	
	99% = 25.371		75% = 105.37		10% = 325.09	
	95% = 48.070		50% = 165.77		5% = 379.35	
	90% = 65.673		25% = 242.91		1% = 493.77	

E) The mean of the potential = .24734E+06

PETRIMES MODULE MPRO

NO. OF POOLS DISTRIBUTION AND RISKS
****

UAI	C5589402
PLAY	Nechako Skeena Structural oil play
Assessor	BC assessment team
Geologist	P. Hannigan, K. Osadetz
Operator	KOH
Run date	WED, APR 6, 1994, 4:22 PM

A) Risks

	GEOLOGICAL FACTOR		MARGINAL PROBABILITY
PLAY LEVEL	Overall Play Level Risk	=	1.00
PROSPECT LEVEL	Presence of Closure	(1)	.50
	Presence of Reservoir Facies	(2)	.80
	Adequate Seal	(4)	.90
	Adequate Timing	(5)	.60
	Adequate Source	(6)	.80
	Adequate Preservation	(8)	.33
	Overall Prospect Level Risk	=	.06
EXPLORATION RISK:		=	.06

B) No. of Prospects Distribution

Minimum	=	100
Maximum	=	2000
Mean	=	1021.00
S.D.	=	553.76

Frequency	No. of Prospects
99.00	100
95	174
90	266
80	449
75	541
60	817
50	1000
40	1200

25	1500
20	1600
10	1800
5	1900
1	1980
0	2000

C) No. of Pools Distribution

Minimum = 0
Maximum = 154
Mean = 58.22
S.D. = 32.44

Frequency	No. of Pools
99.99	0
99	5
95	9
90	15
80	25
75	30
60	46
50	57
40	68
25	85
20	91
10	103
5	111
1	122
0	154

PETRIMES MODULE PSRK

INDIVIDUAL POOL SIZES BY RANK
WHERE N IS A RANDOM VARIABLE
****

UAI	C5589402
PLAY	Nechako Skeena Structural oil play
Assessor	BC assessment team
Geologist	P. Hannigan, K. Osadetz
Operator	KOH
Run date	WED, APR 6, 1994, 4:32 PM

A) Basic Information

TYPE OF RESOURCE =Oil In Place
SYSTEM OF MEASUREMENT =S.I.
UNIT OF MEASUREMENT =M cu m (19)

B) Lognormal Pool Size Distribution

Summary Statistics	mu = 1.9488	MEAN = 13.301		
	sig. sq= 1.2781	S.D. = 21.405		

Upper Percentiles	99.99% = .10480	60.00% = 5.2717	15.00% = 22.658
	99.00% = .50598	55.00% = 6.0903	10.00% = 29.893
	95.00% = 1.0933	50.00% = 7.0200	8.00% = 34.372
	90.00% = 1.6486	45.00% = 8.0916	6.00% = 40.711
	85.00% = 2.1750	40.00% = 9.3482	5.00% = 45.075
	80.00% = 2.7109	35.00% = 10.852	4.00% = 50.804
	75.00% = 3.2747	30.00% = 12.700	2.00% = 71.565
	70.00% = 3.8803	25.00% = 15.049	1.00% = 97.397
	65.00% = 4.5410	20.00% = 18.179	.01% = 470.25

C) No. of Pools Distribution

Lower Support = 0
Upper Support = 154
Expectation = 58.22
Standard Deviation= 32.44

D) Pool Sizes By Rank

Pool Rank		Distribution	
1	MEAN = 104.47	S.D. = 79.456	P(N>=r)= .99995
	99% = 14.352	75% = 57.503	10% = 187.28
	95% = 27.788	50% = 85.819	5% = 240.38
	90% = 37.652	25% = 127.48	1% = 401.12
2	MEAN = 62.297	S.D. = 34.187	P(N>=r)= .99960
	99% = 8.2964	75% = 39.153	10% = 104.33
	95% = 17.522	50% = 57.228	5% = 123.83
	90% = 24.670	25% = 78.849	1% = 173.52
3	MEAN = 47.397	S.D. = 24.000	P(N>=r)= .99844
	99% = 5.3952	75% = 30.601	10% = 77.769
	95% = 12.576	50% = 45.197	5% = 89.820

	90%	= 18.431	25%	= 60.924	1%	= 118.25
4	MEAN	= 39.128	S.D.	= 19.324	P(N>=r)	= .99584
	99%	= 3.7836	75%	= 25.370	10%	= 63.762
	95%	= 9.6401	50%	= 38.062	5%	= 72.601
	90%	= 14.667	25%	= 50.874	1%	= 92.533
5	MEAN	= 33.700	S.D.	= 16.517	P(N>=r)	= .99140
	99%	= 2.8629	75%	= 21.790	10%	= 54.799
	95%	= 7.7682	50%	= 33.190	5%	= 61.845
	90%	= 12.186	25%	= 44.213	1%	= 77.248
6	MEAN	= 29.805	S.D.	= 14.576	P(N>=r)	= .98508
	99%	= 2.3273	75%	= 19.182	10%	= 48.441
	95%	= 6.5354	50%	= 29.594	5%	= 54.335
	90%	= 10.469	25%	= 39.379	1%	= 66.926
7	MEAN	= 26.845	S.D.	= 13.119	P(N>=r)	= .97727
	99%	= 2.0040	75%	= 17.194	10%	= 43.630
	95%	= 5.6970	50%	= 26.801	5%	= 48.717
	90%	= 9.2336	25%	= 35.661	1%	= 59.391
8	MEAN	= 24.499	S.D.	= 11.967	P(N>=r)	= .96848
	99%	= 1.7966	75%	= 15.621	10%	= 39.822
	95%	= 5.0994	50%	= 24.552	5%	= 44.311
	90%	= 8.3045	25%	= 32.683	1%	= 53.590
9	MEAN	= 22.579	S.D.	= 11.026	P(N>=r)	= .95916
	99%	= 1.6525	75%	= 14.337	10%	= 36.710
	95%	= 4.6482	50%	= 22.687	5%	= 40.734
	90%	= 7.5741	25%	= 30.225	1%	= 48.953
10	MEAN	= 20.967	S.D.	= 10.240	P(N>=r)	= .94963
	99%	= 1.5432	75%	= 13.261	10%	= 34.102
	95%	= 4.2882	50%	= 21.106	5%	= 37.756
	90%	= 6.9774	25%	= 28.148	1%	= 45.138
11	MEAN	= 19.587	S.D.	= 9.5693	P(N>=r)	= .94004
	99%	= 1.4542	75%	= 12.341	10%	= 31.875
	95%	= 3.9889	50%	= 19.740	5%	= 35.224
	90%	= 6.4758	25%	= 26.363	1%	= 41.930
12	MEAN	= 18.388	S.D.	= 8.9894	P(N>=r)	= .93046
	99%	= 1.3783	75%	= 11.543	10%	= 29.943
	95%	= 3.7334	50%	= 18.544	5%	= 33.037
	90%	= 6.0457	25%	= 24.805	1%	= 39.185
13	MEAN	= 17.333	S.D.	= 8.4809	P(N>=r)	= .92088
	99%	= 1.3118	75%	= 10.843	10%	= 28.246
	95%	= 3.5116	50%	= 17.487	5%	= 31.124
	90%	= 5.6720	25%	= 23.430	1%	= 36.801
14	MEAN	= 16.397	S.D.	= 8.0300	P(N>=r)	= .91132
	99%	= 1.2529	75%	= 10.224	10%	= 26.740
	95%	= 3.3170	50%	= 16.545	5%	= 29.432
	90%	= 5.3441	25%	= 22.204	1%	= 34.707
15	MEAN	= 15.558	S.D.	= 7.6264	P(N>=r)	= .90175
	99%	= 1.2002	75%	= 9.6705	10%	= 25.392
	95%	= 3.1448	50%	= 15.699	5%	= 27.920

	90%	= 5.0541	25%	= 21.101	1%	= 32.848
16	MEAN	= 14.802	S.D.	= 7.2622	P(N>=r)	= .89218
	99%	= 1.1527	75%	= 9.1747	10%	= 24.175
	95%	= 2.9913	50%	= 14.936	5%	= 26.560
	90%	= 4.7957	25%	= 20.103	1%	= 31.185
17	MEAN	= 14.115	S.D.	= 6.9312	P(N>=r)	= .88261
	99%	= 1.1097	75%	= 8.7270	10%	= 23.070
	95%	= 2.8539	50%	= 14.244	5%	= 25.328
	90%	= 4.5642	25%	= 19.195	1%	= 29.685
18	MEAN	= 13.488	S.D.	= 6.6284	P(N>=r)	= .87303
	99%	= 1.0706	75%	= 8.3209	10%	= 22.061
	95%	= 2.7301	50%	= 13.614	5%	= 24.204
	90%	= 4.3556	25%	= 18.367	1%	= 28.324
19	MEAN	= 12.913	S.D.	= 6.3502	P(N>=r)	= .86344
	99%	= 1.0348	75%	= 7.9503	10%	= 21.137
	95%	= 2.6184	50%	= 13.036	5%	= 23.175
	90%	= 4.1668	25%	= 17.607	1%	= 27.081
20	MEAN	= 12.383	S.D.	= 6.0931	P(N>=r)	= .85384
	99%	= 1.0021	75%	= 7.6097	10%	= 20.289
	95%	= 2.5170	50%	= 12.504	5%	= 22.228
	90%	= 3.9948	25%	= 16.907	1%	= 25.941
21	MEAN	= 11.893	S.D.	= 5.8547	P(N>=r)	= .84423
	99%	= .97221	75%	= 7.2955	10%	= 19.505
	95%	= 2.4248	50%	= 12.009	5%	= 21.354
	90%	= 3.8375	25%	= 16.257	1%	= 24.890
22	MEAN	= 11.438	S.D.	= 5.6327	P(N>=r)	= .83462
	99%	= .94478	75%	= 7.0043	10%	= 18.777
	95%	= 2.3405	50%	= 11.550	5%	= 20.549
	90%	= 3.6928	25%	= 15.651	1%	= 23.917
23	MEAN	= 11.014	S.D.	= 5.4255	P(N>=r)	= .82502
	99%	= .91958	75%	= 6.7339	10%	= 18.096
	95%	= 2.2630	50%	= 11.120	5%	= 19.797
	90%	= 3.5588	25%	= 15.081	1%	= 23.015
24	MEAN	= 10.618	S.D.	= 5.2314	P(N>=r)	= .81543
	99%	= .89634	75%	= 6.4821	10%	= 17.454
	95%	= 2.1912	50%	= 10.717	5%	= 19.093
	90%	= 3.4341	25%	= 14.546	1%	= 22.174
25	MEAN	= 10.246	S.D.	= 5.0493	P(N>=r)	= .80586
	99%	= .87473	75%	= 6.2468	10%	= 16.849
	95%	= 2.1242	50%	= 10.338	5%	= 18.427
	90%	= 3.3172	25%	= 14.041	1%	= 21.388
26	MEAN	= 9.8967	S.D.	= 4.8780	P(N>=r)	= .79632
	99%	= .85445	75%	= 6.0262	10%	= 16.276
	95%	= 2.0610	50%	= 9.9814	5%	= 17.797
	90%	= 3.2072	25%	= 13.565	1%	= 20.644
27	MEAN	= 9.5674	S.D.	= 4.7165	P(N>=r)	= .78681
	99%	= .83519	75%	= 5.8195	10%	= 15.736
	95%	= 2.0009	50%	= 9.6456	5%	= 17.202

	90%	= 3.1032	25%	= 13.116	1%	= 19.938
28	MEAN	= 9.2563	S.D.	= 4.5639	P(N>=r)	= .77733
	99%	= .81670	75%	= 5.6245	10%	= 15.226
	95%	= 1.9436	50%	= 9.3285	5%	= 16.640
	90%	= 3.0046	25%	= 12.691	1%	= 19.266
29	MEAN	= 8.9619	S.D.	= 4.4196	P(N>=r)	= .76787
	99%	= .79878	75%	= 5.4406	10%	= 14.743
	95%	= 1.8886	50%	= 9.0289	5%	= 16.110
	90%	= 2.9109	25%	= 12.289	1%	= 18.633
30	MEAN	= 8.6828	S.D.	= 4.2826	P(N>=r)	= .75843
	99%	= .78135	75%	= 5.2675	10%	= 14.286
	95%	= 1.8358	50%	= 8.7451	5%	= 15.609
	90%	= 2.8221	25%	= 11.908	1%	= 18.037
31	MEAN	= 8.4179	S.D.	= 4.1525	P(N>=r)	= .74899
	99%	= .76437	75%	= 5.1034	10%	= 13.853
	95%	= 1.7853	50%	= 8.4758	5%	= 15.134
	90%	= 2.7378	25%	= 11.545	1%	= 17.477
32	MEAN	= 8.1661	S.D.	= 4.0285	P(N>=r)	= .73954
	99%	= .74789	75%	= 4.9483	10%	= 13.441
	95%	= 1.7371	50%	= 8.2200	5%	= 14.684
	90%	= 2.6579	25%	= 11.201	1%	= 16.950
33	MEAN	= 7.9265	S.D.	= 3.9101	P(N>=r)	= .73007
	99%	= .73198	75%	= 4.8020	10%	= 13.049
	95%	= 1.6913	50%	= 7.9767	5%	= 14.256
	90%	= 2.5825	25%	= 10.872	1%	= 16.453
34	MEAN	= 7.6983	S.D.	= 3.7970	P(N>=r)	= .72059
	99%	= .71670	75%	= 4.6630	10%	= 12.674
	95%	= 1.6479	50%	= 7.7450	5%	= 13.847
	90%	= 2.5111	25%	= 10.558	1%	= 15.981
35	MEAN	= 7.4807	S.D.	= 3.6885	P(N>=r)	= .71108
	99%	= .70213	75%	= 4.5315	10%	= 12.317
	95%	= 1.6068	50%	= 7.5239	5%	= 13.457
	90%	= 2.4438	25%	= 10.259	1%	= 15.531
36	MEAN	= 7.2729	S.D.	= 3.5846	P(N>=r)	= .70154
	99%	= .68827	75%	= 4.4064	10%	= 11.974
	95%	= 1.5680	50%	= 7.3129	5%	= 13.084
	90%	= 2.3801	25%	= 9.9716	1%	= 15.102
37	MEAN	= 7.0742	S.D.	= 3.4847	P(N>=r)	= .69199
	99%	= .67512	75%	= 4.2876	10%	= 11.646
	95%	= 1.5313	50%	= 7.1111	5%	= 12.727
	90%	= 2.3198	25%	= 9.6967	1%	= 14.692
38	MEAN	= 6.8840	S.D.	= 3.3887	P(N>=r)	= .68242
	99%	= .66263	75%	= 4.1743	10%	= 11.332
	95%	= 1.4965	50%	= 6.9179	5%	= 12.385
	90%	= 2.2626	25%	= 9.4330	1%	= 14.299
39	MEAN	= 6.7016	S.D.	= 3.2963	P(N>=r)	= .67284
	99%	= .65074	75%	= 4.0661	10%	= 11.030
	95%	= 1.4635	50%	= 6.7327	5%	= 12.056

	90%	= 2.2083	25%	= 9.1796	1%	= 13.922
40	MEAN	= 6.5266	S.D.	= 3.2074	P(N>=r)	= .66327
	99%	= .63940	75%	= 3.9626	10%	= 10.740
	95%	= 1.4320	50%	= 6.5549	5%	= 11.741
	90%	= 2.1564	25%	= 8.9361	1%	= 13.560
41	MEAN	= 6.3585	S.D.	= 3.1217	P(N>=r)	= .65369
	99%	= .62852	75%	= 3.8638	10%	= 10.460
	95%	= 1.4019	50%	= 6.3839	5%	= 11.437
	90%	= 2.1069	25%	= 8.7017	1%	= 13.212
42	MEAN	= 6.1967	S.D.	= 3.0391	P(N>=r)	= .64413
	99%	= .61806	75%	= 3.7689	10%	= 10.191
	95%	= 1.3730	50%	= 6.2195	5%	= 11.144
	90%	= 2.0595	25%	= 8.4758	1%	= 12.877
43	MEAN	= 6.0409	S.D.	= 2.9593	P(N>=r)	= .63457
	99%	= .60797	75%	= 3.6778	10%	= 9.9321
	95%	= 1.3453	50%	= 6.0610	5%	= 10.862
	90%	= 2.0141	25%	= 8.2581	1%	= 12.555
44	MEAN	= 5.8907	S.D.	= 2.8823	P(N>=r)	= .62503
	99%	= .59823	75%	= 3.5903	10%	= 9.6818
	95%	= 1.3187	50%	= 5.9083	5%	= 10.591
	90%	= 1.9705	25%	= 8.0479	1%	= 12.244
45	MEAN	= 5.7458	S.D.	= 2.8078	P(N>=r)	= .61550
	99%	= .58881	75%	= 3.5064	10%	= 9.4402
	95%	= 1.2931	50%	= 5.7608	5%	= 10.328
	90%	= 1.9287	25%	= 7.8449	1%	= 11.944
46	MEAN	= 5.6058	S.D.	= 2.7358	P(N>=r)	= .60598
	99%	= .57970	75%	= 3.4256	10%	= 9.2068
	95%	= 1.2685	50%	= 5.6184	5%	= 10.075
	90%	= 1.8886	25%	= 7.6487	1%	= 11.655
47	MEAN	= 5.4706	S.D.	= 2.6661	P(N>=r)	= .59649
	99%	= .57088	75%	= 3.3479	10%	= 8.9810
	95%	= 1.2448	50%	= 5.4807	5%	= 9.8297
	90%	= 1.8501	25%	= 7.4589	1%	= 11.375
48	MEAN	= 5.3398	S.D.	= 2.5985	P(N>=r)	= .58701
	99%	= .56236	75%	= 3.2729	10%	= 8.7625
	95%	= 1.2220	50%	= 5.3474	5%	= 9.5926
	90%	= 1.8131	25%	= 7.2752	1%	= 11.105
49	MEAN	= 5.2132	S.D.	= 2.5331	P(N>=r)	= .57755
	99%	= .55413	75%	= 3.2005	10%	= 8.5509
	95%	= 1.2001	50%	= 5.2183	5%	= 9.3631
	90%	= 1.7775	25%	= 7.0972	1%	= 10.844
50	MEAN	= 5.0905	S.D.	= 2.4696	P(N>=r)	= .56812
	99%	= .54617	75%	= 3.1304	10%	= 8.3458
	95%	= 1.1789	50%	= 5.0931	5%	= 9.1407
	90%	= 1.7432	25%	= 6.9246	1%	= 10.590
51	MEAN	= 4.9716	S.D.	= 2.4081	P(N>=r)	= .55872
	99%	= .53847	75%	= 3.0625	10%	= 8.1469
	95%	= 1.1586	50%	= 4.9717	5%	= 8.9252

	90%	= 1.7102	25%	= 6.7572	1%	= 10.345
52	MEAN	= 4.8561	S.D.	= 2.3484	P(N>=r)	= .54934
	99%	= .53102	75%	= 2.9966	10%	= 7.9540
	95%	= 1.1389	50%	= 4.8537	5%	= 8.7161
	90%	= 1.6782	25%	= 6.5947	1%	= 10.107
53	MEAN	= 4.7440	S.D.	= 2.2904	P(N>=r)	= .54000
	99%	= .52380	75%	= 2.9325	10%	= 7.7666
	95%	= 1.1199	50%	= 4.7391	5%	= 8.5131
	90%	= 1.6472	25%	= 6.4369	1%	= 9.8765
54	MEAN	= 4.6350	S.D.	= 2.2341	P(N>=r)	= .53070
	99%	= .51679	75%	= 2.8701	10%	= 7.5847
	95%	= 1.1014	50%	= 4.6276	5%	= 8.3160
	90%	= 1.6171	25%	= 6.2835	1%	= 9.6526
55	MEAN	= 4.5289	S.D.	= 2.1795	P(N>=r)	= .52143
	99%	= .50996	75%	= 2.8092	10%	= 7.4078
	95%	= 1.0835	50%	= 4.5190	5%	= 8.1245
	90%	= 1.5878	25%	= 6.1343	1%	= 9.4352
56	MEAN	= 4.4256	S.D.	= 2.1264	P(N>=r)	= .51221
	99%	= .50329	75%	= 2.7497	10%	= 7.2357
	95%	= 1.0660	50%	= 4.4133	5%	= 7.9383
	90%	= 1.5592	25%	= 5.9891	1%	= 9.2239
57	MEAN	= 4.3250	S.D.	= 2.0748	P(N>=r)	= .50303
	99%	= .49676	75%	= 2.6915	10%	= 7.0683
	95%	= 1.0489	50%	= 4.3102	5%	= 7.7571
	90%	= 1.5312	25%	= 5.8478	1%	= 9.0185
58	MEAN	= 4.2268	S.D.	= 2.0247	P(N>=r)	= .49389
	99%	= .49034	75%	= 2.6346	10%	= 6.9053
	95%	= 1.0321	50%	= 4.2096	5%	= 7.5808
	90%	= 1.5038	25%	= 5.7101	1%	= 8.8187
59	MEAN	= 4.1311	S.D.	= 1.9760	P(N>=r)	= .48479
	99%	= .48402	75%	= 2.5787	10%	= 6.7466
	95%	= 1.0155	50%	= 4.1115	5%	= 7.4092
	90%	= 1.4768	25%	= 5.5759	1%	= 8.6242
60	MEAN	= 4.0376	S.D.	= 1.9287	P(N>=r)	= .47573
	99%	= .47776	75%	= 2.5240	10%	= 6.5920
	95%	= .99920	50%	= 4.0156	5%	= 7.2420
	90%	= 1.4501	25%	= 5.4451	1%	= 8.4349
61	MEAN	= 3.9463	S.D.	= 1.8827	P(N>=r)	= .46671
	99%	= .47155	75%	= 2.4703	10%	= 6.4412
	95%	= .98307	50%	= 3.9220	5%	= 7.0791
	90%	= 1.4239	25%	= 5.3175	1%	= 8.2506
62	MEAN	= 3.8571	S.D.	= 1.8380	P(N>=r)	= .45773
	99%	= .46538	75%	= 2.4175	10%	= 6.2942
	95%	= .96711	50%	= 3.8305	5%	= 6.9203
	90%	= 1.3980	25%	= 5.1930	1%	= 8.0709
63	MEAN	= 3.7699	S.D.	= 1.7945	P(N>=r)	= .44878
	99%	= .45924	75%	= 2.3658	10%	= 6.1508
	95%	= .95128	50%	= 3.7411	5%	= 6.7654

	90%	= 1.3723	25%	= 5.0714	1%	= 7.8958
64	MEAN	= 3.6847	S.D.	= 1.7522	P(N>=r)=	.43987
	99%	= .45312	75%	= 2.3149	10%	= 6.0108
	95%	= .93558	50%	= 3.6536	5%	= 6.6143
	90%	= 1.3470	25%	= 4.9528	1%	= 7.7251
65	MEAN	= 3.6013	S.D.	= 1.7110	P(N>=r)=	.43097
	99%	= .44701	75%	= 2.2649	10%	= 5.8742
	95%	= .92000	50%	= 3.5680	5%	= 6.4668
	90%	= 1.3220	25%	= 4.8369	1%	= 7.5585
66	MEAN	= 3.5197	S.D.	= 1.6708	P(N>=r)=	.42211
	99%	= .44092	75%	= 2.2159	10%	= 5.7409
	95%	= .90454	50%	= 3.4842	5%	= 6.3229
	90%	= 1.2972	25%	= 4.7237	1%	= 7.3960
67	MEAN	= 3.4399	S.D.	= 1.6318	P(N>=r)=	.41326
	99%	= .43484	75%	= 2.1677	10%	= 5.6106
	95%	= .88921	50%	= 3.4021	5%	= 6.1823
	90%	= 1.2728	25%	= 4.6131	1%	= 7.2374
68	MEAN	= 3.3618	S.D.	= 1.5937	P(N>=r)=	.40443
	99%	= .42879	75%	= 2.1204	10%	= 5.4833
	95%	= .87401	50%	= 3.3217	5%	= 6.0450
	90%	= 1.2486	25%	= 4.5050	1%	= 7.0825
69	MEAN	= 3.2854	S.D.	= 1.5566	P(N>=r)=	.39562
	99%	= .42275	75%	= 2.0739	10%	= 5.3589
	95%	= .85894	50%	= 3.2428	5%	= 5.9109
	90%	= 1.2247	25%	= 4.3993	1%	= 6.9312
70	MEAN	= 3.2105	S.D.	= 1.5204	P(N>=r)=	.38681
	99%	= .41673	75%	= 2.0282	10%	= 5.2374
	95%	= .84401	50%	= 3.1649	5%	= 5.7797
	90%	= 1.2012	25%	= 4.2960	1%	= 6.7834
71	MEAN	= 3.1373	S.D.	= 1.4851	P(N>=r)=	.37802
	99%	= .41075	75%	= 1.9834	10%	= 5.1185
	95%	= .82922	50%	= 3.0892	5%	= 5.6516
	90%	= 1.1779	25%	= 4.1949	1%	= 6.6389
72	MEAN	= 3.0655	S.D.	= 1.4507	P(N>=r)=	.36923
	99%	= .40479	75%	= 1.9393	10%	= 5.0023
	95%	= .81459	50%	= 3.0153	5%	= 5.5263
	90%	= 1.1550	25%	= 4.0960	1%	= 6.4978
73	MEAN	= 2.9952	S.D.	= 1.4171	P(N>=r)=	.36045
	99%	= .39886	75%	= 1.8960	10%	= 4.8886
	95%	= .80010	50%	= 2.9439	5%	= 5.4037
	90%	= 1.1324	25%	= 3.9993	1%	= 6.3597
74	MEAN	= 2.9264	S.D.	= 1.3843	P(N>=r)=	.35167
	99%	= .39296	75%	= 1.8535	10%	= 4.7774
	95%	= .78577	50%	= 2.8752	5%	= 5.2839
	90%	= 1.1100	25%	= 3.9047	1%	= 6.2247
75	MEAN	= 2.8589	S.D.	= 1.3523	P(N>=r)=	.34290
	99%	= .38710	75%	= 1.8117	10%	= 4.6685
	95%	= .77158	50%	= 2.8073	5%	= 5.1666

	90%	= 1.0880	25%	= 3.8120	1%	= 6.0927
76	MEAN	= 2.7928	S.D.	= 1.3210	P(N>=r)	= .33413
	99%	= .38127	75%	= 1.7706	10%	= 4.5620
	95%	= .75754	50%	= 2.7409	5%	= 5.0518
	90%	= 1.0662	25%	= 3.7214	1%	= 5.9635
77	MEAN	= 2.7280	S.D.	= 1.2905	P(N>=r)	= .32535
	99%	= .37547	75%	= 1.7302	10%	= 4.4578
	95%	= .74364	50%	= 2.6745	5%	= 4.9395
	90%	= 1.0447	25%	= 3.6326	1%	= 5.8371
78	MEAN	= 2.6645	S.D.	= 1.2607	P(N>=r)	= .31659
	99%	= .36970	75%	= 1.6905	10%	= 4.3557
	95%	= .72989	50%	= 2.6087	5%	= 4.8295
	90%	= 1.0235	25%	= 3.5457	1%	= 5.7134
79	MEAN	= 2.6023	S.D.	= 1.2316	P(N>=r)	= .30782
	99%	= .36397	75%	= 1.6514	10%	= 4.2558
	95%	= .71627	50%	= 2.5439	5%	= 4.7219
	90%	= 1.0026	25%	= 3.4606	1%	= 5.5922
80	MEAN	= 2.5412	S.D.	= 1.2032	P(N>=r)	= .29905
	99%	= .35826	75%	= 1.6130	10%	= 4.1580
	95%	= .70277	50%	= 2.4811	5%	= 4.6165
	90%	= .98189	25%	= 3.3773	1%	= 5.4736
81	MEAN	= 2.4814	S.D.	= 1.1754	P(N>=r)	= .29029
	99%	= .35258	75%	= 1.5752	10%	= 4.0622
	95%	= .68941	50%	= 2.4197	5%	= 4.5132
	90%	= .96145	25%	= 3.2957	1%	= 5.3575
82	MEAN	= 2.4227	S.D.	= 1.1483	P(N>=r)	= .28153
	99%	= .34692	75%	= 1.5380	10%	= 3.9684
	95%	= .67616	50%	= 2.3596	5%	= 4.4122
	90%	= .94126	25%	= 3.2158	1%	= 5.2438
83	MEAN	= 2.3652	S.D.	= 1.1218	P(N>=r)	= .27277
	99%	= .34129	75%	= 1.5014	10%	= 3.8765
	95%	= .66304	50%	= 2.3006	5%	= 4.3131
	90%	= .92130	25%	= 3.1376	1%	= 5.1324
84	MEAN	= 2.3087	S.D.	= 1.0959	P(N>=r)	= .26402
	99%	= .33568	75%	= 1.4655	10%	= 3.7865
	95%	= .65003	50%	= 2.2429	5%	= 4.2162
	90%	= .90158	25%	= 3.0610	1%	= 5.0233
85	MEAN	= 2.2534	S.D.	= 1.0706	P(N>=r)	= .25527
	99%	= .33009	75%	= 1.4301	10%	= 3.6984
	95%	= .63715	50%	= 2.1863	5%	= 4.1212
	90%	= .88210	25%	= 2.9860	1%	= 4.9164
86	MEAN	= 2.1992	S.D.	= 1.0459	P(N>=r)	= .24653
	99%	= .32452	75%	= 1.3954	10%	= 3.6121
	95%	= .62437	50%	= 2.1309	5%	= 4.0282
	90%	= .86285	25%	= 2.9125	1%	= 4.8117
87	MEAN	= 2.1460	S.D.	= 1.0218	P(N>=r)	= .23779
	99%	= .31898	75%	= 1.3612	10%	= 3.5276
	95%	= .61172	50%	= 2.0766	5%	= 3.9371

	90%	= .84384	25%	= 2.8405	1%	= 4.7091
88	MEAN	= 2.0940	S.D.	= .99826	P(N>=r)	= .22907
	99%	= .31347	75%	= 1.3276	10%	= 3.4449
	95%	= .59919	50%	= 2.0234	5%	= 3.8478
	90%	= .82507	25%	= 2.7697	1%	= 4.6087
89	MEAN	= 2.0430	S.D.	= .97525	P(N>=r)	= .22036
	99%	= .30798	75%	= 1.2947	10%	= 3.3639
	95%	= .58679	50%	= 1.9714	5%	= 3.7605
	90%	= .80655	25%	= 2.6998	1%	= 4.5102
90	MEAN	= 1.9930	S.D.	= .95277	P(N>=r)	= .21167
	99%	= .30253	75%	= 1.2624	10%	= 3.2846
	95%	= .57453	50%	= 1.9205	5%	= 3.6749
	90%	= .78829	25%	= 2.6308	1%	= 4.4138
91	MEAN	= 1.9441	S.D.	= .93082	P(N>=r)	= .20300
	99%	= .29711	75%	= 1.2307	10%	= 3.2071
	95%	= .56241	50%	= 1.8708	5%	= 3.5912
	90%	= .77030	25%	= 2.5644	1%	= 4.3194
92	MEAN	= 1.8963	S.D.	= .90938	P(N>=r)	= .19436
	99%	= .29173	75%	= 1.1996	10%	= 3.1312
	95%	= .55043	50%	= 1.8221	5%	= 3.5092
	90%	= .75259	25%	= 2.5016	1%	= 4.2269
93	MEAN	= 1.8495	S.D.	= .88844	P(N>=r)	= .18576
	99%	= .28640	75%	= 1.1692	10%	= 3.0569
	95%	= .53863	50%	= 1.7746	5%	= 3.4290
	90%	= .73517	25%	= 2.4415	1%	= 4.1364
94	MEAN	= 1.8037	S.D.	= .86799	P(N>=r)	= .17720
	99%	= .28112	75%	= 1.1394	10%	= 2.9844
	95%	= .52699	50%	= 1.7283	5%	= 3.3505
	90%	= .71806	25%	= 2.3806	1%	= 4.0477
95	MEAN	= 1.7591	S.D.	= .84802	P(N>=r)	= .16869
	99%	= .27589	75%	= 1.1104	10%	= 2.9135
	95%	= .51554	50%	= 1.6830	5%	= 3.2738
	90%	= .70127	25%	= 2.3201	1%	= 3.9609
96	MEAN	= 1.7155	S.D.	= .82853	P(N>=r)	= .16024
	99%	= .27073	75%	= 1.0820	10%	= 2.8442
	95%	= .50428	50%	= 1.6390	5%	= 3.1988
	90%	= .68481	25%	= 2.2613	1%	= 3.8760
97	MEAN	= 1.6729	S.D.	= .80949	P(N>=r)	= .15187
	99%	= .26564	75%	= 1.0543	10%	= 2.7766
	95%	= .49324	50%	= 1.5961	5%	= 3.1255
	90%	= .66870	25%	= 2.2042	1%	= 3.7929
98	MEAN	= 1.6315	S.D.	= .79091	P(N>=r)	= .14358
	99%	= .26063	75%	= 1.0273	10%	= 2.7105
	95%	= .48241	50%	= 1.5543	5%	= 3.0539
	90%	= .65296	25%	= 2.1486	1%	= 3.7117
99	MEAN	= 1.5911	S.D.	= .77278	P(N>=r)	= .13540
	99%	= .25570	75%	= 1.0011	10%	= 2.6461
	95%	= .47182	50%	= 1.5137	5%	= 2.9840

	90%	= .63759	25%	= 2.0945	1%	= 3.6322
100	MEAN	= 1.5518	S.D.	= .75508	P(N>=r)	= .12733
	99%	= .25086	75%	= .97564	10%	= 2.5832
	95%	= .46147	50%	= 1.4743	5%	= 2.9157
	90%	= .62261	25%	= 2.0418	1%	= 3.5546
101	MEAN	= 1.5136	S.D.	= .73782	P(N>=r)	= .11940
	99%	= .24612	75%	= .95091	10%	= 2.5214
	95%	= .45137	50%	= 1.4360	5%	= 2.8492
	90%	= .60803	25%	= 1.9906	1%	= 3.4787
102	MEAN	= 1.4764	S.D.	= .72098	P(N>=r)	= .11161
	99%	= .24148	75%	= .92692	10%	= 2.4593
	95%	= .44153	50%	= 1.3989	5%	= 2.7843
	90%	= .59385	25%	= 1.9408	1%	= 3.4046
103	MEAN	= 1.4403	S.D.	= .70456	P(N>=r)	= .10400
	99%	= .23695	75%	= .90370	10%	= 2.3987
	95%	= .43196	50%	= 1.3630	5%	= 2.7210
	90%	= .58010	25%	= 1.8925	1%	= 3.3323
104	MEAN	= 1.4054	S.D.	= .68855	P(N>=r)	= .96582E-01
	99%	= .23253	75%	= .88123	10%	= 2.3415
	95%	= .42266	50%	= 1.3282	5%	= 2.6594
	90%	= .56676	25%	= 1.8456	1%	= 3.2616
105	MEAN	= 1.3714	S.D.	= .67296	P(N>=r)	= .89370E-01
	99%	= .22822	75%	= .85952	10%	= 2.2891
	95%	= .41364	50%	= 1.2946	5%	= 2.5994
	90%	= .55384	25%	= 1.8001	1%	= 3.1928
106	MEAN	= 1.3386	S.D.	= .65777	P(N>=r)	= .82388E-01
	99%	= .22403	75%	= .83856	10%	= 2.2374
	95%	= .40491	50%	= 1.2621	5%	= 2.5411
	90%	= .54136	25%	= 1.7561	1%	= 3.1256
107	MEAN	= 1.3068	S.D.	= .64297	P(N>=r)	= .75654E-01
	99%	= .21996	75%	= .81834	10%	= 2.1855
	95%	= .39645	50%	= 1.2307	5%	= 2.4843
	90%	= .52929	25%	= 1.7134	1%	= 3.0601
108	MEAN	= 1.2760	S.D.	= .62857	P(N>=r)	= .69187E-01
	99%	= .21601	75%	= .79886	10%	= 2.1350
	95%	= .38827	50%	= 1.2005	5%	= 2.4285
	90%	= .51764	25%	= 1.6722	1%	= 2.9963
109	MEAN	= 1.2463	S.D.	= .61456	P(N>=r)	= .63002E-01
	99%	= .21218	75%	= .78010	10%	= 2.0862
	95%	= .38037	50%	= 1.1713	5%	= 2.3733
	90%	= .50642	25%	= 1.6323	1%	= 2.9342
110	MEAN	= 1.2176	S.D.	= .60094	P(N>=r)	= .57117E-01
	99%	= .20847	75%	= .76206	10%	= 2.0388
	95%	= .37275	50%	= 1.1432	5%	= 2.3167
	90%	= .49560	25%	= 1.5937	1%	= 2.8738
111	MEAN	= 1.1899	S.D.	= .58769	P(N>=r)	= .51542E-01
	99%	= .20489	75%	= .74470	10%	= 1.9930
	95%	= .36541	50%	= 1.1162	5%	= 2.2635

	90%	= .48518	25%	= 1.5565	1%	= 2.8149
112	MEAN	= 1.1631	S.D.	= .57482	P(N>=r)	= .46290E-01
	99%	= .20142	75%	= .72803	10%	= 1.9486
	95%	= .35833	50%	= 1.0902	5%	= 2.2156
	90%	= .47516	25%	= 1.5206	1%	= 2.7577
113	MEAN	= 1.1373	S.D.	= .56232	P(N>=r)	= .41367E-01
	99%	= .19807	75%	= .71201	10%	= 1.9057
	95%	= .35151	50%	= 1.0652	5%	= 2.1701
	90%	= .46553	25%	= 1.4859	1%	= 2.7021
114	MEAN	= 1.1124	S.D.	= .55018	P(N>=r)	= .36779E-01
	99%	= .19484	75%	= .69664	10%	= 1.8641
	95%	= .34495	50%	= 1.0411	5%	= 2.1246
	90%	= .45627	25%	= 1.4525	1%	= 2.6480
115	MEAN	= 1.0884	S.D.	= .53840	P(N>=r)	= .32528E-01
	99%	= .19172	75%	= .68188	10%	= 1.8240
	95%	= .33864	50%	= 1.0180	5%	= 2.0798
	90%	= .44738	25%	= 1.4203	1%	= 2.5954
116	MEAN	= 1.0653	S.D.	= .52697	P(N>=r)	= .28612E-01
	99%	= .18871	75%	= .66772	10%	= 1.7851
	95%	= .33257	50%	= .99584	5%	= 2.0365
	90%	= .43883	25%	= 1.3893	1%	= 2.5444
117	MEAN	= 1.0431	S.D.	= .51588	P(N>=r)	= .25027E-01
	99%	= .18581	75%	= .65414	10%	= 1.7476
	95%	= .32673	50%	= .97453	5%	= 1.9945
	90%	= .43062	25%	= 1.3594	1%	= 2.4949
118	MEAN	= 1.0217	S.D.	= .50513	P(N>=r)	= .21767E-01
	99%	= .18301	75%	= .64111	10%	= 1.7113
	95%	= .32112	50%	= .95408	5%	= 1.9540
	90%	= .42275	25%	= 1.3306	1%	= 2.4468
119	MEAN	= 1.0010	S.D.	= .49471	P(N>=r)	= .18820E-01
	99%	= .18031	75%	= .62861	10%	= 1.6763
	95%	= .31573	50%	= .93443	5%	= 1.9147
	90%	= .41518	25%	= 1.3029	1%	= 2.4001
120	MEAN	= .98117	S.D.	= .48461	P(N>=r)	= .16174E-01
	99%	= .17771	75%	= .61663	10%	= 1.6425
	95%	= .31055	50%	= .91558	5%	= 1.8767
	90%	= .40792	25%	= 1.2762	1%	= 2.3548
121	MEAN	= .96206	S.D.	= .47483	P(N>=r)	= .13815E-01
	99%	= .17521	75%	= .60513	10%	= 1.6099
	95%	= .30556	50%	= .89748	5%	= 1.8400
	90%	= .40095	25%	= 1.2506	1%	= 2.3108
122	MEAN	= .94366	S.D.	= .46535	P(N>=r)	= .11726E-01
	99%	= .17279	75%	= .59410	10%	= 1.5784
	95%	= .30077	50%	= .88010	5%	= 1.8045
	90%	= .39425	25%	= 1.2259	1%	= 2.2681

E) The mean of the potential = 774.34

PETRIMES MODULE MPRO

NO. OF POOLS DISTRIBUTION AND RISKS
****

UAI	C5599402
PLAY	Tyaughton-Methow Skeena Structural gas play
Assessor	BC assessment team
Geologist	P. Hannigan, K. Osadetz
Operator	KOH
Remarks	RECOVERABLE
Run date	THU, MAR 10, 1994, 3:26 PM

A) Risks

	GEOLOGICAL FACTOR		MARGINAL PROBABILITY
PLAY LEVEL	Adequate Play Conditions	(19)	.60
	Overall Play Level Risk	=	.60
PROSPECT LEVEL	Presence of Closure	(1)	.50
	Presence of Reservoir Facies	(2)	.80
	Adequate Seal	(4)	.75
	Adequate Source	(6)	.50
	Adequate Preservation	(8)	.33
	Overall Prospect Level Risk	=	.05
EXPLORATION RISK:		=	.03

B) No. of Prospects Distribution

Minimum	=	2
Maximum	=	100
Mean	=	40.86
S.D.	=	29.08

Frequency	No. of Prospects
99.00	2
95	5
90	8
80	13
75	16
60	25
50	30

40	44
25	65
20	72
10	86
5	93
1	99
0	100

C) No. of Pools Distribution

Minimum	=	0
Maximum	=	16
Mean	=	1.21
S.D.	=	1.84

Frequency	No. of Pools
43.90	0
40	1
25	2
20	2
10	4
5	5
1	7
0	16

PETRIMES MODULE PSRK

INDIVIDUAL POOL SIZES BY RANK
WHERE N IS A RANDOM VARIABLE
****

UAI	C5599402
PLAY	Tyaughton-Methow Skeena Structural gas play
Assessor	BC assessment team
Geologist	P. Hannigan, K. Osadetz
Operator	KOH
Run date	THU, MAR 31, 1994, 3:25 PM

A) Basic Information

TYPE OF RESOURCE =Gas In Place
SYSTEM OF MEASUREMENT =S.I.
UNIT OF MEASUREMENT =M cu m (19)

B) Lognormal Pool Size Distribution

Summary Statistics	mu = 3.0819	MEAN = 34.741	
	sig. sq= .93203	S.D. = 43.108	
Upper Percentiles	99.99% = .60141	60.00% = 17.070	15.00% = 59.294
	99.00% = 2.3072	55.00% = 19.309	10.00% = 75.124
	95.00% = 4.4546	50.00% = 21.800	8.00% = 84.638
	90.00% = 6.3261	45.00% = 24.612	6.00% = 97.799
	85.00% = 8.0151	40.00% = 27.841	5.00% = 106.68
	80.00% = 9.6736	35.00% = 31.624	4.00% = 118.16
	75.00% = 11.367	30.00% = 36.168	2.00% = 158.32
	70.00% = 13.140	25.00% = 41.807	1.00% = 205.98
	65.00% = 15.028	20.00% = 49.128	.01% = 790.21

C) No. of Pools Distribution

Lower Support = 0
Upper Support = 16
Expectation = 1.21
Standard Deviation= 1.84

D) Pool Sizes By Rank

Pool Rank	Distribution		
1	MEAN = 58.024	S.D. = 60.490	P(N>=r)= .43896
	99% = 3.5810	75% = 21.924	10% = 120.51
	95% = 7.7127	50% = 41.204	5% = 162.96
	90% = 11.571	25% = 73.067	1% = 290.93
2	MEAN = 29.677	S.D. = 23.740	P(N>=r)= .29902
	99% = 2.6605	75% = 13.395	10% = 58.695
	95% = 5.2818	50% = 23.634	5% = 74.325
	90% = 7.5662	25% = 38.930	1% = 114.83
3	MEAN = 20.607	S.D. = 14.929	P(N>=r)= .19800
	99% = 2.2283	75% = 10.017	10% = 39.647
	95% = 4.2316	50% = 17.023	5% = 49.084

	90%	= 5.9028	25%	= 27.155	1%	= 72.095
4	MEAN	= 15.868	S.D.	= 10.856	P(N>=r)	= .12557
	99%	= 1.9449	75%	= 8.0719	10%	= 29.955
	95%	= 3.5801	50%	= 13.355	5%	= 36.665
	90%	= 4.9020	25%	= 20.875	1%	= 52.524
5	MEAN	= 12.936	S.D.	= 8.4928	P(N>=r)	= .74593E-01
	99%	= 1.7420	75%	= 6.8052	10%	= 24.050
	95%	= 3.1321	50%	= 11.024	5%	= 29.225
	90%	= 4.2290	25%	= 16.962	1%	= 41.236
6	MEAN	= 10.966	S.D.	= 6.9579	P(N>=r)	= .40888E-01
	99%	= 1.5920	75%	= 5.9310	10%	= 20.116
	95%	= 2.8107	50%	= 9.4388	5%	= 24.309
	90%	= 3.7539	25%	= 14.327	1%	= 33.928
7	MEAN	= 9.5698	S.D.	= 5.8907	P(N>=r)	= .20548E-01
	99%	= 1.4778	75%	= 5.3006	10%	= 17.339
	95%	= 2.5718	50%	= 8.3090	5%	= 20.853
	90%	= 3.4052	25%	= 12.460	1%	= 28.848

E) The mean of the potential = 42.027

PETRIMES MODULE MPRO

NO. OF POOLS DISTRIBUTION AND RISKS
****

UAI	C55A9402
PLAY	Tyaughton-Methow Skeena Structural oil play
Assessor	BC assessment team
Geologist	P. Hannigan, K. Osadetz
Operator	koh
Run date	FRI, MAR 11, 1994, 9:18 AM

A) Risks

	GEOLOGICAL FACTOR		MARGINAL PROBABILITY
PLAY LEVEL	Adequate Play Conditions	(19)	.60
	Overall Play Level Risk	=	.60
PROSPECT LEVEL	Presence of Closure	(1)	.50
	Presence of Reservoir Facies	(2)	.80
	Adequate Seal	(4)	.75
	Adequate Source	(6)	.50
	Adequate Preservation	(8)	.33
	Overall Prospect Level Risk	=	.05
EXPLORATION RISK:		=	.03

B) No. of Prospects Distribution

Minimum	=	2
Maximum	=	100
Mean	=	40.86
S.D.	=	29.08

Frequency	No. of Prospects
99.00	2
95	5
90	8
80	13
75	16
60	25
50	30

40	44
25	65
20	72
10	86
5	93
1	99
0	100

C) No. of Pools Distribution

Minimum	=	0
Maximum	=	16
Mean	=	1.21
S.D.	=	1.84

Frequency	No. of Pools
43.90	0
40	1
25	2
20	2
10	4
5	5
1	7
0	16

PETRIMES MODULE PSRK

INDIVIDUAL POOL SIZES BY RANK
WHERE N IS A RANDOM VARIABLE
****

UAI	C55A9402
PLAY	Tyaughton-Methow Skeena Structural oil play
Assessor	BC assessment team
Geologist	P. Hannigan, K. Osadetz
Operator	koh
Remarks	resource
Run date	FRI, MAR 11, 1994, 3:01 PM

A) Basic Information

TYPE OF RESOURCE =Oil In Place
SYSTEM OF MEASUREMENT =S.I.
UNIT OF MEASUREMENT =M cu m (19)

B) Lognormal Pool Size Distribution

Summary	mu	=-2.4741	MEAN	= .10876
Statistics	sig. sq=	.51104	S.D.	= .88830E-01

Upper	99.99% = .59007E-02	60.00% = .70285E-01	15.00% = .17672
Percentiles	99.00% = .15969E-01	55.00% = .77003E-01	10.00% = .21057
	95.00% = .25993E-01	50.00% = .84240E-01	8.00% = .23001
	90.00% = .33701E-01	45.00% = .92158E-01	6.00% = .25599
	85.00% = .40155E-01	40.00% = .10097	5.00% = .27301
	80.00% = .46156E-01	35.00% = .11095	4.00% = .29447
	75.00% = .52013E-01	30.00% = .12255	2.00% = .36571
	70.00% = .57904E-01	25.00% = .13643	1.00% = .44439
	65.00% = .63957E-01	20.00% = .15375	.01% = 1.2026

C) No. of Pools Distribution

Lower Support =	0
Upper Support =	16
Expectation =	1.21
Standard Deviation=	1.84

D) Pool Sizes By Rank

Pool Rank	Distribution			
1	MEAN = .16169	S.D. = .11497	P(N>=r)= .43896
	99% = .22113E-01	75% = .84594E-01	10% = .29879
	95% = .39028E-01	50% = .13497	5% = .37361
	90% = .52701E-01	25% = .20628	1% = .57385
2	MEAN = .10046	S.D. = .57914E-01	P(N>=r)= .29902
	99% = .17746E-01	75% = .58734E-01	10% = .17540
	95% = .29486E-01	50% = .89432E-01	5% = .20891
	90% = .38478E-01	25% = .12942	1% = .28830
3	MEAN = .77242E-01	S.D. = .40838E-01	P(N>=r)= .19800
	99% = .15563E-01	75% = .47363E-01	10% = .13118

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          95%    = .25023E-01 50%    = .70141E-01  5%    = .15365
          90%    = .32016E-01 25%    = .99118E-01  1%    = .20425

   4      MEAN   = .63913E-01 S.D.   = .32051E-01 P(N>=r)= .12557
          99%    = .14071E-01 75%    = .40366E-01 10%    = .10659
          95%    = .22109E-01 50%    = .58606E-01  5%    = .12380
          90%    = .27901E-01 25%    = .81578E-01  1%    = .16155

   5      MEAN   = .55097E-01 S.D.   = .26564E-01 P(N>=r)= .74593E-01
          99%    = .12969E-01 75%    = .35573E-01 10%    = .90596E-01
          95%    = .20025E-01 50%    = .50844E-01  5%    = .10466
          90%    = .25011E-01 25%    = .69955E-01  1%    = .13505

   6      MEAN   = .48865E-01 S.D.   = .22791E-01 P(N>=r)= .40888E-01
          99%    = .12132E-01 75%    = .32130E-01 10%    = .79371E-01
          95%    = .18482E-01 50%    = .45323E-01  5%    = .91316E-01
          90%    = .22899E-01 25%    = .61736E-01  1%    = .11689

   7      MEAN   = .44262E-01 S.D.   = .20044E-01 P(N>=r)= .20548E-01
          99%    = .11482E-01 75%    = .29564E-01 10%    = .71104E-01
          95%    = .17306E-01 50%    = .41241E-01  5%    = .81516E-01
          90%    = .21304E-01 25%    = .55670E-01  1%    = .10366

E) The mean of the potential =  .13136
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PETRIMES MODULE MPRO

NO. OF POOLS DISTRIBUTION AND RISKS
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UAI	C5519402
PLAY	Quesnel Tertiary/Cretaceous Structural gas play
Assessor	BC Assessment team
Geologist	P. Hannigan, K. Osadetz
Operator	KOH
Run date	FRI, MAR 11, 1994, 11:03 AM

A) Risks

	GEOLOGICAL FACTOR		MARGINAL PROBABILITY
PLAY LEVEL	Adequate Play Conditions	(19)	.90
	Overall Play Level Risk	=	.90
PROSPECT LEVEL	Adequate Prospect Conditions	(20)	.25
	Overall Prospect Level Risk	=	.25
EXPLORATION RISK:		=	.22

B) No. of Prospects Distribution

Minimum	=	50
Maximum	=	200
Mean	=	112.74
S.D.	=	44.16

Frequency	No. of Prospects
99.00	50
95	55
90	60
80	70
75	75
60	90
50	100
40	120
25	150

20	160
10	180
5	190
1	198
0	200

C) <u>No. of Pools Distribution</u>

Minimum	=	0
Maximum	=	74
Mean	=	25.37
S.D.	=	14.15

Frequency	No. of Pools
90.00	0
80	14
75	16
60	21
50	24
40	28
25	36
20	39
10	45
5	49
1	56
0	74

PETRIMES MODULE PSRK

INDIVIDUAL POOL SIZES BY RANK
WHERE N IS A RANDOM VARIABLE
****

UAI	C5519402
PLAY	Quesnel Tertiary/Cretaceous Structural gas play
Assessor	BC Assessment team
Geologist	P. Hannigan, K. Osadetz
Operator	KOH
Run date	THU, MAR 31, 1994, 1:50 PM

A) Basic Information

TYPE OF RESOURCE =Gas In Place
SYSTEM OF MEASUREMENT =S.I.
UNIT OF MEASUREMENT =M cu m (19)

B) Lognormal Pool Size Distribution

Summary	mu = 4.7967	MEAN = 329.93	
Statistics	sig. sq= 2.0043	S.D. = 836.03	
Upper	99.99% = .62597	60.00% = 84.609	15.00% = 525.33
Percentiles	99.00% = 4.4961	55.00% = 101.37	10.00% = 743.27
	95.00% = 11.799	50.00% = 121.11	8.00% = 885.30
	90.00% = 19.734	45.00% = 144.69	6.00% = 1094.3
	85.00% = 27.921	40.00% = 173.36	5.00% = 1243.1
	80.00% = 36.789	35.00% = 208.98	4.00% = 1444.1
	75.00% = 46.610	30.00% = 254.46	2.00% = 2217.8
	70.00% = 57.645	25.00% = 314.70	1.00% = 3262.4
	65.00% = 70.189	20.00% = 398.71	.01% = 23432.

C) No. of Pools Distribution

Lower Support = 0
Upper Support = 74
Expectation = 25.37
Standard Deviation= 14.15

D) Pool Sizes By Rank

Pool Rank		Distribution	
1	MEAN = 2730.9	S.D. = 3141.0	P(N>=r)= .90000
	99% = 358.87	75% = 1168.7	10% = 5324.0
	95% = 587.01	50% = 1900.7	5% = 7418.8
	90% = 760.32	25% = 3190.9	1% = 14588.
2	MEAN = 1285.6	S.D. = 919.91	P(N>=r)= .90000
	99% = 223.79	75% = 693.11	10% = 2338.1
	95% = 362.63	50% = 1059.8	5% = 2950.1
	90% = 464.53	25% = 1603.4	1% = 4656.8
3	MEAN = 860.78	S.D. = 537.58	P(N>=r)= .90000
	99% = 154.95	75% = 490.23	10% = 1525.4
	95% = 255.21	50% = 742.83	5% = 1861.3

	90% = 328.08	25% = 1092.3	1% = 2719.9			
4	MEAN = 645.33	S.D. = 383.67	P(N>=r)= .89998			
	99% = 111.35	75% = 371.94	10% = 1135.8			
	95% = 189.35	50% = 567.67	5% = 1363.7			
	90% = 245.88	25% = 828.93	1% = 1917.2			
5	MEAN = 511.77	S.D. = 300.37	P(N>=r)= .89990			
	99% = 80.894	75% = 293.02	10% = 903.31			
	95% = 144.15	50% = 454.17	5% = 1074.7			
	90% = 190.06	25% = 665.11	1% = 1476.6			
6	MEAN = 419.75	S.D. = 247.86	P(N>=r)= .89965			
	99% = 58.527	75% = 236.22	10% = 747.20			
	95% = 111.09	50% = 373.83	5% = 884.08			
	90% = 149.49	25% = 552.16	1% = 1196.6			
7	MEAN = 352.13	S.D. = 211.49	P(N>=r)= .89897			
	99% = 41.874	75% = 193.35	10% = 634.42			
	95% = 86.018	50% = 313.69	5% = 748.04			
	90% = 118.73	25% = 469.07	1% = 1002.0			
8	MEAN = 300.30	S.D. = 184.61	P(N>=r)= .89737			
	99% = 29.720	75% = 159.99	10% = 548.81			
	95% = 66.689	50% = 266.97	5% = 645.69			
	90% = 94.862	25% = 405.21	1% = 858.45			
9	MEAN = 259.46	S.D. = 163.75	P(N>=r)= .89413			
	99% = 21.239	75% = 133.57	10% = 481.52			
	95% = 51.820	50% = 229.81	5% = 565.75			
	90% = 76.178	25% = 354.63	1% = 748.03			
10	MEAN = 226.69	S.D. = 146.94	P(N>=r)= .88834			
	99% = 15.594	75% = 112.50	10% = 427.25			
	95% = 40.566	50% = 199.81	5% = 501.57			
	90% = 61.608	25% = 313.69	1% = 660.40			
11	MEAN = 200.10	S.D. = 132.99	P(N>=r)= .87907			
	99% = 11.931	75% = 95.688	10% = 382.64			
	95% = 32.243	50% = 175.40	5% = 448.96			
	90% = 50.382	25% = 280.06	1% = 589.19			
12	MEAN = 178.35	S.D. = 121.13	P(N>=r)= .86559			
	99% = 9.5510	75% = 82.342	10% = 345.43			
	95% = 26.216	50% = 155.49	5% = 405.13			
	90% = 41.863	25% = 252.13	1% = 530.23			
13	MEAN = 160.45	S.D. = 110.90	P(N>=r)= .84756			
	99% = 7.9747	75% = 71.804	10% = 314.01			
	95% = 21.902	50% = 139.25	5% = 368.12			
	90% = 35.476	25% = 228.74	1% = 480.67			
14	MEAN = 145.62	S.D. = 101.94	P(N>=r)= .82509			
	99% = 6.9010	75% = 63.515	10% = 287.17			
	95% = 18.814	50% = 125.97	5% = 336.48			
	90% = 30.713	25% = 208.96	1% = 438.44			
15	MEAN = 133.21	S.D. = 94.023	P(N>=r)= .79875			
	99% = 6.1467	75% = 56.994	10% = 264.01			
	95% = 16.578	50% = 115.10	5% = 309.15			

	90%	= 27.150	25%	= 192.07	1%	= 402.05
16	MEAN	= 122.72	S.D.	= 86.970	P(N>=r)	= .76937
	99%	= 5.5996	75%	= 51.838	10%	= 243.81
	95%	= 14.929	50%	= 106.12	5%	= 285.29
	90%	= 24.454	25%	= 177.50	1%	= 370.35
17	MEAN	= 113.74	S.D.	= 80.642	P(N>=r)	= .73785
	99%	= 5.1897	75%	= 47.729	10%	= 226.02
	95%	= 13.682	50%	= 98.613	5%	= 264.26
	90%	= 22.379	25%	= 164.79	1%	= 342.47
18	MEAN	= 105.97	S.D.	= 74.926	P(N>=r)	= .70506
	99%	= 4.8728	75%	= 44.424	10%	= 210.20
	95%	= 12.716	50%	= 92.252	5%	= 245.56
	90%	= 20.752	25%	= 153.59	1%	= 317.75
19	MEAN	= 99.147	S.D.	= 69.733	P(N>=r)	= .67173
	99%	= 4.6213	75%	= 41.743	10%	= 196.04
	95%	= 11.951	50%	= 86.774	5%	= 228.80
	90%	= 19.456	25%	= 143.60	1%	= 295.64
20	MEAN	= 93.093	S.D.	= 64.987	P(N>=r)	= .63844
	99%	= 4.4182	75%	= 39.552	10%	= 183.27
	95%	= 11.337	50%	= 81.966	5%	= 213.69
	90%	= 18.414	25%	= 134.58	1%	= 275.74
21	MEAN	= 87.659	S.D.	= 60.628	P(N>=r)	= .60568
	99%	= 4.2530	75%	= 37.746	10%	= 171.65
	95%	= 10.841	50%	= 77.661	5%	= 199.98
	90%	= 17.573	25%	= 126.36	1%	= 257.73
22	MEAN	= 82.724	S.D.	= 56.608	P(N>=r)	= .57380
	99%	= 4.1189	75%	= 36.234	10%	= 160.99
	95%	= 10.441	50%	= 73.725	5%	= 187.47
	90%	= 16.895	25%	= 118.78	1%	= 241.34
23	MEAN	= 78.191	S.D.	= 52.889	P(N>=r)	= .54311
	99%	= 4.0106	75%	= 34.931	10%	= 151.15
	95%	= 10.120	50%	= 70.054	5%	= 175.94
	90%	= 16.347	25%	= 111.77	1%	= 226.34
24	MEAN	= 73.976	S.D.	= 49.442	P(N>=r)	= .51383
	99%	= 3.9234	75%	= 33.754	10%	= 142.02
	95%	= 9.8597	50%	= 66.567	5%	= 165.26
	90%	= 15.895	25%	= 105.25	1%	= 212.54
25	MEAN	= 70.014	S.D.	= 46.245	P(N>=r)	= .48610
	99%	= 3.8518	75%	= 32.628	10%	= 133.52
	95%	= 9.6425	50%	= 63.210	5%	= 155.33
	90%	= 15.505	25%	= 99.140	1%	= 199.77
26	MEAN	= 66.254	S.D.	= 43.281	P(N>=r)	= .45998
	99%	= 3.7895	75%	= 31.493	10%	= 125.59
	95%	= 9.4480	50%	= 59.946	5%	= 146.09
	90%	= 15.141	25%	= 93.373	1%	= 187.84
27	MEAN	= 62.659	S.D.	= 40.536	P(N>=r)	= .43545
	99%	= 3.7300	75%	= 30.308	10%	= 118.17
	95%	= 9.2560	50%	= 56.758	5%	= 137.48

	90%	= 14.769	25%	= 87.926	1%	= 176.77
28	MEAN	= 59.207	S.D.	= 37.995	P(N>=r)	= .41238
	99%	= 3.6669	75%	= 29.059	10%	= 111.18
	95%	= 9.0485	50%	= 53.645	5%	= 129.44
	90%	= 14.362	25%	= 82.756	1%	= 166.47
29	MEAN	= 55.890	S.D.	= 35.645	P(N>=r)	= .39060
	99%	= 3.5948	75%	= 27.748	10%	= 104.61
	95%	= 8.8130	50%	= 50.612	5%	= 121.91
	90%	= 13.906	25%	= 77.847	1%	= 156.91
30	MEAN	= 52.705	S.D.	= 33.469	P(N>=r)	= .36990
	99%	= 3.5109	75%	= 26.392	10%	= 98.411
	95%	= 8.5438	50%	= 47.672	5%	= 114.82
	90%	= 13.399	25%	= 73.188	1%	= 148.03
31	MEAN	= 49.657	S.D.	= 31.453	P(N>=r)	= .35004
	99%	= 3.4144	75%	= 25.017	10%	= 92.590
	95%	= 8.2429	50%	= 44.840	5%	= 108.17
	90%	= 12.848	25%	= 68.779	1%	= 139.73
32	MEAN	= 46.749	S.D.	= 29.581	P(N>=r)	= .33083
	99%	= 3.3070	75%	= 23.646	10%	= 87.131
	95%	= 7.9170	50%	= 42.128	5%	= 101.88
	90%	= 12.268	25%	= 64.616	1%	= 131.95
33	MEAN	= 43.988	S.D.	= 27.840	P(N>=r)	= .31208
	99%	= 3.1915	75%	= 22.303	10%	= 82.015
	95%	= 7.5755	50%	= 39.547	5%	= 95.991
	90%	= 11.674	25%	= 60.690	1%	= 124.65
34	MEAN	= 41.374	S.D.	= 26.218	P(N>=r)	= .29364
	99%	= 3.0713	75%	= 21.002	10%	= 77.214
	95%	= 7.2279	50%	= 37.101	5%	= 90.420
	90%	= 11.080	25%	= 56.994	1%	= 117.79
35	MEAN	= 38.907	S.D.	= 24.702	P(N>=r)	= .27542
	99%	= 2.9493	75%	= 19.757	10%	= 72.701
	95%	= 6.8818	50%	= 34.793	5%	= 85.185
	90%	= 10.497	25%	= 53.519	1%	= 111.35
36	MEAN	= 36.584	S.D.	= 23.285	P(N>=r)	= .25737
	99%	= 2.8280	75%	= 18.573	10%	= 68.457
	95%	= 6.5431	50%	= 32.622	5%	= 80.282
	90%	= 9.9330	25%	= 50.258	1%	= 105.29
37	MEAN	= 34.402	S.D.	= 21.958	P(N>=r)	= .23946
	99%	= 2.7089	75%	= 17.454	10%	= 64.460
	95%	= 6.2154	50%	= 30.585	5%	= 75.716
	90%	= 9.3922	25%	= 47.199	1%	= 99.604
38	MEAN	= 32.353	S.D.	= 20.714	P(N>=r)	= .22171
	99%	= 2.5931	75%	= 16.401	10%	= 60.708
	95%	= 5.9010	50%	= 28.678	5%	= 71.444
	90%	= 8.8774	25%	= 44.333	1%	= 94.238
39	MEAN	= 30.434	S.D.	= 19.549	P(N>=r)	= .20414
	99%	= 2.4813	75%	= 15.412	10%	= 57.189
	95%	= 5.6009	50%	= 26.895	5%	= 67.433

	90%	= 8.3895	25%	= 41.650	1%	= 89.171		
40	MEAN	= 28.637	S.D.	= 18.456	P(N>=r)=	.18681		
	99%	= 2.3739	75%	= 14.486	10%	= 53.890		
	95%	= 5.3159	50%	= 25.231	5%	= 63.665		
	90%	= 7.9289	25%	= 39.141	1%	= 84.370		
41	MEAN	= 26.957	S.D.	= 17.431	P(N>=r)=	.16978		
	99%	= 2.2711	75%	= 13.622	10%	= 50.800		
	95%	= 5.0462	50%	= 23.681	5%	= 60.115		
	90%	= 7.4957	25%	= 36.798	1%	= 79.815		
42	MEAN	= 25.388	S.D.	= 16.471	P(N>=r)=	.15315		
	99%	= 2.1731	75%	= 12.817	10%	= 47.908		
	95%	= 4.7918	50%	= 22.239	5%	= 56.785		
	90%	= 7.0894	25%	= 34.612	1%	= 75.503		
43	MEAN	= 23.926	S.D.	= 15.570	P(N>=r)=	.13699		
	99%	= 2.0800	75%	= 12.070	10%	= 45.203		
	95%	= 4.5528	50%	= 20.901	5%	= 53.664		
	90%	= 6.7096	25%	= 32.575	1%	= 71.451		
44	MEAN	= 22.565	S.D.	= 14.727	P(N>=r)=	.12143		
	99%	= 1.9921	75%	= 11.377	10%	= 42.676		
	95%	= 4.3289	50%	= 19.661	5%	= 50.743		
	90%	= 6.3557	25%	= 30.680	1%	= 67.675		
45	MEAN	= 21.300	S.D.	= 13.937	P(N>=r)=	.10657		
	99%	= 1.9092	75%	= 10.736	10%	= 40.318		
	95%	= 4.1199	50%	= 18.513	5%	= 48.010		
	90%	= 6.0268	25%	= 28.920	1%	= 64.176		
46	MEAN	= 20.125	S.D.	= 13.198	P(N>=r)=	.92523E-01		
	99%	= 1.8313	75%	= 10.145	10%	= 38.120		
	95%	= 3.9254	50%	= 17.454	5%	= 45.457		
	90%	= 5.7219	25%	= 27.287	1%	= 60.930		
47	MEAN	= 19.037	S.D.	= 12.507	P(N>=r)=	.79397E-01		
	99%	= 1.7584	75%	= 9.5999	10%	= 36.073		
	95%	= 3.7447	50%	= 16.478	5%	= 43.074		
	90%	= 5.4399	25%	= 25.774	1%	= 57.895		
48	MEAN	= 18.029	S.D.	= 11.862	P(N>=r)=	.67287E-01		
	99%	= 1.6903	75%	= 9.0990	10%	= 34.170		
	95%	= 3.5773	50%	= 15.579	5%	= 40.851		
	90%	= 5.1796	25%	= 24.374	1%	= 55.039		
49	MEAN	= 17.097	S.D.	= 11.259	P(N>=r)=	.56269E-01		
	99%	= 1.6267	75%	= 8.6387	10%	= 32.401		
	95%	= 3.4224	50%	= 14.752	5%	= 38.779		
	90%	= 4.9396	25%	= 23.080	1%	= 52.361		
50	MEAN	= 16.235	S.D.	= 10.696	P(N>=r)=	.46395E-01		
	99%	= 1.5676	75%	= 8.2162	10%	= 30.759		
	95%	= 3.2792	50%	= 13.992	5%	= 36.850		
	90%	= 4.7185	25%	= 21.885	1%	= 49.854		
51	MEAN	= 15.439	S.D.	= 10.172	P(N>=r)=	.37686E-01		
	99%	= 1.5126	75%	= 7.8284	10%	= 29.235		
	95%	= 3.1470	50%	= 13.294	5%	= 35.054		

	90%	= 4.5149	25%	= 20.783	1%	= 47.510
52	MEAN	= 14.703	S.D.	= 9.6823	P(N>=r)	= .30135E-01
	99%	= 1.4615	75%	= 7.4725	10%	= 27.822
	95%	= 3.0249	50%	= 12.653	5%	= 33.385
	90%	= 4.3275	25%	= 19.765	1%	= 45.319
53	MEAN	= 14.024	S.D.	= 9.2265	P(N>=r)	= .23704E-01
	99%	= 1.4140	75%	= 7.1457	10%	= 26.513
	95%	= 2.9121	50%	= 12.065	5%	= 31.832
	90%	= 4.1550	25%	= 18.827	1%	= 43.270
54	MEAN	= 13.397	S.D.	= 8.8016	P(N>=r)	= .18330E-01
	99%	= 1.3698	75%	= 6.8456	10%	= 25.298
	95%	= 2.8079	50%	= 11.523	5%	= 30.388
	90%	= 3.9960	25%	= 17.961	1%	= 41.356
55	MEAN	= 12.818	S.D.	= 8.4058	P(N>=r)	= .13924E-01
	99%	= 1.3288	75%	= 6.5696	10%	= 24.173
	95%	= 2.7115	50%	= 11.026	5%	= 29.046
	90%	= 3.8494	25%	= 17.163	1%	= 39.567
56	MEAN	= 12.282	S.D.	= 8.0367	P(N>=r)	= .10385E-01
	99%	= 1.2905	75%	= 6.3156	10%	= 23.130
	95%	= 2.6223	50%	= 10.568	5%	= 27.798
	90%	= 3.7140	25%	= 16.425	1%	= 37.893

E) The mean of the potential = 8369.2

PETRIMES MODULE MPRO

NO. OF POOLS DISTRIBUTION AND RISKS
****

UAI	C5529402
PLAY	Quesnel Tertiary/Cretaceous Structural oil play
Assessor	BC Assessment team
Geologist	P. Hannigan, K. Osadetz
Operator	KOH
Run date	FRI, MAR 11, 1994, 2:23 PM

A) Risks

	GEOLOGICAL FACTOR		MARGINAL PROBABILITY
PLAY LEVEL	Adequate Play Conditions	(19)	.90
	Overall Play Level Risk	=	.90
PROSPECT LEVEL	Adequate Prospect Conditions	(20)	.15
	Overall Prospect Level Risk	=	.15
EXPLORATION RISK:		=	.14

B) No. of Prospects Distribution

Minimum	=	50
Maximum	=	200
Mean	=	112.74
S.D.	=	44.16

Frequency	No. of Prospects
99.00	50
95	55
90	60
80	70
75	75
60	90
50	100
40	120
25	150

20	160
10	180
5	190
1	198
0	200

C) <u>No. of Pools Distribution</u>

Minimum	=	0
Maximum	=	52
Mean	=	15.22
S.D.	=	8.84

Frequency	No. of Pools
90.00	0
80	8
75	9
60	12
50	14
40	17
25	21
20	23
10	27
5	30
1	36
0	52

PETRIMES MODULE PSRK

INDIVIDUAL POOL SIZES BY RANK
WHERE N IS A RANDOM VARIABLE
****

UAI	C5529402
PLAY	Quesnel Tertiary/Cretaceous Structural oil play
Assessor	BC Assessment team
Geologist	P. Hannigan, K. Osadetz
Operator	koh
Remarks	resources
Run date	FRI, MAR 11, 1994, 4:11 PM

A) Basic Information

TYPE OF RESOURCE =Oil In Place
SYSTEM OF MEASUREMENT =S.I.
UNIT OF MEASUREMENT =M cu m (19)

B) Lognormal Pool Size Distribution

Summary	mu =-1.0217	MEAN = .79699	
Statistics	sig. sq= 1.5895	S.D. = 1.5742	
Upper	99.99% = .33114E-02	60.00% = .26157	15.00% = 1.3298
Percentiles	99.00% = .19167E-01	55.00% = .30725	10.00% = 1.8113
	95.00% = .45257E-01	50.00% = .36000	8.00% = 2.1165
	90.00% = .71550E-01	45.00% = .42180	6.00% = 2.5562
	85.00% = .97459E-01	40.00% = .49547	5.00% = 2.8636
	80.00% = .12459	35.00% = .58517	4.00% = 3.2724
	75.00% = .15381	30.00% = .69732	2.00% = 4.7951
	70.00% = .18586	25.00% = .84257	1.00% = 6.7617
	65.00% = .22148	20.00% = 1.0402	.01% = 39.137

C) No. of Pools Distribution

Lower Support = 0
Upper Support = 52
Expectation = 15.22
Standard Deviation= 8.84

D) Pool Sizes By Rank

Pool Rank		Distribution	
1	MEAN = 4.3229	S.D. = 4.4702	P(N>=r)= .89998
	99% = .54907	75% = 1.9352	10% = 8.3756
	95% = .95020	50% = 3.1286	5% = 11.433
	90% = 1.2484	25% = 5.1559	1% = 21.433
2	MEAN = 2.0994	S.D. = 1.4668	P(N>=r)= .89981
	99% = .30596	75% = 1.1335	10% = 3.8250
	95% = .55632	50% = 1.7541	5% = 4.7833
	90% = .73670	25% = 2.6488	1% = 7.3824
3	MEAN = 1.4045	S.D. = .89141	P(N>=r)= .89898
	99% = .18320	75% = .78274	10% = 2.5225

	95% = .36486		50% = 1.2194		5% = 3.0661	
	90% = .49590		25% = 1.8088		1% = 4.4256	
4	MEAN = 1.0438		S.D. = .65013		P(N>=r) = .89626	
	99% = .11242		75% = .57638		10% = 1.8826	
	95% = .24919		50% = .91942		5% = 2.2594	
	90% = .35104		25% = 1.3673		1% = 3.1573	
5	MEAN = .81902		S.D. = .51543		P(N>=r) = .88967	
	99% = .72393E-01		75% = .44010		10% = 1.4956	
	95% = .17476		50% = .72476		5% = 1.7833	
	90% = .25592		25% = 1.0902		1% = 2.4469	
6	MEAN = .66588		S.D. = .42779		P(N>=r) = .87679	
	99% = .50402E-01		75% = .34542		10% = 1.2344	
	95% = .12677		50% = .58891		5% = 1.4668	
	90% = .19187		25% = .89952		1% = 1.9898	
7	MEAN = .55627		S.D. = .36509		P(N>=r) = .85565	
	99% = .38074E-01		75% = .27835		10% = 1.0462	
	95% = .96230E-01		50% = .49045		5% = 1.2406	
	90% = .14878		25% = .76090		1% = 1.6701	
8	MEAN = .47529		S.D. = .31737		P(N>=r) = .82543	
	99% = .30790E-01		75% = .23055		10% = .90434	
	95% = .76806E-01		50% = .41757		5% = 1.0709	
	90% = .11990		25% = .65650		1% = 1.4336	
9	MEAN = .41397		S.D. = .27950		P(N>=r) = .78685	
	99% = .26229E-01		75% = .19632		10% = .79383	
	95% = .64228E-01		50% = .36279		5% = .93895	
	90% = .10044		25% = .57571		1% = 1.2515	
10	MEAN = .36641		S.D. = .24852		P(N>=r) = .74178	
	99% = .23222E-01		75% = .17159		10% = .70533	
	95% = .55840E-01		50% = .32091		5% = .83332	
	90% = .87113E-01		25% = .51161		1% = 1.1068	
11	MEAN = .32859		S.D. = .22260		P(N>=r) = .69268	
	99% = .21150E-01		75% = .15341		10% = .63271	
	95% = .50054E-01		50% = .28818		5% = .74666	
	90% = .77759E-01		25% = .45951		1% = .98867	
12	MEAN = .29771		S.D. = .20052		P(N>=r) = .64200	
	99% = .19665E-01		75% = .13969		10% = .57180	
	95% = .45920E-01		50% = .26184		5% = .67402	
	90% = .70994E-01		25% = .41610		1% = .89023	
13	MEAN = .27179		S.D. = .18142		P(N>=r) = .59172	
	99% = .18561E-01		75% = .12894		10% = .51970	
	95% = .42852E-01		50% = .23990		5% = .61199	
	90% = .65921E-01		25% = .37907		1% = .80666	
14	MEAN = .24945		S.D. = .16472		P(N>=r) = .54327	
	99% = .17703E-01		75% = .12010		10% = .47438	
	95% = .40470E-01		50% = .22096		5% = .55817	
	90% = .61934E-01		25% = .34678		1% = .73460	
15	MEAN = .22973		S.D. = .15001		P(N>=r) = .49748	
	99% = .16999E-01		75% = .11241		10% = .43439	

	95%	= .38507E-01	50%	= .20408	5%	= .51084
	90%	= .58605E-01	25%	= .31814	1%	= .67167
16	MEAN	= .21198	S.D.	= .13698	P(N>=r)	= .45471
	99%	= .16378E-01	75%	= .10536	10%	= .39870
	95%	= .36767E-01	50%	= .18867	5%	= .46878
	90%	= .55621E-01	25%	= .29237	1%	= .61611
17	MEAN	= .19578	S.D.	= .12539	P(N>=r)	= .41492
	99%	= .15785E-01	75%	= .98633E-01	10%	= .36659
	95%	= .35109E-01	50%	= .17439	5%	= .43108
	90%	= .52769E-01	25%	= .26896	1%	= .56665
18	MEAN	= .18085	S.D.	= .11505	P(N>=r)	= .37784
	99%	= .15184E-01	75%	= .92109E-01	10%	= .33752
	95%	= .33446E-01	50%	= .16106	5%	= .39709
	90%	= .49929E-01	25%	= .24758	1%	= .52232
19	MEAN	= .16707	S.D.	= .10581	P(N>=r)	= .34306
	99%	= .14559E-01	75%	= .85770E-01	10%	= .31113
	95%	= .31743E-01	50%	= .14862	5%	= .36632
	90%	= .47064E-01	25%	= .22801	1%	= .48241
20	MEAN	= .15435	S.D.	= .97533E-01	P(N>=r)	= .31017
	99%	= .13908E-01	75%	= .79670E-01	10%	= .28712
	95%	= .30009E-01	50%	= .13707	5%	= .33840
	90%	= .44199E-01	25%	= .21010	1%	= .44634
21	MEAN	= .14266	S.D.	= .90085E-01	P(N>=r)	= .27880
	99%	= .13245E-01	75%	= .73882E-01	10%	= .26528
	95%	= .28279E-01	50%	= .12640	5%	= .31304
	90%	= .41388E-01	25%	= .19375	1%	= .41368
22	MEAN	= .13194	S.D.	= .83369E-01	P(N>=r)	= .24872
	99%	= .12585E-01	75%	= .68471E-01	10%	= .24541
	95%	= .26594E-01	50%	= .11661	5%	= .28999
	90%	= .38690E-01	25%	= .17885	1%	= .38405
23	MEAN	= .12218	S.D.	= .77297E-01	P(N>=r)	= .21984
	99%	= .11946E-01	75%	= .63480E-01	10%	= .22736
	95%	= .24988E-01	50%	= .10770	5%	= .26905
	90%	= .36151E-01	25%	= .16531	1%	= .35711
24	MEAN	= .11331	S.D.	= .71797E-01	P(N>=r)	= .19220
	99%	= .11338E-01	75%	= .58924E-01	10%	= .21098
	95%	= .23487E-01	50%	= .99625E-01	5%	= .25003
	90%	= .33800E-01	25%	= .15305	1%	= .33264
25	MEAN	= .10529	S.D.	= .66807E-01	P(N>=r)	= .16592
	99%	= .10770E-01	75%	= .54801E-01	10%	= .19612
	95%	= .22103E-01	50%	= .92346E-01	5%	= .23275
	90%	= .31649E-01	25%	= .14197	1%	= .31039
26	MEAN	= .98038E-01	S.D.	= .62277E-01	P(N>=r)	= .14124
	99%	= .10244E-01	75%	= .51090E-01	10%	= .18266
	95%	= .20840E-01	50%	= .85805E-01	5%	= .21707
	90%	= .29698E-01	25%	= .13197	1%	= .29014
27	MEAN	= .91504E-01	S.D.	= .58160E-01	P(N>=r)	= .11837
	99%	= .97612E-02	75%	= .47764E-01	10%	= .17048

	95%	= .19693E-01	50%	= .79941E-01	5%	= .20283
	90%	= .27939E-01	25%	= .12296	1%	= .27170
28	MEAN	= .85620E-01	S.D.	= .54418E-01	P(N>=r)	= .97549E-01
	99%	= .93204E-02	75%	= .44788E-01	10%	= .15945
	95%	= .18656E-01	50%	= .74691E-01	5%	= .18991
	90%	= .26356E-01	25%	= .11485	1%	= .25491
29	MEAN	= .80321E-01	S.D.	= .51014E-01	P(N>=r)	= .78954E-01
	99%	= .89188E-02	75%	= .42129E-01	10%	= .14947
	95%	= .17721E-01	50%	= .69994E-01	5%	= .17819
	90%	= .24935E-01	25%	= .10755	1%	= .23960
30	MEAN	= .75550E-01	S.D.	= .47918E-01	P(N>=r)	= .62694E-01
	99%	= .85534E-02	75%	= .39751E-01	10%	= .14044
	95%	= .16878E-01	50%	= .65790E-01	5%	= .16754
	90%	= .23659E-01	25%	= .10099	1%	= .22563
31	MEAN	= .71250E-01	S.D.	= .45100E-01	P(N>=r)	= .48793E-01
	99%	= .82209E-02	75%	= .37623E-01	10%	= .13226
	95%	= .16118E-01	50%	= .62025E-01	5%	= .15788
	90%	= .22513E-01	25%	= .95074E-01	1%	= .21289
32	MEAN	= .67371E-01	S.D.	= .42533E-01	P(N>=r)	= .37187E-01
	99%	= .79182E-02	75%	= .35716E-01	10%	= .12485
	95%	= .15431E-01	50%	= .58649E-01	5%	= .14909
	90%	= .21481E-01	25%	= .89749E-01	1%	= .20126
33	MEAN	= .63867E-01	S.D.	= .40194E-01	P(N>=r)	= .27732E-01
	99%	= .76422E-02	75%	= .34003E-01	10%	= .11813
	95%	= .14809E-01	50%	= .55615E-01	5%	= .14110
	90%	= .20551E-01	25%	= .84944E-01	1%	= .19063
34	MEAN	= .60697E-01	S.D.	= .38059E-01	P(N>=r)	= .20223E-01
	99%	= .73901E-02	75%	= .32460E-01	10%	= .11203
	95%	= .14245E-01	50%	= .52884E-01	5%	= .13383
	90%	= .19710E-01	25%	= .80603E-01	1%	= .18089
35	MEAN	= .57822E-01	S.D.	= .36110E-01	P(N>=r)	= .14413E-01
	99%	= .71594E-02	75%	= .31068E-01	10%	= .10649
	95%	= .13732E-01	50%	= .50420E-01	5%	= .12720
	90%	= .18948E-01	25%	= .76674E-01	1%	= .17198
36	MEAN	= .55211E-01	S.D.	= .34327E-01	P(N>=r)	= .10033E-01
	99%	= .69478E-02	75%	= .29806E-01	10%	= .10144
	95%	= .13265E-01	50%	= .48190E-01	5%	= .12114
	90%	= .18255E-01	25%	= .73111E-01	1%	= .16380

E) The mean of the potential = 12.130

FIGURE CAPTIONS

Map 1: Nechako Oil & Gas Assessment - Tertiary Plays (Nechako Tertiary Structural (Oil & Gas), and Quesnel Tertiary/Cretaceous Structural (Oil & Gas))

Map 2: Nechako Oil & Gas Assessment - Cretaceous Plays (Nechako Upper Cretaceous Structural (Oil & Gas), Nechako Skeena Structural (Oil & Gas), Tyaughton-Methow Upper Cretaceous Structural (Oil & Gas), and Tyaughton-Methow Skeena Structural (Oil & Gas))

Map 3: Nechako Oil & Gas Assessment - Jurassic Plays (Nechako Jurassic Structural (Gas), Tyaughton-Methow Relay Mountain/Ladner Structural (Gas), and Quesnel Jura-Triassic Structural (Gas))

Map 4: Cretaceous Sedimentation in Intermontane Basins

Map 5: Nechako Oil & Gas Assessment - Hydrocarbon Potential Map

Figure 1: Structural cross-section in the Nazko area

Figure 2: Structural cross-section in the Alkali Lake/Riske Creek area

Figure 3: Field size by rank diagram of Nechako Tertiary Structural Gas Play

Figure 4: Field size by rank diagram of Nechako Tertiary Structural Oil Play

Figure 5: Field size by rank diagram of Nechako Upper Cretaceous Structural Gas Play

Figure 6: Field size by rank diagram of Nechako Upper Cretaceous Structural Oil Play

Figure 7: Field size by rank diagram of Nechako Skeena Structural Gas Play

Figure 8: Field size by rank diagram of Nechako Skeena Structural Oil Play

Figure 9: Field size by rank diagram of Tyaughton-Methow Skeena Structural Gas Play

Figure 10: Field size by rank diagram of Tyaughton-Methow Skeena Structural Oil Play

Figure 11: Field size by rank diagram of Quesnel Tertiary/Cretaceous Structural Gas Play

Figure 12: Field size by rank diagram of Quesnel Tertiary/Cretaceous Structural Oil Play

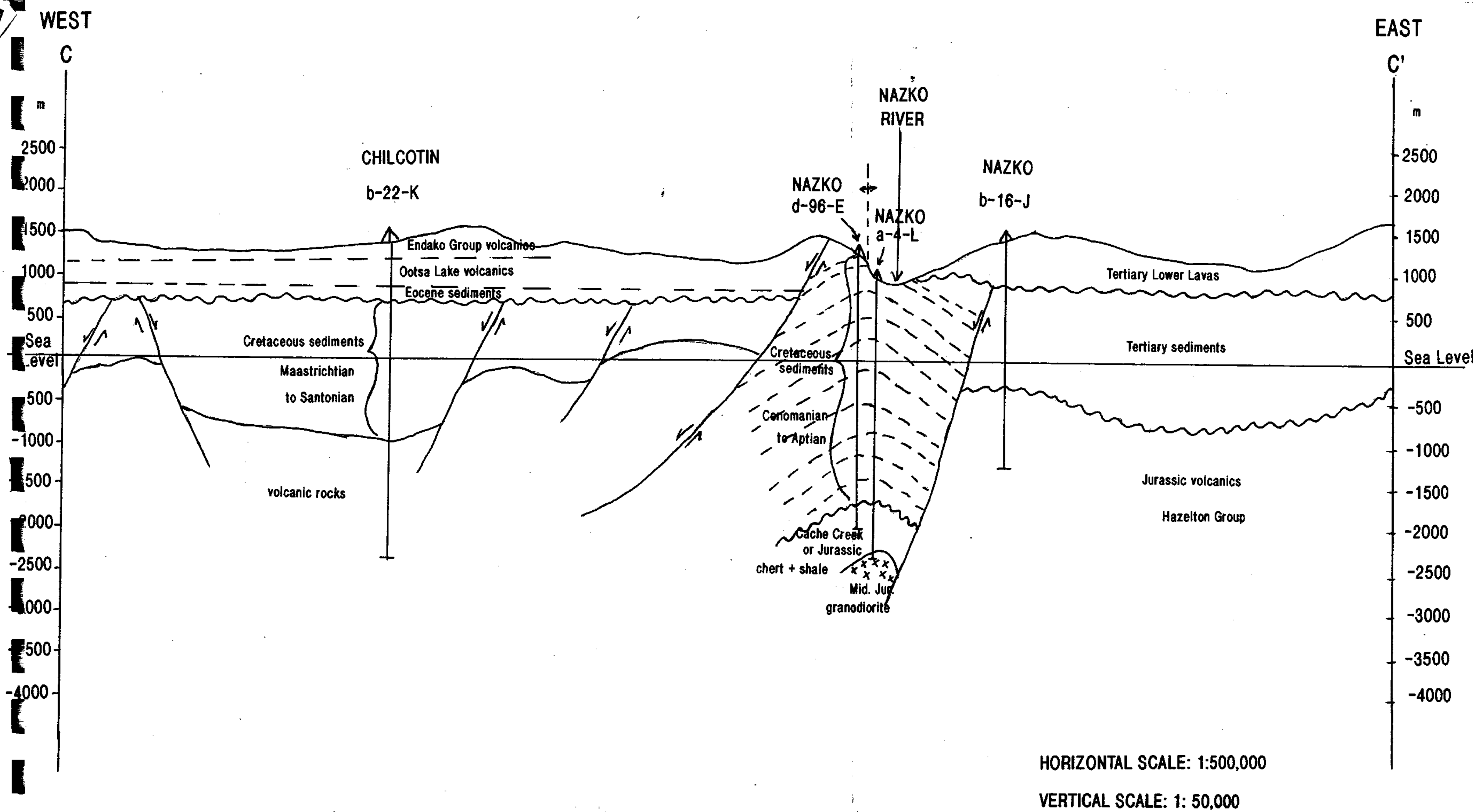


Figure 1: Structural Cross-section in the Nazko area (see Map 4 for location)

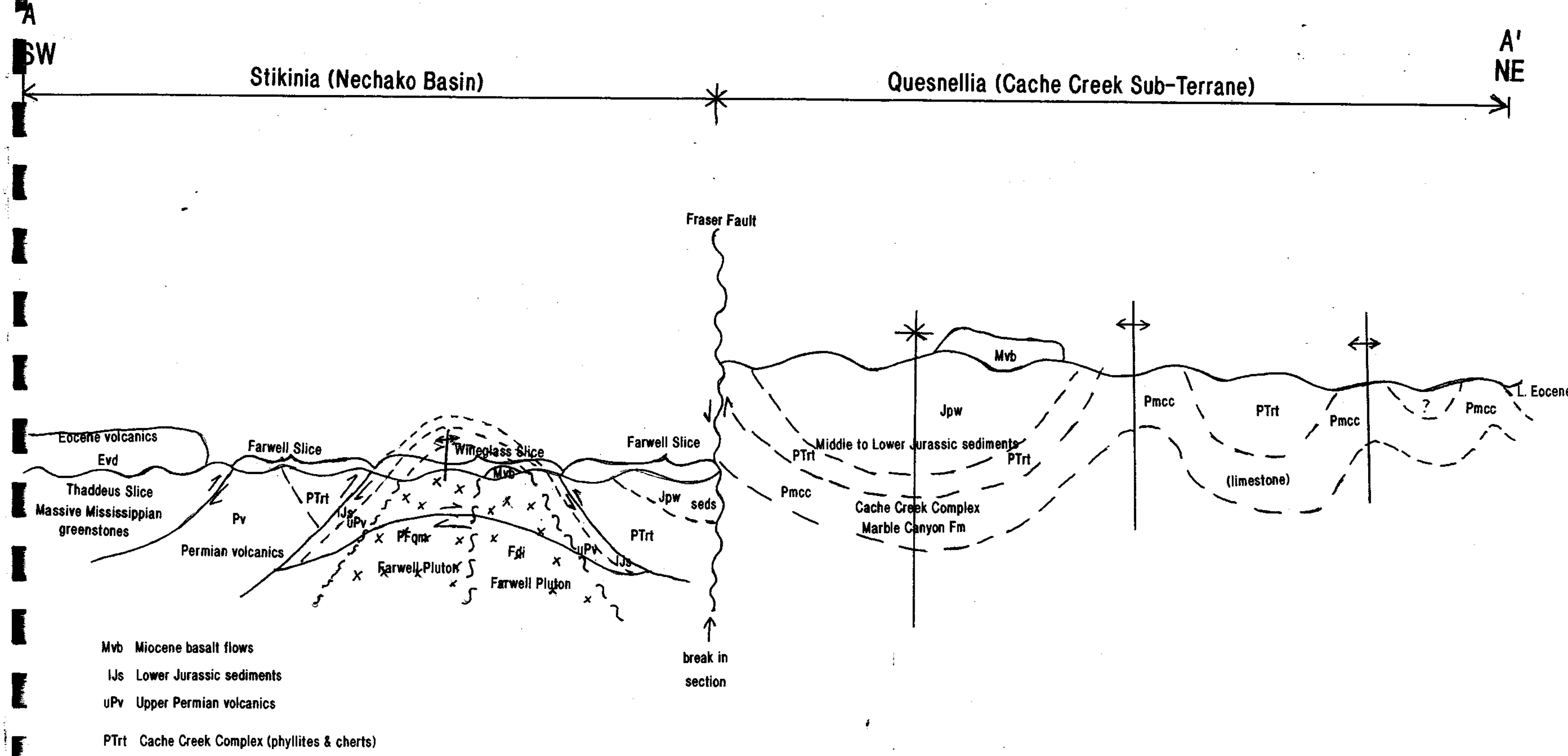


Figure 2: Structural Cross-section in the Alkali Lake/Riske Creek area (see Map 4 for location)

Nechako Tertiary Structural gas play, Intermontane
British Columbia, Canada

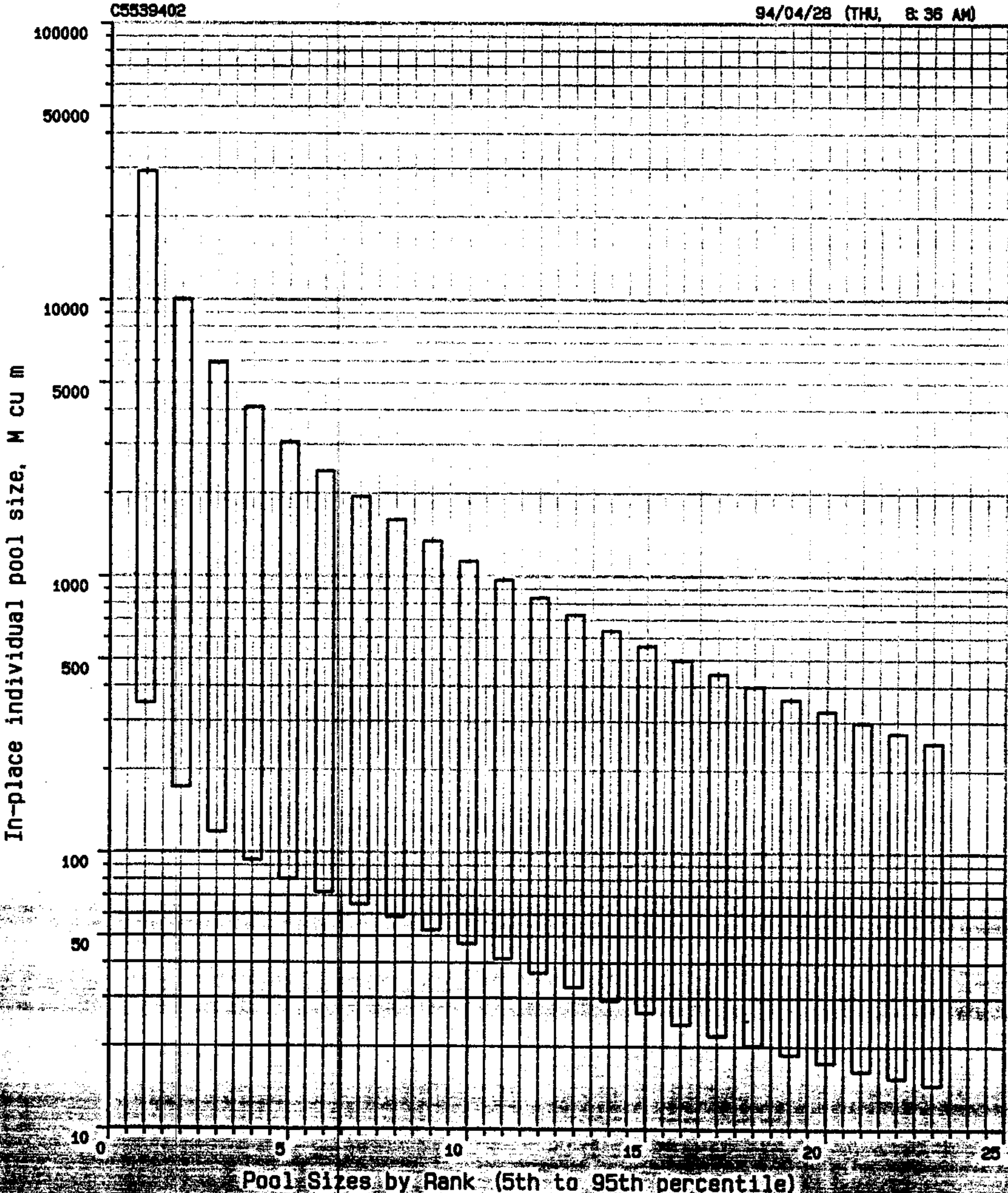


Figure 3

E(N) = 6.833471
CPSD Mu = 6.470687
E(T) = 14223.113281
Sigma sq. = 2.340208

Nechako Tertiary Structural oil play, Intermontane
British Columbia, Canada

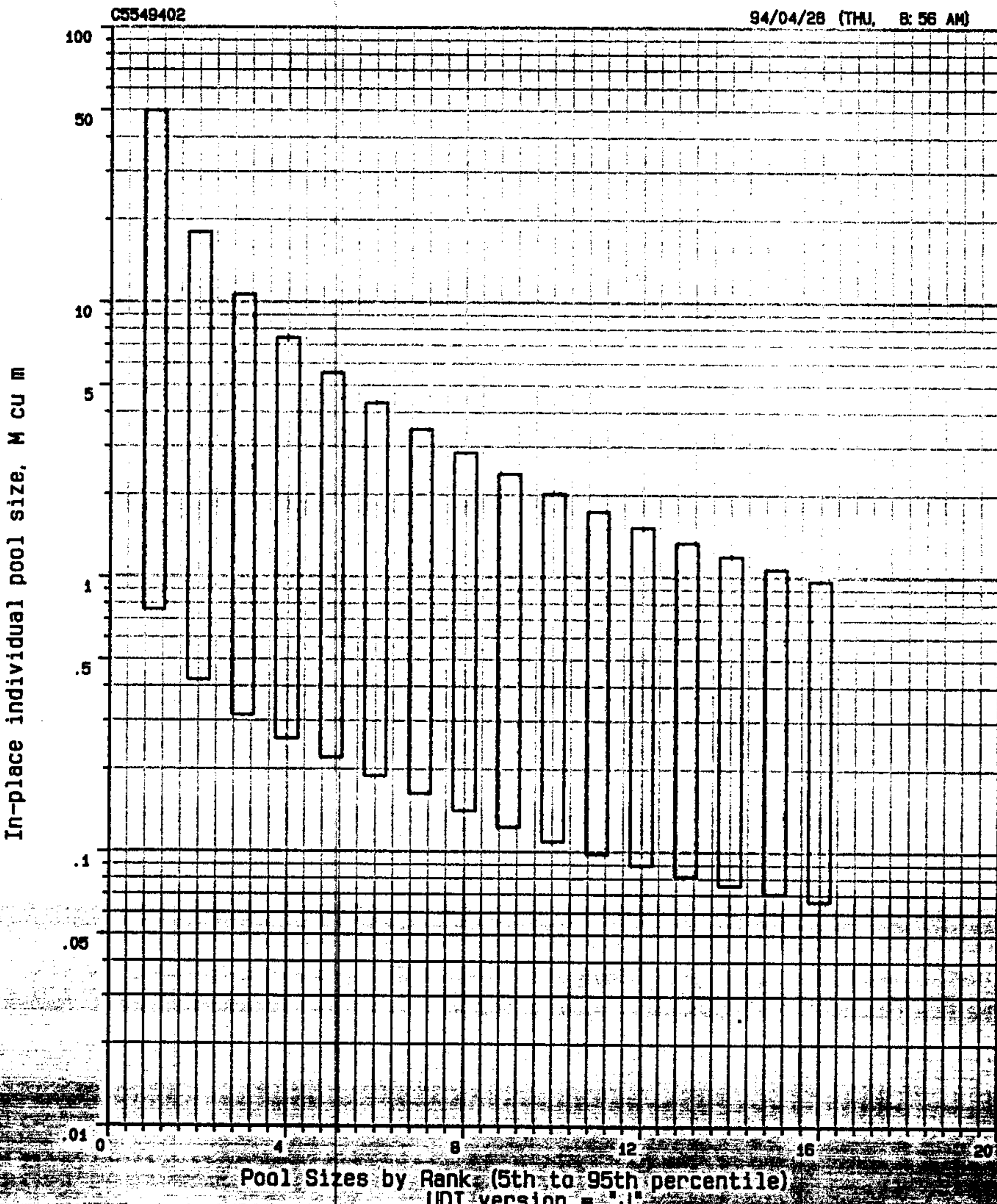


Figure 4

E(N) = 4.31406
CPSD Mu = .652325
E(T) = 21.690733
Sigma sq. = 1.925361

Nechako Upper Cretaceous Structural gas play, Intermontane
British Columbia, Canada

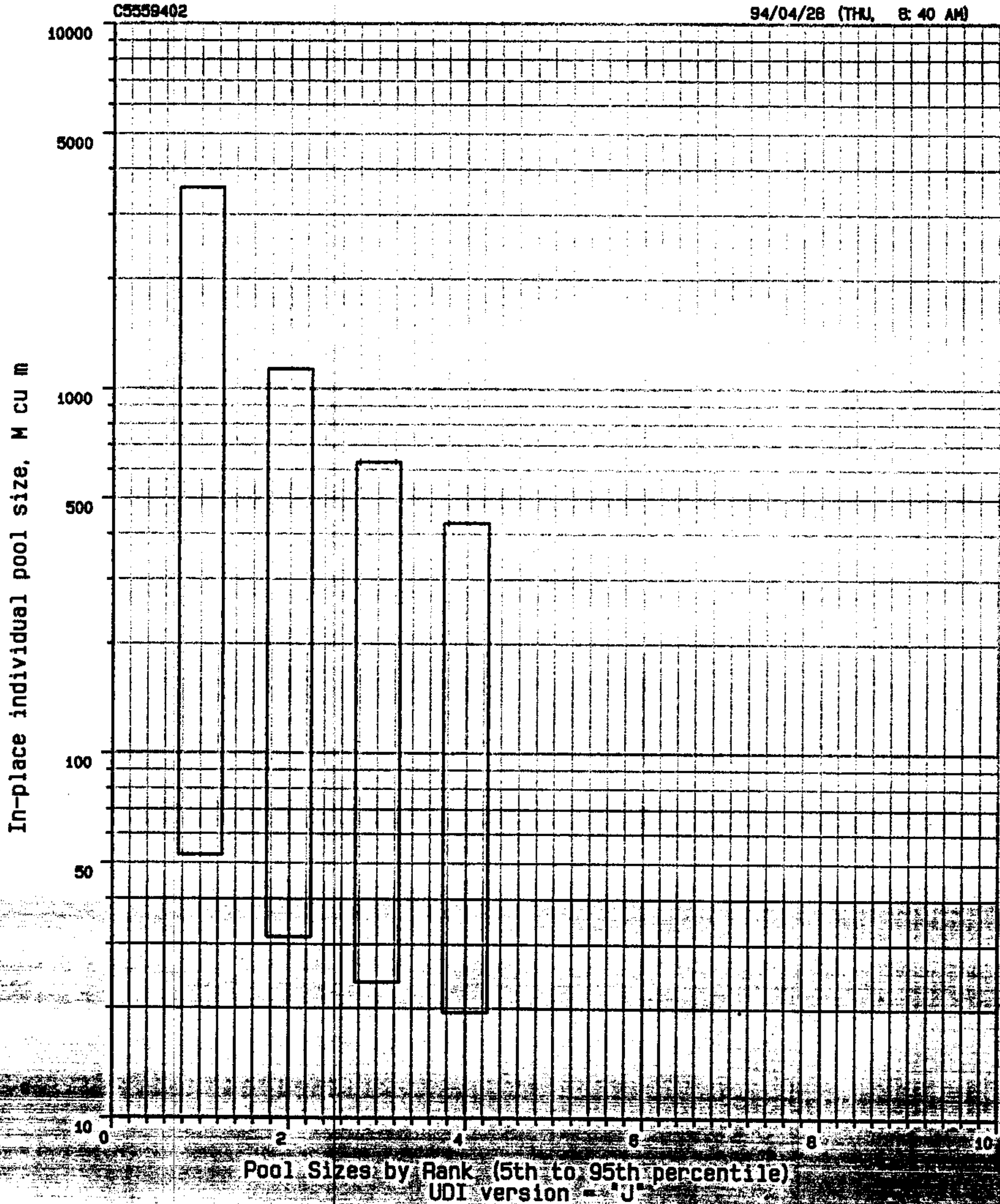


Figure 5

E(N) = .918086
CPSD Mu = 5.713001
E(T) = 650.078308
Sigma sq. = 1.699111

Nechako Upper Cretaceous Structural oil play, Intermontane British Columbia, Canada

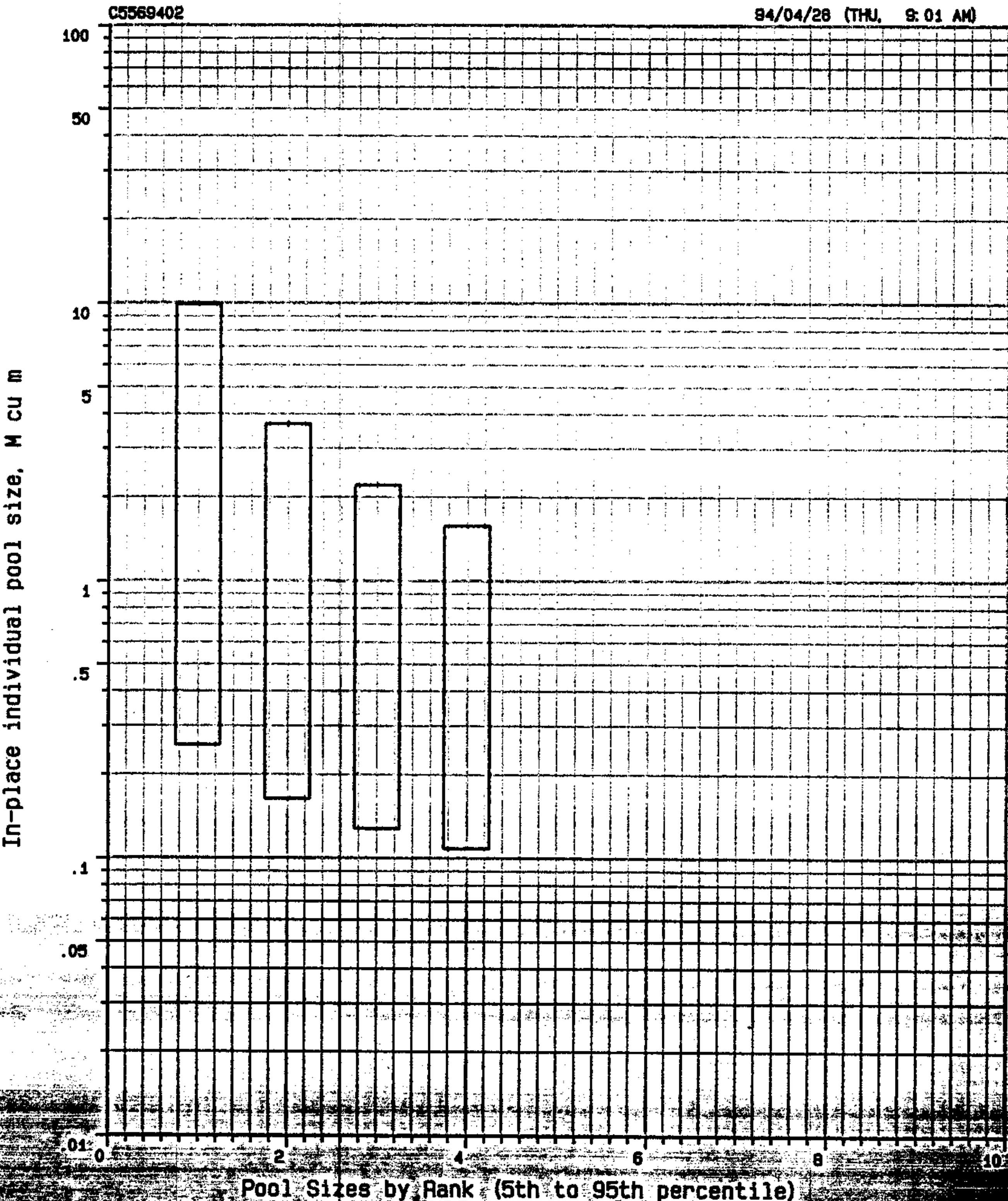


Figure 6

CPSO E(N) = .918086 Nu = .157004

E(T) = 2.035214 Sigma sq. = 1.278122

Nechako Skeena Structural gas play, Intermontane
British Columbia, Canada

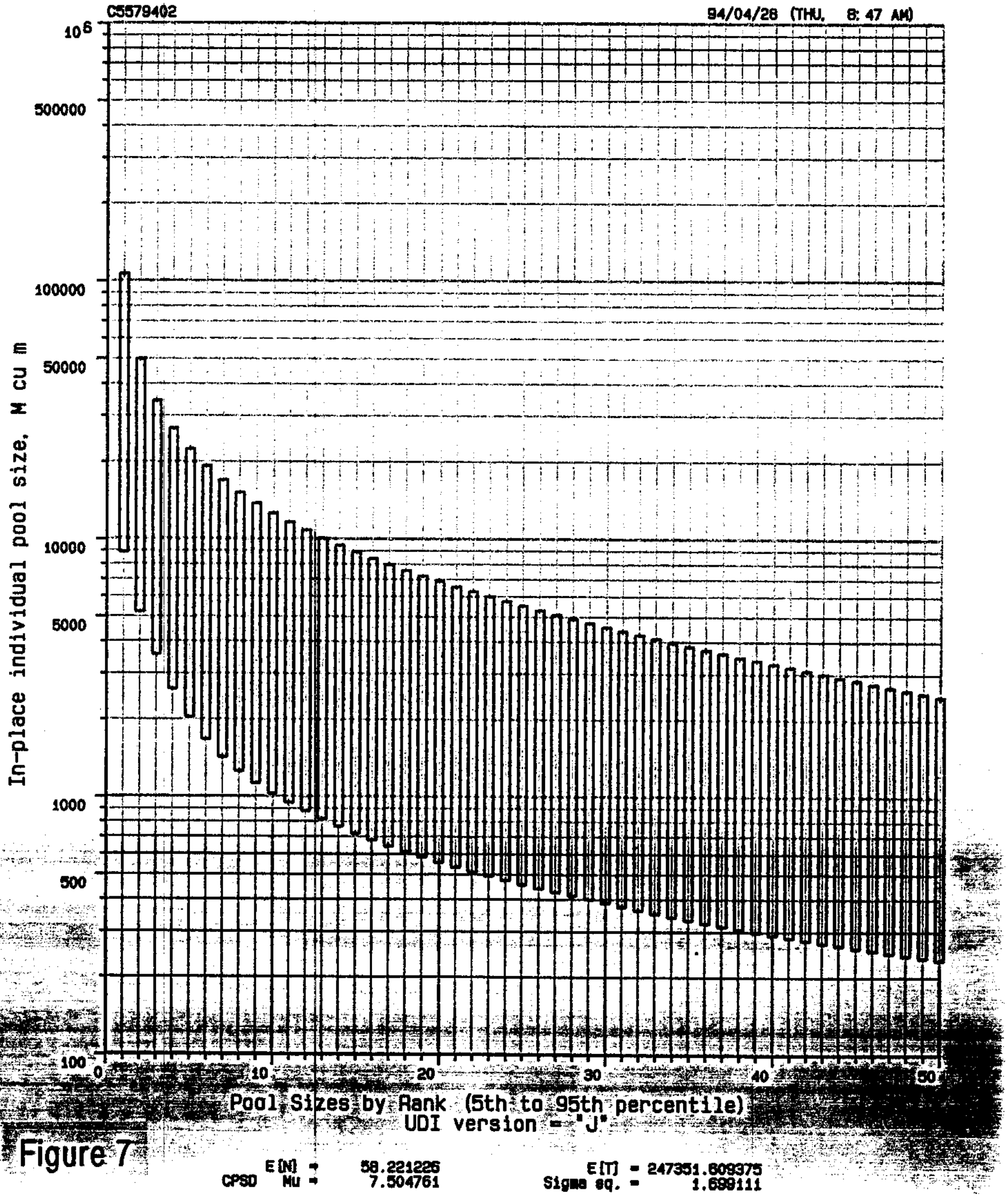


Figure 7

Nechako Skeena Structural oil play, Intermontane
British Columbia, Canada

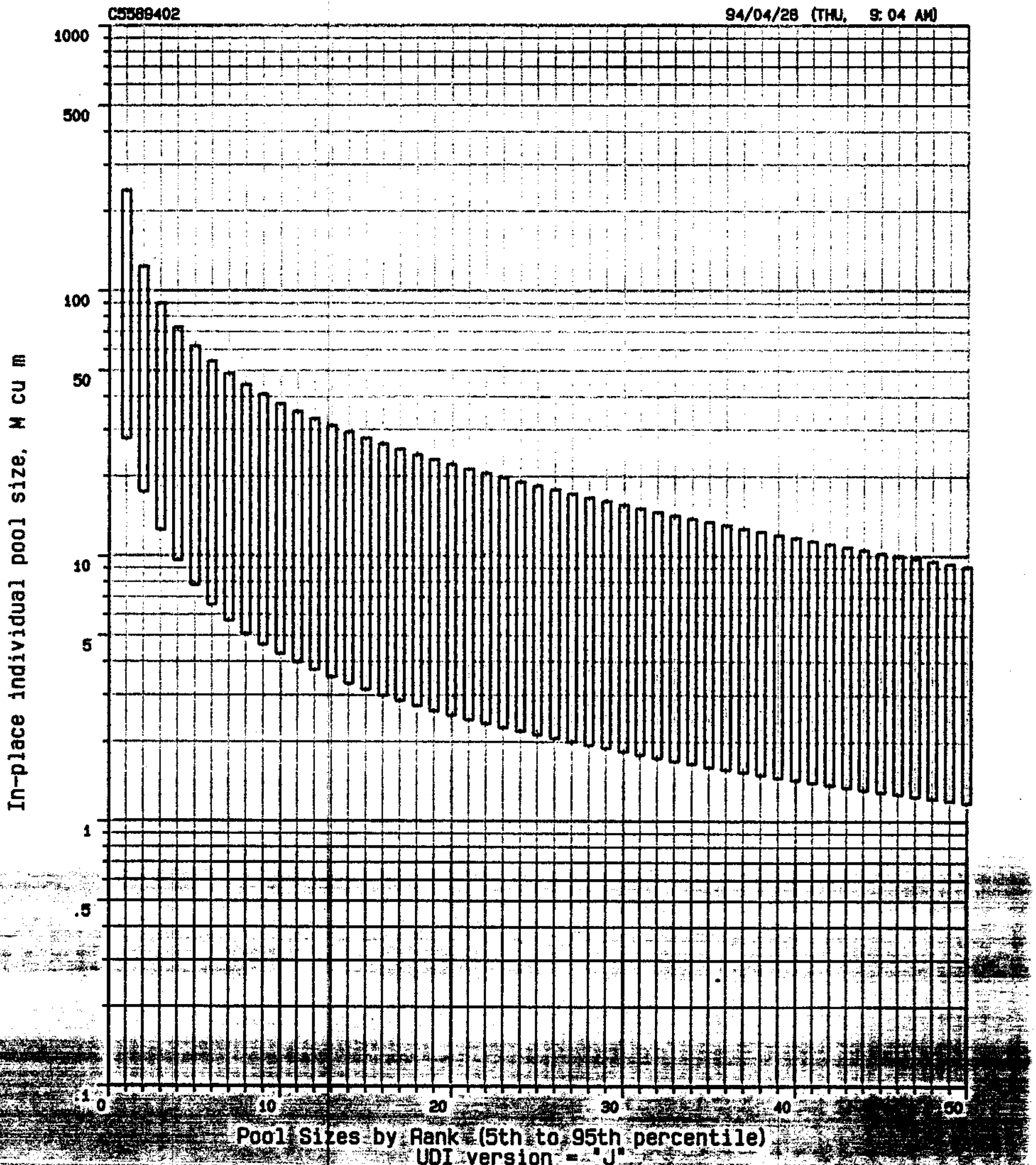


Figure 8

E(N) = 58.221226
CPSO MU = 1.948763

E(T) = 774.388855
Sigma sq. = 1.278122

Tyaughton-Methow Skeena Structural gas play, Intermontane
British Columbia, Canada

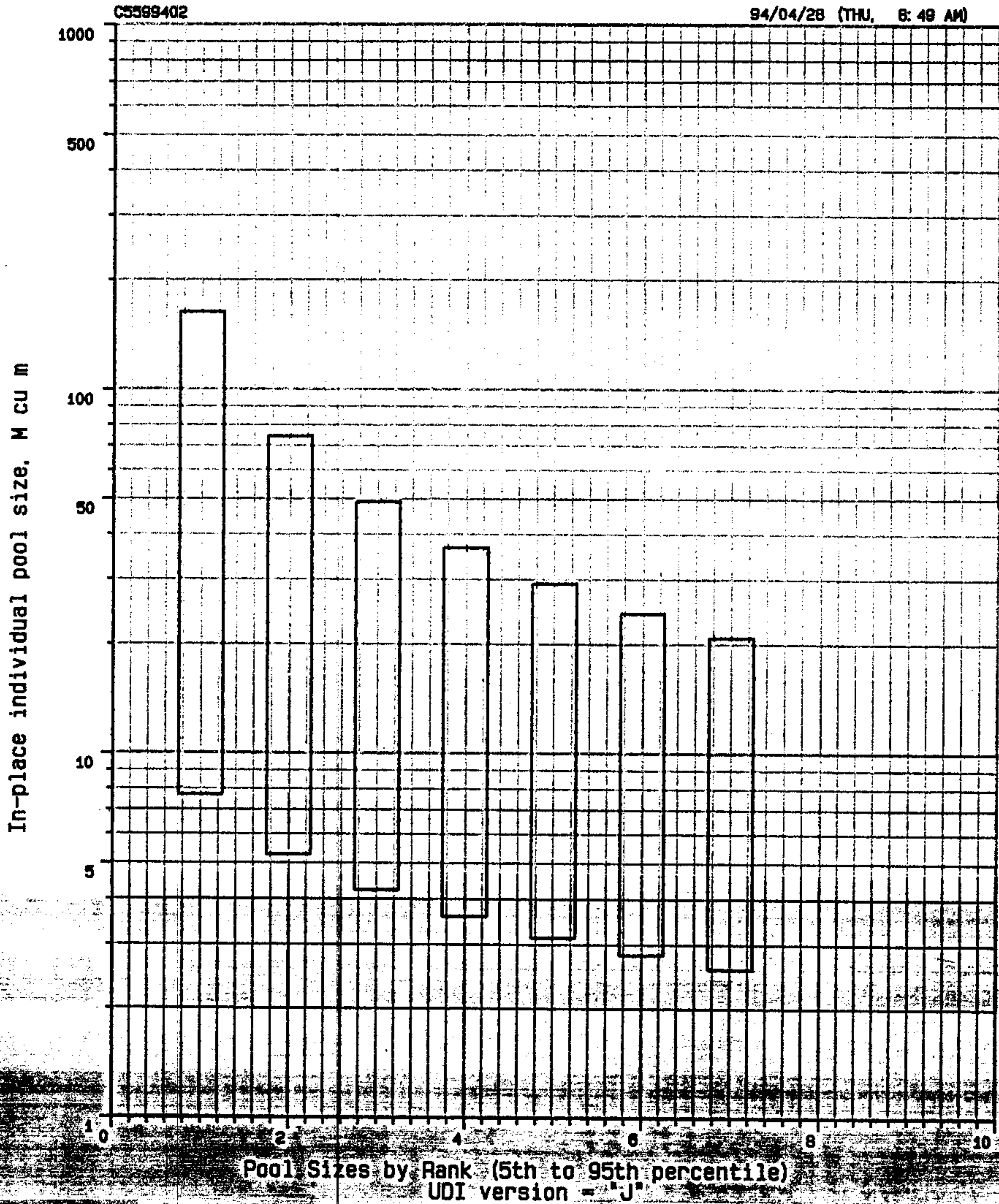


Figure 9

E(N) = 1.213394
CPSD Mu = 3.081912
E(T) = 42.154686
Sigma sq. = .932025

Tyaughton-Methow Skeena Structural oil play, Intermontane
British Columbia, Canada

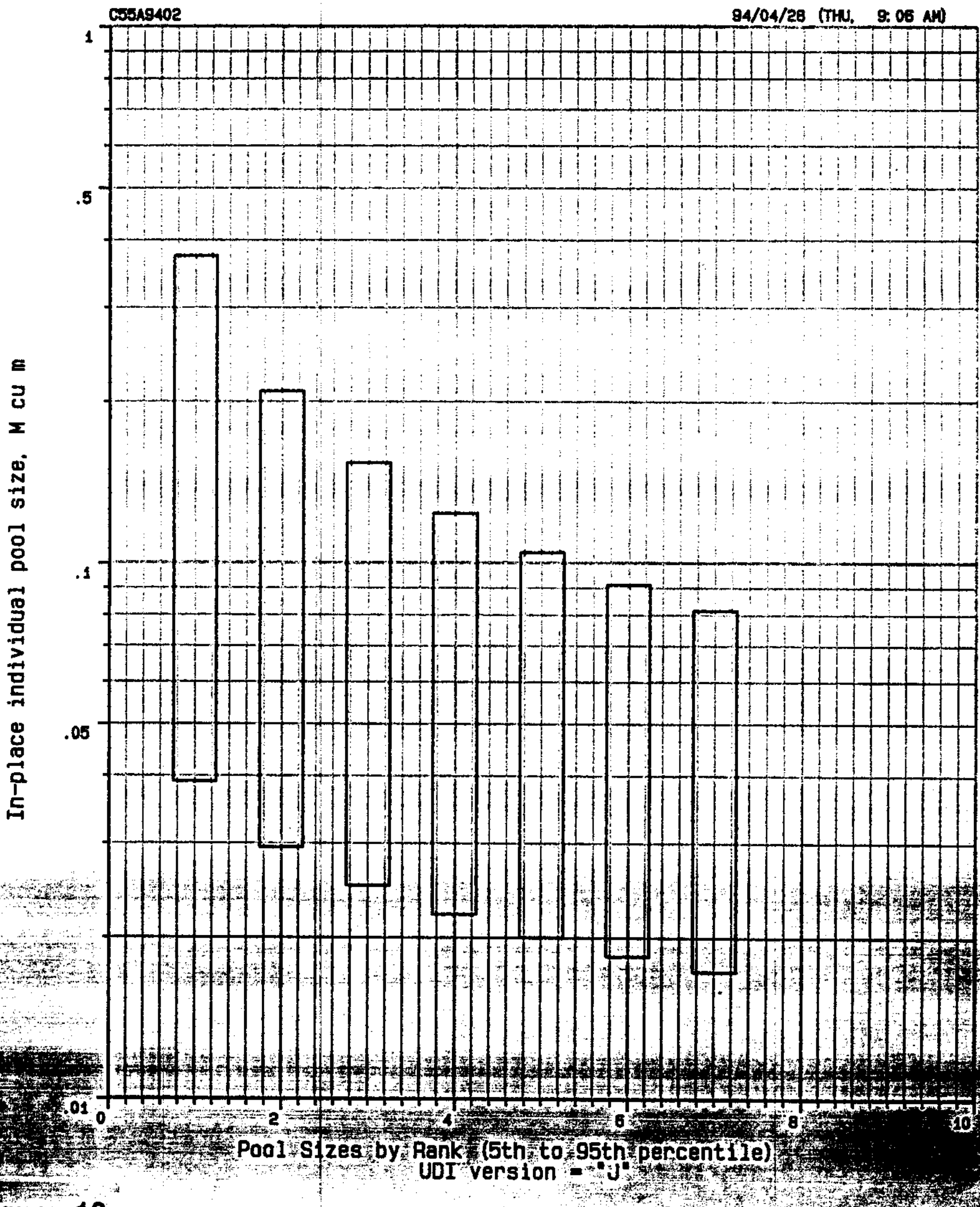


Figure 10

E[N] = 1.213394
CPSD Mu = -2.474085
E[T] = .131975
Sigma sq. = .511037

Quesnel Tertiary/Cretaceous Structural gas play, Intermontan
British Columbia, Canada

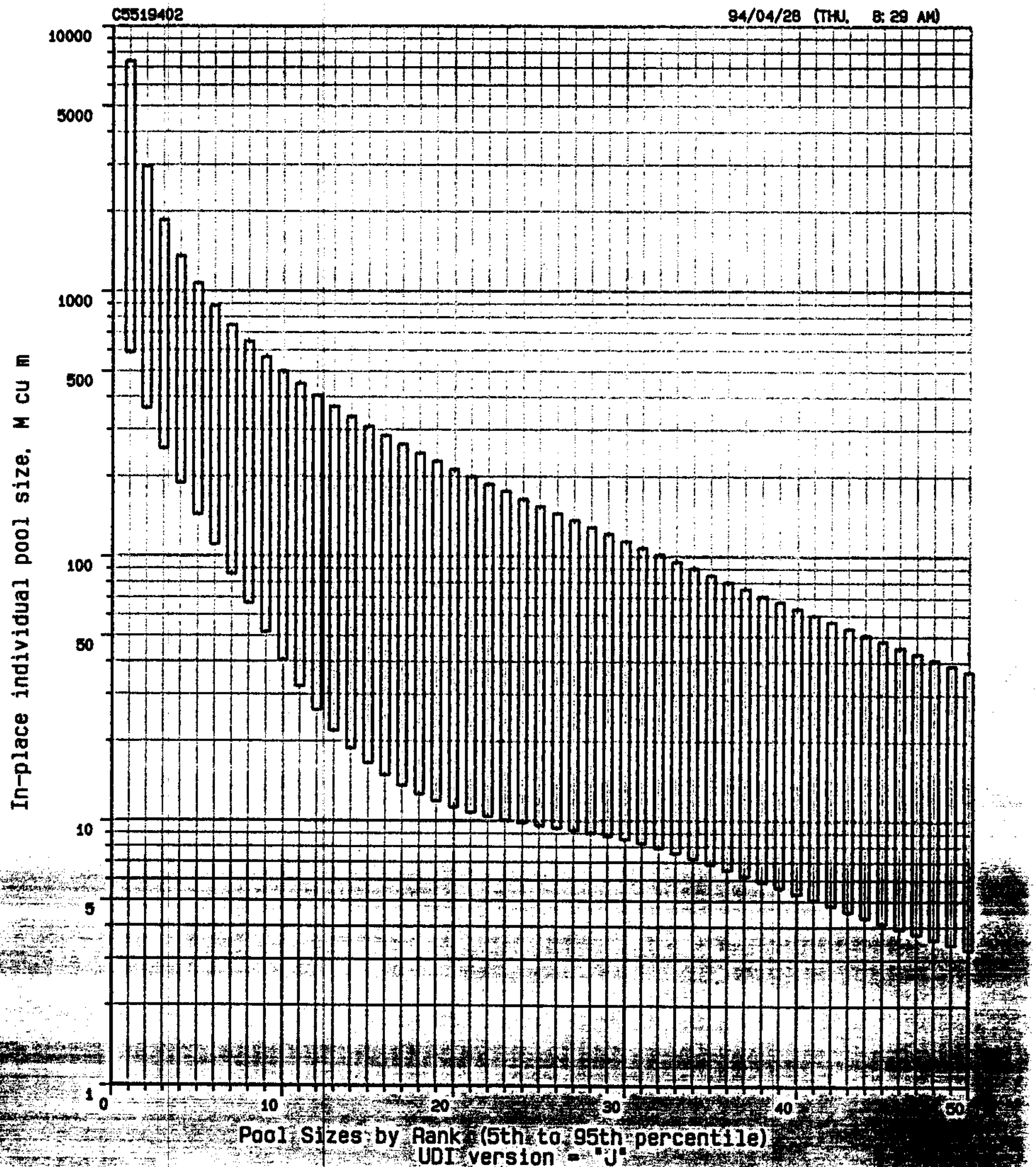


Figure 11

E(N) = 25.367624
CPSD MU = 4.796710
E(T) = 8369.450195
Sigma sq. = 2.004318

Quesnel Tertiary/Cretaceous Structural oil play, Intermontan
British Columbia, Canada

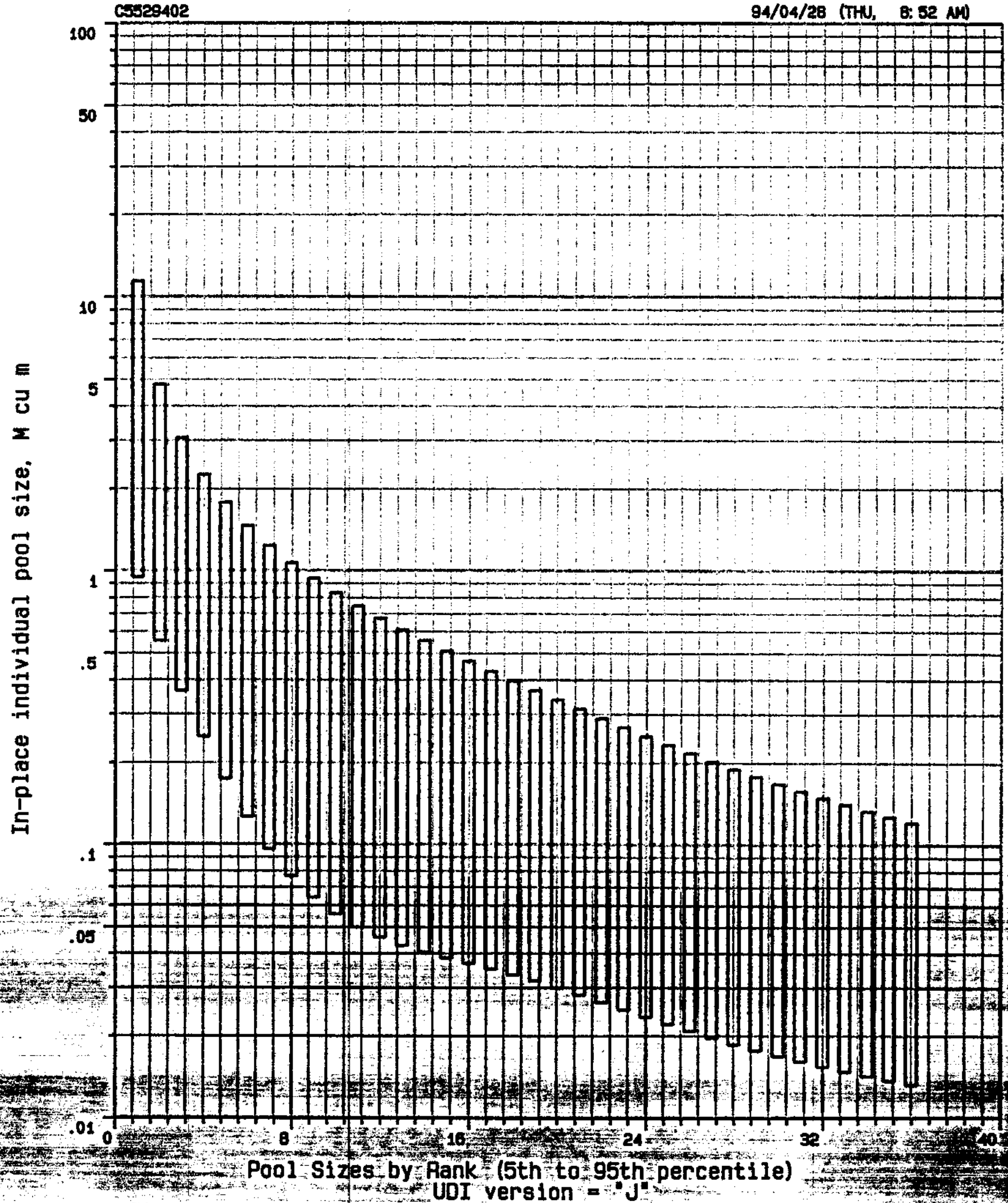
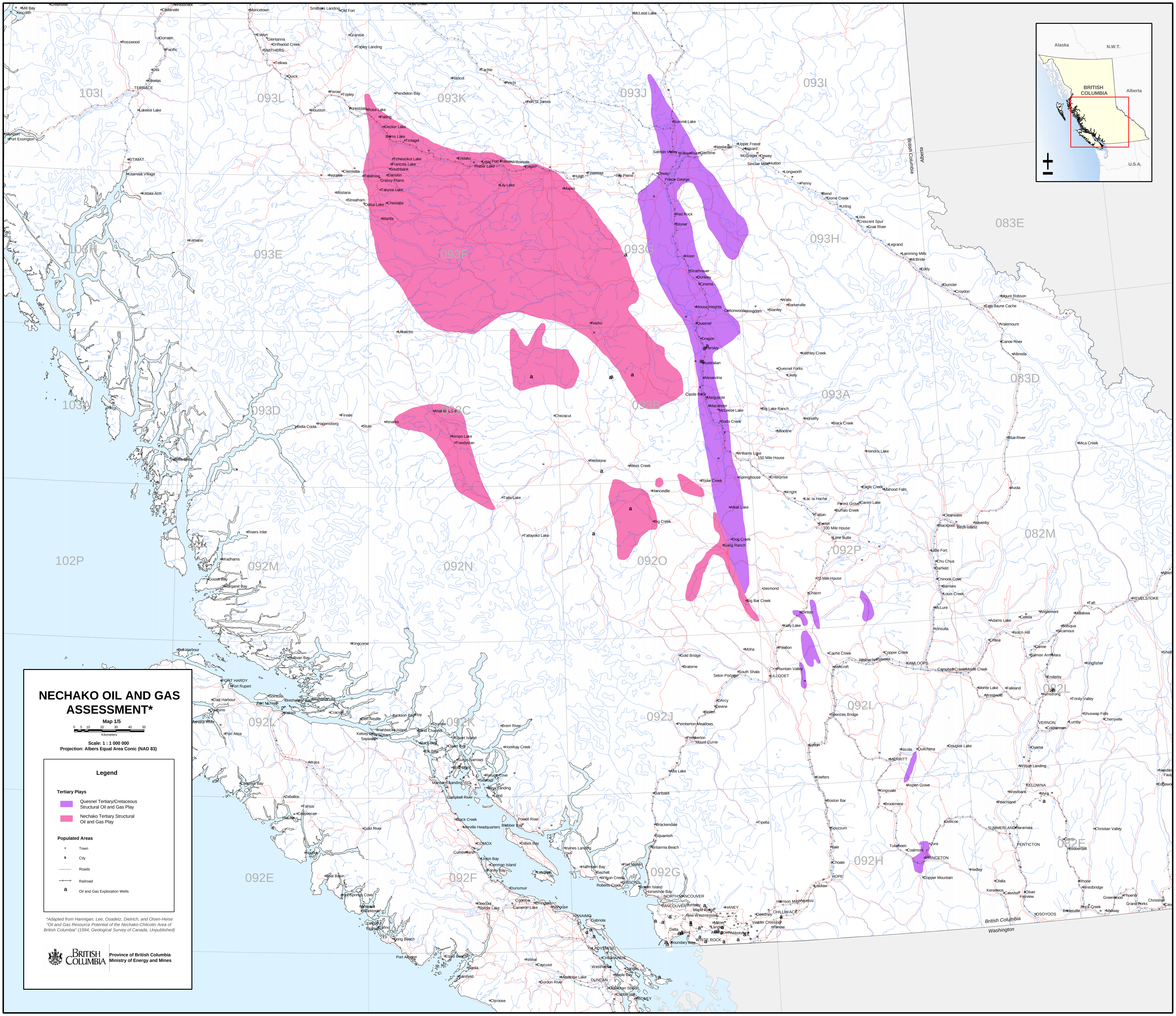


Figure 12

E(N) = 15.220575
CPSD Mu = -1.021651
E(T) = 12.130620
Sigma sq. = 1.589472


NECHAKO OIL AND GAS ASSESSMENT*
Map 1/5
0 5 10 20 30 40 50
Kilometers
Scale: 1 : 1 000 000
Projection: Albers Equal Area Conic (NAD 83)
Legend
Tertiary Plays
Quesnel Tertiary/Cretaceous Structural Oil and Gas Play
Nechako Tertiary Structural Oil and Gas Play
Populated Areas
Town
City
Roads
Railroad
a
Oil and Gas Exploration Wells
*Adapted from Hannigan, Lee, Osadetz, Dietrich, and Olsen-Heise "Oil and Gas Resource Potential of the Nechako-Chilcotin Area of British Columbia" (1994, Geological Survey of Canada, Unpublished)
Province of British Columbia
Ministry of Energy and Mines
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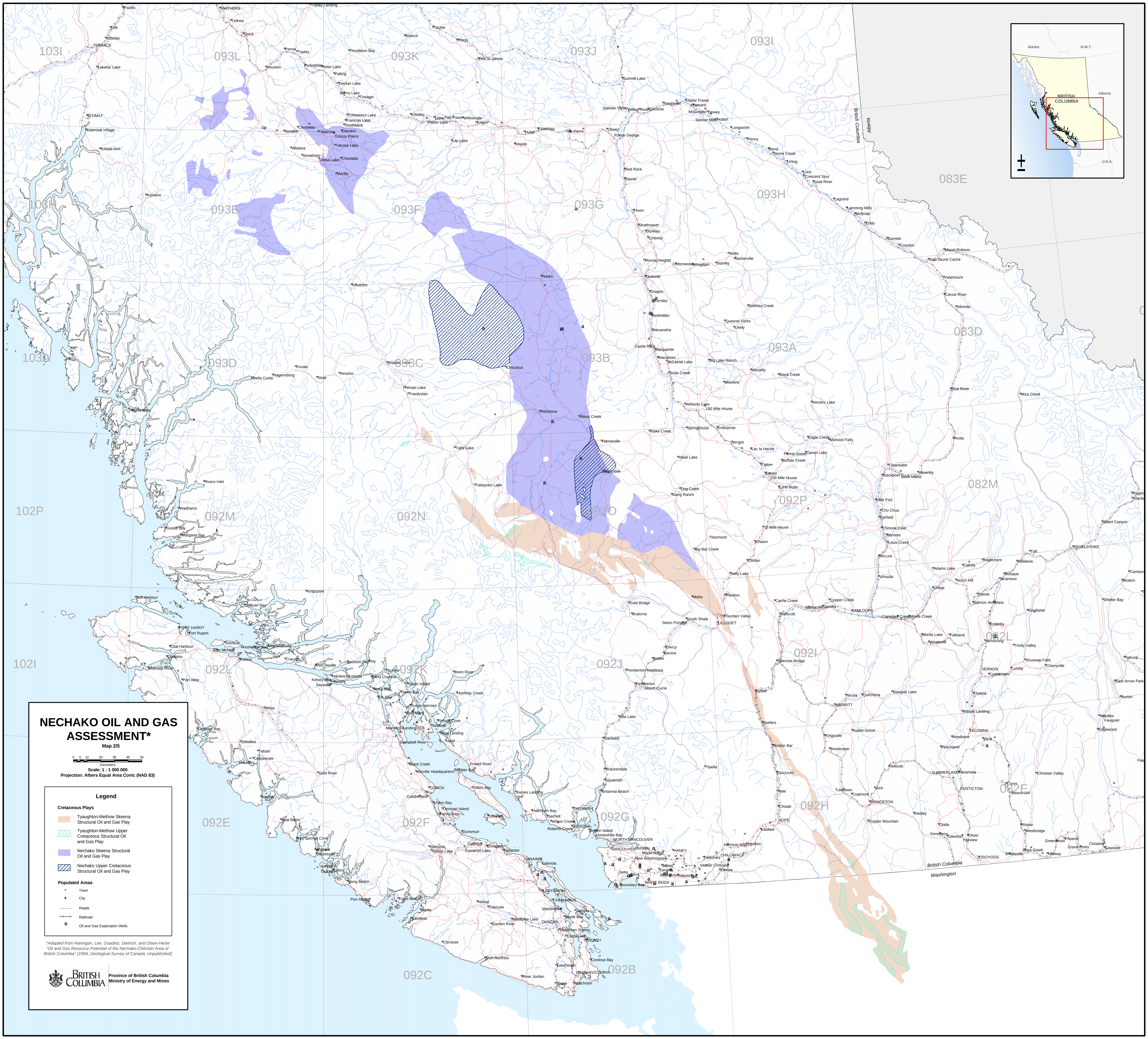
Alaska
N.W.T.
BRITISH COLUMBIA
Alberta
U.S.A.
British Columbia
Alberta
Washington
Prince George
Quesnel
KAMLOOPS
VANCOUVER
PRINCETON
VERNON
KELOWNA
PENTICTON
NANAIMO
PORT HARDY
TERRACE
KITIMAT
REVELSTOKE



NECHAKO OIL AND GAS ASSESSMENT*
Map 2/5
0 5 10 20 30 40 50
Kilometers
Scale: 1 : 1 000 000
Projection: Albers Equal Area Conic (NAD 83)
Legend
Cretaceous Plays
Tyaughton-Methow Skeena Structural Oil and Gas Play
Tyaughton-Methow Upper Cretaceous Structural Oil and Gas Play
Nechako Skeena Structural Oil and Gas Play
Nechako Upper Cretaceous Structural Oil and Gas Play
Populated Areas
Town
City
Roads
Railroad
Oil and Gas Exploration Wells
*Adapted from Hannigan, Lee, Osadetz, Dietrich, and Olsen-Heise "Oil and Gas Resource Potential of the Nechako-Chilcotin Area of British Columbia" (1994, Geological Survey of Canada, Unpublished)
British Columbia
Province of British Columbia
Ministry of Energy and Mines
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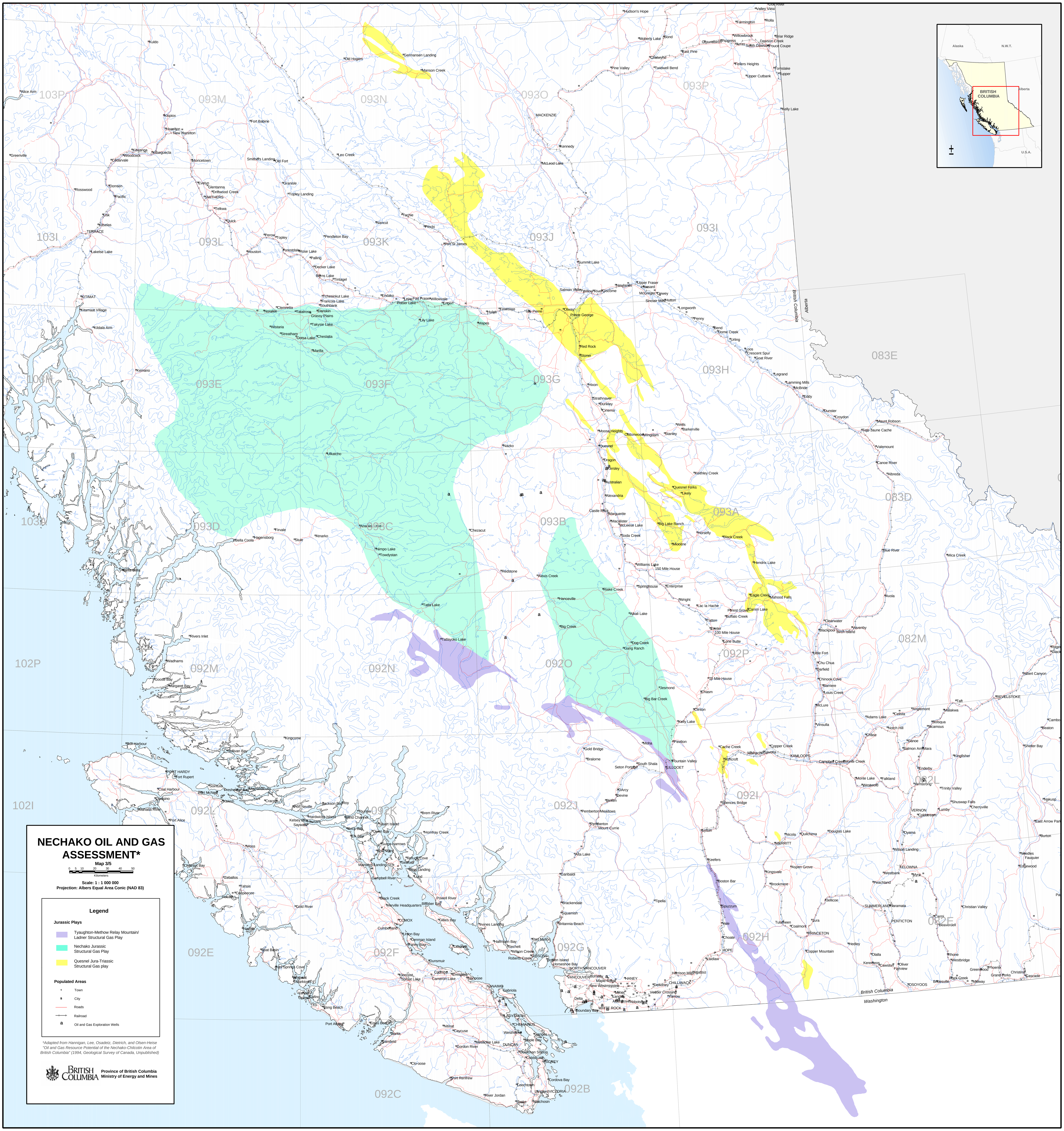
Alberta
BRITISH COLUMBIA
U.S.A.
British Columbia
Washington


NECHAKO OIL AND GAS ASSESSMENT*
Map 3/5
0 5 10 20 30 40 50
Kilometers
Scale: 1 : 1 000 000
Projection: Albers Equal Area Conic (NAD 83)
Legend
Jurassic Plays
Tyaughton-Methow Relay Mountain/ Ladner Structural Gas Play
Nechako Jurassic Structural Gas Play
Quesnel Jura-Triassic Structural Gas play
Populated Areas
Town
City
Roads
Railroad
a Oil and Gas Exploration Wells
*Adapted from Hannigan, Lee, Osadetz, Dietrich, and Olsen-Heise "Oil and Gas Resource Potential of the Nechako-Chilcotin Area of British Columbia" (1994, Geological Survey of Canada, Unpublished)
BRITISH COLUMBIA
Province of British Columbia
Ministry of Energy and Mines
Alaska
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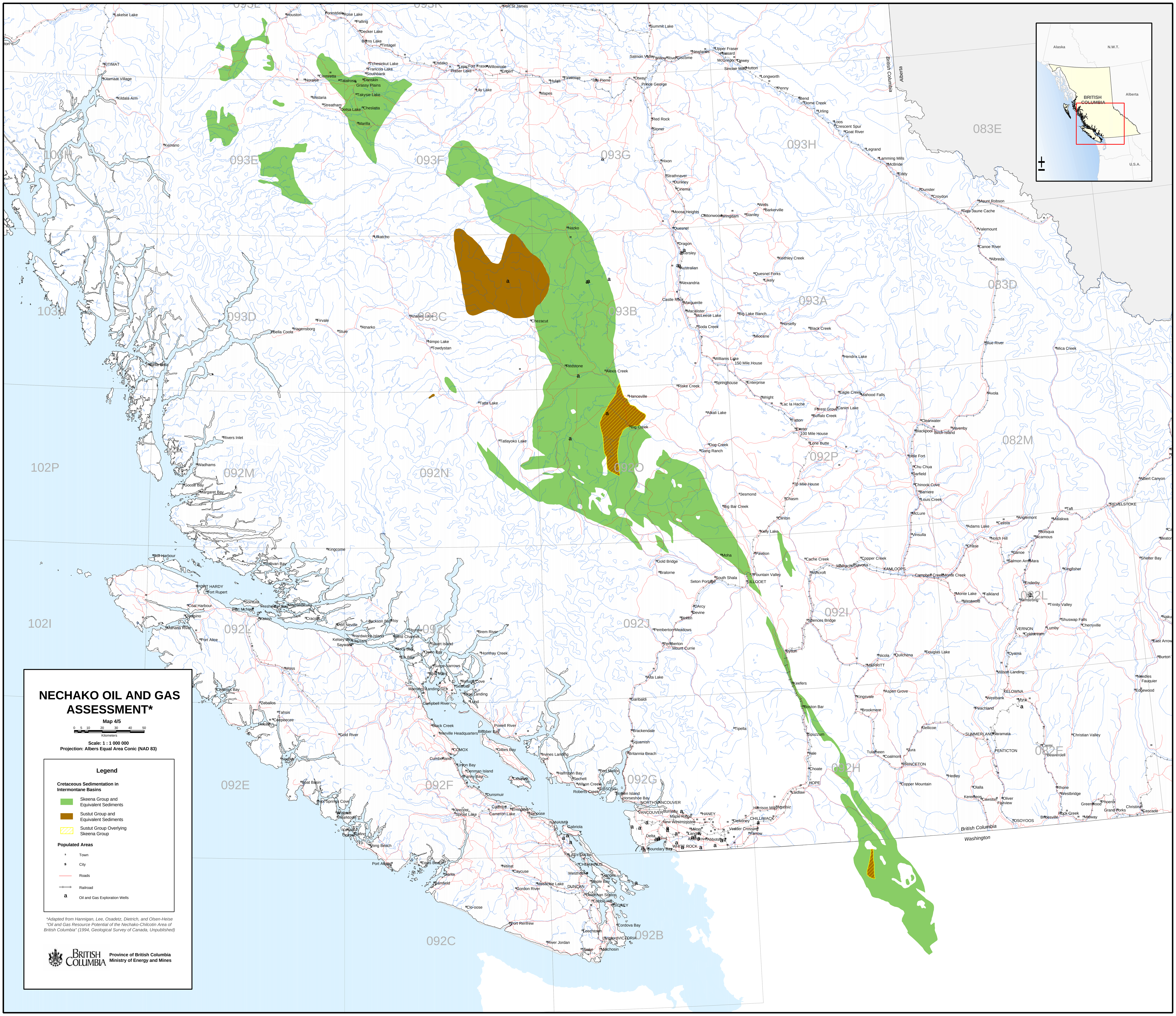
NECHAKO OIL AND GAS ASSESSMENT*
Map 4/5
0 5 10 20 30 40 50
Kilometers
Scale: 1 : 1 000 000
Projection: Albers Equal Area Conic (NAD 83)
Legend
Cretaceous Sedimentation in Intermontane Basins
Skeena Group and Equivalent Sediments
Sustut Group and Equivalent Sediments
Sustut Group Overlying Skeena Group
Populated Areas
Town
City
Roads
Railroad
Oil and Gas Exploration Wells
*Adapted from Hannigan, Lee, Osadetz, Dietrich, and Olsen-Heise "Oil and Gas Resource Potential of the Nechako-Chilcotin Area of British Columbia" (1994, Geological Survey of Canada, Unpublished)
Province of British Columbia
Ministry of Energy and Mines
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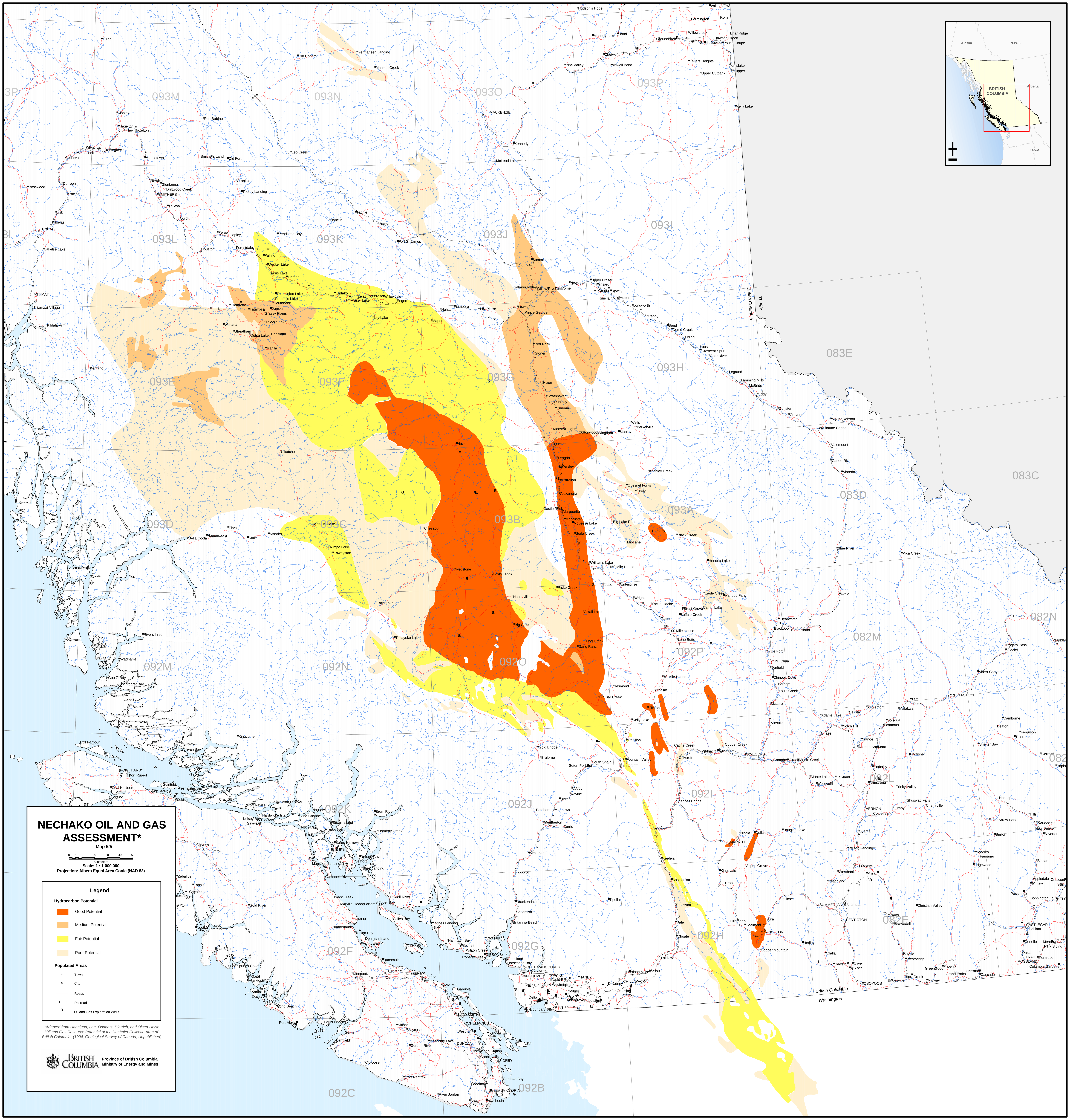

NECHAKO OIL AND GAS ASSESSMENT*
Map 5/5
0 5 10 20 30 40 50
Kilometers
Scale: 1 : 1 000 000
Projection: Albers Equal Area Conic (NAD 83)
Legend
Hydrocarbon Potential
Good Potential
Medium Potential
Fair Potential
Poor Potential
Populated Areas
Town
City
Roads
Railroad
a Oil and Gas Exploration Wells
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British Columbia
Province of British Columbia
Ministry of Energy and Mines
BRITISH COLUMBIA
Alaska
N.W.T.
Alberta
U.S.A.