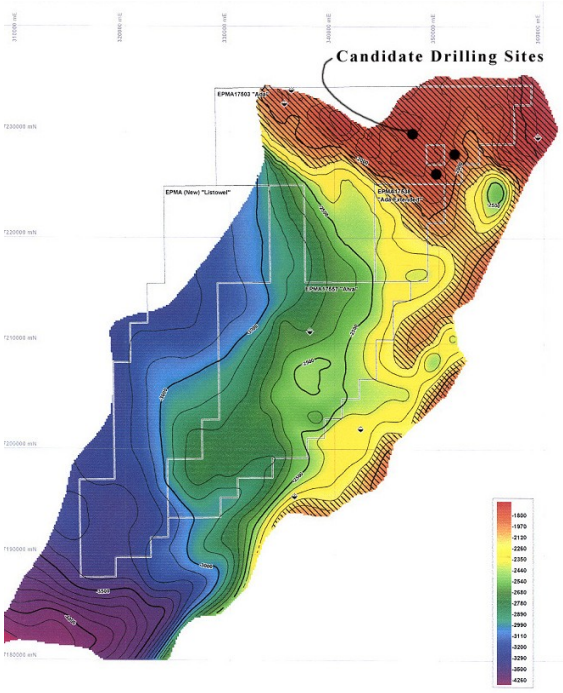
M. D. Campbell and Associates, L.P.
Houston Seattle Phoenix

AusPotash Corporation Project:
Adavale Basin, Queensland, Australia
NI 43-101 Report

for:

AusPotash Corporation
Toronto, Ontario
Canada



By

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July 8, 2009

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Tables

3.0 Summary

The AusPotash Corporation (AusPotash) engaged M. D. Campbell and Associates, L.P. (C&A) to prepare a Qualifying National Instrument (NI) 43-101 report for their potash tenements located in Queensland, Australia. This report is to be used by AusPotash as part of a TSX listing.

AusPotash acquired an interest in two (2) potash exploration licenses (EPM #17503 and EPM #17538) with an option to acquire two additional tenements subject to certain conditions covering lands overlying the Devonian Boree Salt Member of the Etonvale Formation. All four tenements are referred to as subject tenements in this document. The Boree Salt Member lies within the Adavale Basin located in the subsurface approximately 50 kilometers (kms) south of Blackall, central western Queensland, some 650 kms inland from the Queensland coast and 840 kilometers west-northwest of Brisbane, Queensland.

Based on earlier petroleum exploration conducted in the 1980s that included drilling, well logs, and seismic surveys, and on work conducted by the Queensland Department of Mines and the Australian Bureau of Mines (BMR), the Boree Salt Member was identified as the only known significant occurrence of bedded potash in Australia. Since then, additional work by AusPotash and their contractors have recovered and assembled much of the technical literature of the early 1980s on the subject tenements including available data, reports, and well logs.

Terra Search Pty. Ltd, an AusPotash contractor, has processed the available historical petroleum exploration drilling and seismic interpretation data and created a 3-D model of the Boree Salt geometry. This work indicates that the Boree Salt Member is several tens of cubic kilometers in volume, and is up to 500 meters thick at depths between 2,000 and 2,500 meters below the ground surface.

Based on a review of the available information, including well logs, company reports, and government publications, we have concluded that substantial potential exists for economic potash and associated products within the tenements controlled by or under option by AusPotash. Sufficient merit exists for

C&A to recommend drilling and coring exploration in the areas identified by recent re-interpretations of earlier seismic data collected in the 1960s through the 1980s.

Once the proposed drilling and coring are complete and the potash content of the upper Boree Salt has been characterized, the available resources will need to be re-assessed. Additional data collected during future phases of the project will determine if the potash is economically recoverable by standard in situ solution mining and surface evaporation processing methods that are available at this time.

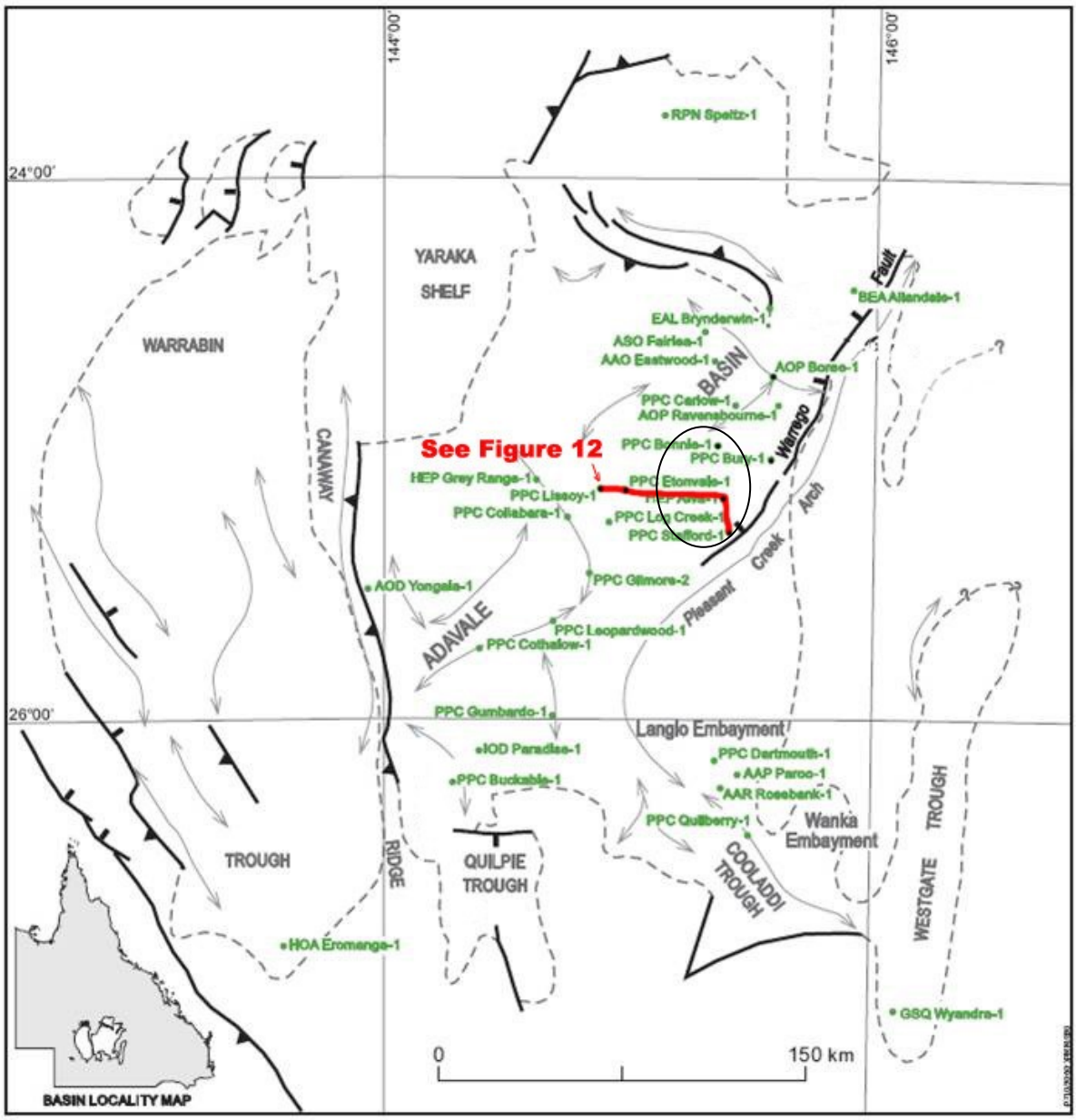
The estimated cost of the next phase of the AusPotash project (the proposed coring and drilling project) will likely be approximately AUS$1.2 million over a two-year period. This work would include pre-drilling geological assessment, drilling, coring, and well logging, and associated geological and engineering supervision of such operations.

4.0 Introduction

AusPotash engaged Michael D. Campbell, P.G., P.H., Managing Partner and Principal Geologist of C&A located in Houston, Texas as a Qualified Person to prepare a Qualifying National Instrument (NI) 43-101 report for their mineral tenements located in south-central Queensland, Australia (see Figure 1). This report is to be used by AusPotash as part of a TSX listing.

The information available on the Boree Salt Member used by Terra Search Pty. Ltd. to create a 3-D model of the Boree Salt geometry originated from previously drilled petroleum well data available in the Queensland Government Petroleum Well database and from seismic data shot in the early 1960s by Amoseas and Phillips-Sunny DX and by Esso Australia and AAR Ltd in the early 1980s. All such references are cited in the report by Terra Search (2008). See **Section 23. References.**

The general outline of the subject tenements shown in Figure 1 is illustrated at a larger scale in Figure 2. The seismic lines and the wells drilled are also shown in Figure 2. More than one generation of seismic interpretations were used in the modeling by Terra Search (2008).



*** Figure 1 - General Location of Adavale Basin and Subject Tenements (Outline) Also Showing Well Locations (Green) & Basin's Structural Components (Black). Cross-Section Line (Red) (After McKillop, *et al.*, 2007)**

* For Enlarged Versions of Figures, See **Section 26.0**

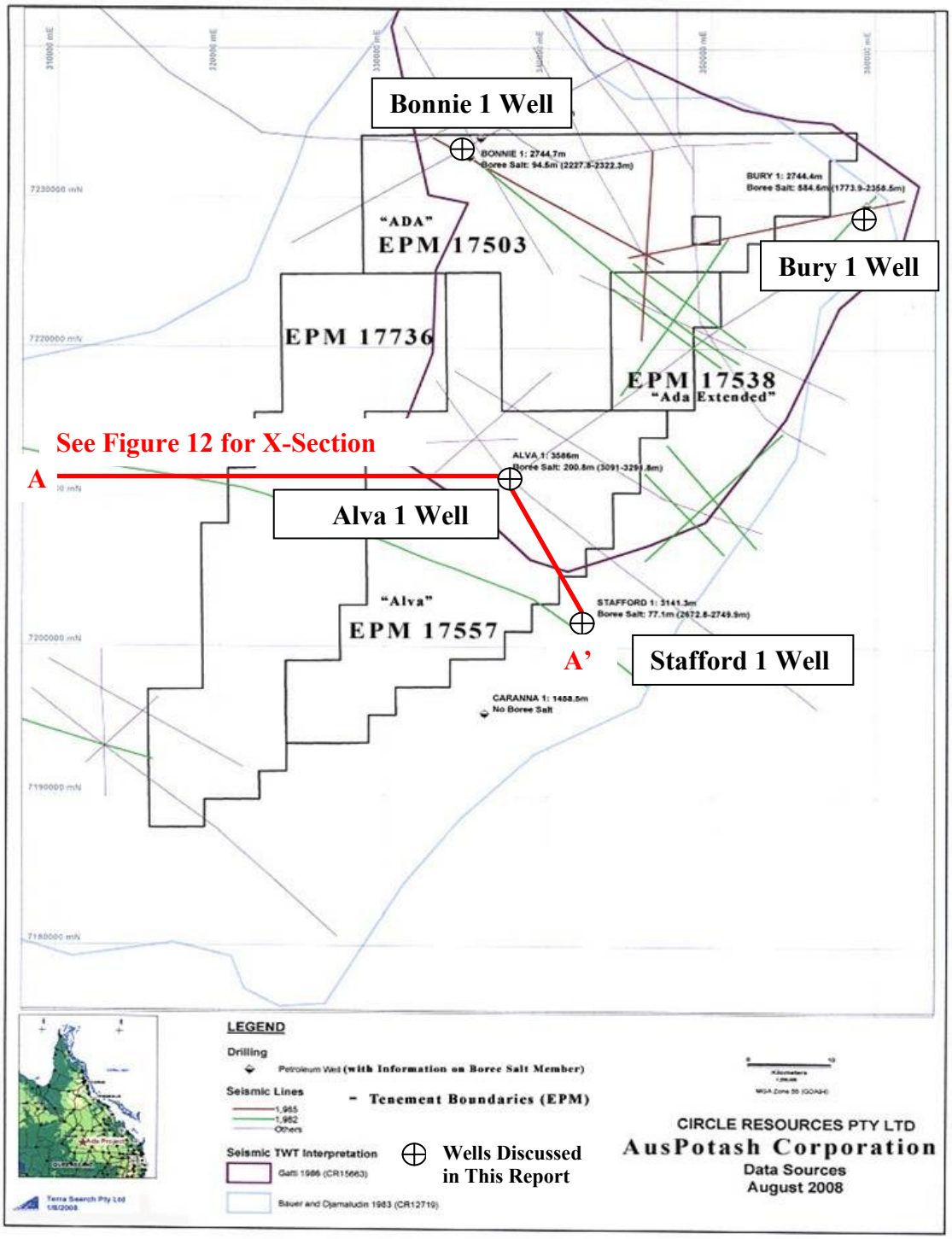


Figure 2 – Original Tenement Boundaries, Seismic Data Sources, and Historical Petroleum Drilling Locations (Wells). Cross-Section Line (Red) See Figure 2A for Updated Tenement Boundaries.
(After Terra Search Pty. Ltd., 2008)

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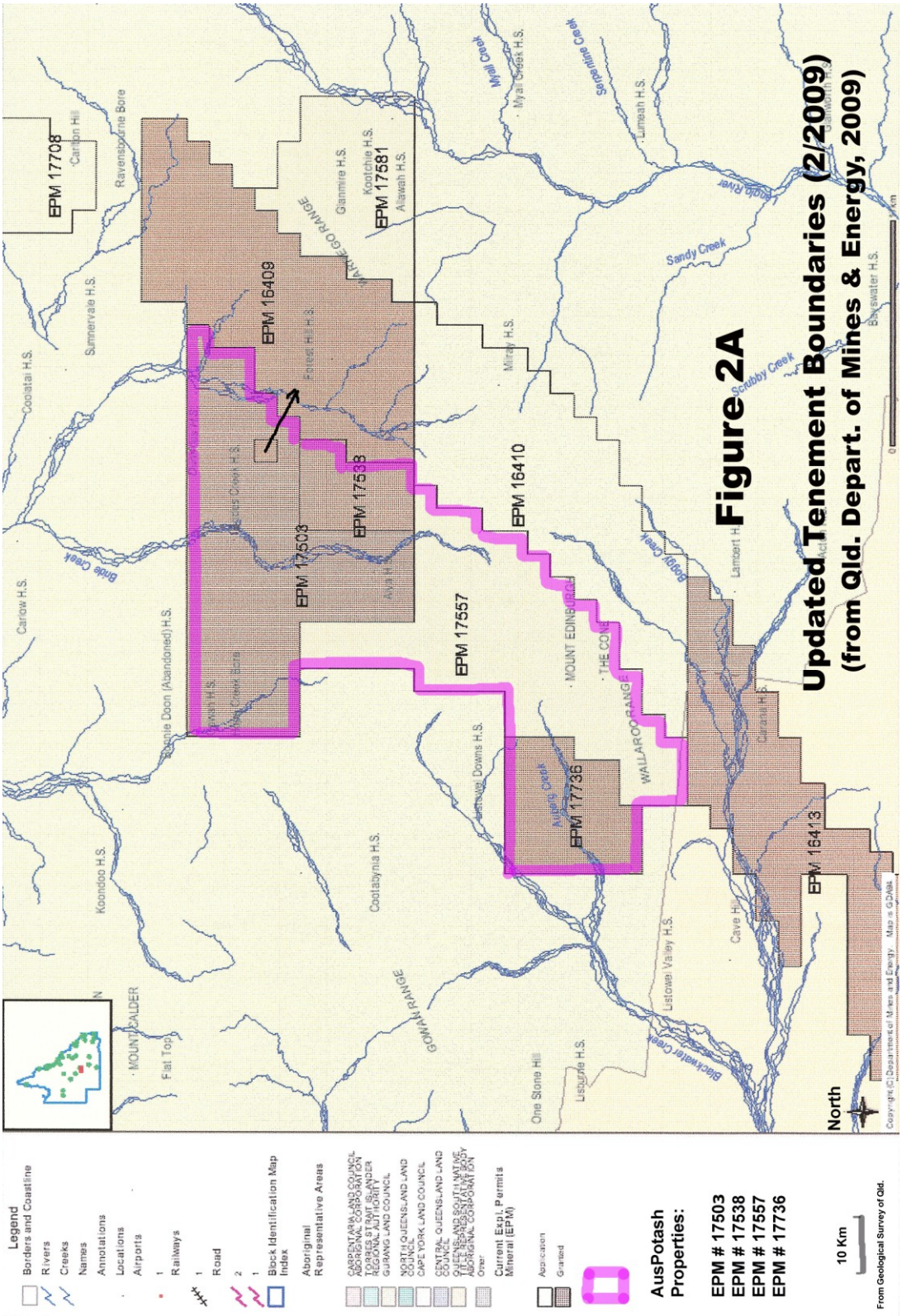
Two of the seismic studies were commissioned by Poseidon Limited in 1983 and 1986 (see Terra Search, 2008 report listed with URL in **Section 23.0 References**). Other technical literature and reports consulted during the C&A investigations and in the preparation of this report have been cited in **Section 23.0 References**. Updated tenement boundaries are illustrated in Figure 2A (shown in pink). As of late February, 2009, three EPMs have been granted, shown in a dark brown pattern, and one EPM that is still in the application process is shown in a light yellow color. It should be noted that other companies hold tenements along the eastern boundary and east of the subject tenements that either have been granted or are in the application stage, e.g., EPM #16409 (including an "out-sub block" within EPM #17503 belonging to #16409 to the east, and #16413 are held by Holocene Pty. Ltd., EPM #17708 is held by NQ Metals Pty. Ltd., and EPM #17581 is held by Leigh Margaret Wilson.

The Mineral Act of 1989 (Qld.) allows for the granting of EPMs and EPCs (Exploration Permit Coal Applications). According to the Queensland Department of Mines and Energy (DME), all of the AusPotash EPMs are overlapped by EPCs owned by Holloman Minerals Pty. Ltd., Majicyl Pty. Ltd., and by other minority interests. East Energy Resources Ltd has announced that exploration will begin on reported shallow coal occurrences as soon as their application has been granted (see East Energy Resources Ltd announcement, with URL in **Section 23.0 References**).

Written consents will be required for both EPM and EPC holders to be granted a mining lease. If both coal and potash projects were to be developed (in separate areas), they could share infrastructure thus reducing costs for each operation. An alternate power source may also be available.

The Bidjara People native title group (referred to as the Bidjara People) have registered a native tile claim over a large area of land that covers the subject Tenements consistent with the Native Title Act of 1993 (NTA). We understand that a draft native title ancillary agreement between Circle Resources Pty. Ltd. and the Bidjara People is presently under review concerning EPM #17503 and EPM #17538. The northern boundary of the Queensland South Native Title Representative Body Aboriginal Corporation runs along the southern boundary of AusPotash's EPM #17557 (in application).



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For further details and updates on the location of these boundaries, the Queensland Department of Mines and Energy provides an interactive and tenure mapping website that should be consulted to establish native and tenement boundaries. See citation and link: **Section 23.0 References.**

C&A personnel (both qualified persons and both authors of this report) inspected the subject tenements by helicopter and on foot during August 30 and 31, 2008. C&A personnel observed the Blackall-Adavale Road south from Blackall, Queensland and the area along the Gilmore-to-Barcaldine Gas Pipeline. C&A personnel also observed the terrain and access to the areas of likely drilling (see Figures 3 and 4).

Figure 3 – Typical Terrain in Area of Prospective Drilling Sites on the Subject Tenements, e.g. EPM #17503.

Figure 4 – C&A's Michael D. Campbell, P.G., P.H., Qualified Person, and Jeffrey D. King, P.G., Qualified Person, Inspected Likely Initial Drilling Site on EPM #17503 in August, 2008.

5.0 Reliance on Other Experts

The authors of this report have relied on the available reports and the associated consultants, the technical literature produced by the Queensland Government Department of Mines and other government departments, and by the Australian Bureau of Mineral Resources, and the authors' own professional experiences in evaluating natural resources. Of particular note is that the senior Qualified Person was employed by the Continental Oil Company of Australia (ConAus) based in Sydney,

N.S.W. and was granted Resident Status in Australia from 1966 to 1970 to work on phosphate and other minerals in Queensland, the Northern Territory and elsewhere in South East Asia and on potash in Western Australia and elsewhere in the World.

C&A was provided a summary of the 3-D seismic modeling of the Boree Salt Member in a meeting during the week of August 25, 2008 with Mr. Rob Lewis, Computing Geologist, at Terra Search Pty. Ltd. offices located in Townsville, Queensland. Also, information was provided on the Queensland ground-water allocations system regarding the subject areas in a meeting held during the week of August 25, 2008 with Mr. Manfred Thienenkamp, Senior Hydrogeologist/Hydrogeochemist of Rockwater Pty. Ltd., at his office located in Hermit Park, Queensland. While in Brisbane, C&A personnel met with Queensland Government personnel regarding the subject tenements and availability of historical reports. C&A was provided access to the QDEX, the Queensland database of historical documents and maps. C&A personnel also spent two days in the library at Mineral House reviewing the technical reports and associated literature. Input was also received and evaluated from the management of AusPotash Corporation and associated landowners regarding current land ownership (see **Sections 6.2 and 6.3**).

6.0 Property Description and Location

6.1 General Description

The subject tenements cover an area of approximately 64,230 hectares (642 sq. kms. or 248 sq. miles) and are located approximately 50 kilometers south of Blackall, Queensland. The regional and local infrastructure is illustrated in Figure 5.

This includes a location grid, roads and tracks to the subject tenements, the subject four (4) tenement boundaries, the corners of which were located by calibrated Global Positioning System (GPS) equipment, locations of water bores and tanks, railways, and an outline of the extent of the Boree Salt Member in the subsurface, the objective of AusPotash's interest in the Adavale Basin.

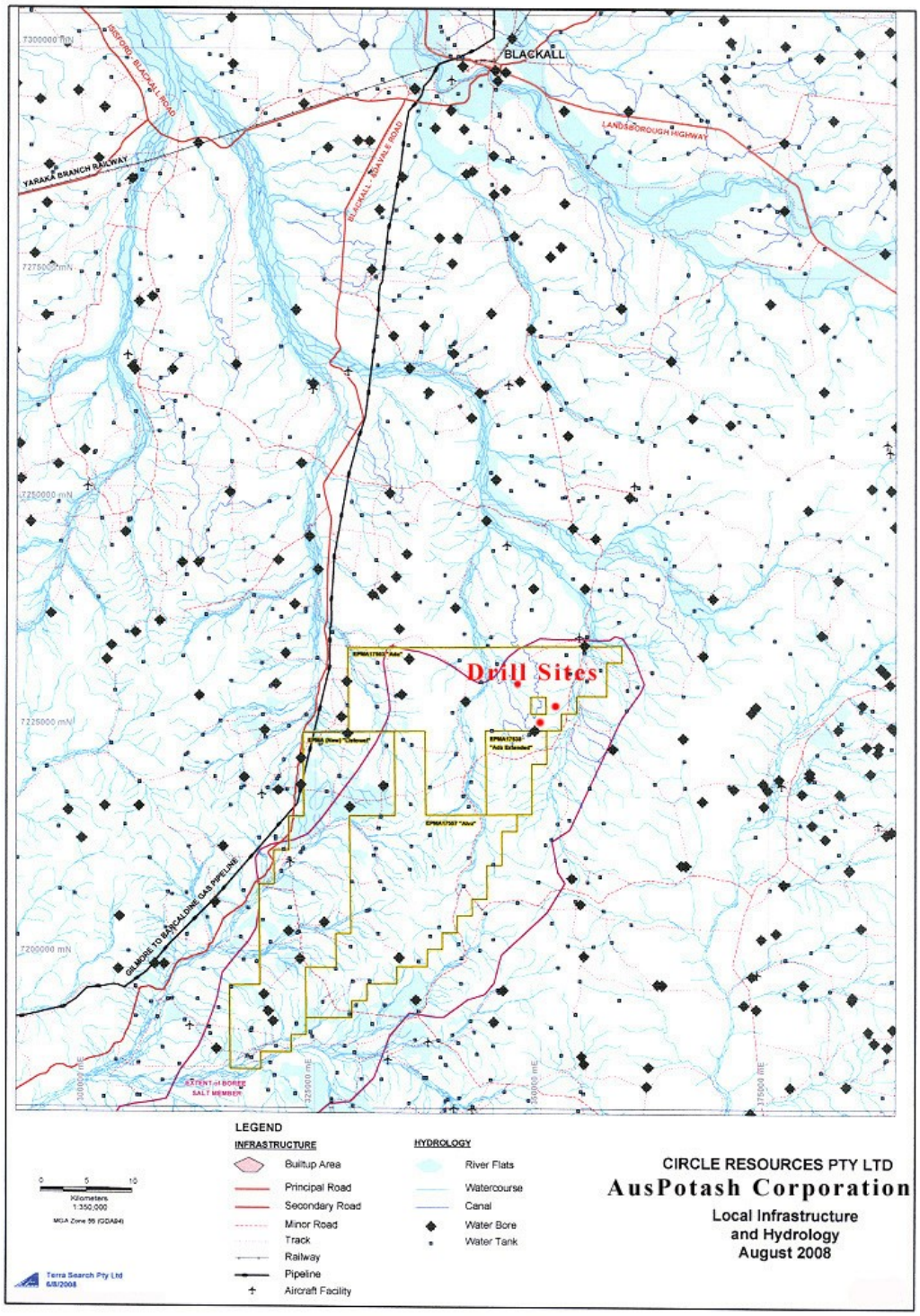

Figure 5 – Bore Census, Regional Infrastructure and Property Location – See Figure 2A for Updated Tenement Boundaries.
(From Terra Search Pty. Ltd., 2008)

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6.2 Property Ownership and Financial Obligations

The mineral tenure is granted for exploration for minerals for a term of 5 years from date of granting. AusPotash holds 100% ownership with financial obligations to spend funds for the EPMs it holds while classified as an EPM, prior to any development activities.

The requirements include yearly rentals (Table 1) and minimum annual expenditures (MAE) (see Table 2). The initial tenements of interest to AusPotash (EPMs #17503 and #17538) were granted a few months ago. The annual rentals for 2008 have been paid, according to Mr. Kevin Doyle of Circle Resources Pty. Ltd., and MAEs have been confirmed. In addition, EPM #17736 has just recently been granted. Another tenement (EPM #17557) adjacent to the granted EPMs is still in the application process (see Figure 2A for updated location of the EPMs). EPM #17557 is subject to advertising (normally conducted by the government to insure that there are no owner conflicts) and will likely be granted in July, 2009 or thereafter. Once granted, the MAE requirements will be confirmed by the Queensland Government and the rentals will be due for both 2009 EPMs.

We have included our estimates of the likely rentals fees (integrated in Table 1) and the MAEs (shown in Table 2) for all four EPMs. It is the responsibility of the EPM holder to check the current rental rate and to pay the rentals before the indicated due date.

The anticipated increase in the annual rental rates through 2012 have been estimated at $6.30 and incorporated in Table 1. As incorporated in both Tables 1 and 2, after two years, each EPM is required to be reduced in holdings by 50% and each year thereafter.

Table 1
Rentals for Sub-Blocks Held

Year of Project	Cost per Sub Block	Number of Sub Blocks	Total Cost
Year 2008	$124.60*	117 (351 sq.kms.)	$14,578.20
Year 2009	130.90**	241 (723 sq. kms.)	31,546.90
Year 2010	137.20***	182 (546 sq. kms.)	24,970.40
Year 2011	143.50	91 (273 sq. kms.)	13,058.50
Year 2012	149.80	45 (135 sq. kms.)	6,741.00
Total:			$90,895.00

* Based on Tenure Rental Current Yearly Rates – 2008 for EPMs at AUS$124.60 per sub-block (~3 sq.kms.)
** Based on 2009 Rate Sheet
*** Anticipated increase of $6.30 per year for 2010 through 2012.

At some point in the exploration program, assuming results are favorable, a Mineral Development Licence (MDL) and lease will be required to permit the mining venture to proceed. The MDL is designed to allow time to conduct various permitting requirements, one of which will be the presentation of a Native Title Agreement, as mentioned earlier concerning the Bidjara People. Others include agreements on water-use rights, railway agreements, and others focusing on the construction of facilities or infrastructure, and with the holders of overlapping EPCs (see **Section 6.4 Permitting**).

The MAE is included in the application by the applicant and is based on a scope of work (and cost estimate), the latter becoming the MAE if approved by the Queensland Government. Furthermore, there is a MAE of $1,000 per sub block; hence, for Project Years 2008 through 2010, the minimum was invoked by the Applicant (i.e., Mr. Kevin Doyle of Circle Resources Pty. Ltd.).

Table 2
Minimum Annual Expenditure (MAE) Requirements
(per Year per Exploration Permit – Minerals (EPM)*

Year	#17503	#SB	#17538	#SB	#17557	#SB	#17736	#SB	Total $
2008	$100,000	100	$17,000	17	-	-	-	-	$117,000
2009	100,000	100	17,000	17	$92,000	92	$32,000	32	241,000
2010	50,000	50	8,000	8	92,000	92	32,000	32	182,000
2011	70,000	25	60,000	4	46,000	46	16,000	16	192,000
2012	15,000	12	15,000	2	23,000	23	8,000	8	61,000
Total	$335,000		$117,000		$253,000		$88,000		$793,000

* In AUS$ ** SB = # of Sub Blocks held.

For subsequent years, the estimates in the initial application filed were increased for EPM #s 17503 and 17538, leaving the other two EPMs at minimum MAE levels. Actual expenditures will likely be well above the MAEs indicated in Table 2 in some years.

A bond will be required to be paid to the Australian Environmental Protection Agency of $2,500 per EPM for a five-year period amounting to $10,000.00 for the 4 EPMs. At the end of 5 years, the bond is refundable if all required restoration activities (if any) have been carried out.

6.3 Current Positions

In July 2008, AusPotash entered into an Earn-In Agreement with Queensland Potash Pty Ltd. ("QPPL") in which AusPotash could earn a 49% interest in QPPL's Exploration permits represented by EPM #s 17503, 17538, 17736 and 17557. The tenement rights were applied for by Circle Resources Pty Ltd. and were to be transferred to QPPL in exchange for a 1.7% net smelter return.

As consideration for the initial 49% Earn-In Agreement, AusPotash was required to:

a) subscribe for $1,500,000 of shares of Circle Resources Holdings Ltd., the parent company and sole shareholder of QPPL;

b) incur minimum mineral property expenditures of AU$20.0 million by December 31, 2010. AU$1.5 million of the minimum expenditure requirement was to be incurred by December 30, 2008 on specified expenditures including: ground studies, environmental impact studies, geophysical surveys, permitting, resource drilling and the completion of a 43-101 report. As part of the minimum expenditure requirement, AusPotash was required to construct and commission a pilot in situ extraction (solution mining) operation and pilot treatment plant that would demonstrate the feasibility of the extraction, treatment and production of salt and by extension, potash; and

c) issue shares equal to 10% of the outstanding shares of AusPotash to QPPL on the date of listing with the TSX Venture Exchange.

Upon fulfilling the requirements of the initial 49% earn in, AusPotash would have the option to increase its interest in the QPPL Exploration Permits to 51% by making a payment of AU$5.0 million to QPPL and arranging project financing, as determined by a feasibility study, on terms acceptable to both parties. Once the obligations under the Earn-In Agreement were met, AusPotash and QPPL would be deemed to have entered into a joint venture on terms and conditions to be agreed between the parties.Pursuant to the terms of the Earn-In Agreement, AusPotash purchased 15,985,000 shares of Circle Resources Holdings Ltd. (“Circle”) for $1,500,000. At the time of the purchase, Circle’s only significant asset was its investment in its wholly owned subsidiary QPPL.

In October 2008, QPPL shares were distributed to each of Circle’s shareholders on a one-for-one basis. AusPotash received 15,985,000 shares of QPPL. The distribution resulted in AusPotash owning 7.4% of the outstanding shares of QPPL. Subsequent to the distribution, Circle had no remaining assets.

On December 2, 2008, AusPotash entered into a Share Sale Agreement to acquire the outstanding shares of QPPL that it did not already own (see AusPotash, 2008). The

parties to the agreement included AusPotash, Circle, QPPL, and the shareholders which held the remaining 92.6% of QPPL. As consideration for the purchase, AusPotash was to issue 27,767,684 common shares to QPPL. The Share Sale Agreement was conditional upon the transfer and registration of granted tenements and tenement applications from Circle Resources Pty Ltd. to QPPL and on AusPotash obtaining regulatory approval for listing on the TSX Venture Exchange by March 31, 2009 and the successful listing by April 30, 2009.

The terms of the Share Sale Agreement also required that additional consideration of 10% of the outstanding shares of AusPotash on listing with the Exchange were to be issued to Circle Resource Holdings Ltd. The Share Sale Agreement was to replace the Earn-In Agreement and upon the signing of the Share Sale Agreement, the requirement to spend $1,500,000 million in work obligations by December 30, 2008 was waived by QPPL. The Company did not obtain regulatory approval for listing on the TSX Venture Exchange by March 31, 2009 and the Share Sale Agreement and the Earn-in Agreement were terminated by QPPL.

On May 22, 2009, the Company entered into a new Share Sale Agreement (AusPotash, 2009) to acquire the balance of shares of QPL that it did not already own. As of the date of the acquisition, QPPL was the registered owner of EPM #17503 and EPM #17538. The tenements are subject to a 1.7% NSR. Consideration for the transaction was $750,000 cash and 15,085,006 common shares of AusPotash.

Circle Resources Pty Ltd. is the registered owner of EPM #17736 which has been granted and EPM #17557 which is still in application stage. These two tenements are not covered by the Share Sale Agreement but the option to acquire them is covered by a Transfer Agreement.

AusPotash is required to spend a pro-rata share of the estimated Phase I costs, based on the number of tenements owned, by April 30, 2011. If the expenditures are not made,

the tenements will be transferred back to Circle Resources Pty Ltd. AusPotash is also required to make annual rental payments and minimum annual expenditures per year for the EPMs owned.

On May 22, 2009, AusPotash also entered into a Transfer Agreement for the option to obtain EPM #17736 and EPM #17557. If by October 31, 2009, AusPotash has obtained TSX Venture Exchange conditional approval for listing and secured a minimum of Cdn$2.1 million in concurrent financing, then AusPotash may request the transfer of EPM #17736 and EPM #17557 (if it has been granted). Consideration for the transferred EPMs is:

i) 7,542,503 common shares of AusPotash for each EPM transferred;

ii) additional consideration shares such that upon listing the former shareholders of QPPL (other than AusPotash) will own 40% of the issued common shares of AusPotash at listing calculated on a fully diluted basis; and

iii) transferable warrants which will allow the former shareholders of QPPL (other than AusPotash) to acquire up to 51% of the shares outstanding of AusPotash at listing calculated on a fully diluted basis.

If only one tenement is transferred, the figures in (ii) and (iii) above become 30% and 41%, respectively.

We have reviewed all of the agreements discussed above (see **Section 23.0 References**). Finally, we have reviewed the Revised Term Sheet, dated January 9, 2008 (likely intended to be dated 2009), that provides a history of the AusPotash project to date, the transactions involved, including the plan for the acquisition of QPPL and subsequent TSX-V listing of AusPotash and associated terms (see the URL citation for the AusPotash Revised Term Sheet in **Section 23.0 References**). As of the date of this report, a new Term Sheet incorporating the terms of the May 22, 2009 Share Sale Agreement has not been finalized.

6.4 Permitting

A permit will be required to drill deep test wells; coring and logging are considered part of the drilling program. Drilling of the test holes will require a Class 3 driller with all the appropriate certificates for permission to drill in the Great Artesian Basin. Yearly reports are required on the exploration program with the information to be submitted to the Queensland Department of Natural Resources & Water.

Also, a ground-water allocation will be required for process water. Mr. Manfred Thienenkamp, Senior Hydrogeologist/Hydrogeochemist of Rockwater Pty. Ltd. reported in his August, 2008 preliminary consulting report to Circle Resources Pty. Ltd. (see **Section 23.0 References**), that the acquisition of an existing allocation or a number of existing ground-water allocations offers the best possibility to obtain a water license for the in situ mining venture presently contemplated by AusPotash in the subject tenements south of Blackall, Queensland.

Rockwater personnel reviewed the current legislation concerning ground-water allocations in the Great Artesian Basin area and the following documents:

- The Water Resource (Great Artesian Basin) Plan, 2006
- Great Artesian Basin Resource Operations Plan, 2007
- State Development and Public Works Organization Act, 1971

Supplementary information was gained by Rockwater personnel through communications with the staff at the Department of Natural Resources and Water (DNRW) and the Department of Infrastructure and Planning (DIP) offices in Longreach, Brisbane, and Townsville. A part of Rockwater's scope of work was to perform a bore census followed by a title search. These activities indentified the most suitable bores in the area so that selected landowners could be contacted and

negotiations initiated concerning the possible transfer of the ground-water license for use in the AusPotash project (see Rockwater Pty. Ltd., 2008, URL in **Section 23.0 References**). We understand that those negotiations are underway.

6.5 Environmental Issues

Because the Boree Salt Member, as part of the Adavale Basin, is entirely covered by younger rocks, the prospective potash beds do not outcrop and are known only by previous petroleum drilling of the 1980s, via cores and wireline logs. Since this resource has not been developed to date, there are no tailing ponds, industrial waste deposits, or other anthropogenic features apparent within the subject tenements aside from rusting bore and tank equipment. Therefore, we are not aware of any residual environmental issues that could impact the subject tenements.

7.0 Accessibility, Climate, Local Resources, Infrastructure and Physiography

7.1 Topography, Elevation, and Vegetation

The topography and associated elevation in the general area of the subject tenements are illustrated in Figure 6, along with the boundaries of the subject tenements, the modeled outline of the Boree Salt Member, and three of the candidate sites planned for future test drilling, coring, and geophysical logging of the indicated potash intervals within the Boree Salt Member.

The vegetation in the area of interest is of lightly grassed paddocks with some forest areas and narrow belts of trees. These tree-lines mainly occur along creek banks as well as in specific areas designed to act as wind breaks along the edge of cleared paddocks. The average diameter of the trees varies from about 15 centimeters to 30 centimeters.

Many of the paddocks have in recent years been cleared of trees and are strewn with dead wood, some scattered, some in piles.

The subject areas are within The Mulga Lands bioregion, which consists of undulating plains and low hills on Cenozoic sediments supporting a vegetation range of Mulga (*Acacia aneura*) shrub lands and low woodlands. Soils are generally very infertile and sandy, derived from Quaternary sediments deposited over a Tertiary land surface (see Australian Natural Resources Atlas, 2008).

7.2 Accessibility to Properties

Access to the tenements is from the north by the Blackall-Adavale Road originating in Blackall, Queensland and then approximately east 20 kilometers from the Blackall-Adavale Road to the area of likely preliminary drilling and coring of test holes (see Figure 6).

7.3 Local Resources

Ground-water resources available from water bores and water tanks are abundant in the area (see Figure 6). Only a few cattle were observed during the C&A site inspection during the week of the 25th of August, 2008 within the subject tenements, but the large "red" kangaroos (*Macropus rufus*) were abundant in the area. The Gilmore-to-Barcaldine gas pipeline runs roughly adjacent to the Blackall-Adavale Road along the western edge of the subject tenements (see Figure 6). The nearest railway is located in Blackall, approximately 70 kilometers north of the north-most boundary of the subject tenements (see Figure 6).

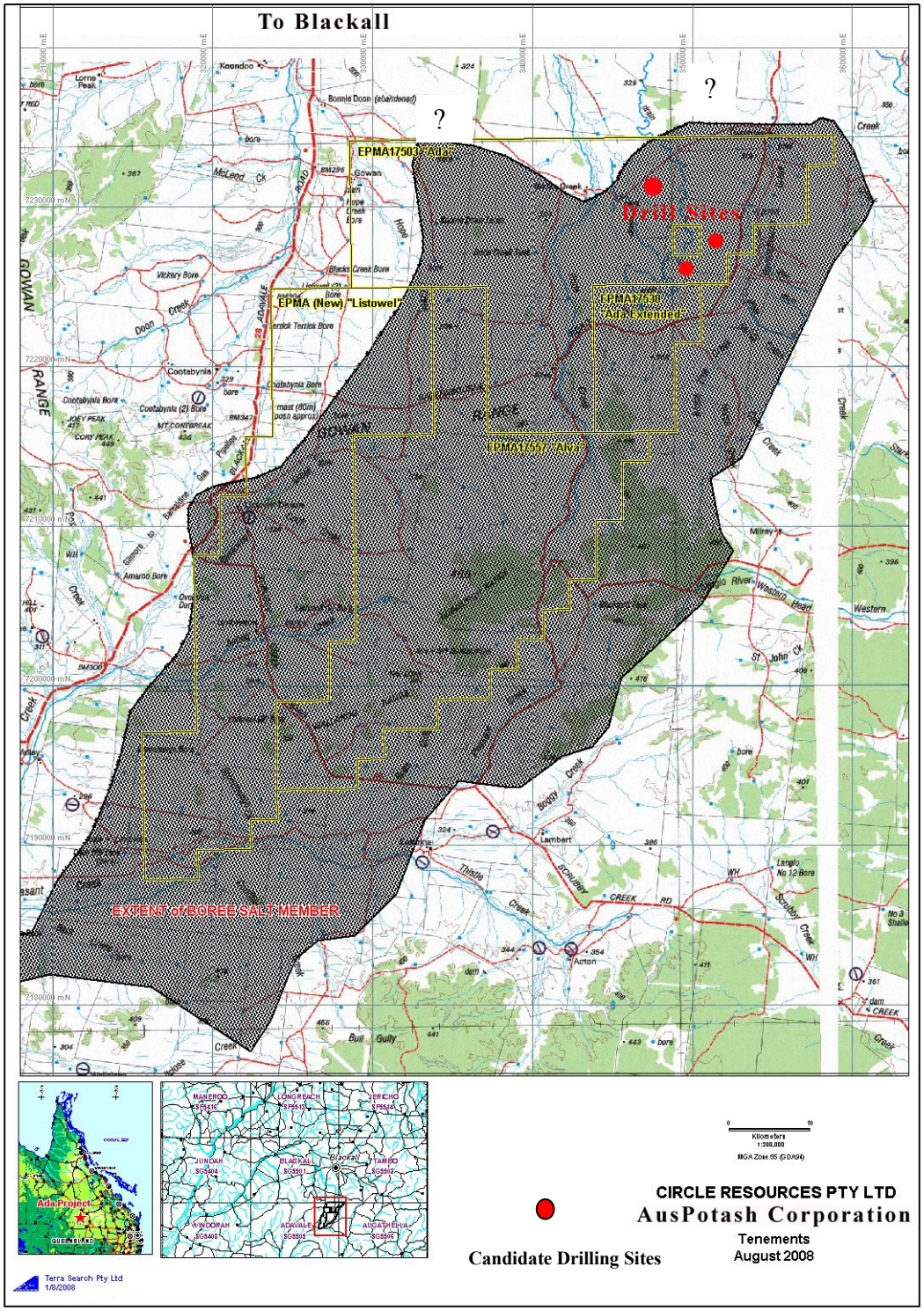

Figure 6 – Topography, Elevation, and Extent of Boree Salt Member
(From Terra Search Pty. Ltd., 2008)
See Figure 2A for Updated Tenement Boundaries.

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7.4 Climate and Seasonal Operations

High temperatures, low rainfall, and low humidity in the area of potential industrial development are not usually conducive to optimal production. However, for a project involving the drilling of exploration holes and for the possible subsequent production of potash, halite and specialty brine products, the prevailing climatic factors such as high temperatures, low rainfall, low humidity, high wind speed, along with high solar exposure (clear days) are especially favorable for year-round operations such as those contemplated by AusPotash (see Figures 7, 8, and 9).

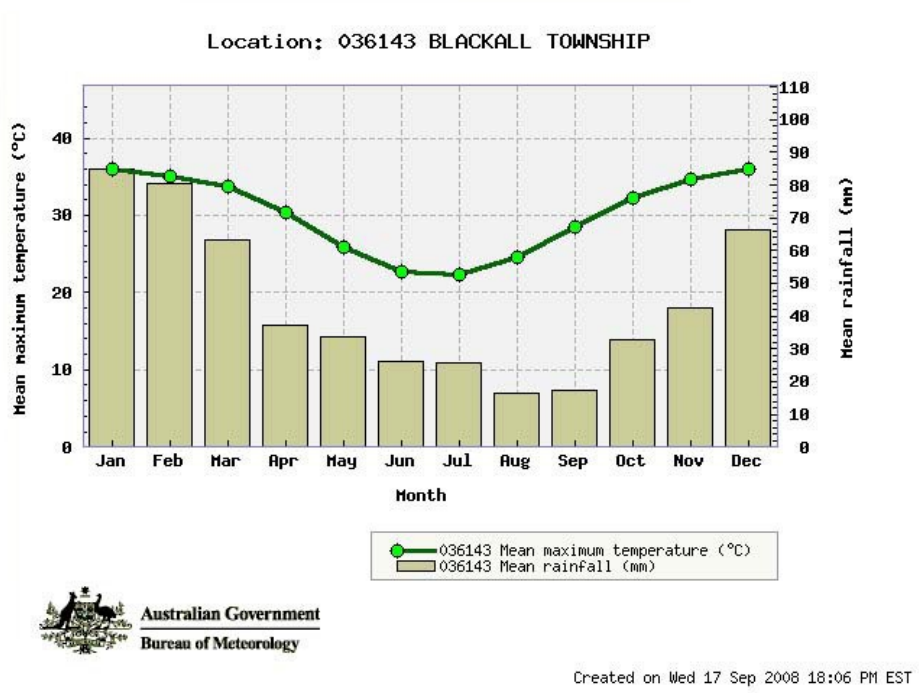


Figure 7 – Mean Maximum Monthly Temperatures and Rainfall

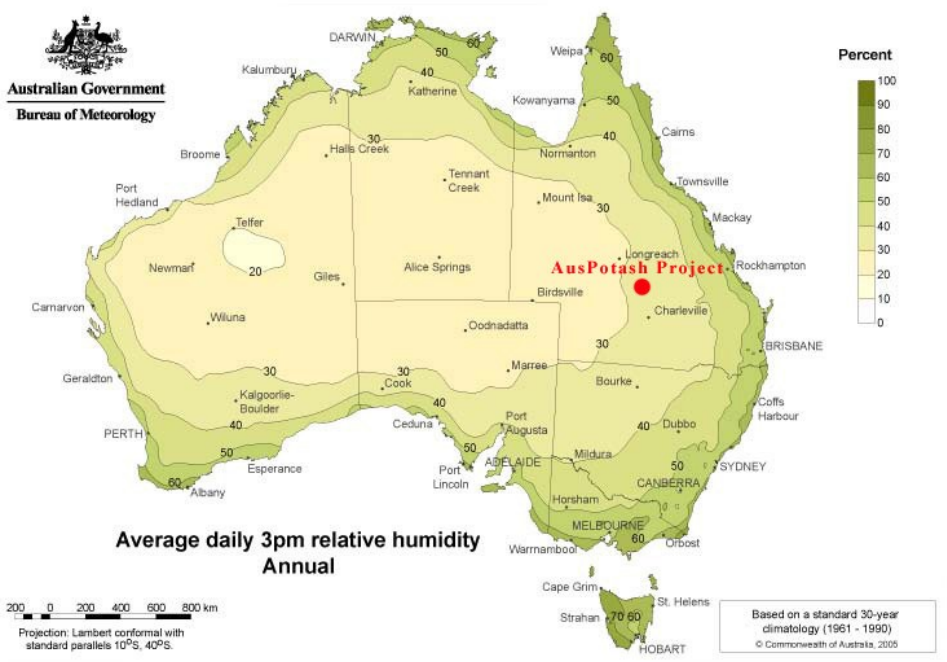


Figure 8 – Average Daily Relative Humidity (@ 3:00 PM)

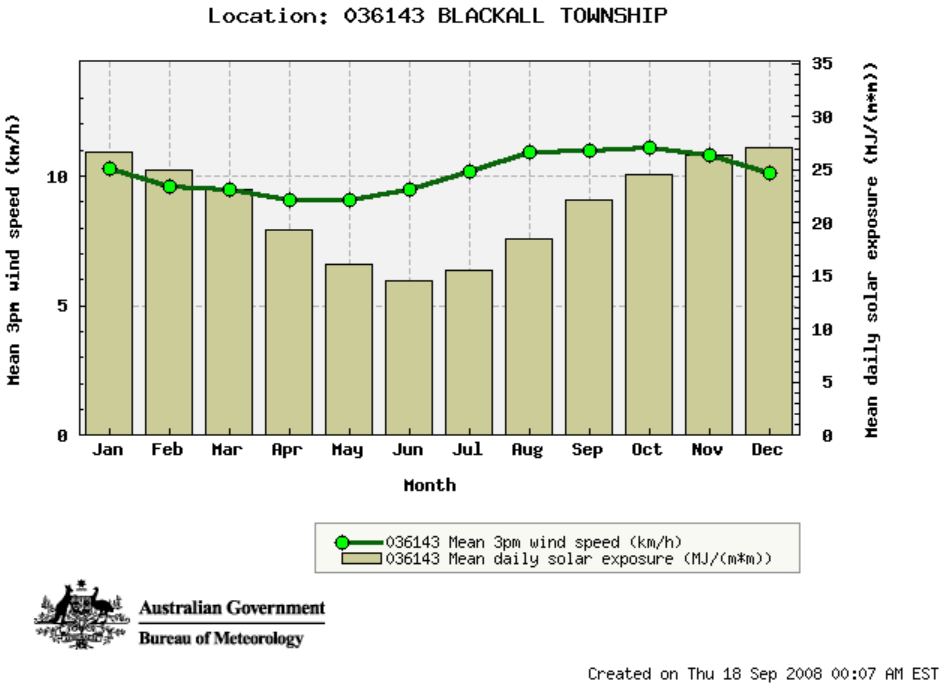


**Figure 9 – Mean Monthly Wind Speed (@ 3:00 PM)
and Mean Daily Solar Exposure**

7.5 Available Infrastructure

As discussed in **Sections 7.2 Accessibility to Properties** and **7.3 Local Resources**, supporting infrastructure is available in Blackall some 70 kilometers to the north via the Blackall–Adavale Road, and in Longreach some 200 kilometers to the northwest of Blackall along a bitumen highway. A railway passes through Blackall to Brisbane, and Qantas Airlines makes regular stops at the Blackall airport. Also, the available infrastructure includes the Gilmore-to-Barcaldine gas pipeline that runs along the Blackall–Adavale Road to Blackall along the western edge of the subject tenements (see Figure 6).

8.0 History

8.1 Previous Activities

Interest in potash in the Adavale Basin first developed when petroleum exploration began to conduct seismic surveys in the early 1960s and then again in the early 1980s. Poseidon Minerals Limited (Poseidon) commissioned consultants to reinterpret the available seismic information. These surveys revealed an extensive evaporate sequence (Bauer, 1983 and White, 1984), which led Poseidon into a joint venture with PPG Industries to explore specifically for potash. White (1986) summarized all the available relevant information on the studies conducted to date.

During the 1980s, a number of deep holes were drilled, cored and logged in the Adavale Basin, some of which confirmed a thick evaporate interval, which was subsequently studied in great detail by Poseidon, Denison Resources, N. L., Mines Exploration Pty. Ltd., and the Queensland Government (see McKillop, *et al.,* 2007). These studies form the basis of the present interest in developing the potash resources in the subject basin, assuming the occurrence of potash minerals is of sufficient volume and chemical grade to merit development.

8.2 Previous Exploration Results

According to Wells (1980), the presence of potash in the Adavale Basin and the classical evaporate sequence from dolomite through anhydrite to halite and potassium minerals, including sylvite, make it one of the most prospective basins in Australia, the most prospective area being next to the Pleasant Creek Arch. Subsequent drilling by petroleum companies further confirmed the thick sequence of evaporite sediments and likely interbeds of potassium minerals in the upper intervals of the sequence (see Figure 10).

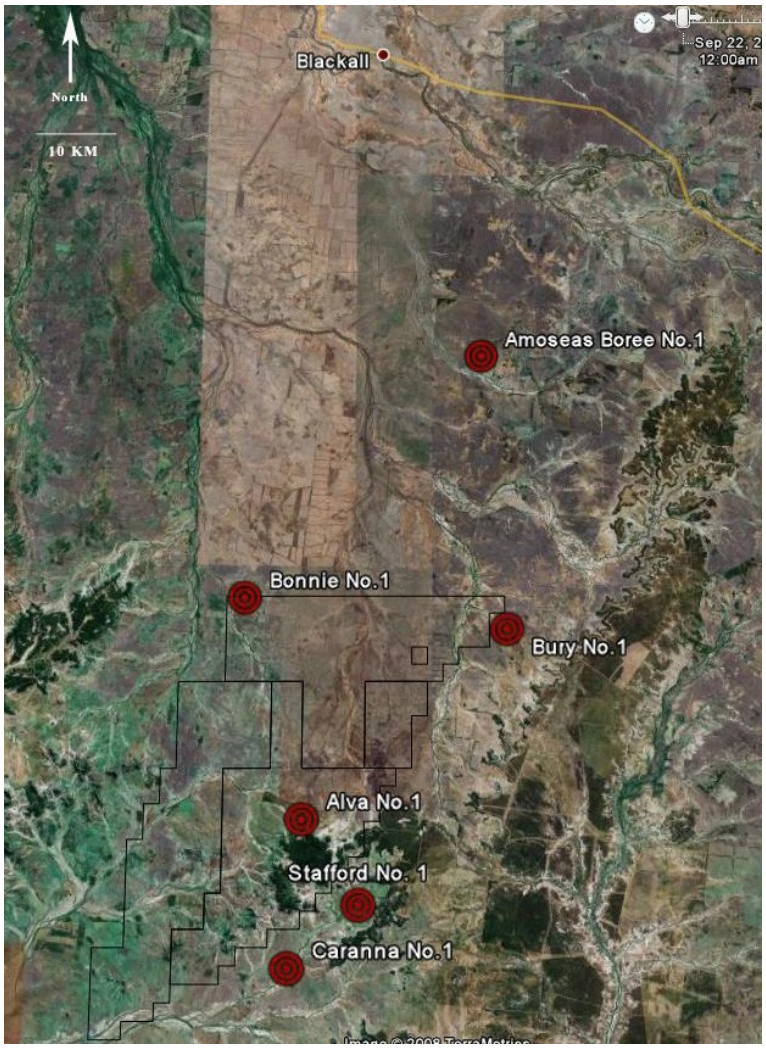


Figure 10 – Location of Principal Historical Petroleum Exploration Well Sites and Tenement Boundaries. (A *Google Earth* Photograph)

Poseidon evaluated the potash potential of the area and Dennison Resources N.L. took their evaluation of the potash potential all the way through the feasibility and engineering stage before they cancelled the project as a result of other business interests. Nothing of record is available since the late 1980s on the subject tenement area until recent interest re-emerged as prices and market needs in South East Asia, Australia, India, and China have made it apparent that fertilizers and specialty chemical products are now in significant demand.

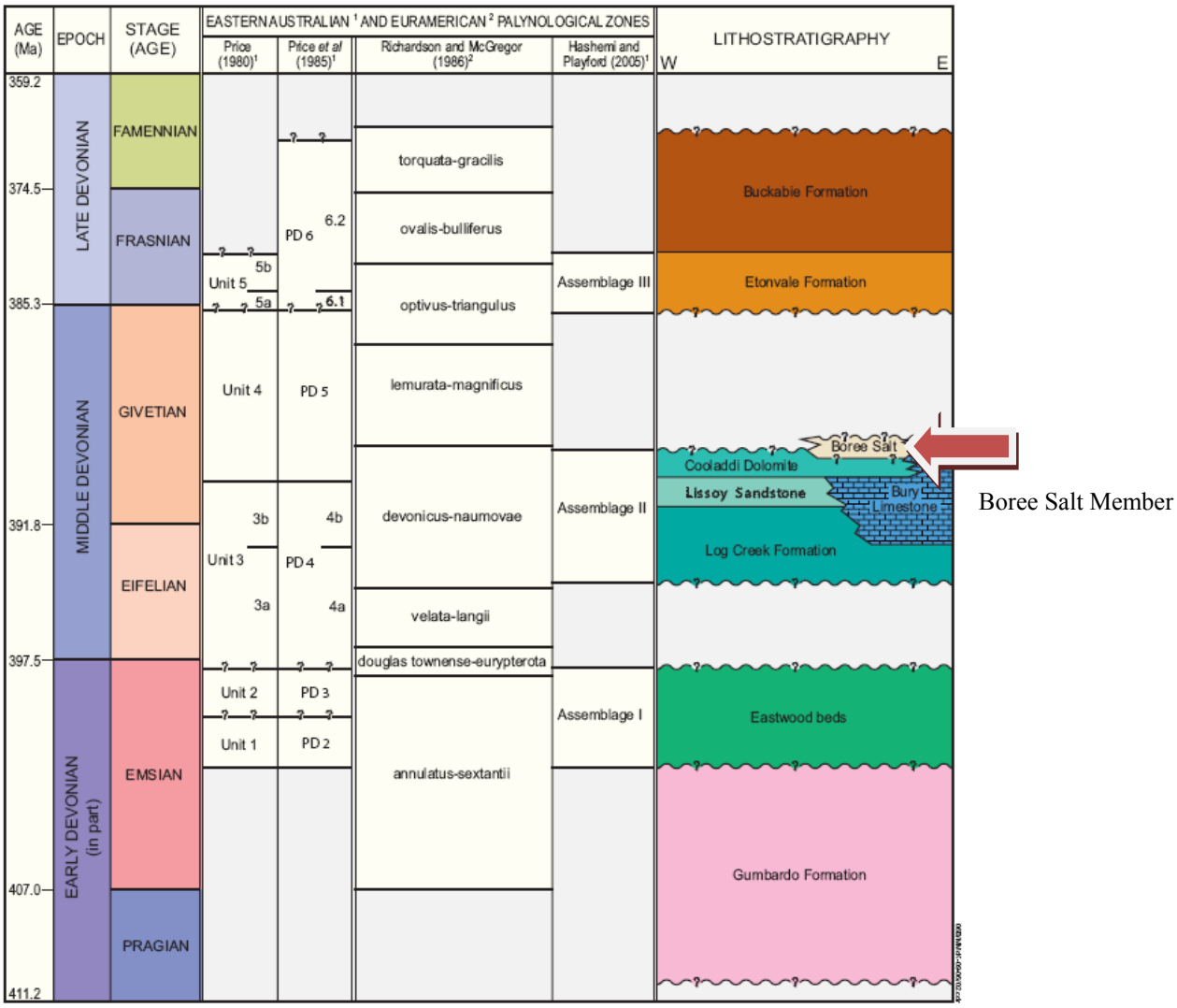
9.0 Geology

9.1 Regional Geology

The rocks of the Adavale Basin do not crop out, but are overlain by 1,000 meters to 3,000 meters of sediments of the Galilee Basin (Late Permian to Carboniferous) and of the overlying sediments of Eromanga Basin (Jurassic-Cretaceous). Sediments of the Adavale Basin range in age from the Early Devonian and possibly extend upwards into the Early Carboniferous. The Devonian sediments of the Adavale Basin have been subdivided by McKillop, *et al.,* (2007), with an important hiatus (and the formation of evaporite basins) at the top of the Middle Devonian (see Figure 11).

They were deposited during a transgressive-regressive cycle reflecting the westward advance and subsequent retreat of the sea during Devonian time. Transgression reached its maximum during approximately Middle Devonian time, represented in its shoreward facies by a widespread thin dolomite.

The Boree Salt Member consists of up to 580 meters of rock salt with minor dolomitic limestone, anhydrite and clastic sediments. It occupies the position between the evaporitic carbonates to the east and the sandstone member and red beds along the west flank of the Pleasant Creek Arch (see Figure 1).



Boree Salt Member

Figure 11 – Devonian Stratigraphy within the Adavale Basin
(After Queensland Government, 2007)

9.2 Local Geology

Within and around the subject tenements, the Boree Salt Member thickens as it approaches the Warrego Fault to the east in what is likely a graben oriented north-south (see Figure 1). This can be inferred from the cross-section illustrated in Figure 12. The salt has been remobilized and forms pillows along the western bounding fault, especially in the area of Amoseas Boree No. 1 (see Galloway, 1970, p. 25; Bauer, 1983; and McKillop, *et al.,* 2007).

Three units are interpreted to form a laterally related genetic sequence. Paten (1977) suggests that the continued carbonate sedimentation along the Quilberry-Dartmouth trend caused the isolation of the basin. On the landward margin, the sandstone member represented the eastern encroachment of desert sedimentation. The Boree Salt Member was deposited in the isolated basin(s) between the two. It is probable that gentle downwarp of the basin was occurring at this time (see Paten, 1977).

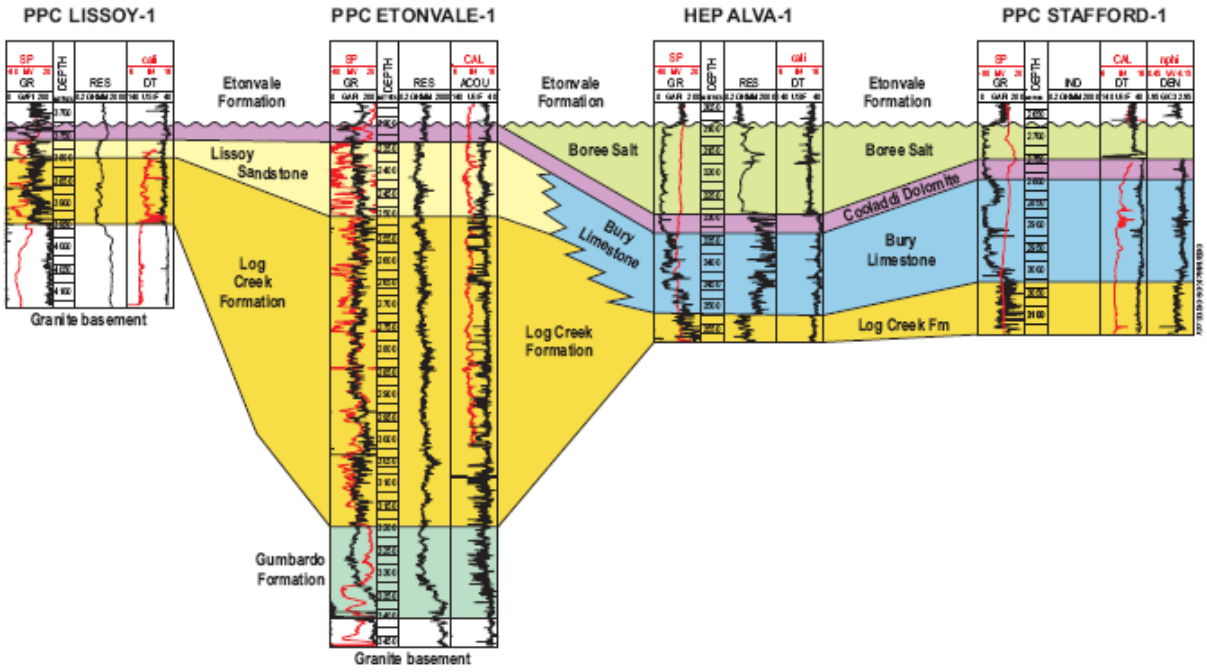


Figure 12 – Geologic Cross Section through Subject Tenements
See Figures 1 and 2 for Section location. (From McKillop, *et al.*, 2007)

10.0 Deposit Types

On Earth, marine evaporites occur in both cratonic basins and grabens associated with continental marginal rift systems. The potash deposits of the cratonic basins are generally of Paleozoic age and are characterized by assemblages containing sylvite and potassium sulphate-bearing phases. The deposits of the marginal rift systems are of Triassic or younger

age and commonly contain primary carnallite-bearing assemblages, which can contaminate the potash product (CIM, 2005). Marine evaporite deposits are composed of sequences of tabular beds which are characterized by the proportions of the minerals they contain as well as by color, texture, and grain size. Mappable beds may be a few centimeters to several meters in thickness and may be present over hundreds of square kilometers. These stratigraphic features reflect relatively rapid precipitation in comparatively stable structural settings.

The normal ratio of sodium to potassium in seawater is 27.7 to 1. Mineable potash beds, therefore, are generally accompanied by considerably thicker halite deposits. Furthermore, the potassium mineral assemblages commonly occur in the younger, upper portions of the thick halite deposits because the potash salts are precipitated late in the evaporation sequence. Multiple potash horizons may occur in the upper one-quarter to one-third of major halite deposits reflecting the cyclic nature of precipitation (see Figure 13, after Guilbert and Park, 1986).

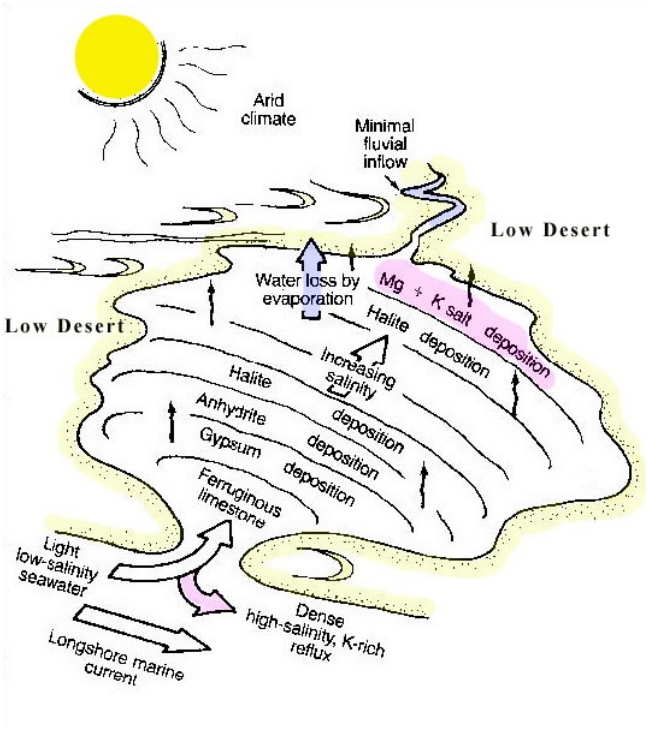


Figure 13 – Typical Sequence of Evaporite Basin Development

(Guilbert and Park, 1986)

Bluck, *et al.,* (1982), in an early assessment of the potential of the Boree Salt Member, indicate that the occurrence of economic potash deposits is essentially restricted to widespread, thick accumulations of marine evaporite deposits. They claim that these bodies yield high grade, large tonnage materials, many of which are amenable to in situ solution mining and beneficiation because they are bedded deposits. The products from these deposits are ideal for use in fertilizer because of the high solubility of the potassium chloride and sulphate evaporite minerals.

The principal potash deposits may be associated with areas of greatest halite thickness, peripheral to them or in nearby sub-basins, depending of the tectonic history of the area. Thick halite deposits in some basins do not have associated potash deposits, the potash-rich brines having been lost by reflux before potash precipitation or the precipitated salts having been subsequently dissolved by refreshened brines from the ocean.

The exploration for potash deposits in known evaporite basins is based on studies of the chemical and physical characteristics of the salt beds. Bluck, *et al.,* (1982), Guilbert and Park, (1986), and Adams (1975) suggest that stratigraphic criteria favorable for the occurrence of extensive potash deposits include: 1) halite sequences in excess of 60 to 100 meters in thickness, 2) the presence of potassium in sulphate beds (possibly as polyhalite) or as disseminated grains of potassium chloride (sylvite or sulphate minerals in halite beds, and 3) the presence of clastic zones of mixed layer clays, particularly in the upper part of the evaporite section, to serve as seals above beds of soluble minerals. According to the historical reports, all of the above criteria have been met in the Boree Salt Member in the Adavale Basin.

11.0 Mineralization

According to White (1984), an assessment of the Australian evaporite basins was carried out by Mine Exploration Pty. Ltd. during 1968/69. The available oil well cuttings and cores were scanned with X.R.D. (as available in the early 1980s) and the Boree Salt Member of the Adavale Basin was selected for more detailed work.

The X.R.D. scans of cored samples indicated the presence of potassium minerals (especially sylvite) in the salt sequences in the wells Bury No. 1, Boree No. 1 and Bonnie No. 1 wells. Clean halite was handpicked from the Bury No. 1 cuttings and cores and assayed for bromine. The bromine levels were subsequently redetermined for this and other samples from the wells (see White, 1984 and 1986 for the details).

The bromine-in-halite data from Bury No. 1 show near halite-normal bromine contents (75 ppm) in the lower part of the salt section, with a rapid increase above a regionally developed shale marker horizon at 2,133 meters (or 7,000 feet) to in excess of 270 ppm of bromine indicating marine waters were the source. The bromine contents are maintained above the 270 ppm level for the next 190 meters (~623 feet) with descendent solution-induced breaks at 2,051 metres (~6,730 feet), 1,975 meters (~6,480 feet) and 1,948 meters (~6,390 feet) below surface, suggesting basin isolation from time to time. Hand-picked samples of halite and sylvite were crushed, separated in heavy media, and assayed with the following results shown in Table 3:

Table 3
Poseidon Sample Analyses for Bromine Content in Halite and Sylvite
(White, 1984)

Well Name	Sample Mark	Bromine in Halite	Bromine in Sylvite
Bonnie	BR6	200 ppm	2,200 ppm
Boree	BR69	260 ppm	2,000 ppm
BR66	(?)	240 ppm	20,100 ppm
Bury	BR197	300 ppm	3,200 ppm

The indicated partitioning of bromine between sylvite and halite of approximately 10 to 1 is equivalent to the theoretically calculated ratio given by Kuhn (1962) for primary sylvite, indicating the geological environment was part of one or more cratonic evaporite basins bordering low deserts and marine conditions.

The most significant finding of the Poseidon study conducted by White (1984) with respect to potash occurrence is the recognition of a thick wedge of salt, probably deposited in an elongate restricted basin adjacent to the Warrego Fault. The thickness of the salt is probably a primary depositional feature and not due to salt flowage as indicated in the area of the Boree No. 1 well

to the north of the subject tenements. In such areas of faulting and associated structural disturbance, potash deposits may not be conducive to development as present with the disturbance of the horizontal bedding in the general area of Boree No. 1. This is based on work by Galloway, 1970, p. 25, Bauer, 1983 and McKillop, *et al.,* 2007, who all indicate that the salt beds have been disrupted by structural movement (faulting) causing flowage of salt masses and fluids in unpredictable directions.

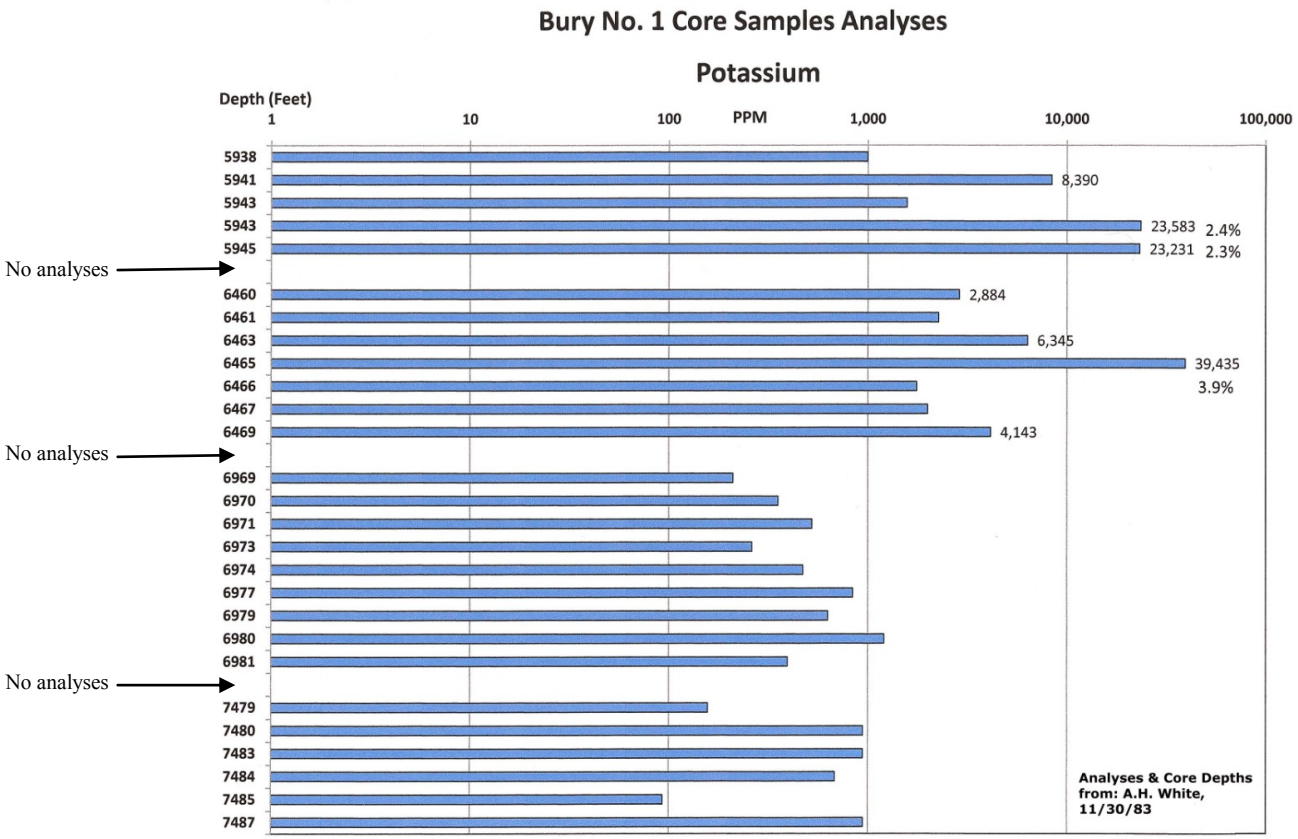
In the Denison Resources report by Hill (1988), he indicated the presence of well-developed, coarsely crystalline, horizontal salt horizons in the area of the subject tenement (see Figure 14), in the area of Bonnie No.1, Alva No.1, and Bury No.1. The core sample below shows a halite-siltstone contact zone.

Figure 14 – Core of Coarsely Crystalline Halite from Area.
(From McKillop, *et al.*, 2007)

In the area of the subject properties (away from the Warrego Fault to the east), the chemical and structural framework of the Boree Salt Member appear to be suitable for in situ solution production of halite and other soda brine minerals. This is based on an associated report by a Denison consultant that indicates that in preliminary determinations on 11 core samples from the Boree Salt Member, the dissolution rates observed for halite in the samples studied

compared favorably with published data, within acceptable parameters, to enable successful extraction of halite and associated minerals by solution-mining techniques. In a report on core analyses from Bury No.1 (White, 1983), potassium values indicate that the upper portions of the Boree Salt Member (above a depth of 6469 feet) exhibit end-member evaporative conditions (see Figure 15).

Figure 15



The samples taken from the particular core for laboratory analyses ranged from 3 inches to 6 inches and averaged about 5 inches in length. They are shown above as corresponding to the nearest foot of depth (below surface). The samples taken for analyses apparently were not continuous with depth or they have been misplaced over the years since the samples were originally analyzed. As shown in Figure 15, there are breaks in the analyses where no analyses are available.

An indication of the beneficial influence of periodic marine conditions in providing a series of sources of potassium to the evaporative basin is provided by the bromine content of the halite and associated minerals. Table 4 shows the analyses performed for a number elements and compounds of the cores taken for Bury No. 1, including potassium, bromine, sulfate, magnesium, calcium, % insoluble, combined sodium chloride, depth of core analyzed, and the core number.

Table 4

Chemical Analyses for Bury No. 1 Cores

(From A. H. White, Poseidon Limited, 11/30/83)

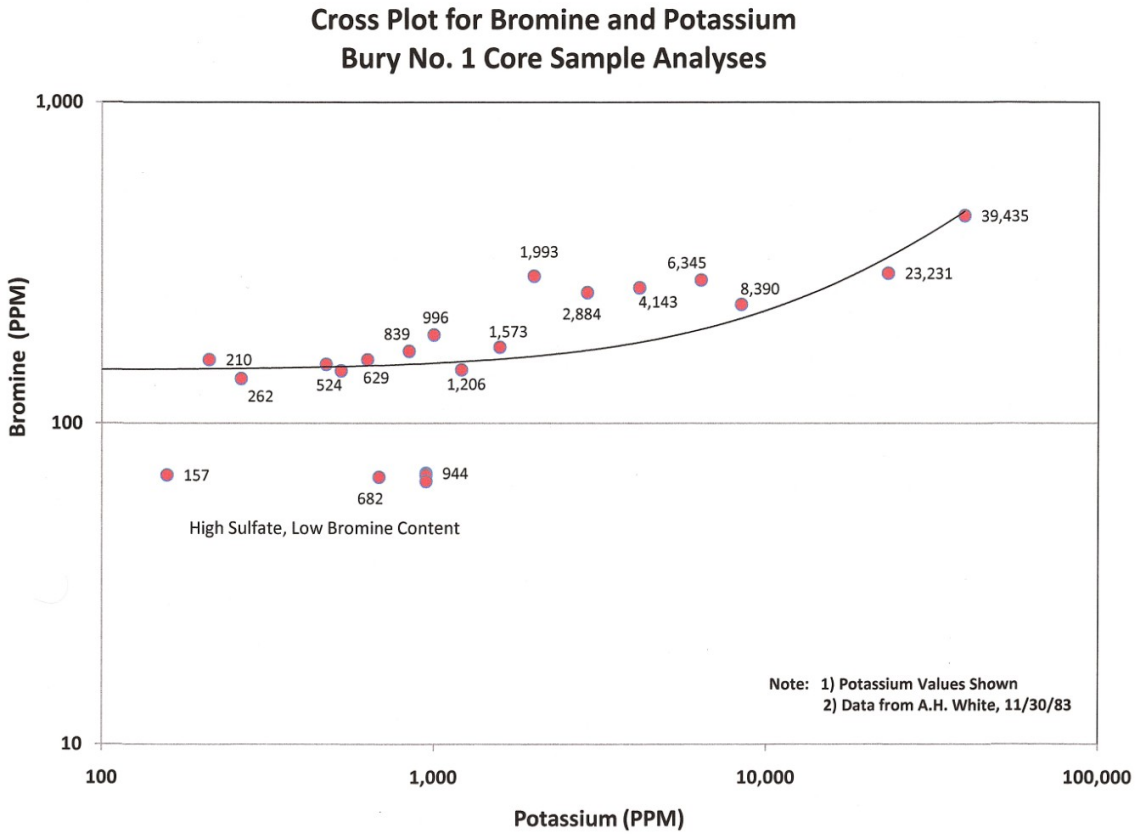
Core	Depth (Ft)	NaCl (%)	Insoluble (%)	Calcium	Magnesium	Sulfate	Potassium	Bromine	
8	5938	99.4	0.4840	527	25	722	996	189	
8	5941	96.4	0.9130	1,116	36	1,801	8,390	235	
8	5943	97.6	1.0150	1,056	26	1,617	1,573	173	
9	5943	94.4	0.0588	647	21		23,583		
8	5945	94.6	0.6150	836	47	1,282	23,231	294	Cycle II
No analyses A →									
9	6460	93.2	4.5630	4,544	310	6,886	2,884	256	
9	6461	92.7	0.4155	1,569	158		2,268		?Erosion
9	6463	86.8	8.6200	6,068	1,151	9,202	6,345	280	
9	6465	88.4	2.7420	3,518	168	5,573	39,435	444	
9	6466	89.2	0.9134	4,494	160		1,758		Cycle I
9	6467	98.1	0.7951	831	100	1,226	1,993	288	
9	6469	97.3	2.4110	1,142	425	1,253	4,143	265	
No analyses B →									
10	6969	98.3	0.8780	5,601	22	2,674	210	158	
9	6970	98.7	0.0337	589	14		354		
10	6971	97.3	1.9840	688	42	1,096	524	146	
10	6973	96.2	2.7320	2,080	99	3,386	262	138	
10	6974	92.4	5.0209	4,714	249	9,255	472	153	
10	6977	70.3	17.5140	8,399	526	17,517	839	168	
10	6979	96.6	1.3070	2,734	43	5,747	629	158	
10	6980	94.6	3.7970	2,569	133	5,501	1,206	147	
10	6981	94.5	0.7847	1,982	80		395		
No analyses C →									
11	7479	94.9	2.9670	2,927	53	6,346	157	69	High SO_4, Low Br
11	7480	98.5	0.9680	1,998	6	4,165	944	70	High SO_4, Low Br
11	7483	92.6	6.3920	4,542	35	8,559	944	69	High SO_4, Low Br
11	7484	95.0	4.0700	3,296	24	6,663	682	68	High SO_4, Low Br
11	7485	93.6	0.2384	1,397	20		93		
11	7487	96.3	1.7850	2,669	16	5,183	944	66	High SO_4, Low Br

The bottom of a principal potassium-rich zone (Cycle I) appears to be present in the area of the Bury No. 1 well site at a depth below 6469 feet upwards to a depth somewhere below 5945 feet. The "No analysis A" interval is present between 6460 feet and 5945 feet, an interval of 515 feet without geochemical information on the intervening conditions. The peak evaporative

stage seems to have been brought to an end with an erosional episode by flooding. The bottom of a second zone of interest (Cycle II) is suggested at a depth somewhere above 6460 feet within the missing zone of "No analyses A." Cycle II may be an extension of Cycle I where relatively high potassium (and bromine) values suggest that an evaporative stage was again present, although the values decline upwards. Cycles I and II may have developed further to the west and north of the Bury No. 1 well site. The analyses suggest that an advanced stage in the evaporative cycle was present in the general area as indicated by the high potassium and bromine values of 3.9% and 444 ppm, respectively, shown in Table 4.

The cluster of values shown in yellow at the bottom in Table 4 exhibiting bromine levels below 100 ppm and relatively high sulfate values suggests that sediment contributions from nonmarine sources and/or volcanism were likely in progress in the general area of the evaporation basin(s). The analyses reported for the zone below the "No analyses C" interval suggests evaporative depositional cycles with likely being recharged by intermittent flooding from nonmarine or lagoonal sources. On the other hand, the upswing of the curve shown in Figure 16 indicates increasing evaporation after being refreshed by open-marine conditions (suggested by the high bromine values) indicating that extensive end-stage evaporite deposition was occurring nearby in the upper zones of Cycle I-II. Therefore, areas to the west and north of Bury No. 1 are prospective for such conditions to have existed, as confirmed by the geophysical surveys discussed later in this report.

Figure 16



Additional petrological studies of core samples from the Boree Salt Member was undertaken by Arakel in 1987. The sedimentological assessment of the Boree Salt Member was made on available drill cores from the Adavale Basin. The purpose was to determine the most favorable segments and areas of the deposit in terms of: 1) potential for lateral extension and thicknesses, 2) extent of salt-quality variation, and 3) identification of environmentally and technically less problematical areas for in situ solution mining (after Dutler, 1987 and Rohr, 1980). Overall, 185 core intervals and 21 polished core slabs from the oil wells drilled in the area were examined and described to establish the major physio-chemical characteristics of selected samples from the Boree Salt Member. Only summary information from these investigations is presently available on the mineralogy and geochemistry of the potash intervals known to exist to date (White, 1983).

Although the available data reviewed data are incomplete and of historical interest only, they nevertheless provide a reasonable indication of the presence of at least one major evaporative cycle and maybe a second cycle peaking nearby in sub-basins of the Adavale Basin. Potassium minerals are present (Arakel, 1987), some of which in the form of the mineral sylvite which is indicative of favorable depositional conditions for potash deposition of sufficient thickness and size to be of economic interest to AusPotash.

12.0 Exploration

12.1 Previous Surveys and Investigations

Earlier work by Poseidon (Bluck, *et al.,* 1982) laid the foundation for Poseidon's activities on their eight (8) Authorities to Prospect (ATPs) over the ensuing years of exploration, focusing on potash in the Devonian Boree Salt Member in the Adavale Basin. Later, Denison Resources Limited acquired tenements for the assessment of salt, potash, magnesium chloride, bromine and other minerals covering an area of approximately 430 square kilometers. However, the construction of an ammonium nitrate plant planned by Denison and others near Blackall during the mid 1980s was cancelled in April, 1988 because another site was selected near Moranbah, Queensland. The Boree Salt Project was deemed to be uneconomic due to excessive freight costs and related costs of the raw material, although the Boree Salt resource and the economics of the associated solution mining supported the overall economic viability of the project at the time (see Arakel, 1987).

12.2 Current Concepts

The available data indicate that the halite sequence is relatively thick within the subject tenements. The distribution of the potassium minerals is not well known within the tenements, but guided by the historical petrological studies of the cores and by the recent modeling of the Boree Salt Member by AusPotash consultants, candidate drilling targets have become apparent and are presently under final review.

13.0 Previous Drilling Activities

Petroleum exploration conducted over the past 30 years, as mentioned above, provided early encouragement with clear evidence of the presence of potassium minerals within the upper section of the thick halite sequence present in the subject tenements. The well logs from earlier petroleum drilling illustrate the salt sequence and likely potassium beds within the halite (see Figure 17).

Note the active Gamma Log traces for four of the wells in the figure are in the upper and middle zones of the evaporite sequence encountered, suggesting the presence of thin beds of ^{40}Potassium minerals, e.g., sylvite, etc.

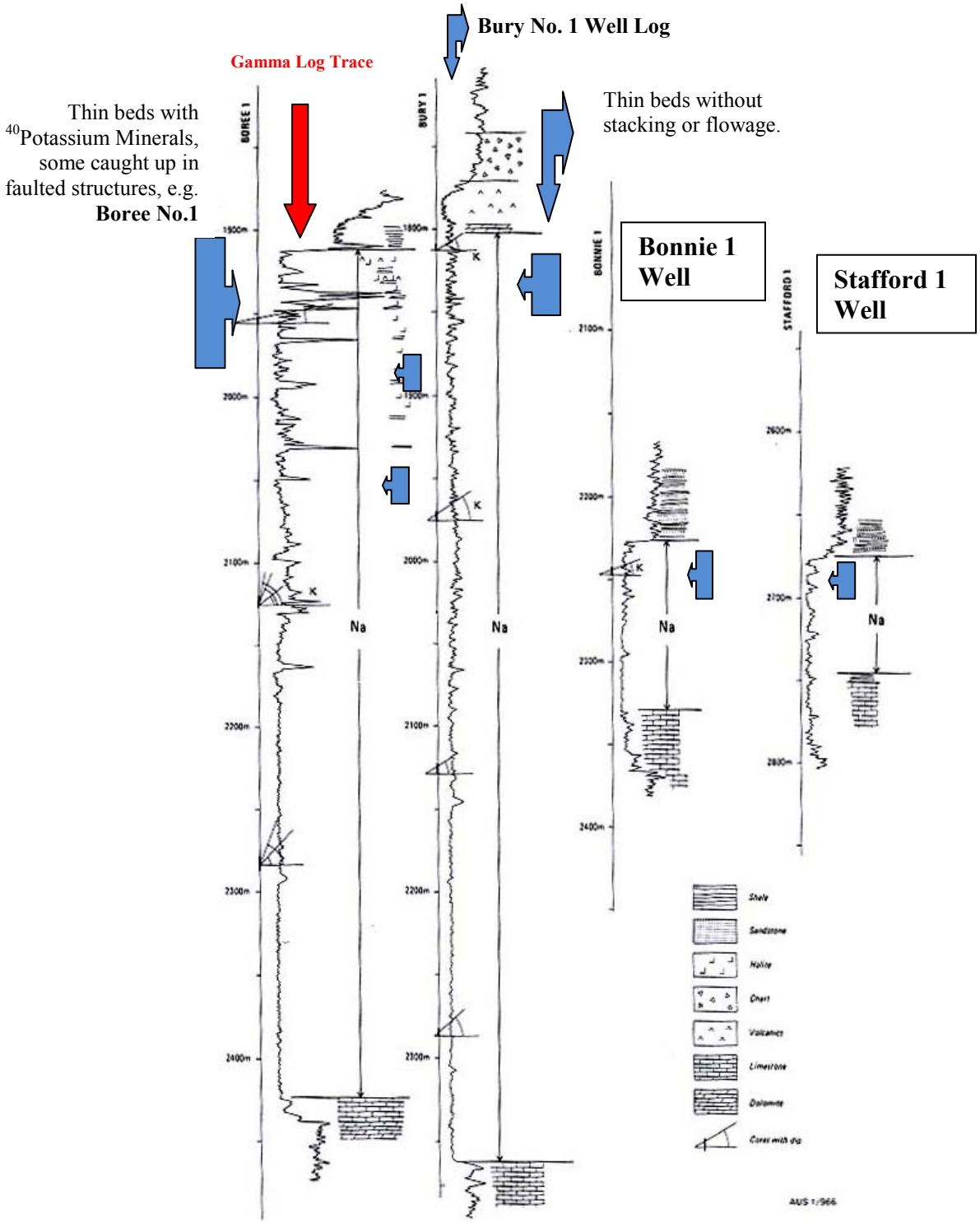


Figure 17 – Discovery Well Logs Showing Salt Sequences.
For locations of the above wells, see Figures 2, 18 & 19
(After Wells, 1980)

1810 Elmen Street, Houston, Texas 77019
Telephone: 713-807-0021 - Fax: 713-807-0985
E-mail: mdc@mdcampbell.com – Website: http://www.mdcampbell.com

14.0 Previous Sampling Method and Approach

Petroleum wells logging, coring and so-called ditch samples were examined and analyzed by numerous consultants of Poseidon Limited, of Denison Resources N.L., and by the Geological Survey of Queensland, Department of Mines and Energy, and by the BMR in Canberra (see **Section 23.0 References**). Since the sampling methodology and approaches of these organizations are not known specifically, this information is none the less suitable to evaluate the potash potential in qualitative terms. Further drilling and assessment will be required to confirm previous information and to provide additional information to permit an assessment of the economic feasibility of developing the resource. According to a report from the Canadian Institute of Mining Subcommittee on Potash, however, potash deposits located in Saskatchewan, Canada are characterized by their remarkable consistency of grade and thickness over tens of kilometers. It is therefore possible to characterize these types of potash deposits with relatively few drill holes, supplemented by sufficient seismic coverage to establish continuity between holes (CIM, 2005).

15.0 Previous Sample Preparation, Analyses, and Security

Many of the chemical analyses we have reviewed were of samples obtained from previous coring by petroleum exploration in the 1970s or earlier. Of these, many of these cores have been held in a reasonably secure manner by the Queensland Government. Other work was conducted by personnel of the Geological Survey of Queensland. White (1983) reports on samples from thin beds of potash minerals (notably sylvite) of a few inches thick that occur with potassium values up to 8%, averaging in the 1000s of parts per million (ppm) over greater intervals. Because the records on the coring are not complete, the actual thickness of the potassium-rich beds from well to well is difficult to correlate. Actual sample preparation, analysis and security protocols used by these organizations are often discussed in the historical records. Arakel (1987) reports that the potassium-rich mineral sylvite is present in many of the core samples.

To date, AusPotash has not conducted drilling and coring so further comments on this subject are not applicable at this time.

16.0 Sample Data Verification

Because many of the chemical analyses we have reviewed were of samples obtained from previous petroleum exploration but have been held by the Queensland Government, AusPotash cannot reasonably be expected to have verified sample data used in the historical reports. Other analyses were conducted by personnel of the Geological Survey of Queensland. Because AusPotash has not conducted drilling and coring to date, further comments on this line item are not applicable or required at this time.

17.0 Adjacent Properties

AusPotash personnel provided information on properties adjacent to the subject properties from the Queensland Government Tenement Database. Reward Minerals Ltd. holds properties along the eastern boundaries of the subject properties (see Figures 2, 2A and 6). In addition, Holocene Pty Ltd (via EPM #16410) holds properties near the east side of AusPotash tenements and NQ Metals Limited (via EPM #17697) hold properties northeast of the corner of the subject tenements designated "Ada" – EPM #17503 (see Figures 2, 2A and 6). An "out sub-block," presumably associated with EPM #16409, is presently plotted within EPM 17503 of AusPotash, as previously discussed in **Section 4.0 Introduction**. It should be noted that both the northern and southern boundaries of the subject Salt Member that is <u>not</u> involved in structural disturbance (creating faulted sediments with beds of various thickness) are presently unknown. Horizontal sediments with uniform bed thickness are generally preferred by industry for in situ development of bedded-potash deposits.

18.0 Mineral Processing and Metallurgical Testing

White (1983) described core "raspings" (vertical scrapings obtained while coring) and cores finding that thin beds of potash minerals (notably sylvite) of a few inches thick occur with

potassium values reported up to 8%, averaging in the 1000s of parts per million (ppm) over a core length. A sample of pure sylvite would contain as much as 40% or more of potassium. No recent mineral processing or metallurgical testing has been conducted by AusPotash or any other organization to date. Once drilling and coring have been conducted on the subject tenements, considerations of mineral processing and metallurgical testing are to be undertaken, if merited. A study conducted by Kashani-Nejad*, S, et al.,* (2004) revealed that impurities such as carnallite ($KMgCl*6H_2O$) in the form of metallic particles and oxides considerably influence all oxide speciation activities during potash production process at the surface. It was concluded that applying these methods without regard for the effects of the impurities and without conducting regular calibration for each of the process plant's specific electrolyte composition would result in a significantly inaccurate determination of the total oxide content of the electrolyte with commensurate problems in the production of the potassium, magnesium and other metals from evaporite deposits. Therefore, the mineralogical content of the potash deposits will need to be closely investigated during the drilling stages of the AusPotash project to monitor the possible occurrence of carnallite within the potash deposit. To date, the cores suggest that the sylvite-dominated depositional process prevailed within and around the subject tenements.

19.0 Mineral Resource and Mineral Reserve Estimates

Hill (1988) made a preliminary assessment of the salt (halite) resources in the subject area and indicated that over an area of 25 sub-blocks of the tenement (75 sq.kms.). He estimated that approximately 13 billion tonnes of halite are present for an assumed average bed thickness of 100 meters. However, it should be noted that no known potassium-specific mineral resource or mineral reserve estimates for potash have been conducted to date by AusPotash or any other organization, aside from generalized speculations indicating that very large potash resources could be present. This is based only on the apparent thickness of the evaporite section encountered by oil and gas drilling in the 1980s and before and by analogy with similar economic deposits in the World and their consistency of grade and thickness over tens of

kilometers (CIM, 2005). Detailed paleoenvironmental studies will be required to identify the configuration of the various sub-basins within the Avadale Basin that would be optimum for end-stage deposition of relatively thick beds of evaporite minerals.

Estimates of potash resources should be undertaken in context with subsequent mining feasibility and market studies and related petrological and processing studies. These studies should be undertaken once physical data on the potash content within the halite sequence have been obtained from drilling, coring and geophysical logging of wells to be drilled.

20.0 Other Relevant Data and Information

Of particular interest is the report by Arakel (1987) that indicates that analyses of the Boree Salt Project indicate the presence of thin beds of soluble potassium minerals (notably sylvite) suggesting that solution mining operation would produce a potash-rich brine. This was based on engineering studies on the economics of solution mining of the mid-1980s, but not on a focused assessment of the anticipated potassium resource that was to provide the raw materials to make fertilizers and various specialty chemicals. Confirmation of the potassium resource by advanced coring technology will be required before mining engineering and economic assessments can be initiated.

21.0 Interpretations and Conclusions

Early in 2008, AusPotash and partners engaged Terra Search Pty Ltd. to assemble all available data from previous seismic surveys and petroleum drilling within and around the subject tenements, and from previous investigations by Poseidon and by Denison Resources, N.L. and others on the potential development of the potash resources (see **Section 23.0 References**). These data were used to conduct modeling with current software technology on the thickness and horizontal extent of the halite sequence indicated within the subject tenements. The results of this modeling have produced reasonable extrapolations of the halite bed thickness between the existing well locations in order to begin to assess the nature of the potassium resources and

where they are likely to be the most abundant (see Figures 17, 18 and 19).

Based on a review of the historical reports and associated analyses, well logs, and seismic modeling of earlier well data, we have concluded that the Boree Salt Member represents a potentially large resource for making fertilizers and various specialty chemicals. Although this resource was evaluated during the mid-1980s, the decision not to develop this resource was unrelated to the available potassium resources within the subject tenements and surrounding lands but rather to the business decision to develop another, larger project in Queensland.

Today, a potash project has, once again, become attractive on the basis that the markets for fertilizers and associated specialty chemicals are expanding in South East Asia, Australia, India, and China, and commodity market prices are at historically high levels and are expected to remain high as economic expansion continues in Australia and in South East Asia, Australia, India, and China and elsewhere in the developing World, even as Australia, the United States, China, and others recover from a present world-wide economic recession.

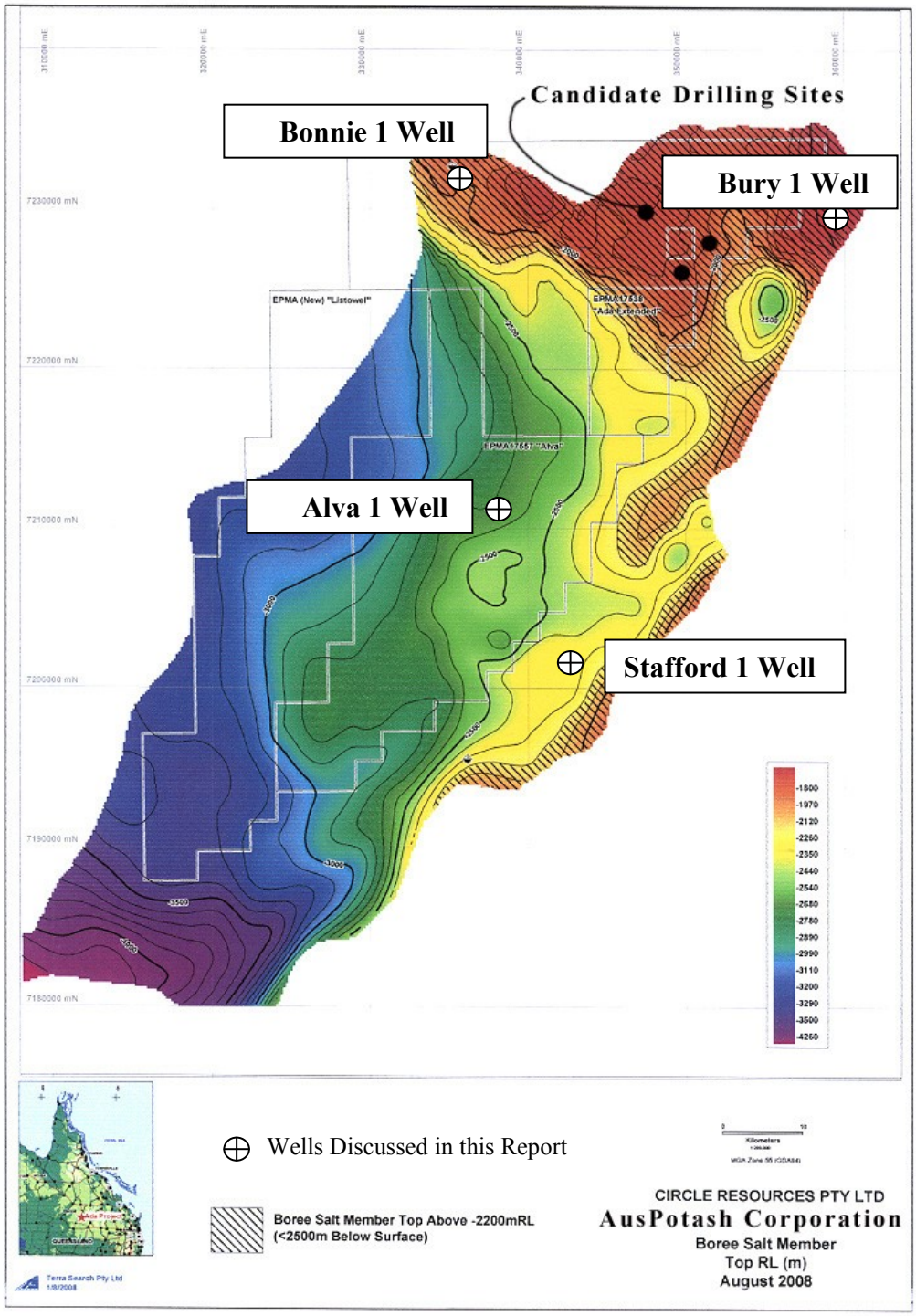


Figure 18 – Top of Boree Salt Member. See Figure 2A for Updated Tenement Boundaries.
(From Terra Search Pty. Ltd., 2008)

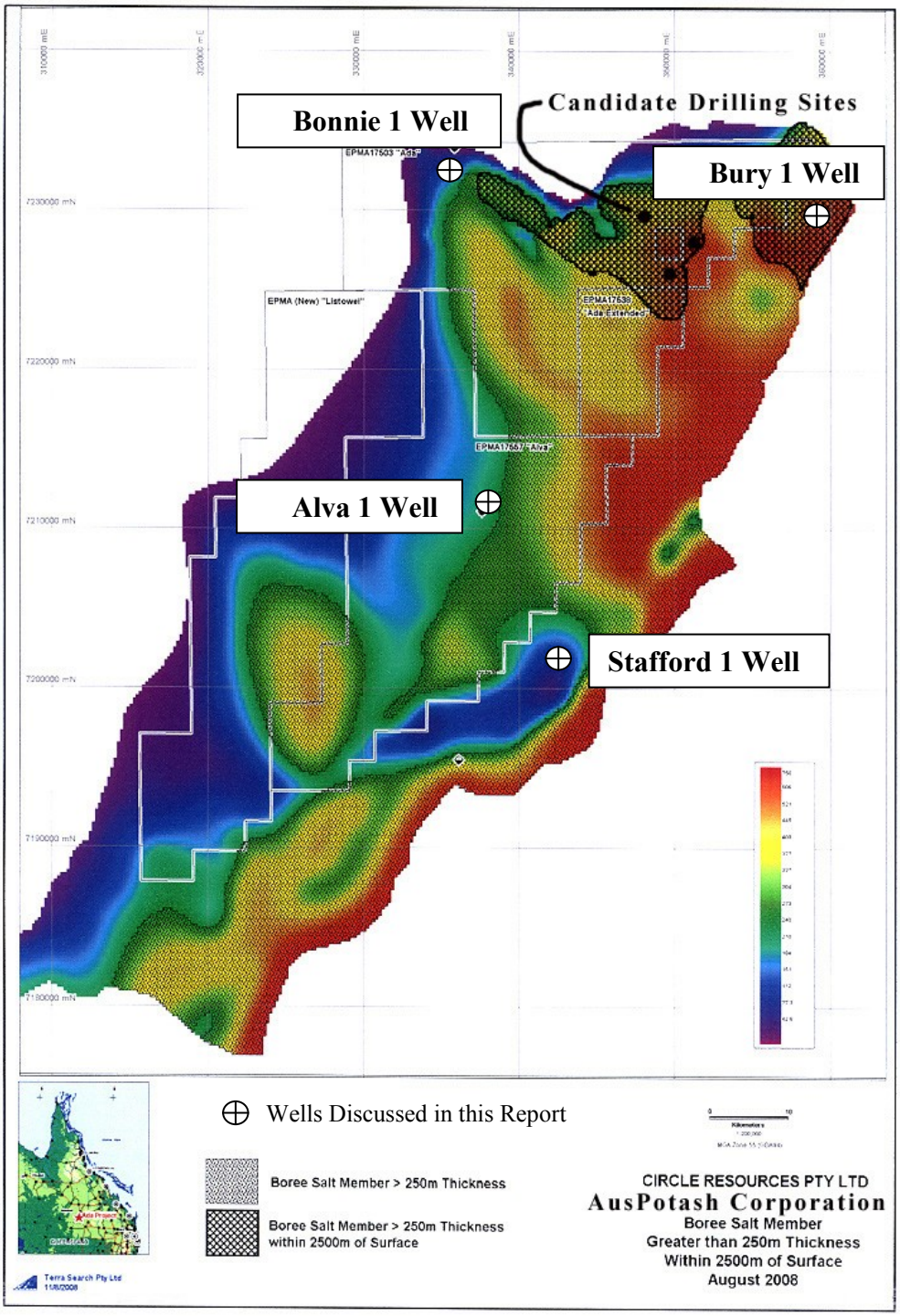


Figure 19 – Maximum Thickness of Boree Salt Member within 2,500 Meters of Ground Surface. See Figure 2A for Updated Tenement Boundaries.
(From Terra Search Pty. Ltd., 2008)

Based on the above, we have concluded that the AusPotash project involving the subject tenements has considerable merit and the potassium and associated resources should be evaluated in detail by drilling, coring, well logging, and laboratory analyses to assess the mineralogical characteristics and quality of the resources in the areas suggested by the recent modeling of historical geophysical data illustrated in Figures 18 and 19. These activities would form the basis for subsequent engineering and economic feasibility studies according to a business plan created by AusPotash management to address the potential development of the resources and associated materials that could be produced from the subject tenements.

22.0 Recommendations

22.1 Exploration Strategy

We recommend drilling, coring and logging to assess the quality of the indicated potash resources. Recent seismic modeling has indicated candidate drilling sites (see Figures 18 and 19). Prior to drilling the first test hole (Stage 1), however, we recommend that a geological assessment be conducted to fully integrate the new modeling results with the geological assessments offered by the historical reports and recent technical literature, combined with input from the personnel of the Queensland Geological Survey (especially those personnel involved in the published work by McKillop, M, *et al.,* 2007). Detailed paleoenvironmental studies will be required to identify the configuration of the various sub-basins within the Avadale Basin that would be optimum for end-stage deposition of relatively thick beds of evaporite minerals. The cost for this Stage 1 activity would be in the range of AUS$50,000 to $75,000., depending on the data available. The purpose of this study would be to optimize Stage 2 drilling locations within the AusPotash tenements. The estimated costs for the Stage 1 geological assessment plus the Stage 2 test drilling, coring and logging for the first hole are presented in Table 5.

22.2 Development Strategy

In the event favorable results are reported from drilling the first test hole in Phase I of the AusPotash program, additional holes will be required in Phase II to characterize the deposit in greater detail. This will provide additional geological and geotechnical information in support of feasibility studies (Phase III) and mine design (Phase IV) in preparation for going into production within four to seven years after a favorable feasibility study has been completed. The date of initial production will depend on the time required to complete Phase III and IV and all administrative permitting requirements, including agreements with the Bidjara People and EPC tenement holders. Start-up of production will also depend on the prevailing world economic conditions at the time, especially in South-East Asia and China.

Table 5
Estimated Phase I Costs: Initial Hole

Function:	**Total Cost (AUS$)**
Stage 1 - Geological Assessment	$50,000
Stage 2 - Drilling Program:	
Geological Supervision & Oversight	$50,000
Drilling Consultant	60,000
Rotary Drilling Contractor	600,000
Coring Contractor	180,000
Laboratory Analyses	25,000
Quality Control/Quality Assurance	10,000
Mud, Bits, Supplies	30,000
Mud Supervision	30,000
Geophysical logging	35,000
Backhoe & Road Repair	10,000
Subtotal:	$1,080,000.
Contingencies @ 10%	108,000.
Estimated Total Phase I:	**$1,188,000.**

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24.0 Certificate of Qualified Persons

Michael D. Campbell, P.G., P.H.
Senior Geologist and Senior Hydrogeologist

I, Michael D. Campbell, do hereby certify that:

1. I am an Independent Consulting Geologist and Managing Partner in the firm of M. D. Campbell and Associates, L.P. residing at 1810 Elmen Street, Houston, Texas 77019.

2. I graduated with a Bachelor of Arts in Geology in 1966 from The Ohio State University in Columbus, Ohio, and a Master of Arts in Geology from Rice University in Houston, Texas in 1976 and have practiced my profession continuously since 1966 (approximately 42 years).

3. I have worked as a geologist and hydrogeologist for my full working career. After graduation (from 1966 to 1969), I worked for Continental Oil Company (Australia),

Sydney, N.S.W., as Staff Geologist/Hydrogeologist, Minerals and Mining Division. I was responsible for conducting, coordinating, and implementing prospect evaluations, mapping and sampling programs, well-site operations, and ground-water supply investigations in various parts of Australia, Micronesia (Caroline Islands) and the South Pacific (Coral Sea) for exploration on: phosphate (NW Queensland, west of Mt. Isa, and Northern Territory, phosphate discovery was made in Alroy Station area), potash (Carnarvon Basin), sulfur, coal, base metals, and uranium. Joint-venture programs with Japanese and Korean companies required extensive travel between Australia and Japan and Southeast Asia. I also investigated uranium prospects on the Nullibar Plains of South Australia. After completing the assignment, Conoco transferred me back to the U.S. to work on Conoco's uranium projects. In 1970, I joined Teton Exploration, Div. of United Nuclear Corporation in Casper, Wyoming and served as District Geologist for uranium exploration. From 1972 to the present I have worked for various engineering and environmental companies involved in natural resource development and mining and on managing and executing environmental projects for industry.

4. I am a licensed Professional Geologist in Texas, Washington (and as a Professional Hydrogeologist), Alaska, Mississippi, and Wyoming, and I hold national certification by the American Institute of Professional Geologists and American Institute of Hydrology. I am a member of the Society of Mining Engineers of AIME (1975-Present), a founding member of the Energy Minerals Division of American Association of Petroleum Geologists (AAPG), the National Ground Water Association (AGWSE), and other professional societies. I have produced numerous publications and was elected a Fellow in the Geological Society of America (see following CV for additional details beginning on page 78 of this report).

5. I have read the definition of "qualified person" as defined in NI 43-101, and I certify that by reason of my education, affiliation with a range of professional organizations (Foreign associations in Appendix A of NI 43-101), and past relevant work experience, I fulfill the

requirements to be a "qualified person" for the purposes of NI 43-101.

6. I made a personal inspection of the AusPotash Project in Queensland during the week of August 25, 2008 in the company of C&A's Senior Project Manager, Mr. Jeffery D. King, P.G., co-author of this report.

7. I have not had any prior involvement with the AusPotash, Queensland Potash Pty Ltd (QPPL) or Circle Resources Pty. Ltd. (CRPL), the companies involved in this project. Therefore, I am independent of AusPotash and its subsidiaries and above joint-venture partners.

8. I have read the Instrument (NI 43-101) and Form 43-101 and this technical report has been prepared in compliance with this Instrument and Form 22-2.

9. As of the date of this certificate, to the best of my knowledge, information and understanding, this technical report contains all the scientific and technical information that is required to be disclosed to make the technical report not misleading.

10. I consent to the filing of this technical report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files or on their websites accessible by the public of the technical report.

Mr. Jeffrey D. King, P.G.
Senior Geologist and Senior Project Manager

I, Jeffrey D. King, do hereby certify that:

1. I am an Independent Consulting Geologist and Senior Program Manager in the firm of M. D. Campbell and Associates, L.P. and residing at 8424 E. Meadow Lake Drive, Seattle (Snohomish), WA 98290.

2. I graduated with a Bachelor of Arts in Geology in 1979 from Western Washington University in Bellingham, Washington and have practiced my profession continuously from that time (approximately 30 years).

3. I have worked as a geologist and/or project/operations manager for my full working career. In 1979, I joined Bethlehem Copper (later Cominco) of Vancouver, Canada as a Staff Geologist. I was responsible for conducting, and implementing prospect evaluations, mapping and sampling programs, and well-site operations in the North Cascades of Washington State and central/eastern Nevada. In 1980, I joined the consulting firm of Watts, Griffis and McQuat of Toronto, Canada as a Senior Exploration Geologist where I was responsible for field operations for WGM's national exploration program searching for rare-earth and other minerals. Also during that time I aided WGM's senior staff on large-scale property evaluations for multiple large clients. In 1982, I was engaged by MolyCorp to work on their regional exploration program for rare-earth minerals and in 1983 I was engaged by Campbell, Foss and Buchanan, Inc. to conduct gold exploration and mine development as well as gold-placer evaluations in the lower states and in Alaska. In 1984, I joined Norse Windfall Mines, Inc. as Mine Manager at a gold/silver mine in east/central Nevada. In 1986, I was promoted to Vice President of Operations. Since 1988, I have been affiliated with M. D. Campbell and Associates, L.P. as Senior Program Manager, where I have completed numerous mine evaluation and environmental projects.

4. I am a licensed Professional Geologist in Washington State (see following CV for additional details beginning on page 114 of this report).

5. I have read the definition of "qualified person" as defined in NI 43-101, and I certify that by reason of my education, affiliation with a range of professional organizations (Foreign associations in Appendix A of NI 43-101), and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.

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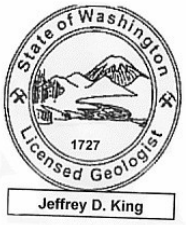
Signed in Houston, Texas this 30th day of September, 2008, and revised July 8, 2009. We reserve the right to revise this report in the future as new information becomes available and as we deem appropriate.

Sincerely,

M. D. Campbell and Associates, L.P.

Michael D. Campbell, P.G., P.H.
Managing Partner

Jeffrey D. King, P.G.
Senior Program Manager



25.0 Appendices

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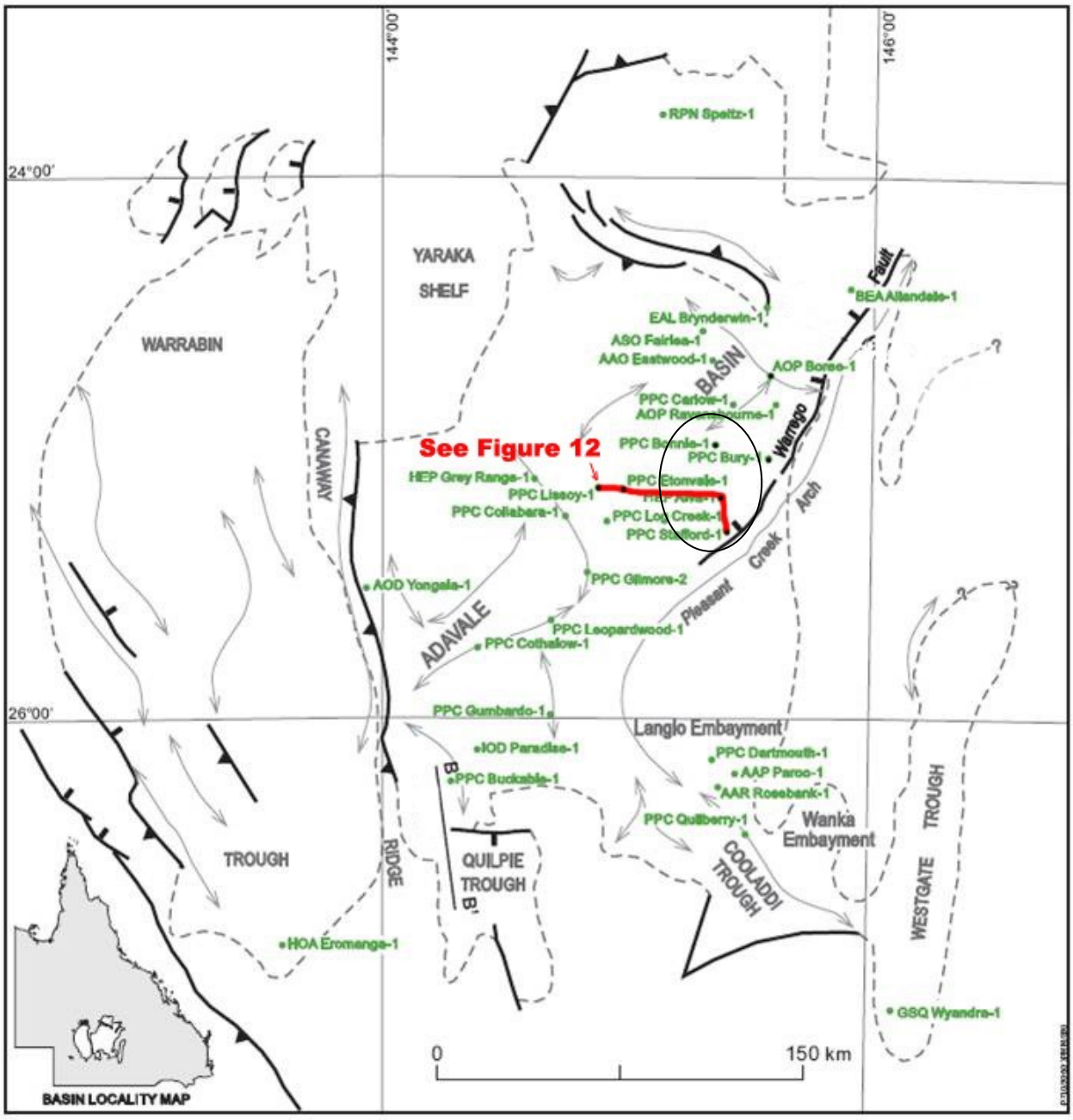
26.0 Illustrations (Expanded Versions of Figures)

Figures



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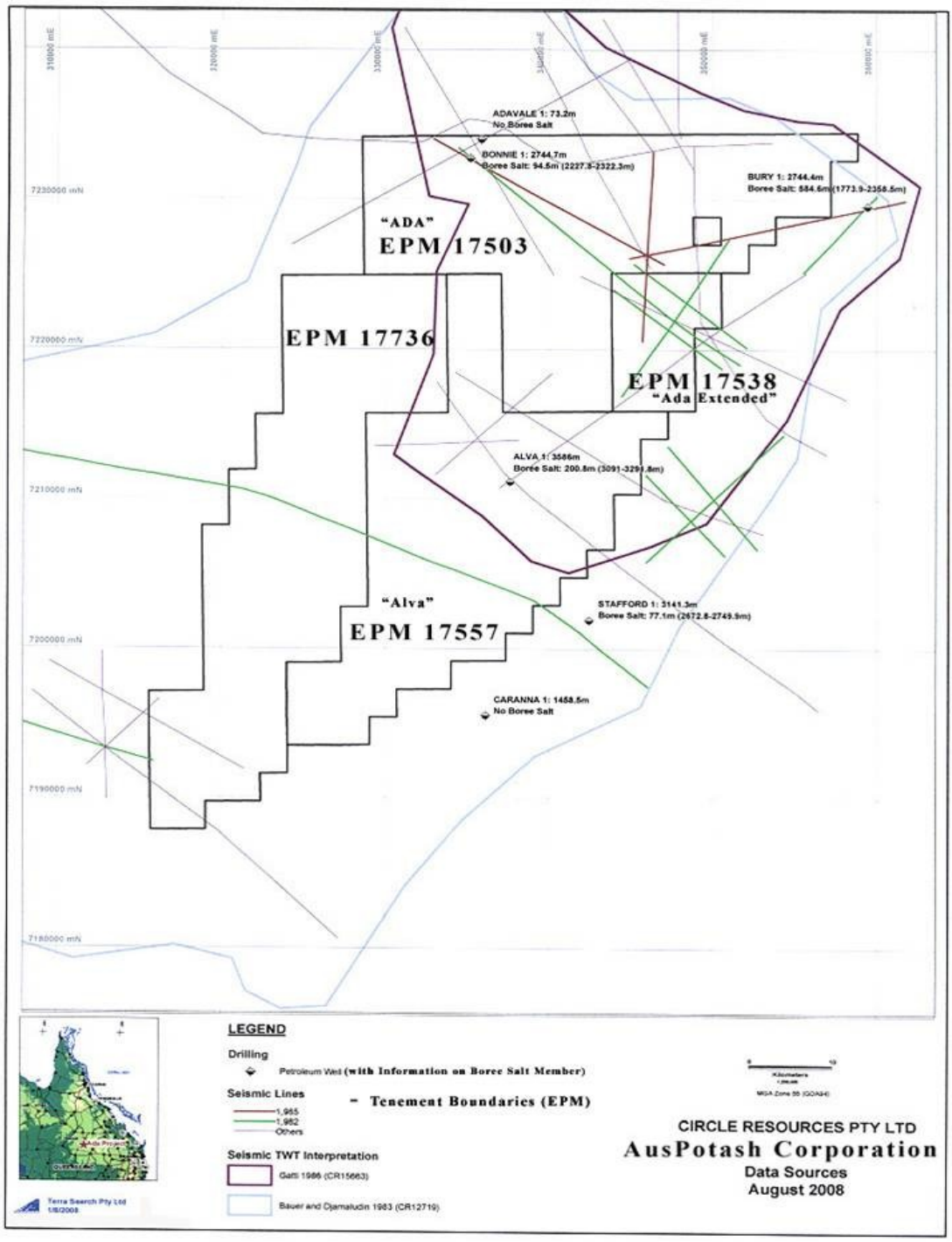

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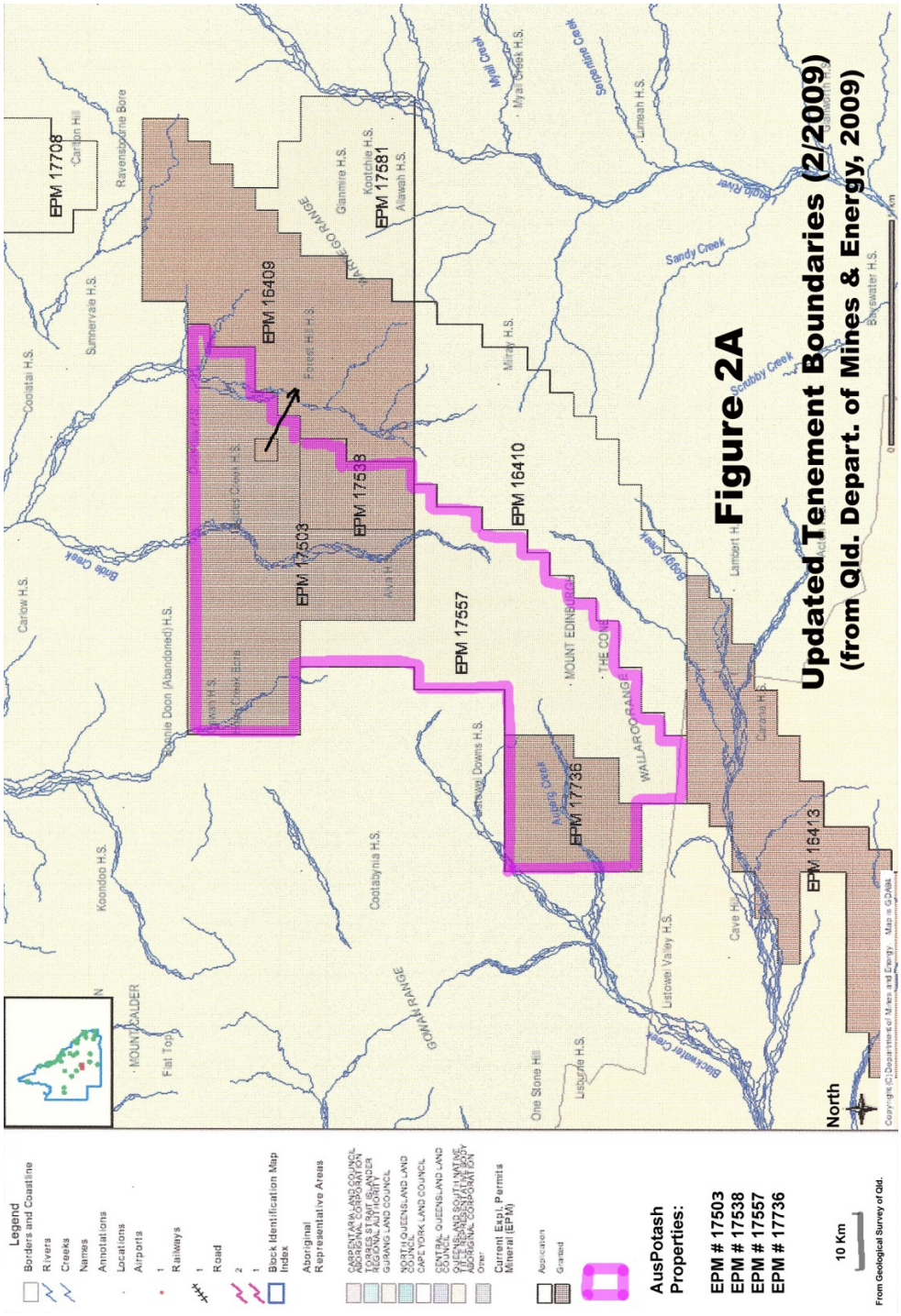

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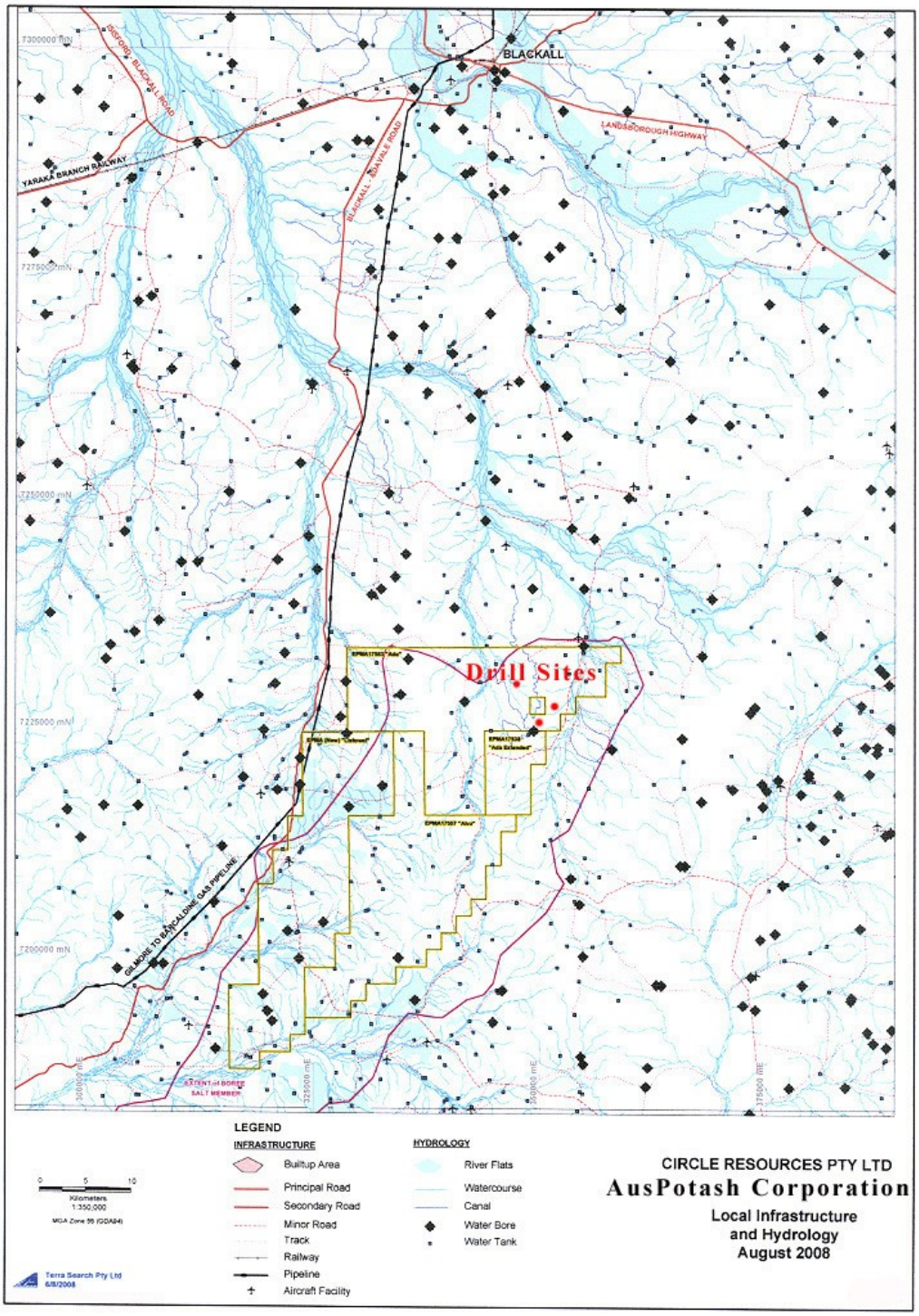

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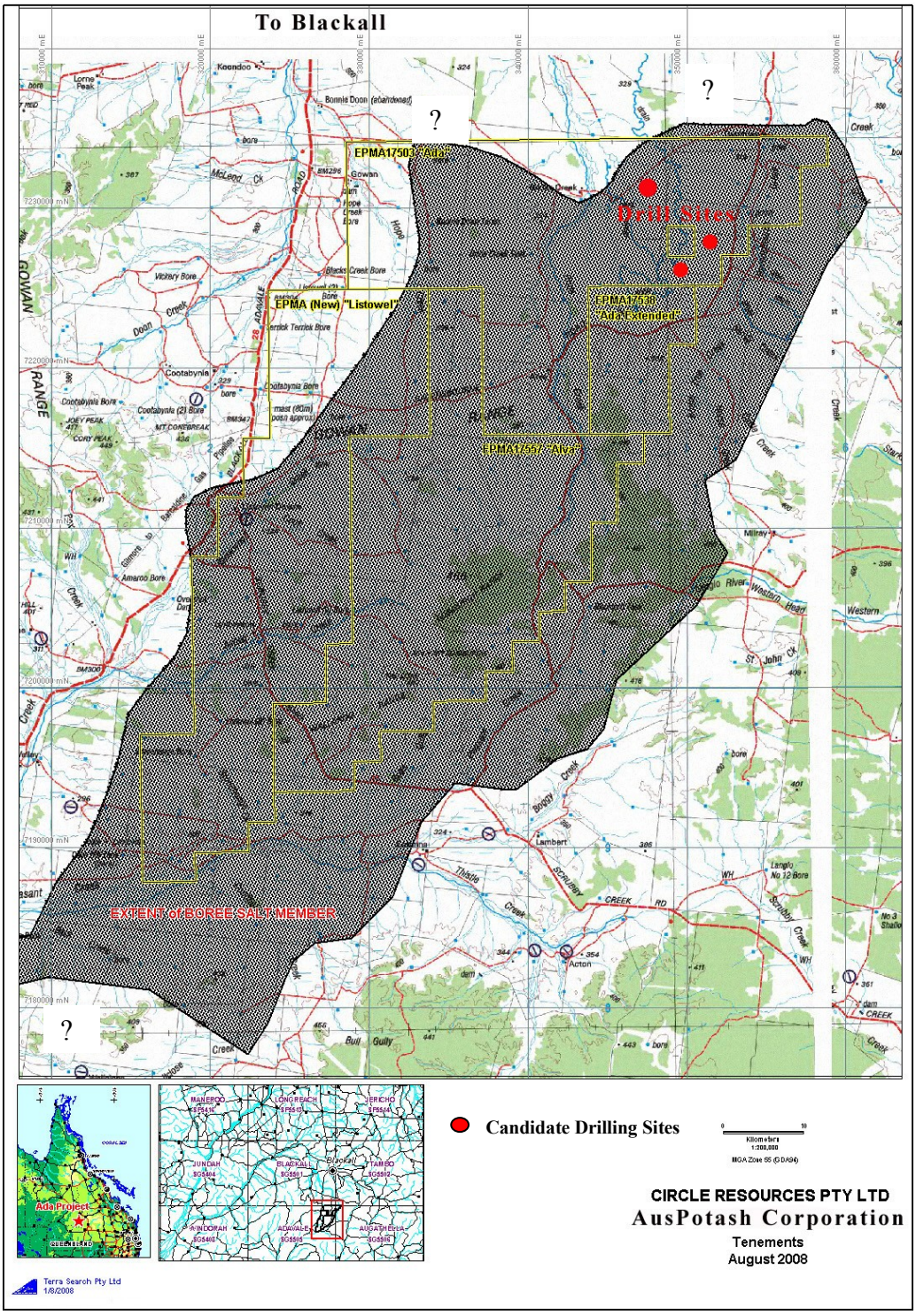

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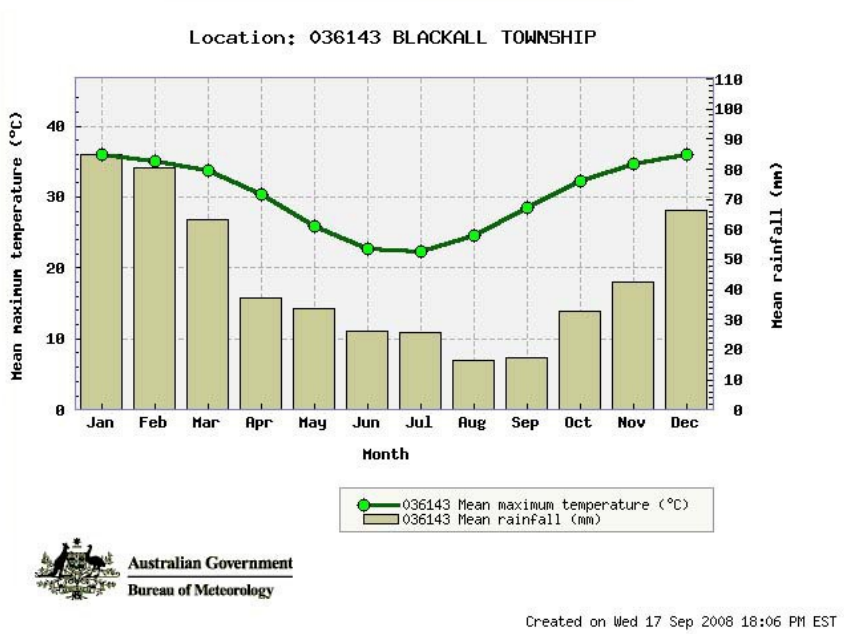

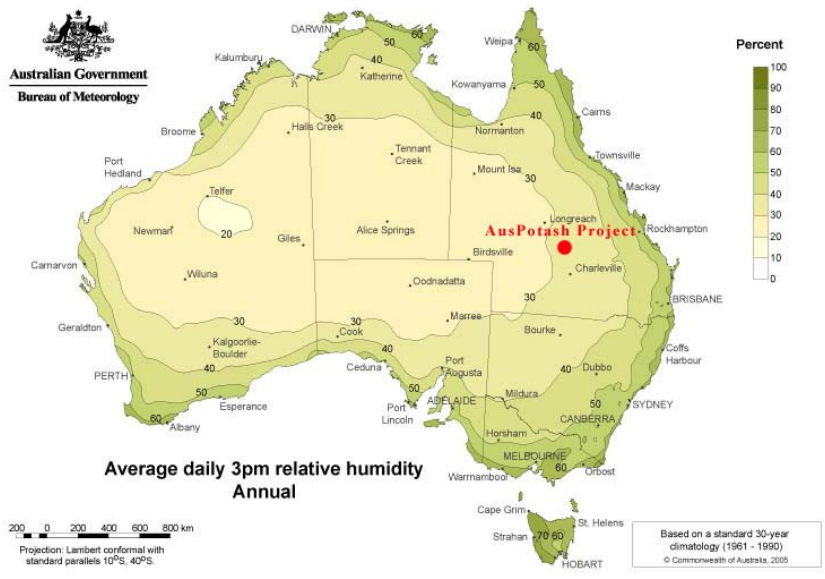

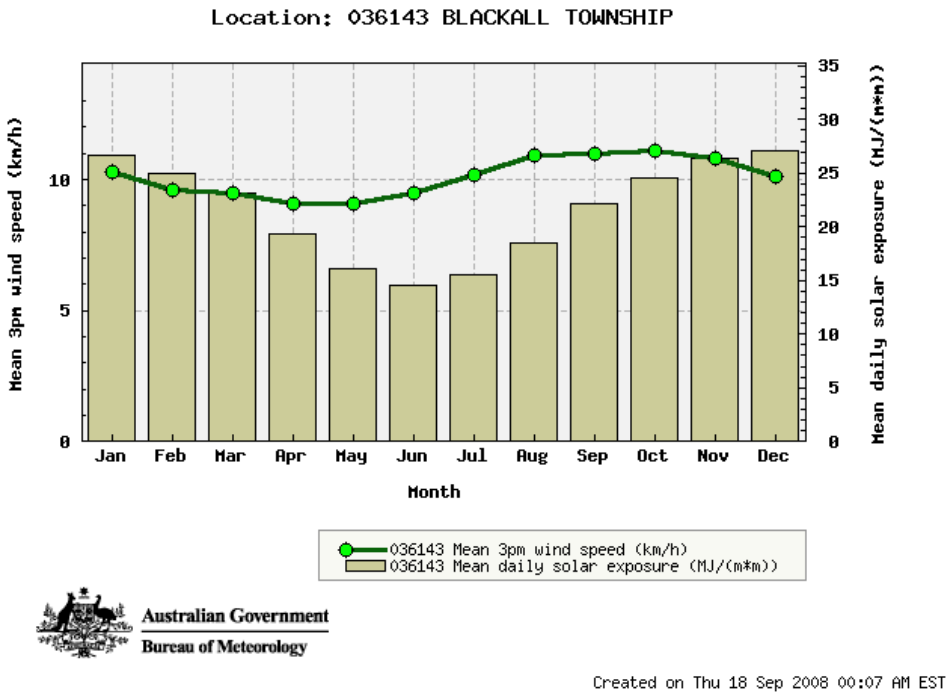

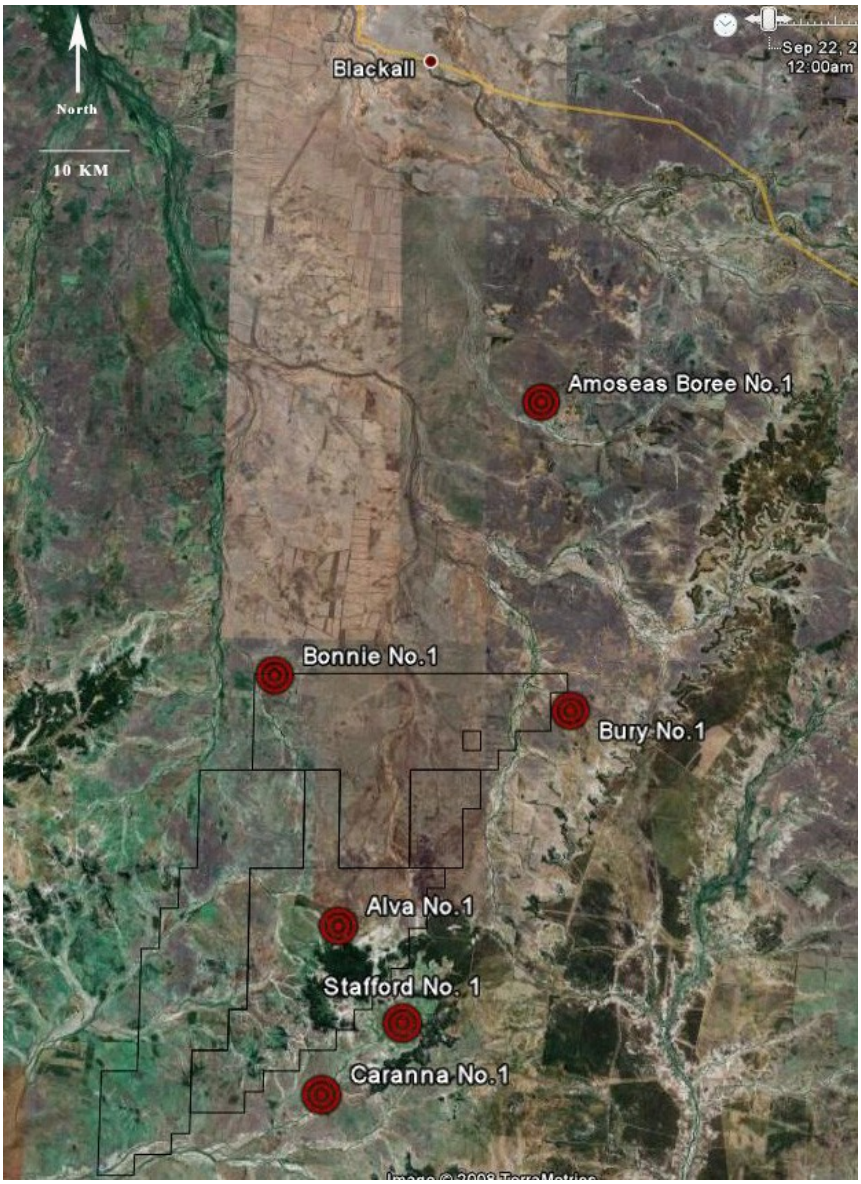

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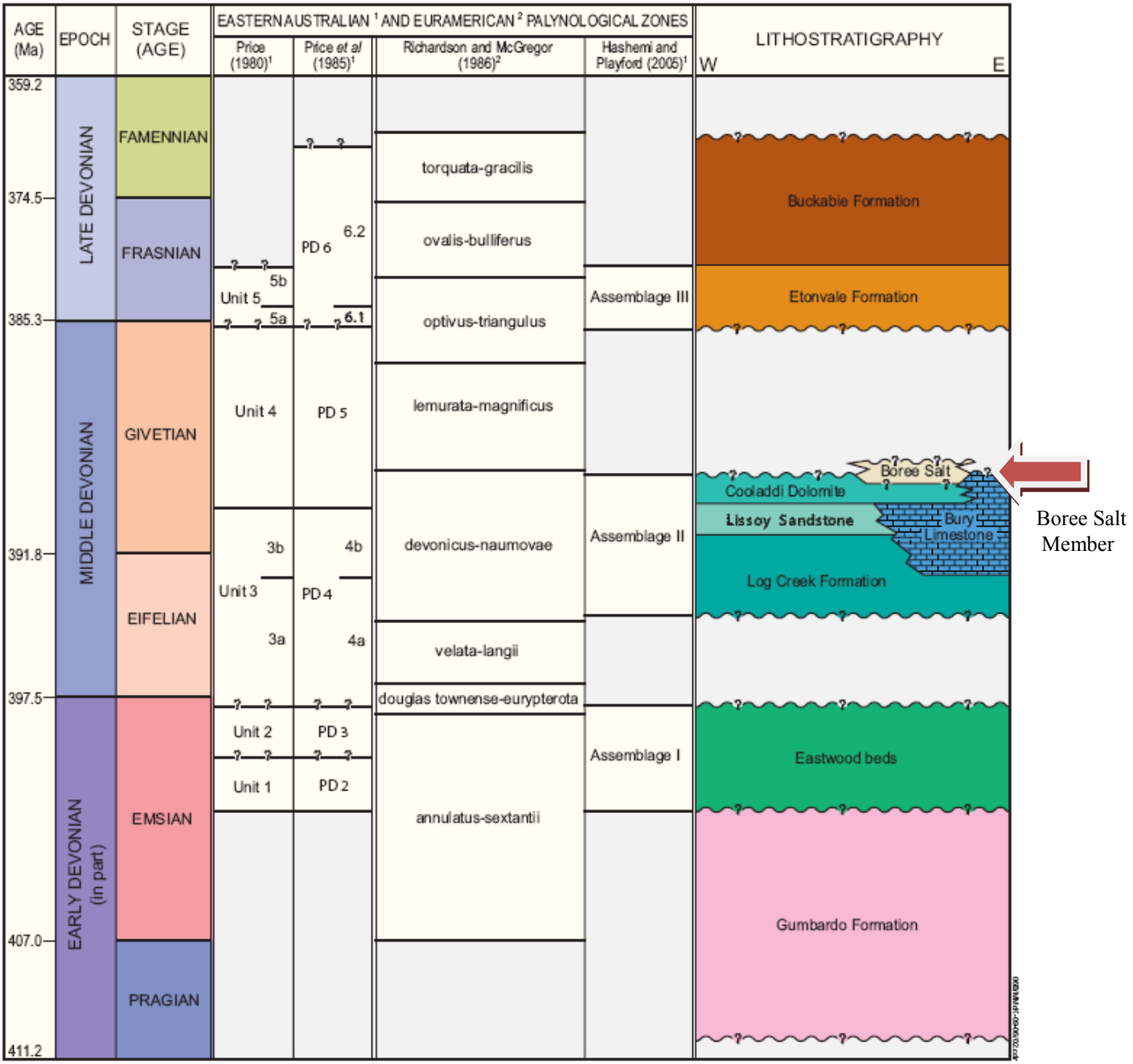

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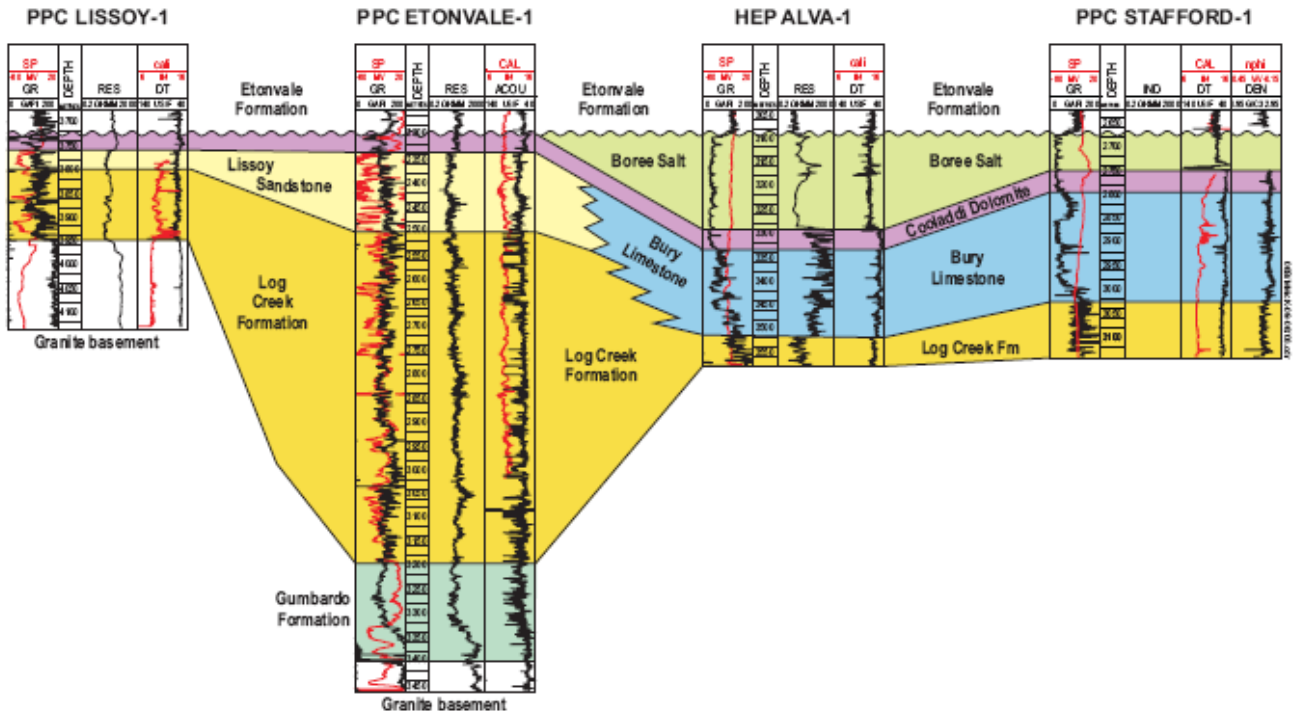

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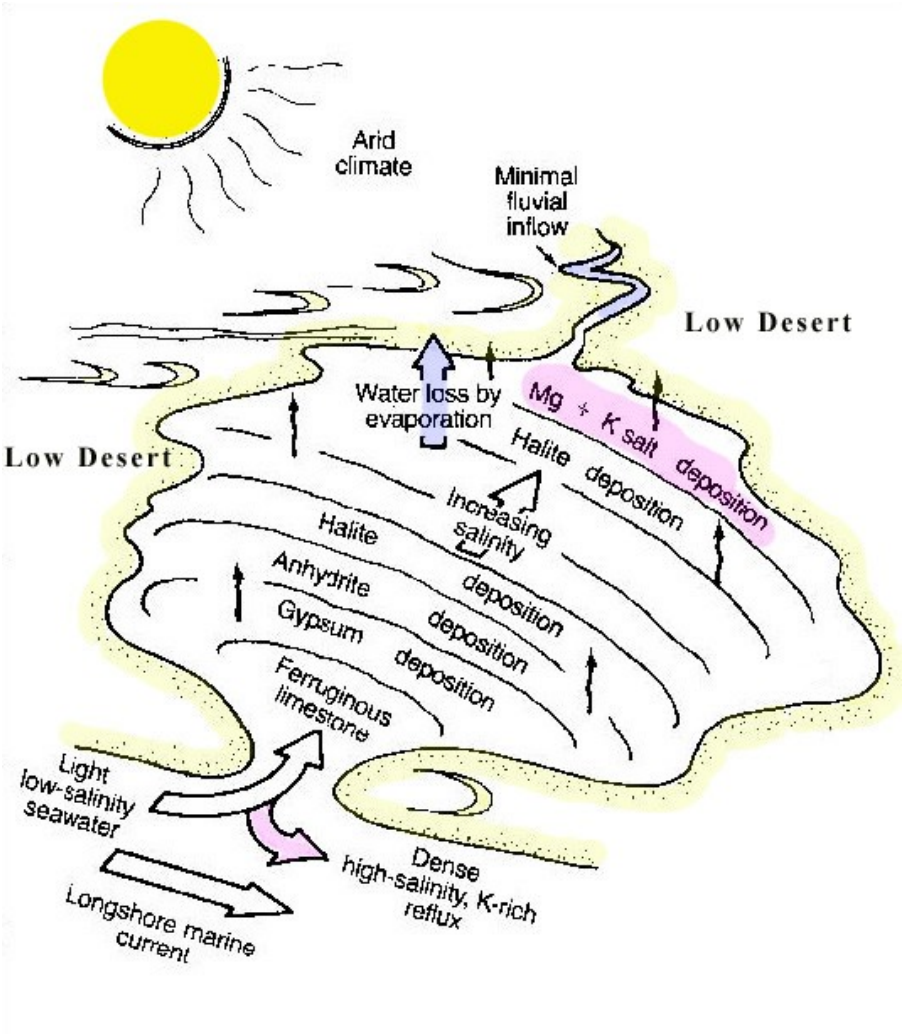

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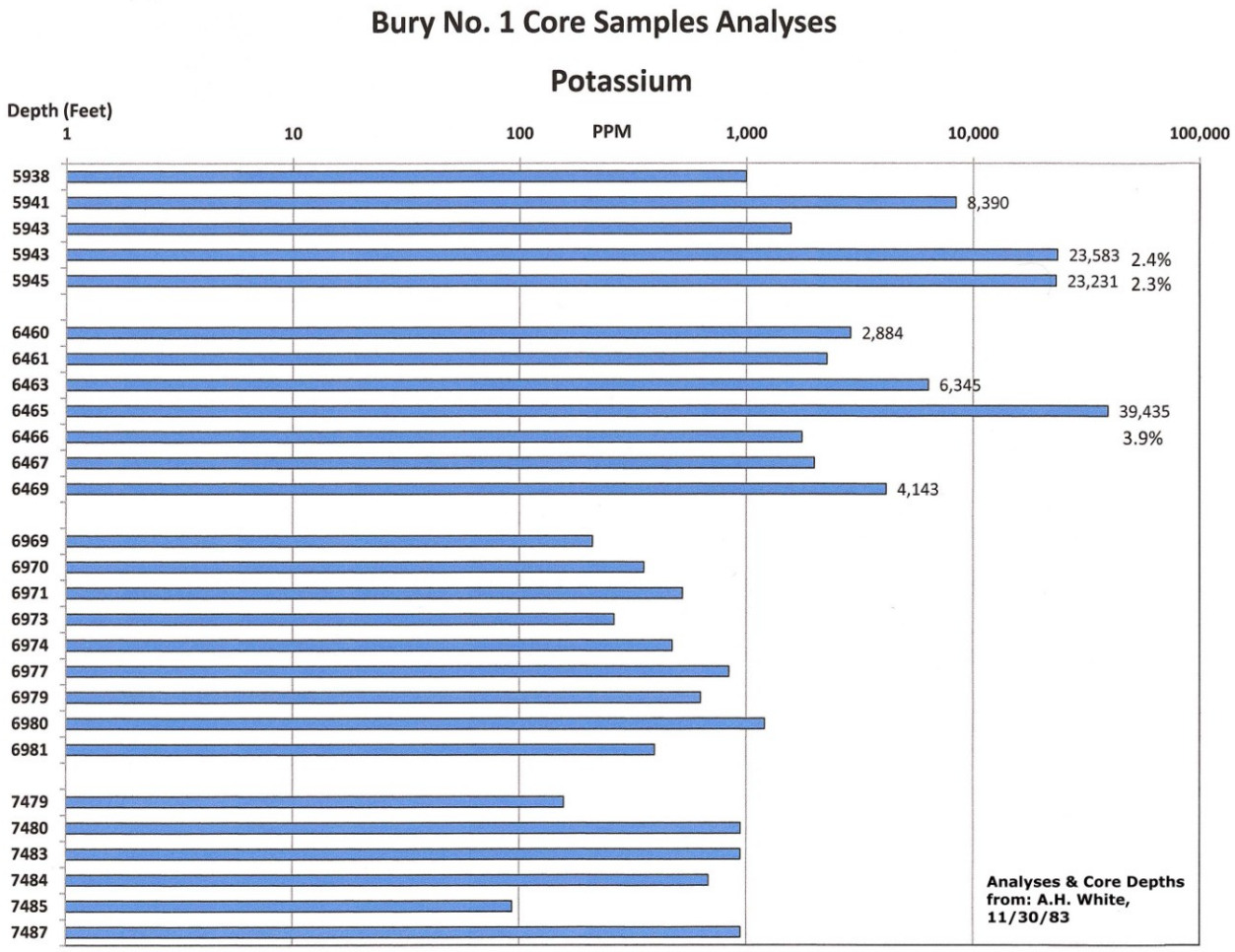
Telephone: 713-807-0021 - Fax: 713-807-0985
E-mail: mdc@mdcampbell.com – Website: http://www.mdcampbell.com



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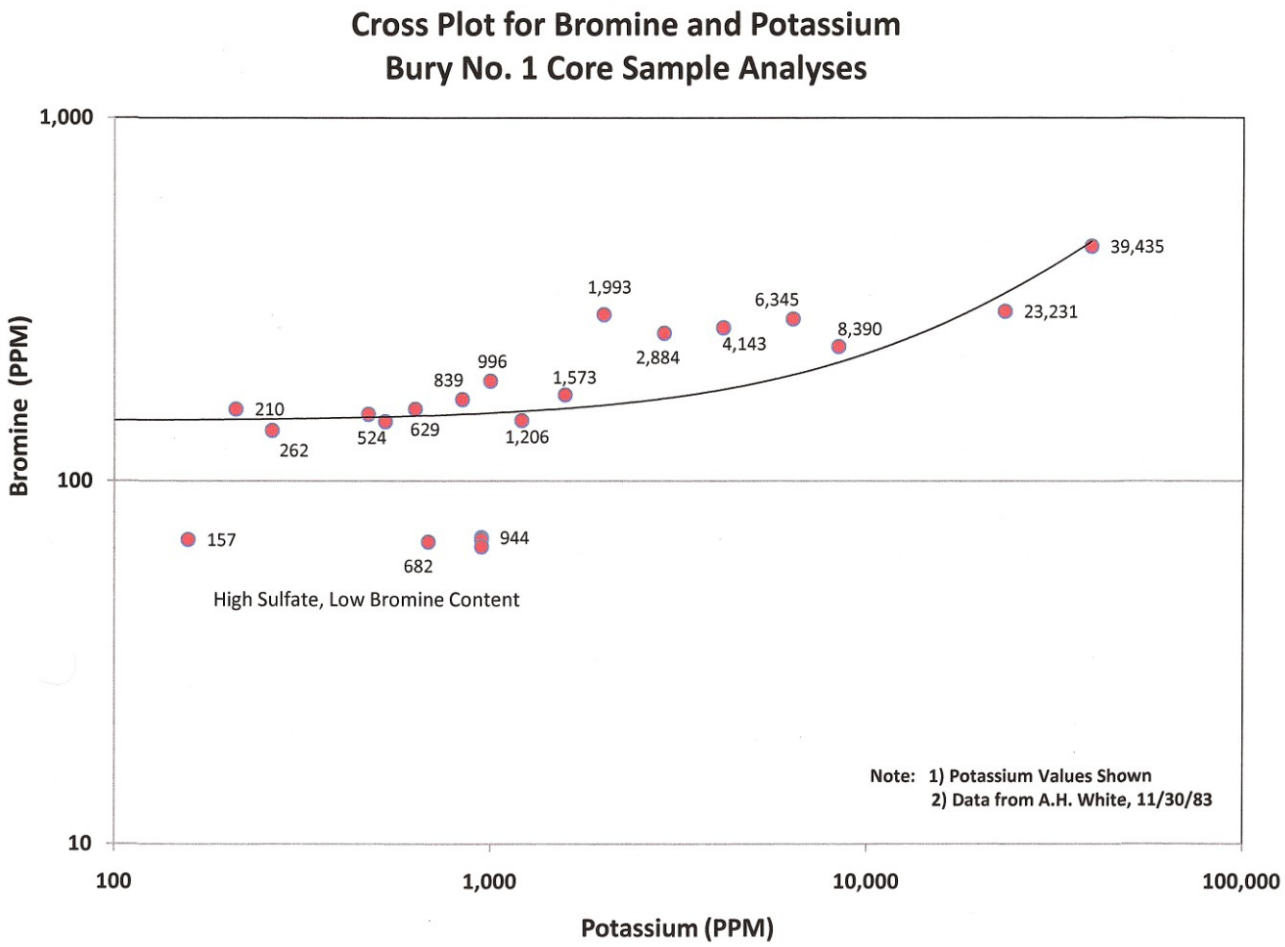

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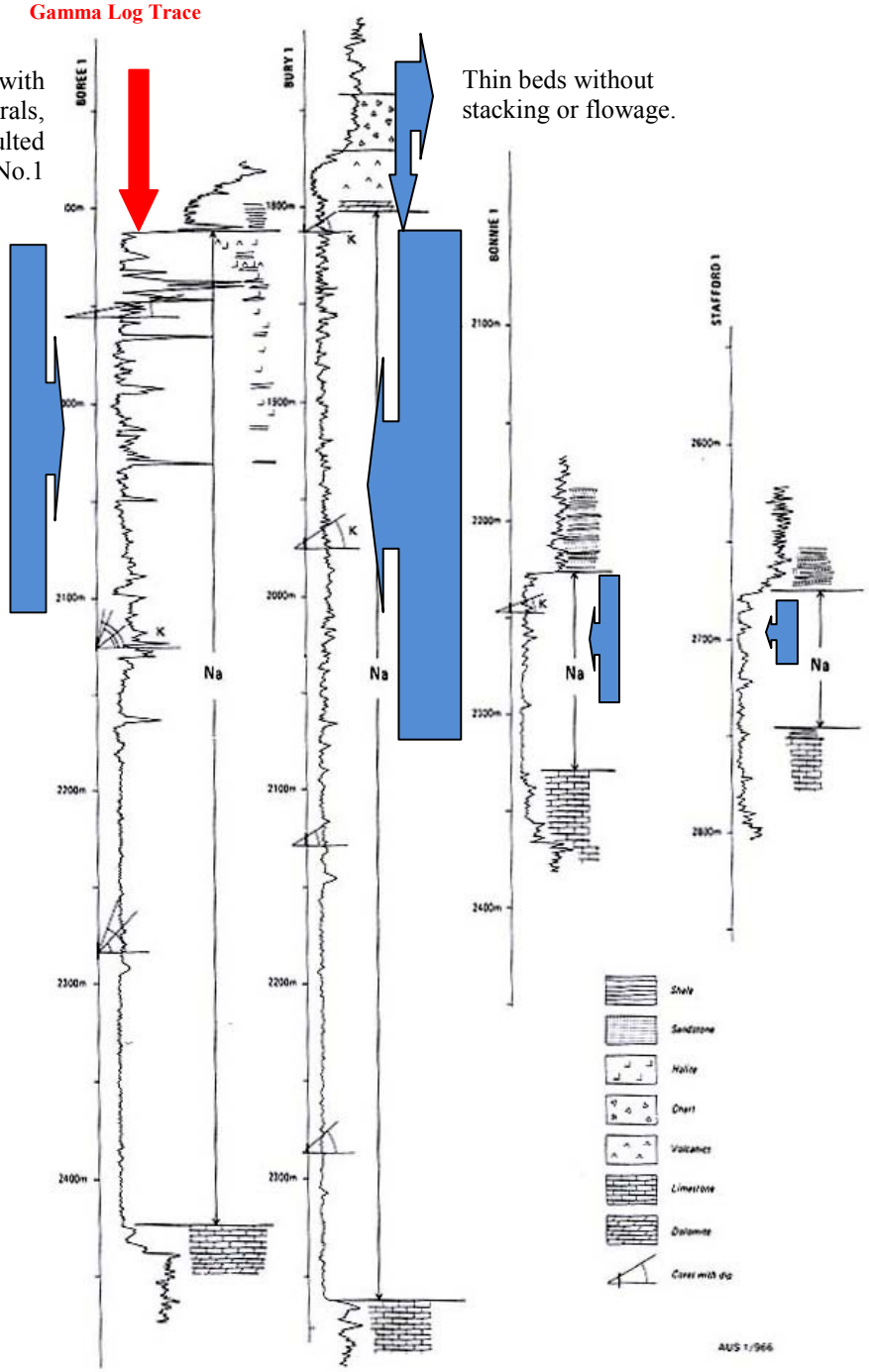
Gamma Log Trace

Thin beds with ^{40}Potassium Minerals, some caught up in faulted structures, e.g. Boree No.1

Thin beds without stacking or flowage.



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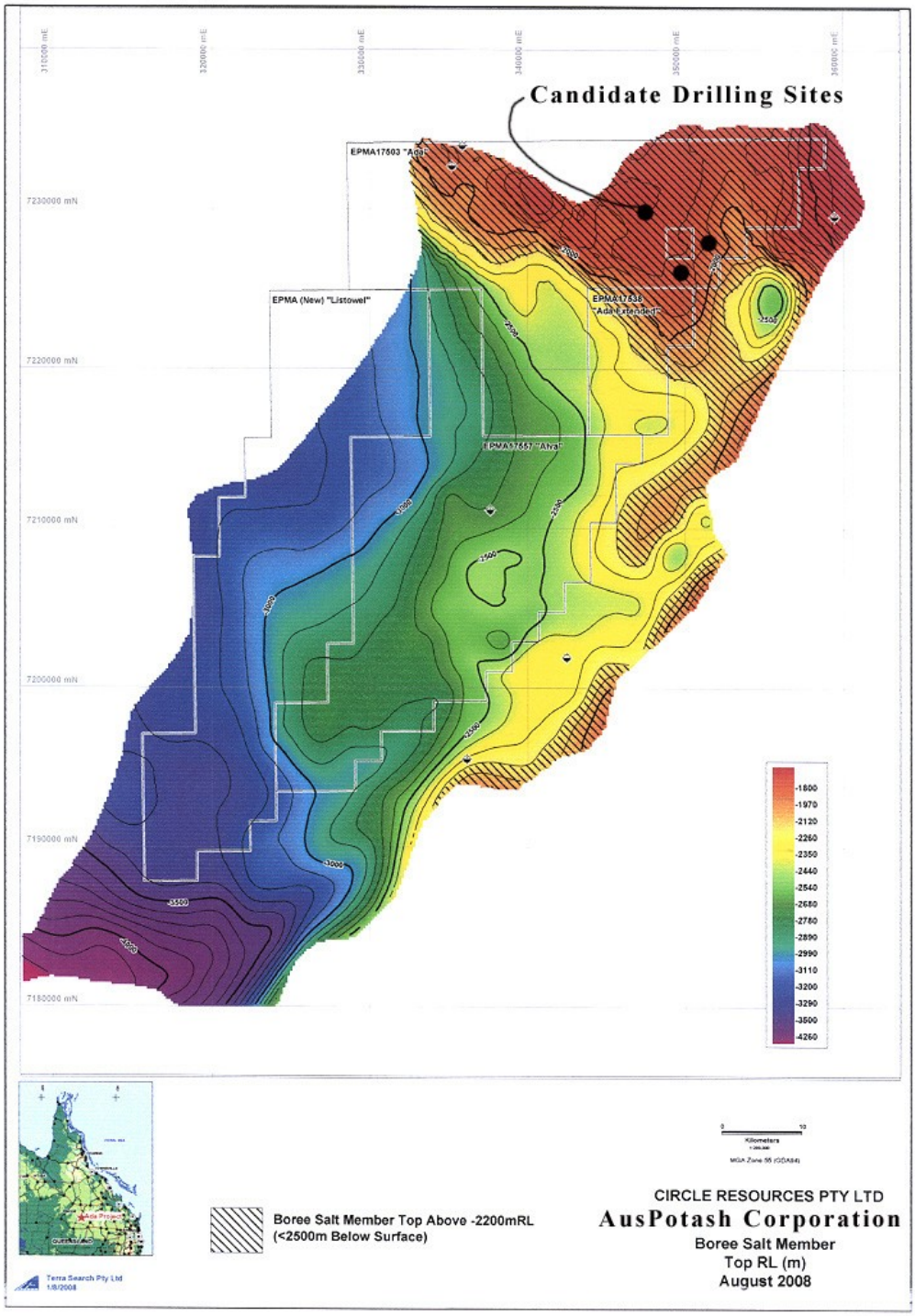

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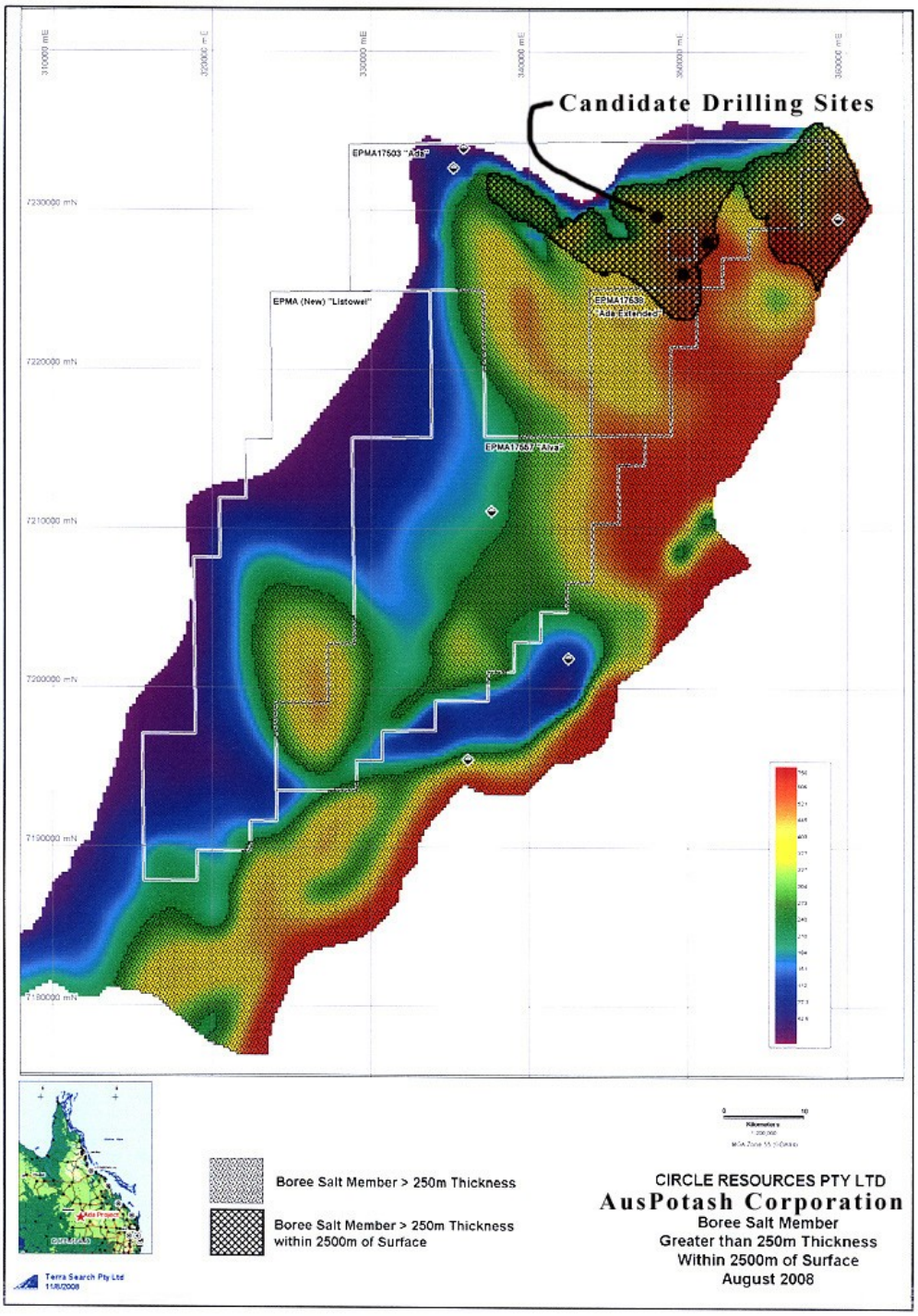

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Appendix

Curriculum Vitae

for:

Michael D. Campbell, P.G., P.H.

and

Jeffrey D. King, P.G.

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Curriculum Vitae

Michael D. Campbell, P.G., P.H.,
Managing Partner and Chief Geologist
M. D. Campbell and Associates, L.P.
http:www.mdcampbell.com

Online: Summary & CV (Here)

PRINCIPAL MINING CONSULTANT
PRINCIPAL HYDROGEOLOGIST
PRINCIPAL ENVIRONMENTAL GEOLOGIST
1810 Elmen Street
Houston, Texas 77019
Telephone: 713-807-0021
Cell Phone: 713-248-1708
Fax: 713-807-0985
Email: **mdc@mdcampbell.com**

Education

1976, M.A., in Geology, Rice University under an *Eleanor and Mills Bennett Fellowship in Hydrology* for Research and Seminars in Hydrogeology and Associated Disciplines. 31 Graduate Hours Toward Ph.D., Houston, TX, Thesis: *Paleoenvironmental and Diagenetic Implications of Selected Siderite Zones and Associated Sediments in the Upper Atoka Formation, Arkoma Basin, Oklahoma-Arkansas*, 124 p. (Continuing Research)

1966, B.A., in Geology, The Ohio State University with Courses and Research in Hydrology, Hydrogeology and Associated Environmental Programs. German Secondary Field of Specialty, Columbus, OH. Began college in 1960 in southern California (at San Bernardino Valley College), taking undergraduate courses including: geology, chemistry, engineering drawing, etc. Transferred to OSU in 1962.

Professional Memberships / Affiliations

Association of Ground Water Scientists and Engineers (AGWSE)
American Association of Petroleum Geologists
(Div. of Environmental Geosciences & Energy Minerals - Founding Member, 1977)
American Society of Testing Materials (ASTM)

Society of Economic Geologists (SEG)
Society of Mining, Metallurgy, and Exploration (AIME)
Geological Society of America (GSA-Fellow)
Association of Geoscientists for International Development (AGID)
Houston Geological Society (HGS)
Association of Environmental & Engineering Geologists (AEEG)
International Association Hydrogeologists (AIH)
American Institute of Professional Geologists (AIPG)
International Society of Environmental Forensics (ISEF)
Texas Association Professional Geoscientists (TAPG)

Professional Certification / Registration

Professional Geologist (AIPG-#3330)
Professional Hydrogeologist (AIH-#480) (Recertification-2004)
Professional Geologist (Wyoming-#546)
Professional Geologist (Mississippi-#347)
Professional Hydrogeologist (Washington-#866)
Professional Geologist (Washington-#866)
Professional Geoscientist (Texas-#53)
Professional Geologist (Alaska-#606)

Professional Honors, Awards and Committees

Who's Who in the Southwest (First Listed: 18th Edition - 1982, etc.)
Who's Who in America (First Listed: 49th Edition - 1995, through 58th Edition for 2004)
Who's Who in Technology (1982, etc.) Listing: (here)
American Men & Women of Science Listing (here) (1st Listed: 14th Ed. -1979, etc.)
Men of Achievement (International) (First Listed: 10th Edition - 1984)
American Institute of Professional Geologists (1975, etc.)
American Institute of Hydrology (1984, etc.)
Ohioana Book Award in Science (1975): by Author, (see online CV); by County (here)
Citation by Law Engineering as Corporate Hydrogeologist (1990)
Citation by Class of the Institute of Environmental Technology (1992 & 1994)
Public Service Award - Outstanding Contributions, Texas Section, AIPG (1998)
Chairman, Environmental & Mining Sessions, AIPG Annual Mtg, Houston, Tx, Oct., 1997
Chairman, Internet Committee, Texas Section, AIPG (1998-Present)
Chairman, Internet Resources Committee, Texas Section, AEG (2003-Present)
Shlemon Mentor Hall of Fame in Applied Geoscience, GSA Mtg., Texas A&M U., March 16, 2004. Poster at GSA Mtg., Denver
Fellow, Geological Society of America, April, 2004 (Press Release on Induction, see online CV)
Distinguished Alumni Hall of Fame
Mann Mentor in Hydrogeology, GSA South-Central Section Mtg., Trinity U., April 1, 2005
Chairman, Uranium Committee, EMD, AAPG (2004-Present) -Public Web Page (see CV).

Continuing Professional Education / Training

Mr. Campbell has attended, presented papers, or served as session chairman in the following technical conferences. He has also maintained the appropriate certifications in health and safety training.

Career Summary

Mr. Campbell is well-known nationally and internationally for his work as a technical leader, program manager, consultant and lecturer in hydrogeology, mining, and associated environmental and geotechnical fields. He has gained a wide range of interdisciplinary experience in business and technical management in the environmental (regulatory, geological and hydrogeological), mining, and financial fields spanning more than 40 years. For a summary of ELA projects, see C&A CV. For a historical summary of selected client projects, see C&A CV.

Mr. Campbell has published widely, most notably: *Water Well Technology* (McGraw-Hill) and *Rural Water Systems Planning and Engineering Guide* (Commission on Rural Water). In the mid to late 1970's, he served on the Editorial Board of the journal: *Ground Water* for eight years and served as cofounder and first Director of Research of the NWWA Research Facility at Rice University. In the late 1970's, he also produced *Geology [and Environmental Considerations] of Alternate Energy Resources* (Houston Geological Society) and many other publications and consulting reports over the years on a variety of applied hydrogeologic, geologic, and injection well and hazardous waste subjects. He maintains an extensive library of more than 300,000 citations on environmental and mining topics covering the U.S. and overseas.

Mr. Campbell interrupted his graduate studies after the master's degree (Ph.D. work at Rice University in 1976) to join a major engineering and environmental consulting company as Director, Alternate Energy, Mining and Environmental Programs. During this period, he also served as an invited technical expert and lecturer for UNESCO-sponsored water-supply projects conducted in many parts of the Earth. Mr. Campbell provided management consulting for a mining project (with revenues/expenses of more than $8 million/year) and as a principal consultant for exploration, mining, processing/refining and environmental activities. Over the past 15 years, Mr. Campbell has provided senior technical guidance, review, training, litigation support and consultation on numerous hydrogeological, water supply, and hazardous waste projects involved in both RCRA and CERCLA

programs for major law firms and consulting engineering and environmental companies as well as industry.

Chronological Professional Experience

1993-PRESENT **M. D. Campbell and Associates, L.P.,** Senior Consulting Hydrogeologist and Principal-in-Charge, Houston, Texas. Mr. Campbell and a small support staff serve industry by providing technical consulting on RCRA, CERCLA and related waste management involving a range of contaminants such as BTEX, solvents, brine, etc., risk assessment projects, and water-supply projects in Texas, the US and overseas. Mr. Campbell provides project/document review, and technical and QA/QC training for industry, consulting companies and law firms for RCRA, Superfund, and mining-related projects. He designs, lectures, and produces formal technical short courses and semester-long courses on environmental science, engineering and technology, and has served on the Editorial Board of the *Journal of Applied Ground-Water Protection*, sponsored by the Ground-Water Protection Council, and continues to serve as Special Editor for the journal: *Ground Water*. Mr. Campbell also served on the Editorial Board of the *International Journal of Environmental Forensics,* for the term 2000 to 2003.

During the summer of 1992, Mr. Campbell developed, managed and served as Principal Instructor for a 220-Hr Evening Semester Course: *Introduction to Environmental Technology*, held on the campus of North Harris Community College for the purpose of cross-training petroleum geologists, engineers, chemists, and others as a prelude to entering or advancing in the environmental field. Mr. Campbell lectured on RCRA and CERCLA and on hydrogeology and project management, and selected and managed all guest lecturers from industry, government and local universities. The course was later hosted by the Houston Engineering and Scientific Society (HESS) and recently by The Institute of Environmental Technology. Almost 400 men and women have graduated from the program to date.

He presently serves as: Principal and Chief Geologist of M. D. Campbell and Associates, L.P., Principal Hydrogeologist of Environmental Litigation Associates, and Principal Instructor for the Institute of Environmental Technology, all located in Houston, Texas.

1991-1993 **DuPont Environmental Remediation Services**, Houston, Texas - Regional Technical Manager and Chief Hydrogeologist. The firm is a wholly-owned subsidiary of E. I. DuPont de Nemours. Mr. Campbell managed the activities of the Technical Group covering DuPont plants and other plants over a seven-state area. He managed five operating departments: Geology, Environmental

Specialties, Deepwell, Conceptual Engineering, and Engineering/Construction, involving approximately 60 technical personnel. He provided technical and administrative leadership, staff recruitment, training, quality control/assurance, risk assessment on various DuPont projects and represented DuPont on technical committees in Superfund projects in the US.

1991 ENSR Consulting and Engineering, Houston, Texas - Regional Director of Geosciences and Chief Hydrogeologist. The firm is a leading environmental services firm specializing in RCRA and CERCLA projects for industry. Mr. Campbell provided senior technical review, managerial direction, guidance, and leadership to the hydrogeologic and geologic staff throughout the company's 22 offices in the US. He also provided and managed regular technical training sessions and performed quality control, assurance functions and litigation support for hydrogeologic projects (i.e., RCRA, CERCLA: Superfund and UST, and landfill investigations). He also initiated, guided and supported marketing efforts in environmental projects.

1988-1990 Law Engineering, **Inc.,** Houston, Texas - Senior Hydrogeologist and Corporate Hydrogeological Consultant. Firm is a large employee-owned geotechnical and environmental engineering company founded in the early 1940's. Mr. Campbell provided senior technical direction, guidance, leadership and motivation to the hydrogeologic staff for the company's 52 offices in the US and overseas on hazardous waste projects including UST, landfill, water supply, dewatering, and RCRA (Part B Permits) and CERCLA (Property Environmental Assessments: Stage I and II projects, and Superfund investigations and representations), including litigation support and expert witness testimony. He was responsible for initiating, guiding and supporting marketing efforts in environmental and relevant geotechnical projects.

Mr. Campbell also provided training sessions and managed technology development programs via in-house research groups throughout the company. He served on Senior Review Boards and performed annual quality control audits for the company. Mr. Campbell was cited by Law Engineering's corporate management as the Corporate Consultant in Hydrogeology (Chief Hydrogeologist) for his outstanding contributions to the company (1990).

1983-1988 Campbell, Foss & Buchanan, Inc., Houston, Texas - President and Senior Partner. Firm engaged in domestic and international environmental and natural resource management projects involving geological, hydrogeological and engineering programs: environmental investigations and characterizations (Part B Permitting, and Property Transfer Assessments), mine dewatering, project

management (RCRA Investigations), natural resource assessment, reserve analysis and acquisitions for industry, mining (Alaska and Utah), financial, and banking communities. Precious metal discovery credited in Nevada. Provided consulting services on an $8-million/year precious metal mining and cyanide heap-leaching project from discovery through development operations and environmental liaison with state and federal regulatory agencies. As part of these services, Mr. Campbell provided guidance and consultation in the daily review and monitoring of the financial and operational activities of the 50-person mining company. In addition, he also served numerous other companies and consulting groups in senior review functions on hazardous waste and RCRA refinery and plant investigations during the period.

1976-1983 **Keplinger and Associates, Inc**., Houston, Texas - Director, Alternate Energy, Minerals and Environmental Division. Formed group and defined marketing objectives in 1976. Responsible for and managed all non-oil & gas projects: alternate energy (coal/lignite, geothermal energy, uranium), minerals (precious and base metals and industrial commodities-phosphate, potash, sand & gravel, and related environmental projects involving property transfer assessments (Pre-CERCLA activities) for joint-venture negotiations, corporate mergers, and buyouts, financial and litigation preparations, hazardous waste investigations (RCRA Part A and Part B Permitting), geotechnical projects (dewatering), and water resource investigations. He also served on the expert's committee of the United Nations' ground water exploration and development program from 1978 to 1983. Mr. Campbell managed a staff of seven geologists, engineers and specialty consultants. He also presented seminars on a range of subjects involving environmental, hydrogeological, and water-supply issues.

1971-1976 **NWWA Research Facility**, Columbus, Ohio and Houston, Texas - Director of Research. Co-founded in 1971 and served as first Director of Research. Mr. Campbell conceived, formulated, supervised and conducted investigations on: water well technology, ground-water contamination and investigation practices and procedures, well construction standards, injection well systems' operation & maintenance, rural water systems' planning and engineering. Mr. Campbell was responsible for the early research programs funded by the U.S. Office of Water Resources Research (here), and in the development of EPA's early protocol development and characterization of ground-water contamination and remediation practices (Early RCRA and CERCLA).

The NWWA Research Facility and the staff of six were moved to Rice University, Department of Geology and Geophysics, in 1973 and continued through 1976. He also was an invited lecturer for graduate-level seminar courses on hydrogeology and economic geology for two years. Conducted graduate research on paleo-environmental and diagenetic processes under fluvial-deltaic conditions. This project is continuing as new information becomes available. For an interim report on the research, see C&A CV.

1969-1971 Teton Exploration, Div., United Nuclear Corporation, Casper, Wyoming - District Geologist/ Hydrogeologist, Eastern US and Canada, Mr. Campbell was responsible for mineral prospect generation (with emphasis on uranium and other strata-bound mineralization) and for field reconnaissance, mapping, sampling, drilling site operations, recommendations for land acquisition and project budgeting and execution. He also conducted research on the hydrochemistry of the Morton Ranch uranium geochemical cell and nature of mine dewatering and water-supply development in and around the deposit, including the nature of abandoned drill holes plugged with bentonite muds. He advanced the development of hydrochemistry and geochemistry as an aid to frontier uranium exploration and for developing models of mineralization in frontier exploration areas.

1966-1969 Continental Oil Company (Australia), Sydney, Australia - Staff Geologist/ Hydrogeologist, Minerals and Mining Division. Mr. Campbell was responsible for conducting, coordinating, and implementing prospect evaluations, mapping and sampling programs, well-site operations, and ground-water supply programs in various parts of Australia, Micronesia (Caroline Islands) and the South Pacific (Coral Sea) for: phosphate, potash, sulfur, coal, base metals, and uranium. Phosphate discovery credited. Also investigated a new uranium district on the Nullibar Plains of South Australia (see publications list). Joint-venture programs with Japanese and Korean companies required extensive travel between Australia and Japan and Southeast Asia.

Fields of Activities, Major Reports, Publications and Presentations

1. **Hydrogeological and Environmental Projects**
2. **Geothermal Exploration and Development Projects**
3. **Coal / Lignite Exploration and Development Projects**
4. **Mineral Exploration and Development Projects**
5. **International Projects**
6. **Miscellaneous Projects**
7. **Publications / Papers in Preparation**

Hydrogeological / Environmental Investigations

In the early 1960's, Mr. Campbell was selected as Undergraduate Research Assistant in the Department of Geology, The Ohio State University and subsequently worked on one of the first long-term, systematic ground-water contamination investigations involving oil-field pollution by open brine disposal pits in Ohio and on early modeling of the associated groundwater flow behavior under Dr. Wayne A. Pettyjohn and others.

In 1966, Mr. Campbell joined Continental Oil Company (CONOCO), Minerals & Mining Group in Sydney, Australia working on mineral exploration, mining and associated ground-water supply projects. He was a Visiting Lecturer, University of Queensland, lecturing on the principles of hydrogeology. After returning to the US, in the early 1970's, Mr. Campbell organized the National Water Well Association's Research Facility becoming its first Director of Research in Ohio and then at Rice University, Houston. Over the period of 1971 to 1976, Mr. Campbell provided technical seminars on hydrogeology for numerous universities and for the US E.P.A. He also served as Technical Consultant to the *Water Well Journal* and as Abstract Editor for the journal: *Ground Water*. During the period, Mr. Campbell managed numerous Association and EPA projects and programs dealing with hydrogeology and shallow drilling, shallow well design, construction, operation and maintenance, injection well, technical education and industrial contamination assessment, providing the early guidance to EPA personnel on ground-water sampling, monitoring well construction protocols and hazardous-waste spill response strategy for subsequent RCRA and CERCLA activities.

In 1975, he received The Ohioana Book Award in Science for the text: *Water Well Technology* (McGraw-Hill). Mr. Campbell was appointed as United Nations Technical Expert to review overseas ground-water programs for the period: 1976 to 1981. While at Rice University, he also conducted graduate fellowship research on a variety of subjects and taught courses in hydrogeology and economic geology. Mr. Campbell and his team provided substantial input for the EPA-sponsored *National Ground Water Information Center Data Base* presently operated by the NWWA. He served as an Editor or as a member of the Editorial Board of the journal: *Ground Water* from 1964 to 1978. During the period, he conducted numerous consulting geotechnical investigations and served as an

invited technical expert and lecturer for the United Nations and UNESCO sponsored projects on world-wide ground-water exploration and development in igneous and metamorphic rocks in: Sweden, Italy (Sardinia), India, and Tanzania. Among the hydrogeological consulting projects conducted during the early 1980's, Mr. Campbell completed a series of investigations for a major geotechnical consulting firm on gasoline leaks in and around service stations in Texas. With Campbell, Foss and Buchanan, Inc. (CF&B), he initiated an evaluation of vadose flow of cyanide solutions of a heap-leach precious metals mining project (see abstract). A long-term monitoring program was established for evaluating flow and hydrochemical behavior, and for providing data for optimizing process control, and for regulatory monitoring purposes. C,F&B conducted numerous projects in the US and overseas. During the period, Mr. Campbell also provided senior technical review and consultation for hydrogeological and hazardous waste projects associated with lignite mining (mine dewatering) and chemical plants performed by other geotechnical consulting groups in the south-central and northern United States.

While with Law Engineering, Inc., he was promoted to the company's highest technical position in the discipline as Corporate Hydrogeological Consultant, the first such designation in the company's 42-year history. He provided direction and technical support to Law Engineering's 52 offices through the US and overseas. Mr. Campbell served in a similar capacity with ENSR Consulting and Engineering, and in industry, with DuPont Environmental. Presently, he provides consultation on waste management, characterization, remediation, water supply projects, technical training, litigation support and expert witness testimony on hydrogeology, the National Contingency Plan, and related subjects (see Mr. Campbell's litigation summary).

Hydrogeological / Environmental Publications
Major Reports, Publications and Presentations
[For Publications in Preparation (see C&A CV)]

Campbell, M. D., *et al., 2008,* "Nuclear Fuel Exploration, In Situ Recovery, and Environmental Issues in context with the National Energy Needs through Year 2040," *Proc. Texas Commission of Environmental Quality Conference and Trade Fair*, Session: "Underground Injection Control," Invited Paper, Austin, Texas, April 30, 2008.

Campbell, M. D., *et al*., 2008 "The Nature and Extent of Uranium Reserves and Resources and Their Environmental Development in the U.S. and Overseas," AAPG – Energy Minerals Division Conference, April 23, 2008, Session: "Uranium Geology and Associated Ground Water Issues", San Antonio, Texas.

Campbell, M. D., *et al.,* 2007, "Uranium In-Situ Leach Development and Associated Environmental Issues," Proc. Gulf Coast Geological Societies Conference, Fall, Corpus Christi, Texas, 17 p.

Campbell, M. D., *et al*., 2007, *Nuclear Power - Winds of Change*, Energy Minerals Division, AAPG, Uranium Committee 2007 Report, March 31.

Campbell, M. D. and M. David Campbell, 2005, "Uranium Industry Re-Development and Expansion in the Early 21st Century: Supplying Fuel for the Expansion of Nuclear Power in the U.S., The Environment vs. The Paradigm," Rocky Mountain Natural Gas Strategy Conference & Investment Forum, Session 1: Energy Supply - Quantities and Qualities, Presented by Colorado Oil & Gas Association, August 1, Denver, Colorado, 44 p.

Bost, R. C., M. D. Campbell, M. David Campbell, T. R. Eckols and Andrew L. Fono , 2005, "Flawed Geoscience in Forensic Environmental Investigations: Part II: How Daubert Affects the Scope and Bases for Expert Opinions" NGWA Environmental Law & Ground Water Conference, Baltimore, MD., July 21-22.

Bost, R. C., M. D. Campbell, M. David Campbell, T. R. Eckols, and Andrew L. Fono, 2005, "Flawed Geoscience in Forensic Environmental Investigations: Part III: How Daubert Is a Surrogate for Ethical Questions Regarding Expert Opinions" NGWA Environmental Law & Ground Water Conference, Baltimore, MD., July 21-22.

Campbell, M. D., *et al*., 2005, *Recent Uranium Industry Developments, Exploration, Mining and Environmental Programs in the U.S. and Overseas*, Energy Minerals Division, AAPG, Uranium Committee 2005 Report, March 25.

Campbell, M. D., and M. David Campbell, 2004, "Crisis Management: Ground-Water Supplies in the 21st Century," *EnviroTechnology*, Vol. 1, Summer, pp 78-81.

Campbell, M. D., 2004, *Professional Memorial: Ted H. Foss, Ph.D., P.G.*, Geological Society of America Memorials, Vol. 33, April, pp. 17-22.

Campbell, M. D., R. C. Bost, and M. David Campbell*, 2004, "Flawed Geoscience in Forensic Environmental Investigations: The Effect of Daubert Challenges on Improving Investigations"* NGWA Environmental Law & Ground Water Conference, Chicago, IL, May 5-6.

Campbell, M. D., M. David Campbell, and M. Saribudak, 2004, *"Growth Faulting, Associated Geologic Hazards, Economic & Regulatory Impact, and Methods of Investigation for the Houston, Texas Area,"* South-Central Meeting, Geological Society of America and Texas Section of the Association of Engineering Geologists Growth Fault Symposium, Texas A&M University, College Station, TX, March 16, 83 p.

Campbell, M. D., 2004, "Environmental Geoscience and Litigation: Dos and Don'ts, Now or Later," Featured Speaker, Houston Geological Society Environmental and Engineering Geology Dinner Meeting, February 10.

Campbell, M. D., 2000, "Federal and State Regulations and Field Implementation in Hazardous and Solid Waste Investigations and Management," An Invited Lecture for the University of Texas School of Public Health, August 29th and September 19th, Presentation Sponsored by the Institute of Environmental Technology, Houston, Texas.

Campbell, M. D., 1999, "The Role of Environmental Technology in Developing, Maintaining, and Protecting Ground-Water Supplies in the 21st Century," in *The U.S. Water Report*, Saringa Group, Inc., San Francisco, CA, pp. 264-271.

Campbell, M. D., 1998, "Federal and State Regulations and Field Implementation in Hazardous and Solid Waste Investigations and Management," Invited Lectures for the University of Texas School of Public Health, September 15th and October 27th, Presentation Sponsored by the Institute of Environmental Technology, Houston, Texas.

Campbell, M. D., 1998, "Ground-Water Supply Systems: Hydrogeology and the Delivery of a Municipal Water Supply," *Seminar on New Municipal Ground-Water Supply Issues, Houston, Texas*, April 16, Sponsored by the Institute of Environmental Technology, the Environmental Litigation Associates, and Gardere Wynne Sewell & Riggs, L.L.P., Attorneys, Houston, Texas.

Campbell, M. D., 1996 (5,4,3 &2), "Environmental Awareness and Its Development: An Emphasis on the Oil & Gas Industry," *Proc. Introduction to Environmental Technology*, Spring Semesters, Institute of Environmental Technology and Houston Engineering & Scientific Society, 28 p.

Campbell, M. D., 1996 (5,4,3 & 2), "Resource Conservation and Recovery Act (RCRA) and Applications," *Proc. Introduction to Environmental Technology*, Spring Semesters, Institute of Environmental Technology and Houston Engineering and Scientific Society, 88 p.

Campbell, M. D., 1996 (5,4,3 & 2), "Applied Hydrogeology: Ground-Water Flow," *Proc. Introduction to Environmental Technology*, Spring Semesters, Institute of Environmental Technology and Houston Engineering and Scientific Society, 54 p.

Campbell, M. D., 1996 (5,4,3 & 2), "Applied Hydrogeology: Typical LNAPL & DNAPL Behavior in the Subsurface," *Proc. Introduction to Environmental Technology*, Spring Semesters, Institute of Environmental Technology and Houston Engineering and Scientific Society, 77 p.

Campbell, M. D., 1996 (5,4,3 & 2), "Ground-Water Modeling: Practices & Pitfalls," *Proc. Introduction to Environmental Technology*, Spring Semesters, Institute of Environmental Technology and Houston Engineering and Scientific Society, 97 p.

Campbell. M. D., 1995, "The State of the Environmental Industry," An Invited Presentation, Society of Texas Environmental Professionals, Held at Houston Engineering and Scientific Soc., August 3, 2-Hour Presentation.

Alyanak, N., J. T. Grace, and M. D. Campbell, 1995, "A Cost-Effective Statistical Screening Method to Detect Oilfield Brine Contamination," *Proc. SPE/EPA Exploration & Production Environmental Conference*, Houston, TX, March 27-29, pp. 631-640.

Alyanak, N., and M. D. Campbell, 1995 (4 & 3), "Statistics in Environmental Investigations," *Proc Introduction to Environmental Technology*, Fall and Spring Semesters, Institute of Environmental Technology and Houston Engineering and Scientific Society, 45 p.

Campbell, M. D., 1995, "On the Spelling of the Term: Ground Water," *Bull. Houston Geological Society*, Vol.37, No.6, February, pp. 23-24.

Campbell, M. D. and K. H. Forster, 1995, Hydrogeology and Mining, a Study Guide for Workshop presented at *The National Mining Conference*, Knoxville, Tennessee, May 11, 137p.

Campbell, M. D., 1994, "Estimating Hydraulic Conductivity For Evaluating Contaminant Transport," An Invited Presentation, Houston Geological Society, Environmental / Engineering Monthly Meeting Abstract: HGS Bull., Vol. 36, No. 6., p 19.

Campbell, M. D. and K. H. Forster, 1994, Mining Hydrogeology, a study guide for a mini-course presented at the *National Symposium on Mining, Hydrology, Sedimentology and Reclamation*, Reno, Nevada, December 5-9, 137p.

Campbell, M. D. and K. H. Forster, 1994, Basic Mining Hydrogeology, a study guide for a mini-course presented at the N*ational Symposium on Mining, Hydrology, Sedimentology and Reclamation*, Springfield, Ill., December 7-11, 96p.

Forster, K. H. and M. D. Campbell, 1994, "Hydrogeologic Investigations for Designing a Dewatering and Depressurizing System in a Gulf Coast Lignite Mine," *Kentucky Coal Mining Symposium*, Bowling Green, 10p.

Campbell, M. D. and James T. Grace, 1993/94, "Phase I and Phase II Investigations of Potential Brine Contamination Sources, West Texas," Campbell and Associates Report (Private Distribution), Phase I: 28 p., Phase II: 385 p.

Campbell, M. D., 1993, "Guidance on the Selection, Design and Testing of Vapor Extraction Systems," Campbell and Associates Report (Private Distribution), October, 6 p.

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Selected Project Experience

Leaking Underground Storage Tank Investigations - Numerous Clients Throughout US - Mr. Campbell and his team have provided senior review and consultation for technical staff on more than 300 investigations ranging from site characterization through remedial design to construction, operation and maintenance of remediation systems. Type of remediation approach varied from pump-and-treat to vapor extraction to in situ bioremediation systems, depending upon subsurface conditions. Litigation support.

Environmental Assessments - Numerous Clients throughout US - Mr. Campbell and his team have provided technical direction and consultation on more than 300 environmental assessments for real

estate transactions, corporate mergers or buyouts, and bank foreclosures, many of which involved evaluations of potential brine contamination of oil and gas production facilities and properties.. Approximately 20% of the properties investigated required follow-up investigations involving drilling. Of those, approximately 5% required some type of remedial activities which ultimately led to the design, construction, operation and maintenance of remediation systems. Litigation support.

Superfund Representation and Technical Support - Numerous Clients Throughout US - Mr. Campbell has served on Technical Committees for various Superfund projects representing DuPont, and as senior technical support for a number of environmental consulting companies. Litigation support.

RCRA Technical Support - Numerous Clients Throughout US - Mr. Campbell provides senior technical support on hydrogeologic and contaminant transport investigations for site characterization and remedial design and operation and maintenance. Litigation support.

Confidential Mfg. Client - A manufacturer of stainless steel casing engaged Mr. Campbell to conduct preliminary investigations and to review available information on the likely cause(s) of casing failures in two large-diameter, high-capacity water wells during completion activities of wells located in an agricultural district of the western U.S.

Confidential Consulting Client - A major consulting firm engaged Mr. Campbell to provide support to the firm's senior personnel and associated staff on a major defending case involving creosote, metals and associated DNAPL constituents present on an industrial property in the southern U.S. Mr. Campbell reviewed and advised the Principal on opposing expert witness positions and opinions. He also supported hydrogeological investigations on ground-water flow and associated natural attenuation of DNAPL constituents.

Confidential Client - A rancher in north-east Texas reported his private water well system began pumping "bad water" in an area with a producing gas well nearby. Mr. Campbell and his team were engaged to investigate the likely source(s) of the contamination. A hydrogeologic investigation was conducted.

Confidential Consulting Client - A major consulting firm engaged Mr. Campbell to conduct hydrogeological investigations on ground-water flow of DNAPL constituents below a refinery located

in the mid-west of the U.S. Principal parameters, such as subsurface lithologic relationships, hydraulic conductivity, hydraulic gradient, and others were assessed and modeled.

Confidential Client - The unexplained deaths of a number of calves led a rancher in the mid-continent to initiate investigations downstream from a commercial disposal well facility used by the oil & gas industry in the region for possible causes of the deaths. Mr. Campbell and his team were engaged to conduct Phase I and II investigations involving monitoring well installation, stream sampling, and hydrogeologic analysis of the area. Hydrogeologic investigations were conducted.

Confidential Mfg. Client - Lead has appeared in anomalous concentrations in drinking water from a domestic rural water system. Mr. Campbell and his team were engaged to sample and evaluate likely source(s) of the lead and possible cause(s) of learning disabilities reported in the youngest child of the rural family.

Confidential Oil & Gas Property Owner Client - Mr. Campbell and his team were engaged to conduct a Preliminary Environmental Site Assessment on a historic oil-and-gas producing property to assess present conditions after decades of boom-and-bust operations on a multi-well oil field operated since the 1930s. Nearby landfill operations, a golf course, and past and present oil and gas production practices were reviewed in some detail for possible impact on the property's surface and shallow ground water below.

Confidential Real Estate Client - A large real estate company engaged an environmental consulting firm to conduct Phase I and Phase II Environmental Site Assessments for a large multi-property shopping center transaction. Initial findings by the consultant led the real-estate company to close on the deal. Subsequent investigations by a second consultant found DNAPL associated with dry-cleaners located on the properties. Mr. Campbell and his team were engaged to evaluate the initial consultant's activities in light of the consultant's experience, staff capability, field procedures and related ASTM guidelines and industry standard of care.

Confidential Commercial Client - A pathogenic variant of *E. coli,* O157:H7, has appeared as the likely source of illness in a rural family. Mr. Campbell and his team were engaged to assess the likely source(s) of the pathogenic bacteria. The area is characterized by numerous, closely spaced, small

farms, with cattle, sheep, wildlife, septic tank systems, and a stream, all in the immediate vicinity of a water well used as a source of drinking water. Investigations have been completed.

Confidential Industrial Client - A service station proprietor was accused by the land owner of contaminating soil and ground water with BTEX and MTBE. Mr. Campbell and his team were engaged to review the available sampling and hydrogeologic data and determined that the owner's consultant was less than forthcoming concerning the data used to characterize the ground-water conditions and the configuration of the plume of contamination.

Confidential Client - A major sand and gravel company's consultant drilled on portions of a potential lessor's land without permission on the basis that "the company was doing the land owner a favor." The company sued the land owner for breach of contract (i.e., alleged failure to honor their rights to conduct mining operations on the subject land). Mr. Campbell was engaged to review the issues of the case and found that the company overstepped the agreement and violated the landowner's rights to limit ingress according to standard industry practice.

Confidential Industrial Client - Mr. Campbell and his team were engaged to conduct confidential industrial mineral resource evaluations in the eastern U.S. The project involved land-record ownership assessment and field reconnaissance, geologic sampling, analyses, and report preparation with recommendations for future direction of the project.

Confidential MUD Client - The failure of a high-capacity water well owned by municipal utility district prompted management to turn to their insurance company for funds to replace the well, according to the terms of the policy. Mr. Campbell and his team conducted a preliminary investigation and found evidence to suggest that regional soft-sediment faulting and lateral movement caused the well structure to fail. As a result of more than 25 years of vertical stress caused by land subsidence associated with ground-water production and subsequent lateral movement in the area, the well screen ruptured and catastrophic failure of the well resulted.

Confidential Industrial Client - A major chemical plant is suing its previous consultant for exacerbating DNAPL contamination below its production facility during and after an ill-conceived monitoring well drilling program. Mr. Campbell and his team were engaged to review the relevant information and to determine if the consultant's activities were likely responsible for the DNAPL

contaminating the deep aquifers. Mr. Campbell found that the consultant and their contractors were culpable and should be held responsible for contributing funds for assisting in the clean-up of the deep aquifers below the plant.

Confidential Industrial Client - The National Contingency Plan (NCP) of the 1970s was invoked in an attempt to force an industrial company to join a group of PRPs to clean up a Midwest dump. Mr. Campbell was engaged to evaluate claims made by ex-EPA consultants for the plaintiffs that the NCP carried weight when applied to inland contamination in the mid-1970s. Mr. Campbell found that the NCP had no impact on parties involved in ground-water contamination occurring some distance away from the waters of the United States because the NCP had not been equipped yet with the necessary capabilities to implement such intentions and associated provisions.

Confidential MUD Operator Client - A municipal water supply operator was sued by the community it served for allowing benzene to be distributed in the water supply. Mr. Campbell and his team were engaged to investigate the possible source of the benzene and determined that 1) testing was not required by the operator, and hence did not know of the presence of benzene, and 2) the source of the benzene was likely the gas-producing formation below the drinking-water aquifer breached by over drilling into the confining unit separating the aquifer from the gas-producing sand below.

Alcoa Aluminum, Inc. - RCRA Part B Permit Application. Provided senior review and analysis of ground-water investigations of subsurface conditions around plant site. Hydrogeologic evaluations involving contaminant transport modeling and long-term monitoring.

Merchants Trucking, Inc. - Cavalcade Superfund Site Investigations. Provided analysis of remediation project proposed by PRP on contamination by BTEX and Coal Tar substances. Investigation involved evaluation of selected technology and estimated capital and O&M costs.

State of Georgia - Landfill Lawsuit. Provided expert witness testimony on litigation involving landfill location in central Georgia with emphasis on present hydrogeologic conditions.

Compaq Computer, Inc. - Geotechnical & Dewatering Investigations. Provided senior review and consultation on ground-water investigations at new plant site in Houston.

Norse Windfall Mines, Inc. - Management and Environmental Investigations. Provided senior review and consultation over a three-year period on water supply development and environmental monitoring of ground-water conditions in area of mill and precious metal processing plant for a mine in central Nevada. Managed start-up operations and cash flow, and instituted daily monitoring program of data collection and analysis of heap leach (pregnant liquor) process hydrochemical data. Conducted analyses of flow behavior in heap-leach operations. Represented company and negotiated with state and federal regulatory agencies. Generated company's personnel and corporate policy manual, including health and safety provisions.

Municipal Landfill Investigations. - Provided senior review and consultation on proposed landfill construction projects involving sitting investigations and hydrogeologic characterizations.

Dolet Hills Mining Co., Mansfield, LA - Dewatering/Depressurizing Project. Provided senior consultation and direction on mine dewatering/depressurizing program, involving aquifer testing and analysis, dewatering well system design and construction, flow-net construction and updating as overburden was removed and mining advanced. Installed dewatering/depressurizing well system and monitored and adjusted system operations.

General Electric - Ground-Water Assessment - Provided senior hydrogeological direction and support for PCE and BETX leaks in plants located in North and South Carolina. Designed assessment plans and designed and implemented remediation systems consisting of pump-and-treat, stripping tower, carbon canisters and recirculation circuit.

Confidential Insurance Company - Ground-Water Assessments of Contaminants Resulting from Manufactured Gas Facilities. Provided direction and consultation to nationwide investigations on reliability and appropriateness of proposed/operating remediation systems and associated site characterizations of LNAPL and DNAPL contaminant plumes and product (and dissolved plume) migration in the subsurface.

United Nations Educational, Scientific and Cultural Organization (UNESCO) - Ground-Water Characterization, Exploration and Development in Igneous and Metamorphic Terrains of the World, Special Project 33. Selected as member of a seven-member international team of specialists on ground-water exploration and development throughout the sphere of influence of UNESCO projects.

Conducted extended lectures/seminars and investigations on ground-water development and ground water technology in Sweden, Italy, India, and Tanzania.

United Nations Development Program (UNDP) - Senior Review and Analysis of U.N. Ground-Water Exploration and Development Program in Developing Countries, 1962 through 1977. Conducted multi-year evaluation of UN-sponsored ground-water programs throughout the world via project report analyses and UN personnel interviews.

U.S. Environmental Protection Agency (USEPA) - Nationwide Investigations on Rapid Response to Protect Ground-Water Resources from the Effects of Accidental Spills of Hydrocarbons and Other Hazardous Substances. Selected as Special Consultant to Versar, Inc. and a member of 10-member team of specialists to evaluate and recommend activities to minimize ground-water contamination resulting from accidental spills of contaminants. Mr. Campbell was primarily involved in the detailed evaluation of spills nationwide, the development of non-contamination criteria involved in the hydrogeologic framework, and in the preparation of the EPA guidance document and its final editing.

U.S. Commission on Rural Water (USCRW) - Investigations on Engineering and Economics of Rural Water Systems. Served as Research Director to evaluate and recommend rural water well system design and associated O&M programs within context of low-income environment of the rural communities.

U.S. Environmental Protection Agency (USEPA) - Nationwide Investigations on Water Well Construction Standards. Served as Principal Investigator of 15-member team of specialists on water well design and construction. Produced manual published by EPA on the subject.

R. J. Reynolds Tobacco Company, North Carolina - Geophysical and Geological Exploration for Development of High Capacity Ground-Water Supply. Conducted and supervised geophysical and geological investigations in igneous and metamorphic rocks of North Carolina for the purpose of providing a ground-water supply in excess of 500 gpm for industrial use.

U.S. Environmental Protection Agency (USEPA) - Investigation on the Mobility of Well-Drilling Additives in the Ground-Water System. Conducted investigations of commercially-available drilling

fluids and assessed flow behavior in the ground-water reservoir and potential environmental impact on the hydrochemistry of aquifer systems.

U.S. Office of Water Resources Research (USOWRR) - Investigations on State-of-the-Science and Art of Water Well Technology. Conducted multi-year investigations of all aspects of shallow well technology and related environmental impact, and identified future research needs for EPA-sponsored investigations at the Kerr Ground-Water Research Center, Ada, Oklahoma and EPA Laboratory in Cincinnati, Ohio.

The Ohio State University, Water Resources Division - Investigations on Ground-Water Contamination and Plume Development by Open Brine Disposal Pits, Morrow County, Ohio. Served as undergraduate research assistant to Dr. Jay H. Lehr and Dr. Wayne A. Pettyjohn on investigations including ground-water sampling, data analysis, and laboratory model construction and simulation of field conditions. Conducted contaminant transport and hydrochemical analysis of brine contaminant plume and associated modeling.

Various Clients - Geothermal Energy Investigations. Conducted numerous investigations on the hydrogeologic, structural and geophysical conditions of a number of liquid-dominated and vapor-dominated geothermal reservoirs in Nevada, California, and Texas to determine potential economic value of selected properties. Recommended further exploration and development in Dixie Valley. A significant geothermal reservoir was subsequently discovered and proved to be suitable for commercial development. Power plant became operational in 1987 and is producing electricity for the Nevada-California power grid.

International Paper - Lignite Exploration and Development Program, South Central US. Conducted /supervised shallow drilling, geophysical, and geologic logging, reserve calculations and quality assessments of IP properties throughout south central U.S.

Various Clients - Coal and Lignite Development Feasibility Investigations, Texas, Louisiana, Alabama, Mississippi, Washington, Pennsylvania, Australia, and Colombia. Conducted exploration programs for numerous clients to evaluate and estimate reserve base available, preliminary mining feasibility and property value.

Continental Oil Company (CONOCO) - Mining Development Projects in Australia and Southeast Asia. Conducted and managed field exploration programs, geologic mapping, drilling operations, and water-supply investigations (well drilling, aquifer testing, and pipeline transport engineering) for projects involving industrial energy, precious minerals and base metals (discovery credited) and associated mining projects.

United Nuclear Corporation (UNC) - Geologic and Hydrogeologic Investigations, Western US. Conducted investigations in numerous states to screen geologic environments for favorable conditions for the occurrence of uranium and other strata-bound minerals. As a principal part of such investigations, numerous hydrochemical facies of favorable geologic intervals were evaluated to further screen prospective environments. Also, Mr. Campbell conducted water supply investigations (drilling, sampling, and aquifer testing) at UNC's northwest New Mexico and central Wyoming mining operations.

Geologic and Hydrogeologic Investigations - Numerous Clients. Conducted and supervised preliminary mining feasibility studies, mineral property evaluations and environmental assessments for numerous clients in the US, including Alaska, and South America, Central America, Africa, India, and other countries.

City of Houston - Well Field Investigations - Provided analysis of probable causes for unanticipated well/pump failures in city's system. Conducted metallurgical and hydrochemical analyses of failed pump components and well conditions prior to pump failures. Recommended improving operation and maintenance procedures and establishing new ground-water sampling and well performance protocol.

Management of Geothermal Exploration and Development Projects

In 1976, Mr. Campbell conducted extensive investigations on the potential geothermal value of selected properties in Dixie Valley, Nevada for a series of clients. Based on the available geological, geophysical, and hydrogeological data, Mr. Campbell recommended further investigations and a preliminary drilling and hot-spring sampling program. Results indicated favorable conditions existed in the subsurface complex of Basin-and-Range geologic structures. Additional federal lands were acquired by the client in Dixie Valley and other geothermal companies became interested in the area. Deep exploratory drilling began and significant discoveries of high temperature, liquid-dominated

geothermal energy reservoirs were identified. Economic analyses were conducted on behalf of the client to establish land values for possible buyout or merger with other geothermal companies. The client subsequently sold its interests. Dixie Valley geothermally generated power plants went on stream in 1987 and is producing electricity for the Nevada-California power grid on a regular basis.

Mr. Campbell conducted a series of additional geologic, hydrogeologic and economic investigations for a number of geothermal companies in the western US. He continues to monitor industry activities.

Applicable Geothermal Publications / Major Reports

Campbell, M. D., 1983, "Report of Investigations on Selected Geothermal Properties and Their Potential Productivity, Western United States," a Keplinger Consulting Report (private distribution), 32 p., June.

Campbell, M. D., 1983, "Dixie Valley, Nevada: A Promising Geothermal Area Under Development By Industry," *Proc. 18th Inter. Society Conversion Engineering Conference*, Orlando, Florida, August 21-26, Session 79, 6 p.

Campbell, M. D. and C. C. Wielchowsky, 1982, "A Review of the Dixie Valley, Nevada, Liquid-Dominated Geothermal Resource and the Relationship of Selected Geologic Characteristics to Potential Geothermal Production," *Proc. Am. Chemical Eng. Institute, Ann. Mtg*. (1982), 43 p., 6 figs., 5 tabs., refs.

Campbell, M. D., 1979, "Geopressured Geothermal Energy Potential of the Hidalgo Fairway, Texas," *Proc. Seminar on Geothermal Energy*, Brownsville, Texas, October 4, sponsored by the Brownsville Navigation District, 15 p., October.

Campbell, M. D., and C. C. Wielchowsky, 1978, "Interim Evaluation and Exploration and Development Status, Geothermal Potential and Associated Economics of Dixie Valley, Nevada," a Keplinger Consulting Report (private distribution), 110 p., September.

Campbell, M. D., and C. C. Wielchowsky, 1977, "Phase II Preliminary Evaluation of Dixie Valley, Nevada: Geothermal Potential and Associated Economics," a Keplinger Consulting Report (private distribution), 44 p., September.

Campbell, M. D., 1977, *Geology [and Environmental Impact] of Alternate Energy Resources, Uranium, Lignite, and Geothermal Energy in the South Central States*, Houston Geological Society, 364 p.

Campbell, M. D., 1977, "A Review of the Mineral Potential (Uranium, Fluorspar, Mercury, Geothermal Energy, Coal and Other Minerals) of Certain Land Holdings in the Big Bend, Texas Area," a Keplinger Consulting Report (private distribution), 20 p., May.

Campbell, M. D., 1977, "A Preliminary Evaluation of the Hughes Geothermal Properties in Churchill County, Nevada," A Keplinger Consulting Report (private distribution), 62 p., April.

Management of Coal / Lignite Exploration and Development Projects

In the mid-1970's, Mr. Campbell initiated and managed the lignite exploration activities for General Crude Oil Company (Div. International Paper, Inc.) in Arkansas, Texas, Mississippi and Alabama. Subsequent consulting assignments on coal and lignite in the 1970's and 1980's involved: exploration programs, preliminary mining feasibility studies, detailed reserve analyses, property evaluations, and mining operations assessment and evaluation.

Applicable Coal-Lignite Publications / Major Reports

Campbell, M. D., 1983, "Preliminary Evaluation of Coal Reserves, Cambria County, Pennsylvania," a Campbell, Foss and Buchanan Consulting Report (private distribution), 10 p., December.

Campbell, M. D., C. C. Colburn, and D. J. Lynch, 1979, "An Evaluation of Coal Resources and Mining Economics, Wayne County, Utah," a Keplinger Consulting Report (private distribution), 295 p., March.

Campbell, M. D., and J. P. Garten, 1977, "Evaluation of a 340 Acre Surface Coal Mining Prospect, Sand Mountain, DeKalb County, Alabama," a Keplinger Consulting Report (private distribution), 31 p., June.

Campbell, M. D., 1977, *Geology [and Environmental Impact] of Alternate Energy Resources, Uranium, Lignite, and Geothermal Energy in the South Central States*, Houston Geological Society, 364 p.

Campbell, M. D., 1977, "A Review of the Mineral Potential (Uranium, Fluorspar, Mercury, Geothermal Energy, Coal and Other Minerals) of Certain Land Holdings in the Big Bend, Texas Area," a Keplinger Consulting Report (private distribution), 20 p., May.

Campbell, M. D., 1976, "Alternate Energy and Mineral Development: General Outlook and Comparative Economics," *Proc. 1976 Keplinger Energy Seminar*, University Club, New York City, November 23, 30 p.

Management of Mineral Exploration Programs

During the mid-to-late 1960's, Mr. Campbell worked for a major American oil and minerals company (Conoco) in Australia and Southeast Asia, successfully conducting/managing field exploration programs, drilling operations, and water-supply investigations for development projects involving industrial and energy minerals, and precious and base metals (discovery credited). In the early 1970's, after returning to the U.S., he served three years as Regional Geologist with a major uranium exploration and mining company in Wyoming (United Nuclear). While there, he conducted research on hydrochemistry associated with roll-front uranium occurrences and successfully applied the results to the company's field program nationwide.

Mr. Campbell subsequently conducted various exploration programs as a consultant in the U.S. for companies such as Texas Eastern Nuclear, General Crude Oil Company and others during the mid-1970's on targets ranging from uranium, rare earth minerals, sulfur, and industrial minerals to base metals and precious metals.

In 1983, Mr. Campbell and two associates formed a consulting firm and conducted many domestic and international geologic, mining, economic, and hydrogeologic investigations including mineral property valuations and exploration programs (discovery credited), mine operational and financial management projects, mineral reserve analyses, preliminary feasibility studies, environmental investigations of various types, and other geotechnical investigations.

Applicable Minerals Publications / Major Reports / Presentations

Campbell, M. D., *et al.,* 2007, "Uranium In-Situ Leach Development and Associated Environmental Issues," Proc. Gulf Coast Geological Societies Conference, Fall, Corpus Christi, Texas, 17 p.

Campbell, M. D., 2007, "Pressure on the Electrical Grid and 3rd Quarter, 2006 Uranium Concentrate Production", in Unconventional Energy Resources and Geospatial Information: 2006 Review by the American Assoc. Petroleum Geologists, Energy Minerals Division, *Natural Resources Research,* Vol. 16., No. 3, September.

Campbell, M. D. and M. David Campbell, 2005, "Uranium Industry Re-Development and Expansion in the Early 21st Century: Supplying Fuel for the Expansion of Nuclear Power in the U.S., The Environment vs. The Paradigm," Rocky Mountain Natural Gas Strategy Conference & Investment Forum, Session 1, Presented by Colorado Oil & Gas Association, August 1-3, Denver, Colorado, 44 p.

Campbell, M. D., et al., 2005, Recent Uranium Industry Developments, Exploration, Mining and Environmental Programs in the U.S. and Overseas, Energy Minerals Division, AAPG, Uranium Committee 2005 Report, March 25.

Campbell, M. D., 2004, Professional Memorial: Ted H. Foss, Ph.D., P.G., Geological Society of America Memorials, Vol. 33, April, pp. 17-22.

Campbell, M. D., 2004, Preliminary Examination of Mineralogical Samples from Rwanda, April 24, 32 p. (Confidential Client from Rwanda).

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Campbell, M. D., 1968, "Discovery of New Phosphate Deposits: Interim Phosphate Report No. 1: Northern Territory, Australia," Continental Oil Company of Australia, Minerals Exploration Division, 22 p., 3 tabs., 3 plates (unpubl.).

Mine Management

During the mid-1980's, Mr. Campbell provided technical, operational, financial and environmental management consulting for a heap-leach precious metal mine in Nevada. He served as part of a three-man matrix consulting management team that provided management consulting for operations and management of a multiple mine-central mill project with 35 employees and for the prime mining, crushing, hauling and agglomerating contractor with more than 30 employees.

Mr. Campbell's activities included:

1) management consulting for the start-up mine operations,

2) consulting on operational financial and accounting ($8 million cash flow/year),

3) consulting on company operating and hazardous material safety and bullion security policy development via personnel manual,

4) joint-venture representation with major mining companies,

5) development of economic modeling programs for detailed financial analyses of month-to-month economic conditions,

6) day-to-day monitoring of operational processes and hydrochemical data,

7) consulting on exploration programs and of land-acquisition projects,

8) conducted analyses of unsaturated flow in the heap-leach operations, and monitored solution chemistry, and

9) initiated ground-water monitoring programs and provided guidance in negotiations with BLM and EPA.

Applicable Mine Management Publications / Major Reports

Campbell, M. D. and J. D. King, 1988, Norse Windfall Mines, Inc. Personnel and Corporate Policy Manual, August, Eureka, Nevada, 30p.

Campbell, M. D., T. H. Foss and K. J. Buchanan, 1986, "Report of Investigations on the Preliminary Feasibility of Development of the Eureka Precious Metals Project, Nevada," a Campbell, Foss & Buchanan, Inc. Consulting Report (private distribution), 123p. (See Summary Report).

International Projects

Mr. Campbell spent his early professional years on projects in Australia, South East Asia and Micronesia, making trips to Japan, Hong Kong and Singapore as joint-venture project negotiation needs required. He has returned on occasions to present invited hydrogeological and water supply papers. Mr. Campbell has initiated or been associated with projects on mineral exploration, mining, and water supply and hydrogeological topics in the following countries: Australia, Canada, Chile, France, Honduras, Jordan, Italy (Sardinia), Liberia, Mexico, Niger, Sri Lanka, Sweden, South Africa, Sudan, and Tanzania.

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Other Subsurface Investigations

Mr. Campbell also has conducted a number of other scientific, geologic, hydrogeologic and geotechnical investigations involving: growth-fault investigations, remote subsurface data acquisition technology development, technology transfer, human toxicology, moon-earth-meteorite potassium-uranium systematics, paleoenvironmental and diagenetic processes in the subsurface, injection well design and operation, oil shale, sand and gravel reserve assessment and preliminary development feasibility, geologic assessment of cavern integrity and injection operations at Strategic Petroleum Reserve Sites in Texas, and subsurface structural traps for oil and gas. Mr. Campbell has a strong interest in the industrialization of space.

Applicable Publications / Major Reports / Presentations

Campbell, M. D., et al., 1998, "Additional Investigations on the Upper Cretaceous Ferron Sandstone", Wayne County, Utah, Interim Report, (see online C&A CV).

Campbell, M. D., Alexander, T. A., and M. David Campbell, 1990, "Siderite Occurrences in the Atoka Formation, Oklahoma and Arkansas, and their Hydrochemical, Diagenetic and Paleomagnetic Implications, *Geological Society Section Mtg,* Oklahoma State University, Stillwater, March 5-6 (Abstract). See Interim Report, (see online C&A CV).

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Warner, D. L. (and M. D. Campbell), 1977, EPA Guidance Document: *An Introduction to the Technology of Subsurface Wastewater Injection*: Chapter 6 (Pre-Injection Wastewater Treatment and Surface Facility Design), p. 188-233; Chapter 7 (Injection Well Design and Construction) , 234-282; Chapter 8 (Start-up Operations), 283-292, and Chapter 10 (Injection Well Abandonment), 320-328. U. S. Environmental Protection Agency, EPA-600/2-77-240, Robert S. Kerr Environmental Research Laboratory, Ada, OK.

Campbell, M. D., 1976, *Paleoenvironmental and Diagenetic Implications of Selected Siderite Zones and Associated Sediments in the Upper Atoka Formation, Arkoma Basin, Oklahoma-Arkansas*, unpubl., Master's Thesis, Rice University, 165 p., 45 figs., 35 tabs. For Interim Report, (see online C&A CV).

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Campbell, M. D., 1971, "Notes on Science: Progress through Research," *Water Well Journal*, Vol. 25, No. 11, p. 48-49.

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Publications / Papers in Preparation

Campbell, M. D. (In Preparation), *Nuclear Energy and the Environment,* for the American Geological Institute Natural Resource Series, ~70 p.

Campbell, M. D., *et al.,* (In Preparation), *The Role of Nuclear Power in Space Exploration and the Associated Environmental Issues: An Overview,* a report of the Uranium Committee of AAPG's Energy Minerals Division, to be released Mid-2009.

Campbell, M. D. and M. David Campbell, (*In Preparation*), *"Growth Faulting in the Houston, Texas Area: Origins and Characteristics, Regional and Local Relationships, Associated Geologic Hazards, Economic Impact and Methods of Investigation",* (see online C&A CV).

Campbell, M. D., Alexander, T. A., and M. David Campbell, (*In Preparation*), *"Siderite Occurrences in the Atoka Formation, Oklahoma and Arkansas, and their Hydrochemical, Diagenetic and Paleomagnetic Implications,"* Geological Society Section Mtg, Oklahoma State University, Stillwater, March 5-6 (Abstract), preparing for subsequent publication in *Geology* or other journal. (See Interim Report, (see online C&A CV).

Manuscripts Reviewed for the Technical Journals

Many manuscripts have been reviewed recently for *Ground Water* and for the *International Journal of Environmental Forensics***.** Mr. Campbell also reviewed numerous manuscripts while serving on the *Ground Water* Editorial Board (1971-1978).

Curriculum Vitae

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Education

1979, B.A. in Geology, Western Washington University, WA

Summary of Experience

Mr. King has over 25 years of technical and managerial experience in the natural resource field. Mr. King has extensive experience in developing successful regulatory- and landowner-negotiation and public-relations programs, has conducted or directly managed all aspects of site permitting, and has been involved in the financial and technical evaluation of mining properties for a major mining company and other projects. He has also founded, developed and operated two successful companies. He is licensed as a Professional Geologist in the State of Washington (#1727).

Mining Experience

Mr. King developed mining process expertise in the late 1970's and early 1980's. During this time he worked for Companies such as Bethlehem Copper, Union Oil (MolyCorp) and the mining consulting firms for Watts, Griffis and McOuat and Campbell, Foss and Buchanan, Inc. including gold mining and gold placer evaluation in the lower states and in Alaska. In 1984, Mr. King was named mine manager of a gold and silver mine in Nevada. He served in that capacity until 1986 when he was named Vice President of Operations.

Selected technical presentations on uranium by Mr. King are cited below:

Campbell, M. D., J. D. King, *et al*., 2008, "The Nature and Extent of Uranium Reserves and Resources and their Environmental Development in the U.S. and Overseas", *Proc. Conference of the American Association of Petroleum Geologists (AAPG), Energy Minerals Division,* April 23, San Antonio, Texas, 14 p. (PDF).

Campbell, M. D., H. M. Wise, and J. D. King, 2008, "Nuclear Fuel Exploration, In Situ Recovery, and Environmental Issues in Context with the National Energy Needs through Year 2040", *Proc. Texas Commission on Environmental Quality Conference and Trade Fair*, April 30, An Invited Presentation, Austin, Texas (PDF).

Environmental Experience

Between 1990 and 1998 Mr. King worked for the DuPont Company directing environmental projects in Washington, Oregon, Alaska and British Columbia, Canada. In 1998, Mr. King formed Pacific Environmental and Redevelopment Corporation to focus on large-scale projects involving the redevelopment of formerly contaminated properties. In completing these projects, Mr. King has developed or managed a team of resources and associates with experience ranging from environmental sciences to master-planned community and golf-course construction.

One such environmental project managed by I2M's Jeff King involved the environmental clean-up of an industrial site south of Tacoma, Washington. Once the contaminants were removed, Mr. King oversaw the construction of a golf course followed by the construction of quality homes. The golf course was completed in 2006 and has just won the "Top Ten New Courses in the World" Award for 2007, given by *Travel and Leisure Golf Magazine* (See Announcement (*Here*)).

He presently plays a significant role for M. D. Campbell and Associates, L.P. in a variety of support functions, including project management and assessment, property evaluations, and field investigations of environmental and mining projects.

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