

**Appendix A-1. Canning River Organic Geochemistry**

| No. | Sample ID | Meter | Total Organic Carbon | Free Hydrocarbons | Generatable Hydrocarbons | Total Hydrocarbon Generation Potential |
|-----|-----------|-------|----------------------|-------------------|--------------------------|--|
|     |           |       | TOC                  | S <sub>1</sub>    | S <sub>2</sub>           | S <sub>1</sub> +S <sub>2</sub>         |
|     |           | (m)   | (%)                  | (mg HC / g rk)    | (mg HC / g rk)           | (mg HC / g rk)                         |
| 1   | 06DAV003  | 0.20  | 1.08                 | 0.09              | 0.16                     | 0.25                                   |
| 2   | 06DAV004  | 1.00  | 1.02                 | 0.13              | 0.22                     | 0.35                                   |
| 3   | 06DAV005  | 2.00  | 2.00                 | 0.17              | 0.58                     | 0.75                                   |
| 4   | 06DAV008  | 2.60  | 1.91                 | 0.09              | 0.50                     | 0.59                                   |
| 5   | 06DAV009  | 4.00  | 1.58                 | 0.10              | 0.36                     | 0.46                                   |
| 6   | 06DAV010  | 5.00  | 2.61                 | 0.13              | 0.37                     | 0.50                                   |
| 7   | 06DAV011  | 6.00  | 2.30                 | 0.13              | 0.40                     | 0.53                                   |
| 8   | 06DAV012  | 6.60  | 3.93                 | 0.16              | 0.53                     | 0.69                                   |
| 9   | 06DAV013  | 7.00  | 2.50                 | 0.14              | 0.43                     | 0.57                                   |
| 10  | 06DAV014  | 8.25  | 4.06                 | 0.17              | 0.63                     | 0.80                                   |
| 11  | 06DAV015  | 9.00  | 3.97                 | 0.13              | 0.60                     | 0.73                                   |
| 12  | 06DAV017  | 10.00 | 4.63                 | 0.16              | 0.68                     | 0.84                                   |
| 13  | 06DAV018  | 11.00 | 5.48                 | 0.29              | 1.27                     | 1.56                                   |
| 14  | 06DAV019  | 11.90 | 4.44                 | 0.24              | 1.02                     | 1.26                                   |
| 15  | 06DAV020  | 12.00 | 2.98                 | 0.15              | 0.64                     | 0.79                                   |
| 16  | 06DAV022  | 12.50 | 5.06                 | 0.20              | 1.37                     | 1.57                                   |
| 17  | 06DAV021  | 12.90 | 3.60                 | 0.15              | 0.59                     | 0.74                                   |
| 18  | 06DAV023  | 14.00 | 4.87                 | 0.61              | 1.33                     | 1.94                                   |
| 19  | 06DAV024  | 15.00 | 5.04                 | 0.24              | 1.47                     | 1.71                                   |
| 20  | 06DAV025  | 16.00 | 4.70                 | 0.15              | 0.88                     | 1.03                                   |
| 21  | 06DAV026  | 17.00 | 5.83                 | 0.18              | 1.39                     | 1.57                                   |
| 22  | 06DAV027  | 18.00 | 5.45                 | 3.46              | 1.91                     | 5.37                                   |
| 23  | 06DAV028  | 19.00 | 6.09                 | 0.76              | 1.86                     | 2.62                                   |
| 24  | 06DAV030  | 19.50 | 5.80                 | 0.19              | 1.06                     | 1.25                                   |
| 25  | 06DAV029  | 20.00 | 6.15                 | 0.30              | 1.57                     | 1.87                                   |
| 26  | 06DAV032  | 21.00 | 4.46                 | 0.15              | 0.65                     | 0.80                                   |
| 27  | 06DAV033  | 22.00 | 5.25                 | 0.16              | 1.00                     | 1.16                                   |
| 28  | 06DAV034  | 23.00 | 5.55                 | 0.15              | 0.69                     | 0.84                                   |
| 29  | 06DAV035  | 24.00 | 4.40                 | 0.13              | 0.65                     | 0.78                                   |
| 30  | 06DAV036  | 25.00 | 3.27                 | 0.32              | 0.49                     | 0.81                                   |
| 31  | 06DAV037  | 26.00 | 4.10                 | 0.42              | 0.66                     | 1.08                                   |
| 32  | 06DAV038  | 27.00 | 4.04                 | 0.73              | 0.69                     | 1.42                                   |
| 33  | 06DAV039  | 28.00 | 3.27                 | 0.16              | 0.82                     | 0.98                                   |
| 34  | 06DAV057  | 28.75 | 3.06                 | 0.16              | 0.78                     | 0.94                                   |
| 35  | 06DAV040  | 29.00 | 3.50                 | 0.16              | 0.98                     | 1.14                                   |
| 36  | 06DAV041  | 30.00 | 2.99                 | 0.12              | 0.64                     | 0.76                                   |
| 37  | 06DAV042  | 31.00 | 4.47                 | 0.13              | 0.85                     | 0.98                                   |
| 38  | 06DAV045  | 32.00 | 4.61                 | 0.12              | 0.99                     | 1.11                                   |
| 39  | 06DAV046  | 33.00 | 3.76                 | 0.19              | 1.27                     | 1.46                                   |
| 40  | 06DAV047  | 34.00 | 4.41                 | 0.18              | 1.61                     | 1.79                                   |

|                |          |       |      |      |      |      |
|----------------|----------|-------|------|------|------|------|
| 41             | 06DAV048 | 35.00 | 3.86 | 0.16 | 0.81 | 0.97 |
| 42             | 06DAV049 | 36.00 | 2.83 | 0.19 | 0.45 | 0.64 |
| <b>Minimum</b> |          |       | 1.02 | 0.09 | 0.16 | 0.25 |
| <b>Maximum</b> |          |       | 6.15 | 3.46 | 1.91 | 5.37 |
| <b>Mean</b>    |          |       | 3.93 | 0.29 | 0.85 | 1.14 |

Note: The Kemik-PSU contact and base of theCanning River section is approximately located at N 69.

| Hydrogen Index  | Generatable Carbon Dioxide  | Oxygen Index                 | Production Index                                   | Temp. of Peak S <sub>2</sub> | Mean Indigenous Vitrinite Reflectance |
|-----------------|-----------------------------|------------------------------|--|------------------------------|---------------------------------------|
| HI              | S <sub>3</sub>              | OI                           | PI   | T <sub>max</sub>             | Ro                                    |
| (mg HC / g TOC) | (mg CO <sub>2</sub> / g rk) | (mg CO <sub>2</sub> / g TOC) | (S <sub>1</sub> / S <sub>1</sub> +S <sub>2</sub> ) | (°C)                         | (%)                                   |
| 15              | 0.20                        | 18.52                        | 0.36   | 486                          | 1.66                                  |
| 22              | 0.18                        | 17.73                        | 0.37   | 488                          | --                                    |
| 29              | 0.32                        | 16.04                        | 0.23   | 472                          | --                                    |
| 26              | 0.10                        | 5.24                         | 0.15   | 480                          | --                                    |
| 23              | 0.14                        | 8.85                         | 0.22   | 479                          | --                                    |
| 14              | 0.20                        | 7.67                         | 0.26   | 504                          | --                                    |
| 17              | 0.17                        | 7.39                         | 0.25   | 497                          | --                                    |
| 13              | 0.27                        | 6.87                         | 0.23   | 498                          | --                                    |
| 17              | 0.19                        | 7.60                         | 0.25   | 495                          | --                                    |
| 16              | 0.39                        | 9.60                         | 0.21   | 502                          | --                                    |
| 15              | 0.44                        | 11.09                        | 0.18   | 500                          | --                                    |
| 15              | 0.43                        | 9.29                         | 0.19   | 519                          | 1.67                                  |
| 23              | 1.12                        | 20.44                        | 0.19   | 483                          | --                                    |
| 23              | 0.42                        | 9.46                         | 0.19   | 487                          | --                                    |
| 22              | 0.16                        | 5.38                         | 0.19   | 489                          | --                                    |
| 27              | 0.28                        | 5.54                         | 0.13   | 489                          | --                                    |
| 16              | 0.27                        | 7.51                         | 0.20   | 506                          | --                                    |
| 27              | 0.77                        | 15.80                        | 0.31   | 482                          | --                                    |
| 29              | 0.68                        | 13.50                        | 0.14   | 485                          | --                                    |
| 19              | 0.59                        | 12.56                        | 0.15   | 497                          | --                                    |
| 24              | 0.47                        | 8.06                         | 0.11   | 494                          | --                                    |
| 35              | 0.44                        | 8.08                         | 0.64   | 493                          | --                                    |
| 31              | 0.38                        | 6.24                         | 0.29   | 495                          | --                                    |
| 18              | 0.77                        | 13.28                        | 0.15   | 504                          | --                                    |
| 26              | 0.62                        | 10.08                        | 0.16   | 498                          | 1.69                                  |
| 15              | 0.48                        | 10.76                        | 0.19   | 512                          | --                                    |
| 19              | 0.48                        | 9.15                         | 0.14   | 509                          | --                                    |
| 12              | 0.86                        | 15.49                        | 0.18   | 508                          | --                                    |
| 15              | 0.73                        | 16.59                        | 0.17   | 504                          | --                                    |
| 15              | 0.66                        | 20.18                        | 0.40   | 515                          | --                                    |
| 16              | 0.44                        | 10.73                        | 0.39   | 501                          | --                                    |
| 17              | 0.60                        | 14.84                        | 0.51   | 510                          | --                                    |
| 25              | 0.63                        | 19.25                        | 0.16   | 502                          | --                                    |
| 26              | 0.45                        | 14.73                        | 0.17   | 487                          | --                                    |
| 28              | 0.70                        | 20.01                        | 0.14   | 467                          | --                                    |
| 21              | 0.38                        | 12.72                        | 0.16   | 483                          | --                                    |
| 19              | 0.91                        | 20.34                        | 0.13   | 430                          | --                                    |
| 21              | 0.60                        | 13.02                        | 0.11   | 435                          | --                                    |
| 34              | 0.35                        | 9.31                         | 0.13   | 472                          | 1.24                                  |
| 37              | 0.46                        | 10.44                        | 0.10   | 461                          | --                                    |

|    |      |       |      |     |      |
|----|------|-------|------|-----|------|
| 21 | 0.43 | 11.15 | 0.16 | 477 | --   |
| 16 | 0.46 | 16.23 | 0.30 | 470 | --   |
| 12 | 0.10 | 5.24  | 0.10 | 430 | 1.24 |
| 37 | 1.12 | 20.44 | 0.64 | 519 | 1.69 |
| 21 | 0.47 | 12.07 | 0.22 | 490 | 1.57 |

.52935°, W 146.30328°.

**Appendix A-2. Boulder Bowl Organic Geochemistry**

| No.            | Sample ID | Meter | Total Organic Carbon | Free Hydrocarbons | Generatable Hydrocarbons | Total Hydrocarbon Generation Potential |
|----------------|-----------|-------|----------------------|-------------------|--------------------------|--|
|                |           |       | TOC                  | S <sub>1</sub>    | S <sub>2</sub>           | S <sub>1</sub> +S <sub>2</sub>         |
|                |           | (m)   | (%)                  | (mg HC / g rk)    | (mg HC / g rk)           | (mg HC / g rk)                         |
| 1              | 06DAV080  | 0.05  | 0.77                 | 0.09              | 0.12                     | 0.21                                   |
| 2              | 06DAV081  | 0.20  | 0.75                 | 0.08              | 0.06                     | 0.14                                   |
| 3              | 06DAV083  | 4.20  | 1.36                 | 0.11              | 0.47                     | 0.58                                   |
| 4              | 06DAV085  | 4.90  | 2.36                 | 0.13              | 1.16                     | 1.29                                   |
| 5              | 06DAV087  | 6.00  | 1.80                 | 0.11              | 0.28                     | 0.39                                   |
| 6              | 06DAV088  | 7.00  | 2.58                 | 0.13              | 0.46                     | 0.59                                   |
| 7              | 06DAV089  | 8.25  | 1.91                 | 0.07              | 0.21                     | 0.28                                   |
| 8              | 06DAV092  | 9.00  | 1.93                 | 0.08              | 0.19                     | 0.27                                   |
| 9              | 06DAV091  | 10.00 | 2.56                 | 0.10              | 0.36                     | 0.46                                   |
| 10             | 06DAV095  | 11.00 | 2.55                 | 0.11              | 0.29                     | 0.40                                   |
| 11             | 06DAV097  | 13.00 | 4.83                 | 0.20              | 1.24                     | 1.44                                   |
| 12             | 06DAV098  | 13.40 | 3.81                 | 0.13              | 0.47                     | 0.60                                   |
| 13             | 06DAV100  | 14.00 | 5.24                 | 0.14              | 0.73                     | 0.87                                   |
| 14             | 06DAV101  | 15.00 | 4.32                 | 0.16              | 0.73                     | 0.89                                   |
| 15             | 06DAV103  | 16.00 | 4.63                 | 0.20              | 0.93                     | 1.13                                   |
| 16             | 06DAV106  | 17.00 | 5.05                 | 0.26              | 1.29                     | 1.55                                   |
| 17             | 06DAV107  | 18.00 | 4.36                 | 0.12              | 0.61                     | 0.73                                   |
| 18             | 06DAV108  | 19.00 | 3.07                 | 0.21              | 0.53                     | 0.74                                   |
| 19             | 06DAV109  | 19.75 | 4.80                 | 0.14              | 0.75                     | 0.89                                   |
| 20             | 06DAV110  | 20.10 | 2.81                 | 0.26              | 0.39                     | 0.65                                   |
| 21             | 06DAV111  | 20.50 | 2.38                 | 0.05              | 0.24                     | 0.29                                   |
| 22             | 06DAV112  | 21.00 | 2.60                 | 0.13              | 0.30                     | 0.43                                   |
| 23             | 06DAV113  | 22.00 | 4.30                 | 0.13              | 0.65                     | 0.78                                   |
| 24             | 06DAV116  | 24.00 | 4.02                 | 0.12              | 0.71                     | 0.83                                   |
| 25             | 06DAV117  | 25.00 | 4.64                 | 0.16              | 0.84                     | 1.00                                   |
| 26             | 06DAV119  | 26.00 | 5.03                 | 0.19              | 1.23                     | 1.42                                   |
| 27             | 06DAV122  | 27.00 | 4.44                 | 0.18              | 1.03                     | 1.21                                   |
| 28             | 06DAV123  | 28.00 | 5.16                 | 0.20              | 1.03                     | 1.23                                   |
| 29             | 06DAV124  | 29.00 | 3.89                 | 0.15              | 0.83                     | 0.98                                   |
| 30             | 06DAV125  | 29.60 | 5.59                 | 0.17              | 1.08                     | 1.25                                   |
| 31             | 06DAV126  | 30.00 | 4.55                 | 0.14              | 0.71                     | 0.85                                   |
| 32             | 06DAV127  | 31.00 | 5.06                 | 0.16              | 0.74                     | 0.90                                   |
| 33             | 06DAV129  | 32.00 | 2.71                 | 0.08              | 0.40                     | 0.48                                   |
| 34             | 06DAV130  | 33.00 | 3.37                 | 0.10              | 0.46                     | 0.56                                   |
| 35             | 06DAV131  | 33.50 | 2.11                 | 0.06              | 0.25                     | 0.31                                   |
| 36             | 06DAV132  | 34.00 | 3.55                 | 0.11              | 0.43                     | 0.54                                   |
| 37             | 06DAV133  | 35.00 | 1.88                 | 0.09              | 0.28                     | 0.37                                   |
| 38             | 06DAV134  | 36.50 | 1.82                 | 0.10              | 0.23                     | 0.33                                   |
| 39             | 06DAV135  | 37.00 | 3.16                 | 0.13              | 0.70                     | 0.83                                   |
| 40             | 06DAV136  | 37.50 | 2.65                 | 0.12              | 0.38                     | 0.50                                   |
| <b>Minimum</b> |           |       | 0.75                 | 0.05              | 0.06                     | 0.14                                   |
| <b>Maximum</b> |           |       | 5.59                 | 0.26              | 1.29                     | 1.55                                   |
| <b>Mean</b>    |           |       | 3.36                 | 0.14              | 0.59                     | 0.73                                   |

Note: The Kemik-PSU contact and base of the Boulder Bowl section is approximately located at N 69.67°

| Hydrogen Index  | Generatable Carbon Dioxide  | Oxygen Index                 | Production Index                                   | Temp. of Peak S <sub>2</sub> | Vitrinite Reflectance |
|-----------------|-----------------------------|------------------------------|--|------------------------------|-----------------------|
| HI              | S <sub>3</sub>              | OI                           | PI   | T <sub>max</sub>             | Ro                    |
| (mg HC / g TOC) | (mg CO <sub>2</sub> / g rk) | (mg CO <sub>2</sub> / g TOC) | (S <sub>1</sub> / S <sub>1</sub> +S <sub>2</sub> ) | (°C)                         | (%)                   |
| 16              | 0.21                        | 27.27                        | 0.43   | 484                          | --                    |
| 8               | 0.19                        | 25.33                        | 0.57   | 465                          | --                    |
| 35              | 0.42                        | 30.88                        | 0.19   | 473                          | 0.87                  |
| 49              | 0.43                        | 18.22                        | 0.10   | 465                          | --                    |
| 16              | 0.50                        | 27.78                        | 0.28   | 487                          | --                    |
| 18              | 0.32                        | 12.40                        | 0.22   | 487                          | --                    |
| 11              | 0.28                        | 14.66                        | 0.25   | 495                          | --                    |
| 10              | 0.34                        | 17.62                        | 0.30   | 488                          | --                    |
| 14              | 0.41                        | 16.02                        | 0.22   | 507                          | 1.40                  |
| 11              | 0.89                        | 34.90                        | 0.28   | 501                          | --                    |
| 26              | 0.26                        | 5.38                         | 0.14   | 486                          | --                    |
| 12              | 0.47                        | 12.34                        | 0.22   | 513                          | --                    |
| 14              | 0.38                        | 7.25                         | 0.16   | 518                          | --                    |
| 17              | 0.32                        | 7.41                         | 0.18   | 500                          | --                    |
| 20              | 0.91                        | 19.65                        | 0.18   | 496                          | --                    |
| 26              | 0.66                        | 13.07                        | 0.17   | 497                          | --                    |
| 14              | 0.21                        | 4.82                         | 0.16   | 515                          | --                    |
| 17              | 0.31                        | 10.10                        | 0.28   | 487                          | --                    |
| 16              | 0.47                        | 9.79                         | 0.16   | 512                          | --                    |
| 14              | 0.26                        | 9.25                         | 0.40   | 500                          | 1.40                  |
| 10              | 0.35                        | 14.71                        | 0.17   | 494                          | --                    |
| 12              | 0.09                        | 3.46                         | 0.30   | 489                          | --                    |
| 15              | 0.53                        | 12.33                        | 0.17   | 506                          | --                    |
| 18              | 0.38                        | 9.45                         | 0.14   | 507                          | --                    |
| 18              | 0.40                        | 8.62                         | 0.16   | 513                          | --                    |
| 24              | 0.49                        | 9.74                         | 0.13   | 491                          | --                    |
| 23              | 0.74                        | 16.67                        | 0.15   | 496                          | --                    |
| 20              | 0.67                        | 12.98                        | 0.16   | 506                          | --                    |
| 21              | 0.15                        | 3.86                         | 0.15   | 498                          | --                    |
| 19              | 0.22                        | 3.94                         | 0.14   | 512                          | --                    |
| 16              | 0.18                        | 3.96                         | 0.16   | 514                          | --                    |
| 15              | 0.19                        | 3.75                         | 0.18   | 525                          | --                    |
| 15              | 0.12                        | 4.43                         | 0.17   | 505                          | --                    |
| 14              | 0.15                        | 4.45                         | 0.18   | 509                          | --                    |
| 12              | 0.17                        | 8.06                         | 0.19   | 498                          | --                    |
| 12              | 0.19                        | 5.35                         | 0.20   | 505                          | --                    |
| 15              | 0.21                        | 11.17                        | 0.24   | 490                          | --                    |
| 13              | 0.16                        | 8.79                         | 0.30   | 493                          | --                    |
| 22              | 0.43                        | 13.61                        | 0.16   | 494                          | --                    |
| 14              | 0.86                        | 32.45                        | 0.24   | 503                          | 1.42                  |
| 8               | 0.09                        | 3.46                         | 0.10   | 465                          | 0.87                  |
| 49              | 0.91                        | 34.90                        | 0.57   | 525                          | 1.42                  |
| 17              | 0.37                        | 12.90                        | 0.21   | 498                          | 1.70                  |

366°, W 145.22668°.

**Appendix A-3. Marsh Creek Organic Geochemistry**

| No.            | Sample ID | Meter | Total Organic Carbon | Free Hydrocarbons | Generatable Hydrocarbons |
|----------------|-----------|-------|----------------------|-------------------|--------------------------|
|                |           |       | TOC                  | S <sub>1</sub>    | S <sub>2</sub>           |
|                |           | (m)   | (%)                  | (mg HC / g rk)    | (mg HC / g rk)           |
| 1              | 06DAV149  | 0.50  | 0.61                 | 0.06              | 0.07                     |
| 2              | 06DAV151  | 1.75  | 0.66                 | 0.08              | 0.06                     |
| 3              | 06DAV152  | 2.00  | 1.19                 | 0.07              | 0.06                     |
| 4              | 06DAV153  | 3.00  | 1.79                 | 0.15              | 0.25                     |
| 5              | 06DAV154  | 4.00  | 0.82                 | 0.06              | 0.06                     |
| 6              | 06DAV156  | 5.00  | 0.96                 | 0.13              | 0.11                     |
| 7              | 06DAV157  | 6.00  | 1.59                 | 0.06              | 0.12                     |
| 8              | 06DAV159  | 7.00  | 2.49                 | 0.10              | 0.47                     |
| 9              | 06DAV161  | 8.20  | 1.47                 | 0.08              | 0.09                     |
| 10             | 06DAV162  | 9.00  | 1.70                 | 0.10              | 0.12                     |
| 11             | 06DAV164  | 11.00 | 2.72                 | 0.08              | 0.20                     |
| 12             | 06DAV165  | 12.00 | 2.46                 | 0.31              | 0.21                     |
| 13             | 06DAV167  | 13.00 | 2.89                 | 0.38              | 0.24                     |
| 14             | 06DAV168  | 14.00 | 2.58                 | 0.50              | 0.28                     |
| 15             | 06DAV170  | 15.00 | 2.70                 | 0.13              | 0.19                     |
| 16             | 06DAV171  | 16.00 | 4.19                 | 0.23              | 0.30                     |
| 17             | 06DAV172  | 17.00 | 4.18                 | 0.82              | 0.88                     |
| 18             | 06DAV174  | 18.00 | 4.08                 | 0.98              | 0.67                     |
| 19             | 06DAV175  | 19.00 | 4.06                 | 0.10              | 0.26                     |
| 20             | 06DAV176  | 20.00 | 2.74                 | 0.09              | 0.18                     |
| 21             | 06DAV177  | 21.00 | 4.10                 | 0.08              | 0.24                     |
| 22             | 06DAV178  | 22.00 | 4.84                 | 0.10              | 0.40                     |
| 23             | 06DAV180  | 23.00 | 4.75                 | 0.08              | 0.49                     |
| <b>Minimum</b> |           |       | 0.61                 | 0.06              | 0.06                     |
| <b>Maximum</b> |           |       | 4.84                 | 0.98              | 0.88                     |
| <b>Mean</b>    |           |       | 2.59                 | 0.21              | 0.26                     |

Note: The Kemik-PSU contact and base of the Marsh Creek section is approximately located

| Total Hydrocarbon Generation Potential | Hydrogen Index  | Generatable Carbon Dioxide  | Oxygen Index                 | Production Index                                   | Temp. of Peak S <sub>2</sub> |
|--|-----------------|-----------------------------|------------------------------|--|------------------------------|
| S <sub>1</sub> +S <sub>2</sub>         | HI              | S <sub>3</sub>              | OI                           | PI   | T <sub>max</sub>             |
| (mg HC / g rk)                         | (mg HC / g TOC) | (mg CO <sub>2</sub> / g rk) | (mg CO <sub>2</sub> / g TOC) | (S <sub>1</sub> / S <sub>1</sub> +S <sub>2</sub> ) | (°C)                         |
| 0.13                                   | 11              | 0.16                        | 26.23                        | 0.46   | 494                          |
| 0.14                                   | 9               | 0.25                        | 37.92                        | 0.57   | 386                          |
| 0.13                                   | 5               | 0.26                        | 21.85                        | 0.54   | 486                          |
| 0.40                                   | 14              | 0.34                        | 19.01                        | 0.38   | 515                          |
| 0.12                                   | 7               | 0.22                        | 26.75                        | 0.50   | 445                          |
| 0.24                                   | 11              | 0.27                        | 28.09                        | 0.54   | 442                          |
| 0.18                                   | 8               | 0.45                        | 28.36                        | 0.33   | 512                          |
| 0.57                                   | 19              | 0.71                        | 28.57                        | 0.18   | 512                          |
| 0.17                                   | 6               | 0.46                        | 31.21                        | 0.47   | 504                          |
| 0.22                                   | 7               | 0.19                        | 11.16                        | 0.45   | 508                          |
| 0.28                                   | 7               | 0.22                        | 8.09                         | 0.29   | 512                          |
| 0.52                                   | 9               | 0.56                        | 22.75                        | 0.60   | 519                          |
| 0.62                                   | 8               | 0.35                        | 12.13                        | 0.61   | 514                          |
| 0.78                                   | 11              | 0.28                        | 10.86                        | 0.64   | 498                          |
| 0.32                                   | 7               | 0.04                        | 1.48                         | 0.41   | 513                          |
| 0.53                                   | 7               | 1.01                        | 24.10                        | 0.43   | 521                          |
| 1.70                                   | 21              | 0.35                        | 8.38                         | 0.48   | 518                          |
| 1.65                                   | 16              | 0.62                        | 15.21                        | 0.59   | 521                          |
| 0.36                                   | 6               | 0.46                        | 11.33                        | 0.28   | 518                          |
| 0.27                                   | 7               | 0.47                        | 17.17                        | 0.33   | 512                          |
| 0.32                                   | 6               | 0.46                        | 11.21                        | 0.25   | 517                          |
| 0.50                                   | 8               | 0.45                        | 9.30                         | 0.20   | 517                          |
| 0.57                                   | 10              | 0.53                        | 11.16                        | 0.14   | 524                          |
| 0.12                                   | 5               | 0.04                        | 1.48                         | 0.14   | 386                          |
| 1.70                                   | 21              | 1.01                        | 37.92                        | 0.64   | 524                          |
| 0.47                                   | 10              | 0.40                        | 18.36                        | 0.42   | 500                          |

at N 69.68308°, W 144.85077°.



| <b>Vitrinite<br/>Reflectance</b> |
|----------------------------------|
| <b>Ro</b>                        |
| <b>(%)</b>                       |
| 2.03                             |
| --                               |
| --                               |
| --                               |
| --                               |
| --                               |
| --                               |
| --                               |
| --                               |
| --                               |
| --                               |
| 1.54                             |
| --                               |
| --                               |
| --                               |
| --                               |
| --                               |
| --                               |
| --                               |
| --                               |
| --                               |
| --                               |
| 1.79                             |
| 1.54                             |
| 2.03                             |
| 1.79                             |

#### Appendix A-4. Carbonate Organic Geochemistry

| No.            | Location      | Sample ID | Meter | Total Organic Carbon | Free Hydrocarbons | Generatable Hydrocarbons |
|----------------|---------------|-----------|-------|----------------------|-------------------|--------------------------|
|                |               |           |       | TOC                  | S <sub>1</sub>    | S <sub>2</sub>           |
|                |               |           | (m)   | (%)                  | (mg HC / g rk)    | (mg HC / g rk)           |
| 1              | Canning River | 06DAV006  | 3.00  | 0.57                 | 0.14              | 0.17                     |
| 2              | Canning River | 06DAV016  | 9.80  | 0.90                 | 0.08              | 0.22                     |
| 4              | Boulder Bowl  | 06DAV084  | 4.60  | 0.90                 | 0.16              | 0.30                     |
| 5              | Boulder Bowl  | 06DAV086  | 5.40  | 0.60                 | 0.08              | 0.13                     |
| 6              | Boulder Bowl  | 06DAV090  | 8.50  | 0.56                 | 0.23              | 0.08                     |
| 7              | Boulder Bowl  | 06DAV094  | 10.85 | 1.68                 | 0.12              | 0.23                     |
| 3              | Boulder Bowl  | 06DAV128  | 31.00 | 1.32                 | 0.15              | 0.27                     |
| 8              | Marsh Creek   | 06DAV150  | 1.00  | 0.30                 | 0.08              | 0.06                     |
| 9              | Marsh Creek   | 06DAV155  | 4.50  | 0.36                 | 0.06              | 0.06                     |
| 10             | Marsh Creek   | 06DAV163B | 10.00 | 1.57                 | 0.22              | 0.05                     |
| <b>Minimum</b> |               |           |       | 0.30                 | 0.06              | 0.05                     |
| <b>Maximum</b> |               |           |       | 1.68                 | 0.23              | 0.30                     |
| <b>Mean</b>    |               |           |       | 0.88                 | 0.13              | 0.16                     |

Note: Carbonates include concretions and carbonate cemented layers in the PSU.

| Total Hydrocarbon Generation Potential | Hydrogen Index  | Generatable Carbon Dioxide  | Oxygen Index                 | Production Index                                   | Temp. of Peak S <sub>2</sub> |
|--|-----------------|-----------------------------|------------------------------|--|------------------------------|
| S <sub>1</sub> +S <sub>2</sub>         | HI              | S <sub>3</sub>              | OI                           | PI   | T <sub>max</sub>             |
| (mg HC / g rk)                         | (mg HC / g TOC) | (mg CO <sub>2</sub> / g rk) | (mg CO <sub>2</sub> / g TOC) | (S <sub>1</sub> / S <sub>1</sub> +S <sub>2</sub> ) | (°C)                         |
| 0.31                                   | 30              | 1.75                        | 304.93                       | 0.45   | 511                          |
| 0.30                                   | 25              | 2.34                        | 260.61                       | 0.27   | 514                          |
| 0.46                                   | 33              | 2.16                        | 240.00                       | 0.35   | 505                          |
| 0.21                                   | 22              | 1.50                        | 250.00                       | 0.38   | 515                          |
| 0.31                                   | 14              | 3.01                        | 537.50                       | 0.74   | 511                          |
| 0.35                                   | 14              | 2.62                        | 155.95                       | 0.34   | 488                          |
| 0.42                                   | 20              | 0.62                        | 46.97                        | 0.36   | 469                          |
| 0.14                                   | 20              | 1.06                        | 348.34                       | 0.57   | 479                          |
| 0.12                                   | 17              | 0.92                        | 256.34                       | 0.50   | 487                          |
| 0.27                                   | 3               | 2.46                        | 156.99                       | 0.81   | 437                          |
| 0.12                                   | 3               | 0.62                        | 46.97                        | 0.27   | 437                          |
| 0.46                                   | 33              | 3.01                        | 537.50                       | 0.81   | 515                          |
| 0.29                                   | 20              | 1.84                        | 255.76                       | 0.48   | 492                          |

