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Chemostratigraphy of Carbonate Gravity Flows of the Wolfcamp Formation in Crockett County, Midland Basin, Texas

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By

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ABSTRACT

Sediment gravity flows into deep-water environments are important stratigraphic traps in lithologically diverse reservoirs generating multiple plays for hydrocarbon exploration. These highly heterogeneous deposits can be studied by utilizing chemostratigraphy and higher-order sequence stratigraphy; being an accurate method for reservoir characterization. Studying these gravity flows along a carbonate platform's slope can further expand an understanding of the stratigraphy that is filling adjacent basins. The application of elemental analyses can support in identifying mineralogy that impact reservoir quality, especially when conventional testing cannot be applied.

This study utilizes five cores containing the Wolfcamp Formation from the southeastern slope of the Central Basin Platform in northwest Crockett County, Texas. High resolution chemostratigraphy was conducted using X-ray fluorescence along with total organic carbon, X-ray diffraction, and scanning electron microscope at resolutions based on chemofacies defined by hierarchical clustering analyses. Interpretation of chemofacies, mineralogy, organic matter, gravity flows, and sequence cycles is used to evaluate depositional conditions due to periodic glacioeustasy and episodic sea-level fluctuations and tectonic pulses along the carbonate platform margin of the Wolfcamp Formation.

The study area can be divided into eight facies: (1) bioclast packstone to grainstone, (2) porous bioclast packstone to grainstone, (3) lithoclast rudstone to floatstone, (4) bioclast to lithoclast wackestone, (5) mixed carbonate mudstone, (6) mixed siliceous mudstone, (7) clay-rich argillaceous mudstone, and (8) argillaceous-siliceous mudstone. Gravity flows and depositional processes are characterized: (1) slides to slumps, (2) debris flows, (3) turbidity currents, (4) hemiturbiditic plumes, and (5) hemipelagic deposition. Mudstones associated with gravity flows along the slope are organically-rich (4.65% mean TOC) due to the preservation of organic matter from: (1) organic matter supply, (2) rapid burial, and (3) disoxic conditions.

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

PREFACE

This thesis is written in a format for publication in the Gulf Coast Association of Geological Societies Journal Volume 9. An extended abstract has been submitted to the journal and accepted, with final article submission on April 2, 2020. Supplemental data has been added in the appendices.

1. INTRODUCTION

1.1. Purpose

The Carboniferous-Permian Wolfcamp Formation is a highly targeted unconventional play throughout the Permian Basin Province. In the Midland Basin alone, the United States Geological Survey (USGS) estimated that the Wolfcamp Formation contains 20 billion barrels of oil, 16 trillion cubic feet of natural gas, and 1.6 billion barrels of liquid natural gas (Gaswirth et al., 2016). This economic play is challenging because of the vertical and lateral facies heterogeneity. This formation is the result of both carbonate and clastic depositional systems, resulting in a series of interbedded limestone and shale with regional sandstones (Oriel et al., 1967; Robinson, K., 1988), creating a source, reservoir and seal within a single formation. Characterizing the Wolfcamp across the region is difficult due to this mixed siliciclastic-carbonate system and high variability over short distances.

Geochemical analyses can help determine the heterogeneities of multi-depositional systems in the Wolfcamp Formation by characterizing minuscule stratigraphic relationships. It can be used to characterize these relationships by measuring the primary mineralogical elements dependent on the depositional environments and paleoenvironment conditions. It can also help to characterize elemental changes within the formation that were emplaced by alterations within

the depositional system, such as changes in anoxia or productivity. Knowing these small-scale changes can be useful for identifying higher-order sequences in sedimentary strata with poor biostratigraphic and lithostratigraphic control.

The practice of utilizing elemental composition is a relatively common technique in formation analyses within sedimentary basins (Vine and Tourtelot, 1970; Demaison and Moore, 1980), while the application of rapid and non-destructive handheld x-ray fluorescence (XRF) to assess elemental composition is moderately new (Rowe et al., 2012; Marsala, A. F., et al., 2012). Elemental analysis has been used on mudrock studies and is transitioning into a reliable and accurate method for reservoir characterization (Arthur and Sageman, 2005; Rowe et al., 2012). It is helpful for detecting subtle changes in fine-grained deposits that are otherwise too small and unrecognizable in hand samples and thin sections. XRF chemostratigraphy can identify unconventional potential landing zones with redox-sensitive trace metal abundances of Mo, Ni, U, V, Se, and Cu, as these elements tend to correlate with increased organic matter preservation and mineralogical variations (Pierce at al. 2015). Mo and Cr have also been found to positively correlate to total organic carbon (TOC) from the anoxic conditions of restricted seafloor water circulation and infrequent mixing (Tribovillard et. al., 2006). High-frequency variability in Al, Si, Ca and Fe reflect the influence of sea-level on depositional patterns and processes (McGlue et al., 2016). These elements are an essential component of rock-forming minerals:

clays (Al, Si), calcite (Ca), ferromagnesian silicates (Al, Fe), pyrite (Fe), and quartz (Si). Although helpful for understanding certain aspects of sedimentary systems, geochemical analysis only characterizes at an elemental level and must be correlated with additional analyses for proper interpretation and correlation (Erdman & Morris, 1974; Johnson et al., 2003; North et al., 2005). The combination of lithology, mineralogy, and chemostratigraphy for the geological interpretation of these complex plays strengthens the interpretation and reduces exploration and development risk.

Chemostratigraphy studies of the Wolfcamp Formation have mostly been applied to the basinal shales in the Permian Basin Province. Cortez (2012) concluded that the basin underwent a high degree of paleoceanography basin restriction with an increase in primary production based on cyclic carbon isotope excursions. This study utilizes chemostratigraphy data on the Lower Wolfcamp Formation transition from the basin onto the platform. The Wolfcamp Formation along the basin margins contains a complex mix of gravity flows with interbedded shales (Hobson et al., 1985; Loucks et al., 1985). The deep-water allochthonous limestone facies and biota that comprise the Wolfcamp Formation along the basin margin are thought to be caused by icehouse glacioeustatic sea-level fluctuations and episodic tectonic pulses, which shaped the erosional shelf-margin slope facies and unconformities (Hobson et al. 1985). The low-angled slopes ranging from 1°-3.5° were steep enough to commence sediment transport

for distances over 14.5 km, causing this mix of highstand shedding of grainstones, lowstand falling carbonate conglomerate debris, and transgressive units of shales that often cap the debris flows (Loucks et al., 1985; Turner, 2016). Even though the gravity flows of the Wolfcamp Formation along basin margins have been studied widely, they have not been analyzed through high-resolution chemostratigraphy and their reservoir properties' relationships with mineralogy and elemental analyses.

This study combines chemostratigraphy with mineralogy and TOC to characterize mudstones and determine relationships between small-scale elemental cyclicity with the gravity flows in the Wolfcamp Formation of Crockett County, TX. The interpretation of sequence cycles, depositional conditions, and mineralogy is used to evaluate small-scale fluctuations in sea-level changes from parasequences and organic-rich material from redox-sensitive trace metals of the Wolfcamp Formation. Identifying these relationships in gravity flows will provide a better elemental evaluation of common stratigraphic traps in producing reservoirs.

2. GEOLOGIC SETTING

The Permian Basin is an asymmetric, northwest-southeast trending foreland sedimentary basin that spans for more than 75,000 mi^2 across West Texas into South New Mexico (U.S. Energy Information Administration, 2019). It is bounded by the Marathon-Ouachita orogenic belt to the south, Diablo Platform to the west, Eastern Shelf to the east, and the Northwest Shelf and Matador Arch to the north, with several sub-basins and platforms within the basin itself (Gardiner, 1990; Ewing, 1991; Hills, 1985). The formation of the Permian Basin is divided tectonically into three phases; the Lower Paleozoic passive margin phase, Upper Mississippian to Late Pennsylvanian collision-synorogenic foreland phase, and the Permian post-orogenic basin-fill phase (Adams, 1965; Ward et al., 1986; Sarg el at., 1999). Tectonics were active throughout the end of the Pennsylvanian, and generally ceased during the Late Wolfcampian, decreasing the rate of basin subsidence (U.S. Energy Information Administration, 2019).

The continuation of Pangea lasted beyond the Permian, where the North American plate was situated along the western margin and the Permian Basin at approximately 10° north of the equator (U.S. Energy Information Administration, 2019; Blakey, 2011). During the Wolfcampian of the Permian (299-280 Ma), shallow carbonate shelves accumulated on the edges of the basin and the continuation of Late Paleozoic tectonism led to high amounts of subsidence and

compressional stress uplifting the platforms, leading to increased turbidite deposition of clastics and carbonates on the slope (Adams, 1965). High rates of sedimentation filled the basin during the Permian (265-230 Ma) with deltaic siliciclastics and extensive reef fringed carbonate to evaporite shelves and platforms. Seas began to slowly transgress which lead to massive deposits of the overlying fine-grained siliciclastics into the basin (Hill, 1972).

2.2. Stratigraphy

The stratigraphic formations vary immensely in the Permian Basin region as the depositional setting changes from platform to slope to basin deposits within a single formation across a restricted area. Because the study site is on the basin margin, the depositional setting consists of basin and slope environments with high amounts of transported and redeposited shelf carbonate mud and grains.

The Wolfcamp Formation is part of the Wolfcampian series (fig. 1) and is the oldest formation of the Permian System. It is stratified throughout the Permian Basin region of west Texas and southeast New Mexico and crops out in the Glass Mountains of west Texas. The Wolfcamp Formation is defined as black-gray or greenish-gray shale interbedded with limestone with shell-brecciated cement and conglomeratic at locations (Udden et al., 1917). It is on

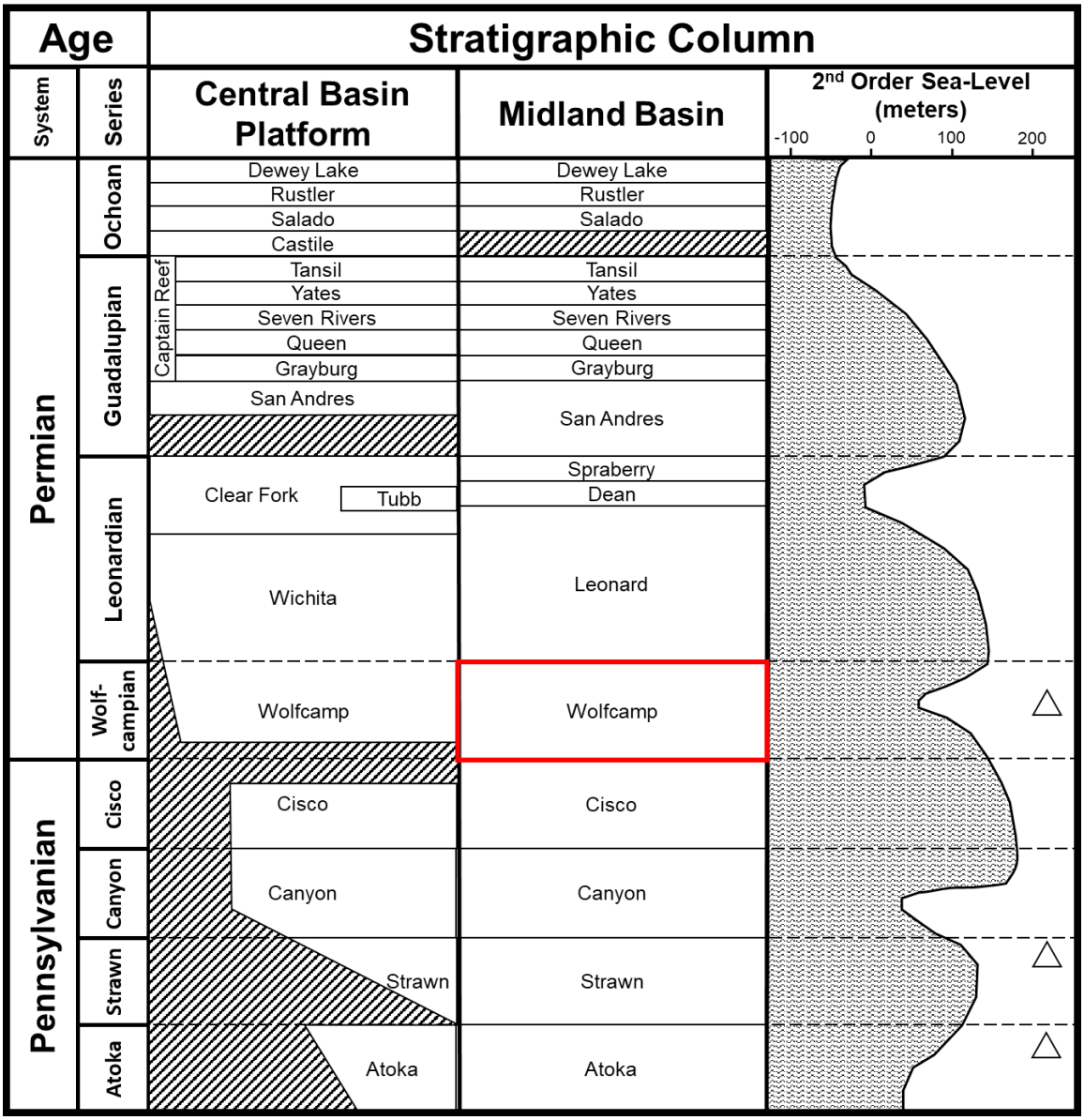

Figure 1: Stratigraphic column and 2nd order sea-level changes of the Pennsylvanian-Permian strata throughout the Central Basin Platform and Midland Basin. The formation of interest is outlined in red. Triangles represent episodic tectonic pulses. Figure modified from (Sarg et. al., 1999) and (Mazzullo and Reid, 1989.

average 2,029 feet thick, varying from 200 feet to 7,050 ft across the Permian Basin (U.S. Energy Information Administration, 2019) and contains black siliceous shale interbedded with calcareous shale and limestone. It has an average porosity of 7%, permeability as low as 10mD, and typical TOC range of 1%-8%, with the highest organic content found in the siliceous mudrocks in the basins (Ward et al., 1986; Hamlin and Baumgardner, 2012; Kvale and Rahman, 2016). The organic material consists primarily of type II kerogen with the influence of type III kerogen (Kvale and Rahman, 2016; Gupta et al., 2017). On the platform and western Midland Basin, it is described as allochthonous shallow-water carbonate gravity flows underlying siliceous and calcareous shales (Hobson et al., 1985; Loucks et al., 1985; Turner 2016). It conformably overlies the Pennsylvanian Cisco ("Wolfcamp D") formation and conformably underlies the Permian Wichita Albany Formation within the Central Basin Platform.

2.3. Study Site

The location of the study site is on the southern-most tip of the Central Basin Platform in present-day Simpson Canyon Lease of northwest Crockett County, TX (fig. 2). Present-day structural features that surround the study area include the Central Basin Platform to the west and the Ozona Platform to the east, the Ouachita overthrust fault system to the south, the Midland Basin

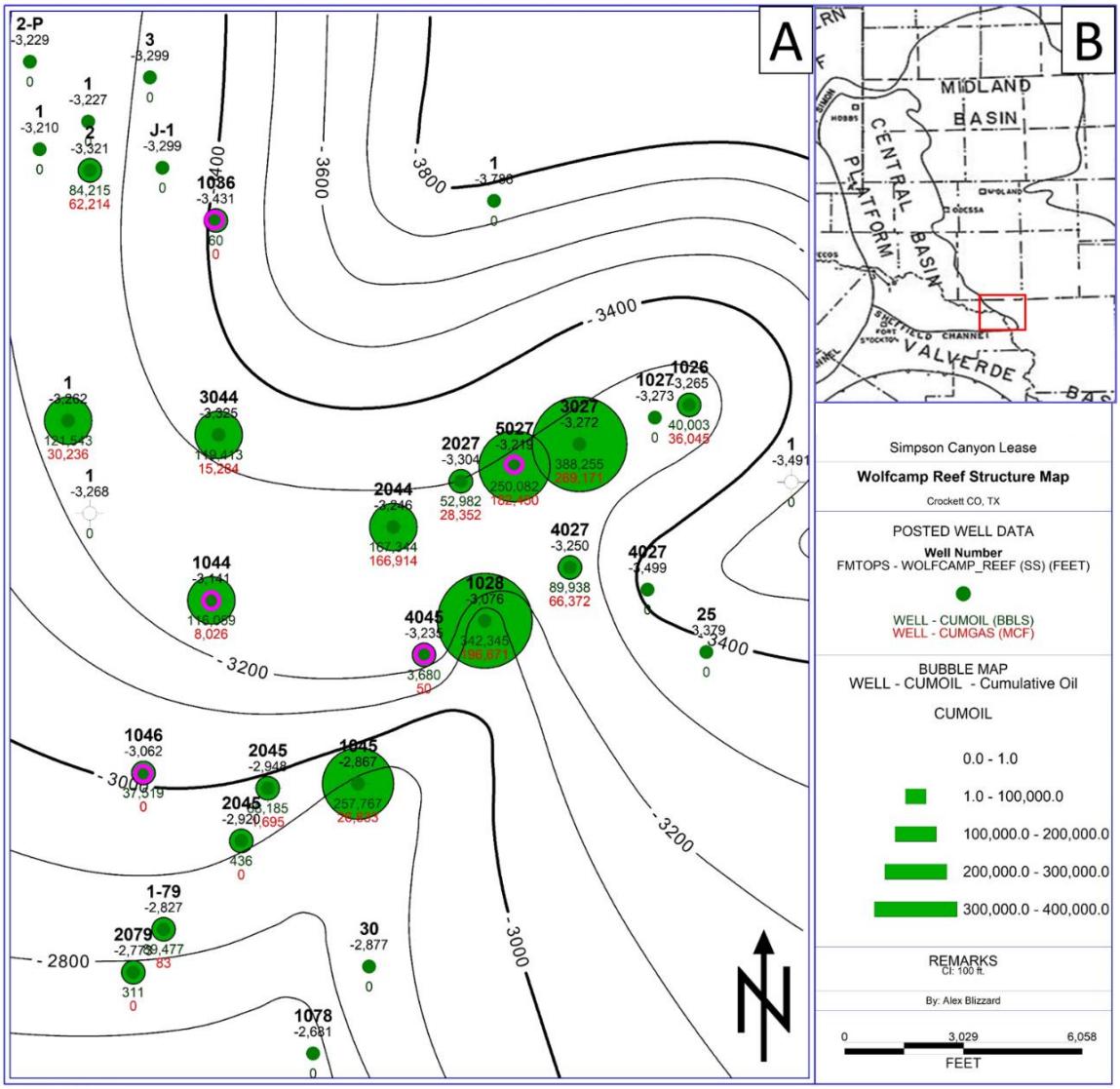

Figure 2: (A) Wolfcamp Reef Structure Map of the study area in Crockett County, TX and production data for each of the wells. Wells outline with pink are the location of the core data within this study. (B) Permian Basin Province with major structural features containing the study site outlined in red in present day Crockett, TX. Modified from (Hills, 1984).

towards the northeast, and the Sheffield Channel that separates the Val Verde Basin and Central Basin Platform also towards the south. The Wolfcamp Formation in this area consists of the Wolfcamp “Reef” which is composed of the thick allochthonous carbonate gravity flows underlying the dark, organic-rich shales.

In the study area, the Wolfcamp is deepest towards the northeast at -3,800 ft below sea level, and generally decreases in depth towards the southwest to -2,700 ft below sea level (fig. 2). There is a large gravity flow within the center of the study area, as indicated by the bulge trending towards the northeast. Production is highest along this trend (fig. 2b) due to the increased porosity that is found within the gravity flows in this area. This trend shows the economic importance of studying these gravity flows.

3. METHODS AND MATERIALS

Five cores (table 1) archived at the East Texas Core Repository (Stephen F. Austin State University) contain ~404 ft (123 m) of the Wolfcamp Formation from Crockett County, TX. Hand-held XRF, hierarchical clustering analysis (HCA) of the elemental data, stratigraphic analyses, X-ray diffraction (XRD), TOC, and scanning electron microscopy (SEM) were used to identify relationships between composition and TOC within the cores. These data were then related back to the depositional environment to determine small-scale changes over time.

Table 41: Wells used in this study with API number, well name, cored depth intervals, and Wolfcamp Reef tops. SC: Simpson Canyon.

API #	Well Name	Cored Depths (MD)	Reef Top (SS)
42-105-39584	SC 1046	5,310'-5,379'	-3,062'
42-105-39658	SC 1044	5,584'-5,659'	-3,141'
42-105-39639	SC 4045	5,876'-5,997'	-3,235'
42-105-39889	SC 5027	5,690'-5,750'	-3,219'
42-105-30637	SC 1036	6,237'-6,316'	-3,431'

3.1. X-Ray Fluorescence

Elemental composition was measured with a Thermo-Fisher Niton™ XL3t GOLDD+ equipped with the 45mm^2 Silicon Drift Detector (SSD). The cores were gently cleaned with deionized water to remove drilling mud and debris from the surface and then air-dried. Measurements were then taken directly on slabbed

sections of the core at 2 inch (5 cm) intervals. The measurements were conducted with the Thermo-Fischer's "Test All Geomode" calibration, which can measure the chemical composition of main, light, and low elements (30 seconds each filter) ranging from Mg to U varying in parts per million (ppm). A standard consisting of 99.9% SiO_2 was measured every 18 samples to determine instrument drift.

Major elements (Ca, Si, Mg, Ti, Al, K, Fe, S) correlate to the primary mineralogy constituents and indicate rock type (sandstone, shale, limestone, etc.). These reflect eustatic sea level changes from the sediment subsidence in the sea accommodation space (Read, 1995). Minor elements (Mo, U, Ni, Zn) correlate to paleoenvironmental conditions and indicate productivity and redox conditions (Pierce at al., 2015; McGlue et al., 2016; Calvert and Pederson, 1993; Jones and Manning, 1994; Rowe et al., 2008; Rowe et al., 2009). These minor elements could also be associate with diagenesis, but this study focuses on the redox conditions.

3.2. Hierarchical Clustering Analysis

Chemofacies were defined using an agglomerative HCA on focused elements (Ca, Si, Mg, Ti, Al, K, Fe, S, Mo, U, Ni, Zn) with JMP-SAS analytical software. Agglomerative HCA utilizes distance matrix algorithms to identify similarity in distances between data points and linking the most similar of points

creating a new class of data (Gill et al., 1993). JMP-SAS uses Ward's minimum variance method using the Euclidean distance between data points (Templ et al., 2008; Montero-Serrano et al., 2010). The defined chemofacies were then assigned a color and displayed in a strip log with depth created with the geological software RockWorks 17. Five chemofacies were defined, allowing for a manageable lateral correlation between wells. The strip log was then delineated into chemozones by the primary chemofacies in that zone and correlated across the study area using the well log gamma-ray curve.

3.3. Stratigraphic Analysis

Lithofacies were previously defined (Turner, 2016) for each core. These were then correlated to the gamma ray curve of the well log for each core to identify "clean" carbonate intervals throughout. The clean carbonate intervals were then correlated across the region using the gamma ray log signature and a 75 API cutoff to determine the lateral extent of an interval.

Elemental abundances were grouped on tracks to show independent, dependent, or inverse relationships of major and minor elements, and compared to the lithofacies to determine correlations. Ca and Si indicate fluctuations between the carbonate and siliciclastic components. Al, K, Fe indicate clay-input into the system and flooding surfaces within the cores. Mo, U, Zn and Ni positively correlate to TOC and anoxia of the region. Mg and Ti are indicators of

diagenesis. Elemental ratios were used as paleo-proxies to determine terrestrial grain size (Si/Al), reduction versus oxidation environments (Fe/S), euxinic-rich environments (Fe/Al). Parasequences were identified by the flooding surface peaks with Al+K+Fe (C-Input) within larger 3rd order sequence cycles, while these are all within transgressive-regressive 2nd order cycles (Sarg et. al., 1999; Mazzullo and Reid, 1989).

3.4. X-Ray Diffraction

XRD was collected using a BrukerTM X-ray Diffraction D8 ADVANCE equipped with the Cu-K-alpha radiation tube (40 mA, 40 kV) at every 0.02° steps 5°- 65° 2Θ with 2-sec steps. The samples were prepared by being powdered in a ball mill for 5 minutes, passed through a 250 µm sieve, and 1.0 g of sample subsampled from the powdered sample. The sample was then placed in a McCrone micronizing mill with 0.5 g corundum and 10 ml of ethanol for 5 minutes and dried at 100°C overnight. Once dried, 5 ml hexane was added to the sample and hand-shaken for 10 minutes, again passed through a 250 µm sieve, packed into a backfill holder, and finally inserted into the device. Mineralogy was quantitatively determined using RockJock software from the USGS, which compares the integrated intensities of unknown mineral peaks to an internal standard (Chung, 1974), using the whole-pattern fitting routine of Smith et al. (1987) and adequately identifing clay minerals using non-basal reflections

(Srodon et al., 2001). The dominant mineral components were then used for the classification of organic mudstones (above 2% TOC) with the sCore (quartz-feldspar-mica, carbonate, and clay ternary plot) classification scheme (Gamero et al., 2012).

3.5. Total Organic Carbon

Twenty samples for TOC analysis were chosen based upon chemofacies to ensure approximately even distribution. Four to five samples per mudstone chemofacies were measured with multiple runs for each sample for reproducibility. TOC was measured using the Loss-on-Ignition (LOI) method with a Thermolyne™ Premium Large Muffle Furnace following the method of Heiri et al. (2001). Samples were crushed in a ball mill for 15 minutes and dried at 100°C overnight. 5-gram samples of each were weighed and placed in crucibles. The samples were then heated 550°C for 4 hours to remove all organic matter and then weighed again. The difference in the weight before and after heating the crushed-dried samples is the TOC (% wt).

3.6. Scanning Electron Microscope

Ten samples for SEM were chosen based upon the mudstone chemofacies and was conducted with a Jeol 6100 SEM and Energy Dispersive Spectroscopy System (EDS) to identify notable textures of fine-grained

mineralogy. Samples were prepared by Ar ion milling to ensure high conductivity of the sample for a clear image. This system used accelerating voltages of 20 kV with working distances of 15mm to not damage the samples or microscope.

4. LITHOFACIES

Lithofacies in these five cores have been defined previously (fig. 3) (Turner, 2016). They consist of bioclast packstone to grainstone, porous bioclast packstone to grainstone, lithoclast rudstone to floatstone, bioclast and lithoclast wackestone, and massive to laminated mudstone. These facies tend to grade upward from grainstone to wackestone to mudstone.

The bioclast packstone to grainstone is relatively homogenous with fining upward bioclast that is miciritized with sparry calcite cement (fig. 3a). Allochems consist of crinoid fragments, fusulinid foraminifera, brachiopods, bivalve, and bryozoan fragments and large concentrations of peloids.

The porous-bioclast packstone to grainstone is lithologically similar to facies above but with developed intraparticle and interparticle porosity (totaling 13% porosity) from extensive dissolution (fig. 3b). Localized porosity features include vuggy, moldic, and fracture porosity.

The lithoclast rudstone to floatstone contains fining upward resedimented-rounded to styolited breccia clasts that consist of peloidal wackestone, oolitic packstone, skeletal grainstone, and algal boundstone (fig. 3c). The matrix consists of loose skeletal material with a dark muddy matrix.

The bioclast and lithoclast wackestone contain clast in a dark muddy matrix that generally contained preferred orientation implying

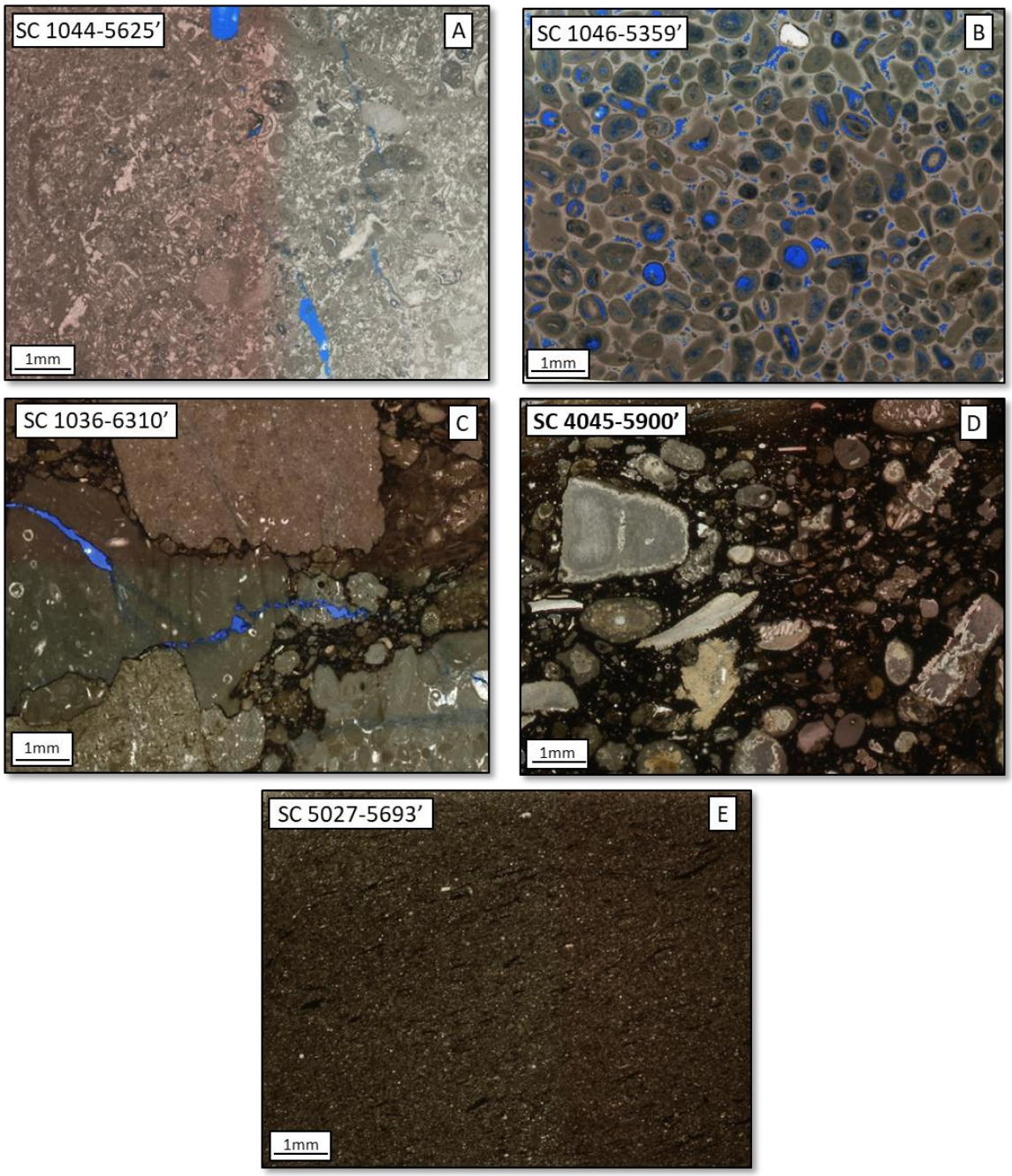

Figure 70: Lithofacies thin sections of the Wolfcamp Formation in the study area. A) Bioclast packstone to grainstone. B) Porous bioclast packstone to grainstone. C) Lithoclast rudstone to floatstone. D) Bioclast and lithoclast wackestone. E) Massive to laminated mudstone. Modified from (Turner, 2016). SC=Simpson Canyon core no.

flow (fig. 3d). This facies is interbedded with shale and bioclast packstone to grainstone facies.

The massive to laminated mudstone (SC 4045-5,877 feet) consist of organic dark black to gray mudstone and thin carbonate-rich shale that breaks between gravity flows (fig. 3e). It occasionally contains convoluted bedding with soft-sediment deformation and ripples located at a basal section of facies.

5. RESULTS AND INTERPRETATIONS

5.1. Chemofacies

Five chemofacies are defined in the Simpson Canyon cores using the agglomerative HCA on the elemental data (table 2). Corresponding mineralogy for each chemofacies are listed in table 3. They were then classified with the Gamero et al. (2012) sCore classification scheme for organic mudstones (fig. 4).

Table 69: Chemofacies generated from HCA with facies occurrence counts (i.e., sampling points) and mean major and minor elemental abundances.

Chemofacies Mean Abundances						
Chemofacies		Facies 1	Facies 2	Facies 3	Facies 4	Facies 5
Count		13	160	43	423	1778
Major Elements	Ca	18.4	11.7	11.4	42.3	54.8
	Si	30.1	30.1	36.1	13.1	1
	Mg	0.3	0.2	2.6	0.5	0
	Ti	0	0	0.3	0.1	0.2
	Al	3.1	3.7	8.5	1	0.1
	K	1.4	1.6	1.6	0.3	0
	Fe	2	2.4	1.8	0.4	0
	S	5	8.8	5	1.6	1.1
Minor Elem.	Mo	60	13	3.6	2.1	0.3
	U	27	14	31	3.3	1
	Ni	143	95	27	10	4.6
	Zn	6291	278	50	113	23

Table 109: Chemofacies 1-5 mean abundances of mineralogy and TOC. Ill/Sm: illite and smectite abundance.

Chemofacies Mean Abundances					
Mineral (%)	Facies 1	Facies 2	Facies 3	Facies 4	Facies 5
Quartz	43.2	46.3	59.1	19.6	1.4
Feldspar	4.9	3.7	6.3	1.7	0.5
Calcite	17.5	11.6	8.4	62.1	93.9
Pyrite	2.8	2.9	1.4	0.3	0
Koalinite	0	0	0	1.8	1.2
Ill/Sm	30.4	24.3	13.1	13.7	3
Muscovite	0.8	11.2	11.3	0.5	0
TOC (%)	8.3	6.3	8.7	3.5	0

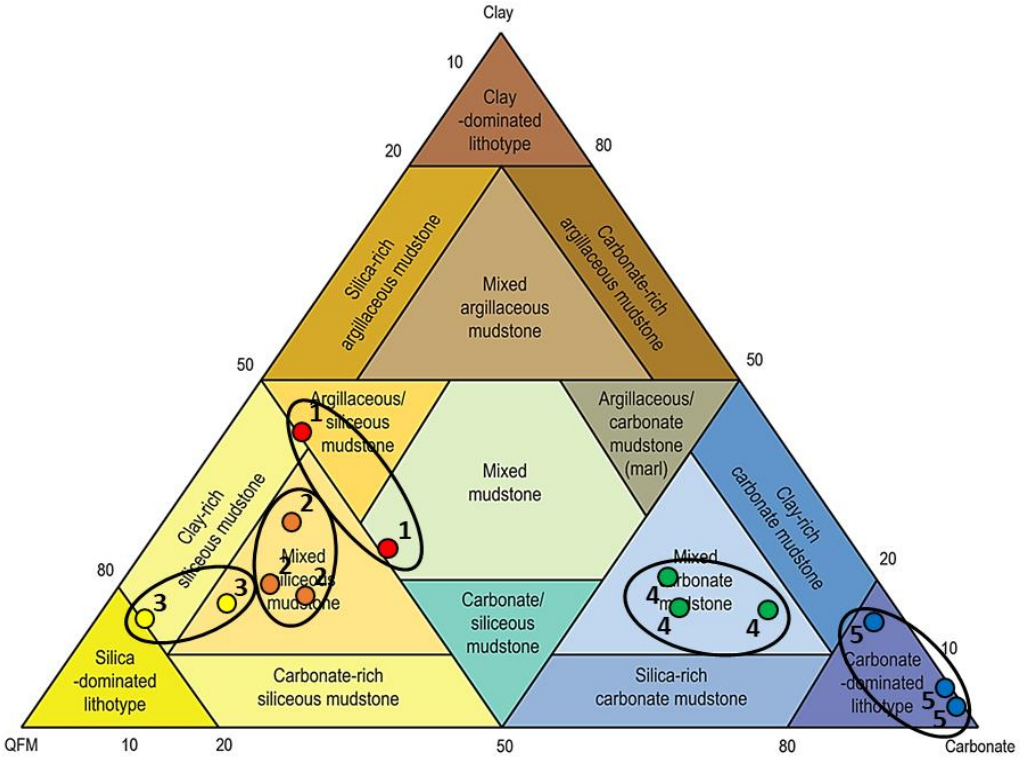

Figure 103: sCore organic mudstone classification scheme on the five chemofacies using QFM (quartz-feldspar-mica), carbonate, and clay (modified after Gamero et. al., 2012).

Chemofacies 1 totaled 2.16 feet throughout the five cores. It contains mean abundances of 30.1% Si, 18.4% Ca, and 6.5% clay elements with the highest abundances of redox elements Mo (60 ppm), Ni (143 ppm), and Zn (6291 ppm) (table 2). This facies contains mean mineralogical abundances of 49% QFM (quartz-feldspar-mica), 20% carbonate, and 31% clay with the highest abundance of illite/smectite of the five chemofacies (28.9%) (table 3). It contains a mean of 8.3% TOC. It is classified primarily as an argillaceous/siliceous mudstone (fig. 4). The high amounts of Zn, Ni and Mo indicate high productivity in the water column and organic influx with high anoxic bottom-water conditions preserving the organic matter (Tribovillard et. al., 2006; Pierce at al., 2015).

Chemofacies 2 is a transitional facies from chemofacies 1 to chemofacies 3. It totaled 26.67 feet throughout the five cores and contains mean abundances of 30.1% Si, 11.7% Ca, and 7.7% clay elements (table 2). This facies contains mean mineralogical abundances of 61% QFM, 15% carbonate, and 24% clay, and a mean of 6.3% TOC. Chemofacies 2 is primarily classified as a mixed siliceous mudstone. The average levels of Mo and U combined with relatively high amounts of Ni and Zn indicate deposition during medium productivity organic influx and subanoxic to anoxic bottom-water conditions preserving organic matter (Tribovillard et. al., 2006; Pierce et al., 2015).

Chemofacies 3 totaled 7.16 feet throughout the section. It contains mean abundances of 36.1% Si, 11.4% Ca, and 11.9% clay elements with the highest

abundance of Si (36.1%) and redox element U (31 ppm) and the lowest abundance of Ca (11.4%). This facies contains mean abundances of minerals, 77% QFM, 10% carbonate, and 13% clay with the highest abundance of quartz (59.1%) and the lowest abundance of calcite (4.4%). TOC averages 8.7%. Chemofacies 3 is classified primarily as a clay-rich siliceous mudstone. The increased amounts of U indicate deposition during medium productivity organic influx and subanoxic to anoxic bottom-water conditions preserving organic matter (Tribovillard et. al., 2006; Pierce et al., 2015).

Chemofacies 4 totaled 70.5 feet throughout the section. It contains mean abundances of 13.1 % Si, 42.3% Ca, and 1.7% clay elements with transitional values in abundances between facies 1-3 and facies 5. This facies contains mean abundances of minerals 22% QFM, 62% carbonate, and 16% clay with intermediate values in mineralogical abundances between facies 1-3 and facies 5. It contains a mean of 3.5% TOC. Chemofacies 4 is classified primarily as a mixed carbonate mudstone. The decreasing amounts of Mo, U, Ni and Zn indicate deposition during low productivity organic influx and suboxic to subanoxic bottom-water conditions with low preservation organic matter (Tribovillard et. al., 2006; Pierce et al., 2015).

Chemofacies 5 is the most abundant within the cores totaling 296.33 feet. It contains mean abundances of 1% Si, 54.8% Ca, and 0.1% clay elements with the highest abundance of Ca (54.8%) and the lowest abundance of Si (1%) and

redox elements Mo (0.3 ppm), U (1 ppm), Ni (4.6 ppm), and Zn (23 ppm). This facies contains mean abundances of minerals 2% QFM, 94% carbonate, and 4% clay with and the highest abundance of calcite (93.9 %). It does not contain any organic carbon. Chemofacies 5 is classified as a predominantly a carbonate. The low amounts of redox elements indicate deposition during little productivity and oxic bottom-water conditions with no preservation of organic matter (Tribovillard et. al., 2006; Pierce et al., 2015).

5.2. Chemozones

Chemofacies were then used to determine chemozones throughout the cores, and correlated across the region using the core data and well log data (fig. 5). Ten chemozones were identified based upon the primary chemofacies within each zone. Identification of the vertical and lateral relationships of chemofacies within the zones help to characterize the gravity flows and the depositional processes that initiated sediment transportation.

Chemozone 1 consists of carbonates (chemofacies 5) with laminations of mixed carbonate mudstones (chemofacies 4) at the base of cores SC 1046, 1044, 4045, and 5027. The mixed carbonate mudstone laminations are vertically consistent throughout the zone. This zone contains the widest correlation to lithofacies of bioclast and lithoclast wackestone, bioclast packstone, bioclast grainstone, and lithoclast rudstone.

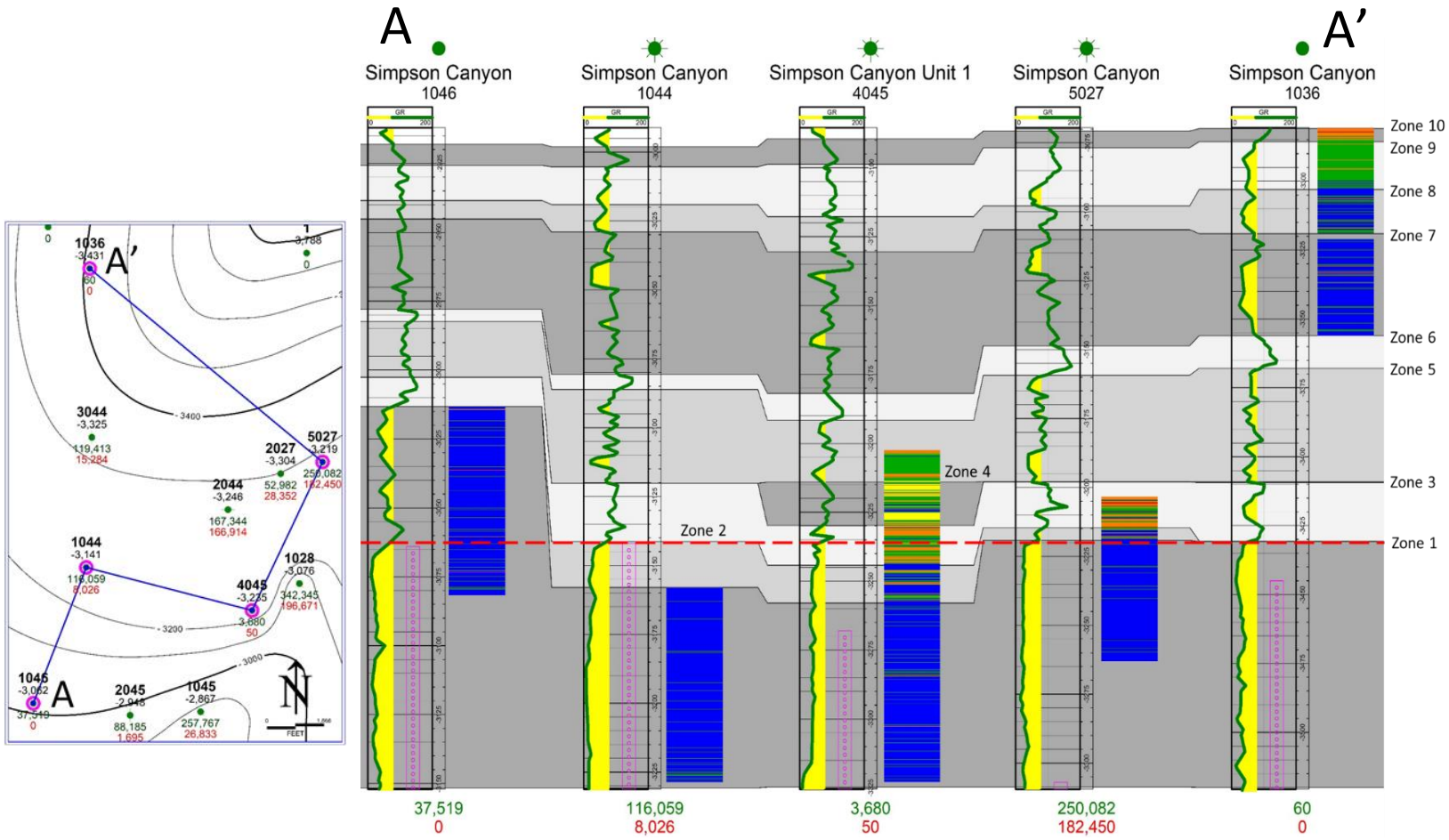

Figure 150: Wolfcamp Formation cross-section line A-A' along depositional dip of the Simpson Canyon Lease. Cross section is in stratigraphic view hung by the Wolfcamp Reef shown in the dashed red line.

Chemozone 2 consists of carbonates (chemofacies 5) interbedded with mixed carbonate mudstones (chemofacies 4) and mixed siliceous mudstones (chemofacies 2) within cores SC 4045 and 5027. The concentration of the interbedded mixed carbonate mudstones is near the basal section of the zone, while the interbedded mixed siliceous mudstones are near the top of the section. This zone primarily correlates to bioclast to lithoclast wackestone with low concentration of massive to laminated mudstone.

Chemozone 3 consists of mixed siliceous mudstones (chemofacies 2) interbedded with mixed carbonate mudstones (chemofacies 4) and argillaceous/siliceous mudstones (chemofacies 1) within cores SC 4045 and 5027. The concentration of mixed carbonate mudstones is located near the middle to the basal section of the zone, while the mixed siliceous mudstone is near the top of the zone. This zone correlates to bioclast to lithoclast wackestone and massive to laminated mudstone with regional lithoclast rudstone.

Chemozone 4 was determined by clay-rich siliceous mudstone (chemofacies 3) interbedded with mixed carbonate mudstone (chemofacies 4) and carbonates (chemofacies 5) with laminations of mixed siliceous mudstone (chemofacies 2) at core Simpson Canyon 4045. The interbedded mixed carbonate mudstone is vertically consistent while the carbonate is located near the middle of the zone. This zone correlates to bioclast to lithoclast wackestone and massive to laminated mudstone.

Chemozone 5 consists of mixed carbonate mudstone (chemofacies 4) interbedded with mixed siliceous mudstone (chemofacies 2) with lamination of carbonates (chemofacies 5) within core SC 4045 near the center of the zone. Lithofacies that this zone correlates to primarily massive to laminated mudstone with low concentration of bioclast to lithoclast wackestone.

Chemozone 6 is more accurately termed “zone 6,” as there is no core data for this zone. It is based upon the well log curves, and shows a distinct zone between chemozone 5 and 7. The gamma ray log indicates that there is a shale layer within this zone, most likely a hemipelagic shale with high clay mineralogy.

Chemozone 7 consists of carbonates (chemofacies 5) with laminations of mixed carbonate mudstone (chemofacies 4) and mixed siliceous mudstone (chemofacies 2) with core SC 1036. The concentration of laminated mixed carbonate mudstones is vertically consistent throughout the zone. This zone correlates to bioclast to lithoclast wackestone, bioclast packstone, and bioclast grainstone.

Chemozone 8 consists of carbonates (chemofacies 5) interbedded with mixed carbonate mudstones (chemofacies 4) with laminations of mixed siliceous mudstones (chemofacies 2) at core Simpson Canyon 1036. The concentration of interbedded mixed carbonate mudstones is vertically consistent, while the laminated mixed siliceous mudstones are near the top of the zone. This zone

correlates to bioclast to lithoclast wackestone, bioclast packstone, and bioclast grainstone.

Chemozone 9 consists of mixed carbonate mudstone (chemofacies 4) interbedded with mixed siliceous mudstone (chemofacies 2) and carbonates (chemofacies 5) at core Simpson Canyon 1036. The concentration of interbedded carbonates is located near the basal section of the zone, while mixed siliceous mudstones near the middle to top of the zone. This zone correlates to massive to laminated mudstone.

Chemozone 10 consists of mixed siliceous mudstones (chemofacies 2) interbedded with argillaceous/siliceous mudstones (chemofacies 1) at core Simpson Canyon 1036. The concentration of argillaceous/siliceous mudstone is located near the top of the zone. This zone correlates to the massive to laminated mudstone.

5.3. Chemostratigraphy

Core SC 1046 (fig. 6) consists of grainstone and floatstone to rudstone lithofacies. The gamma-ray exhibits a massive clean bed at the base followed by two clean beds ~15-30 feet thick separated by shale beds ~4-8 feet thick. Si and Ca are inversely related, with Si low throughout much of the section and Ca relatively high. Mg and Ti do not show correlations with other elements. The clay elements (Al, Fe, K) are low with sparse spikes in abundance. The redox

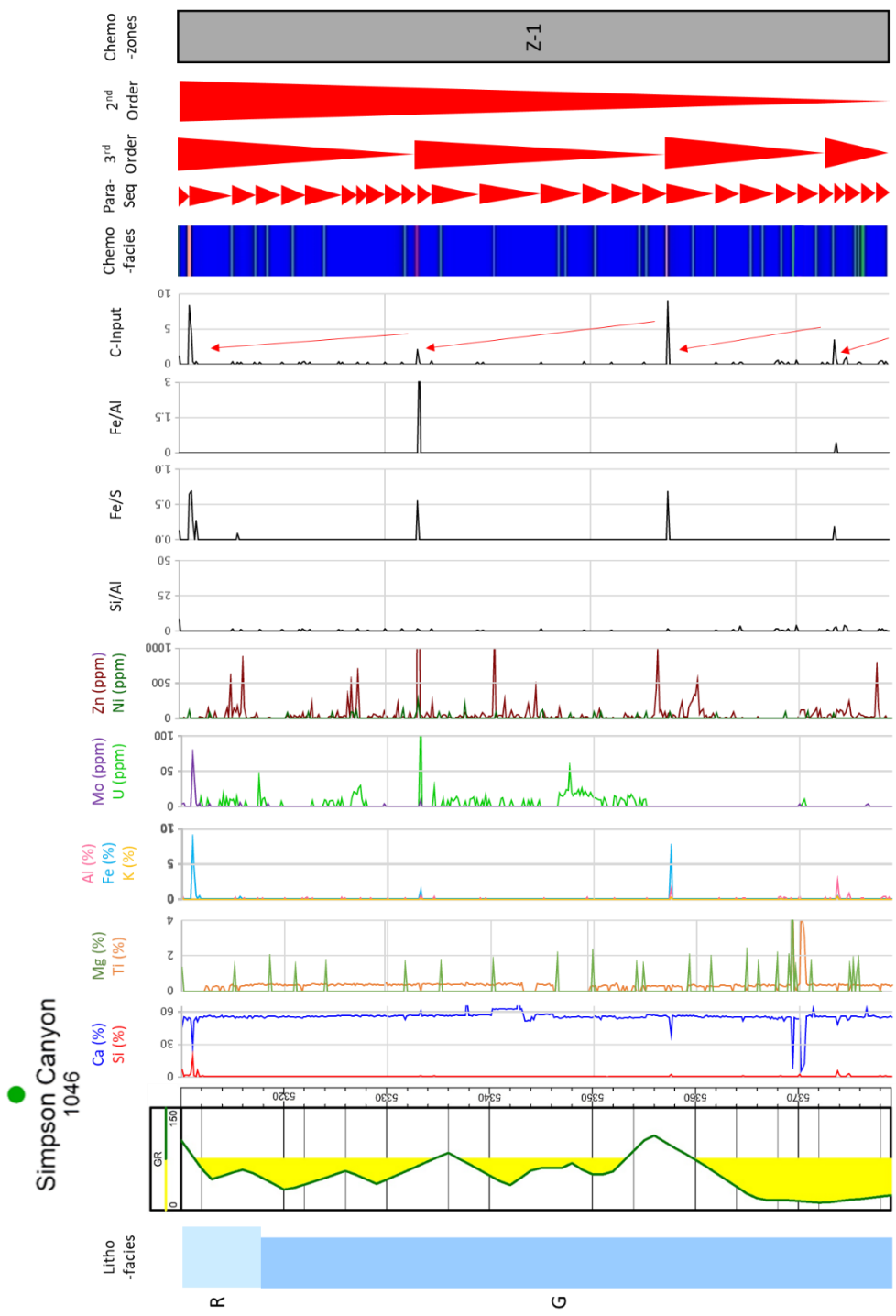

Figure 158: Chemostratigraphy of well Simpson Canyon 1046 containing chemozone 1. Rudstone to floatstone (R), grainstone (G), packstone (P), wackestone (W), and mudstone (M).

elements (Mo, U, Zn, Ni) mostly occurring above the massive clean interval at the base, correlating with increased amounts of Si and gamma ray values. This core contains a 2nd order regressive systems tract with four 3rd order regressive cycles and aggradation parasequences stacking patterns. Third order sequences cycles and parasequences exhibit longer partially symmetrical cycles. The Simpson Canyon 1046 is mostly composed of carbonate with laminations of mixed carbonate mudstone comprising of chemozone 1.

Core SC 1044 (fig. 7) consists of grainstone to packstone lithofacies. The gamma-ray exhibits a massive clean bed throughout the entire core. Si is relatively low while Ca is inversely high, Mg and Ti exhibit independence from other elemental signatures, clay elements (Al, Fe, K) are low, and redox elements (Mo, U, Zn, Ni) are mostly low with some intermittent spikes in abundance. This core contains a 2nd order regressive systems tract, with two 3rd order regressive cycles and a 3rd order transgressive cycle, and aggradation parasequences stacking patterns. Third order sequences cycles and parasequences exhibit long partially symmetrical cycles similar to Simpson Canyon 1046. Simpson Canyon 1044 is mostly composed of carbonate with laminations of mixed carbonate mudstone comprising of chemozone 1.

SC 4045 (fig. 8) consist of mudstone, wackestone, and floatstone to rudstone lithofacies. The gamma-ray exhibits a massive clean bed followed by three clean beds (~2-8 feet thick) separated by shale beds (~2-6 feet

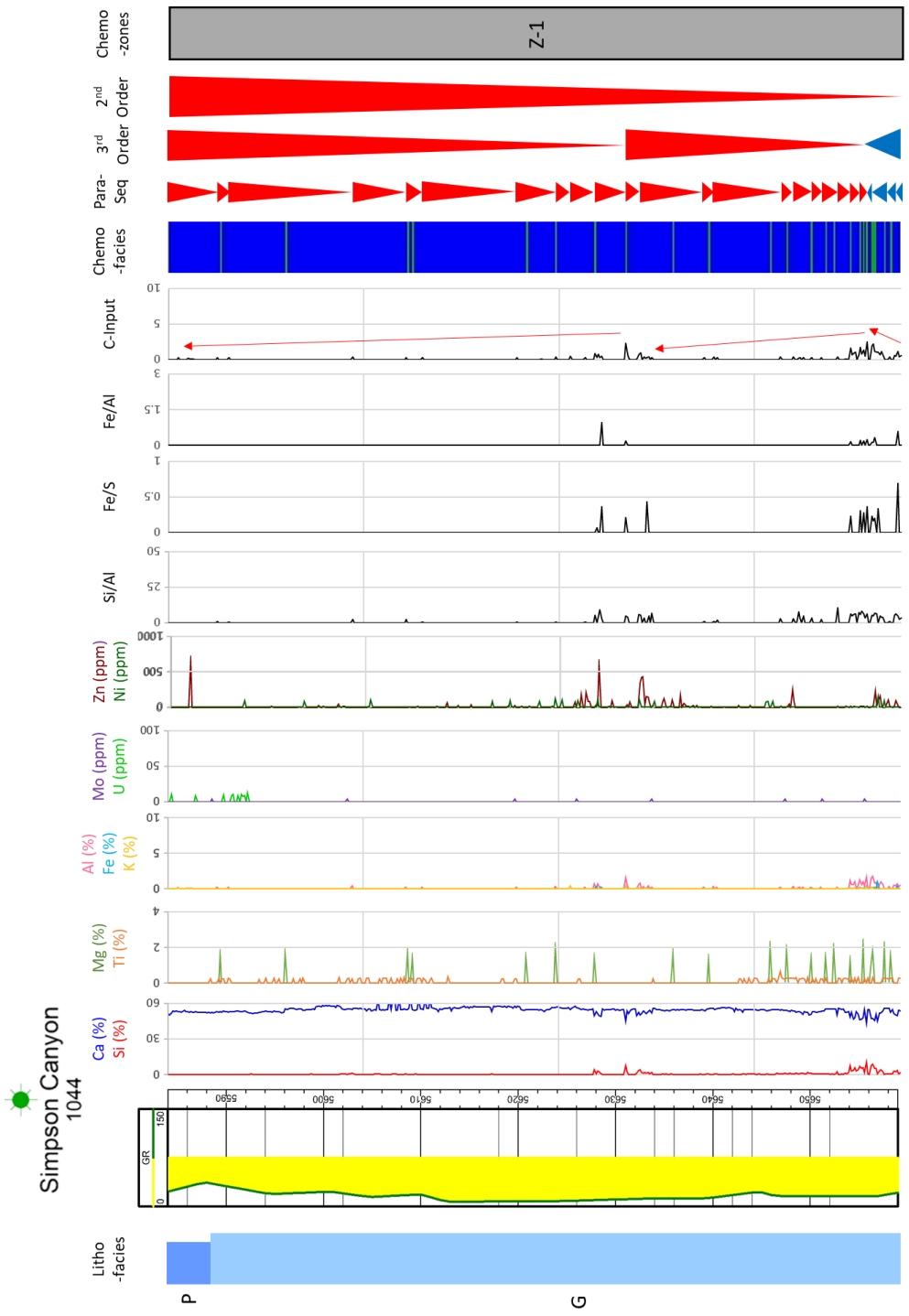

Figure 185: Chemostratigraphy of well Simpson Canyon 1044 containing chemozone 1.

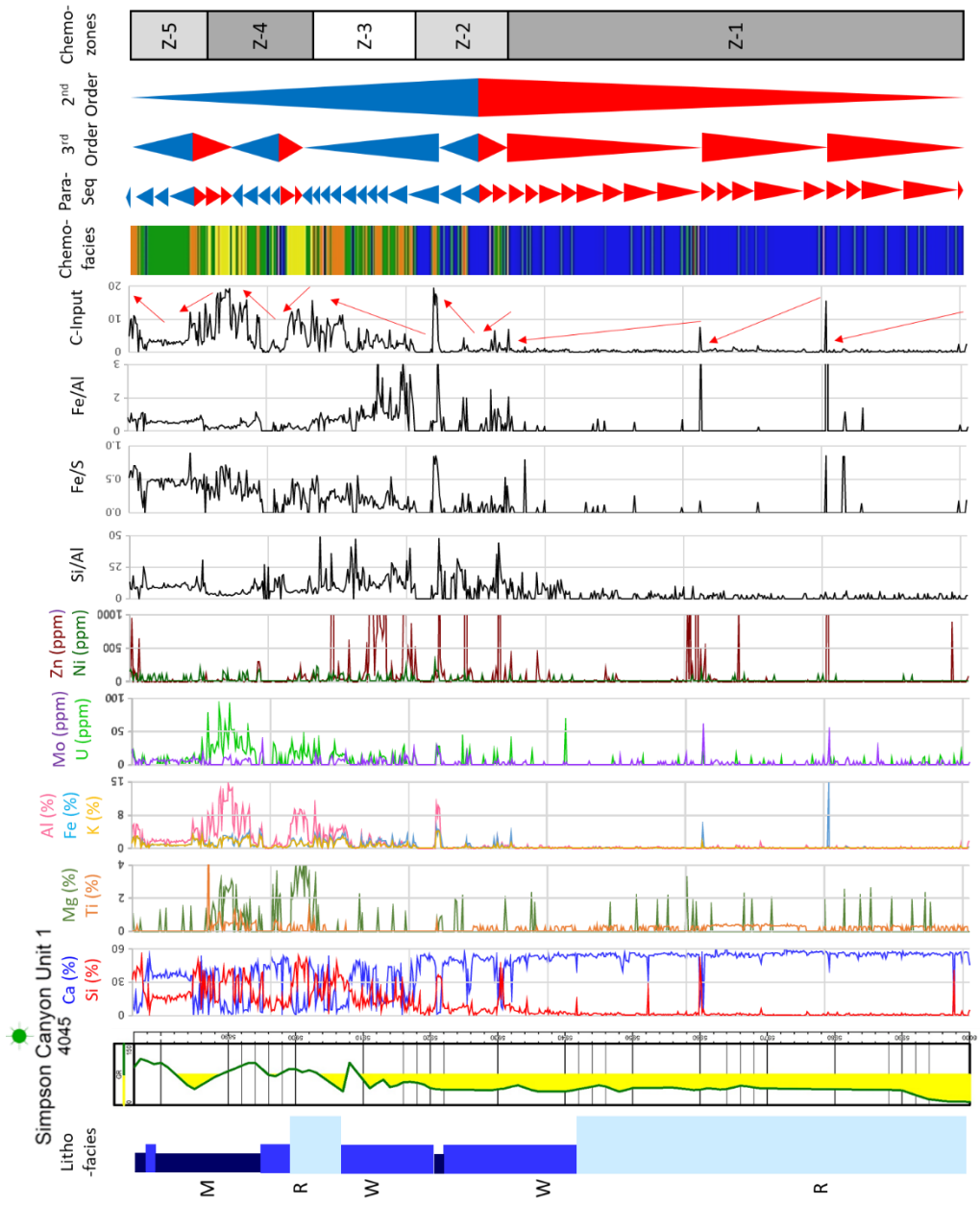

Figure 212: Chemostratigraphy of well Simpson Canyon 4045 containing chemozones 1-5.

thick). Si is relatively low while Ca is high until ~5932 feet when they periodically interchange in abundances; Mg and Ti mostly exhibit independence until ~5884-5904 feet, which correspond with an increase of clay elements and redox elements Mo and U while Zn and Ni are independent. This core contains a 2nd order regressive systems tract and 2nd order transgressive system tract, with six 3rd order regressive cycles and four 3rd order transgressive cycles, and aggradation parasequences stacking patterns. Third order sequences cycles and parasequences exhibit longer partially symmetrical cycles until ~5932 ft when the sequences becomes shorter and serrated to irregular. This core is mostly composed of carbonate with laminations of mixed carbonate mudstone, until ~5932 feet when it changes to mixed carbonate mudstone interbedded with carbonate, mixed siliceous mudstone, and clay-rich siliceous mudstone comprising of chemozones 1-5.

Simpson Canyon 5027 (fig. 9) consist of mudstone, wackestone, and grainstone lithofacies. The gamma-ray exhibits a massive clean bed followed by two clean beds (~2-4 feet thick) separated by shale beds (~4-6 feet thick) and a high spike of 150 API at ~5694 feet. Si is relatively low while Ca is high until ~5706 feet when they periodically interchange in abundances, Mg and Ti exhibit independence, clay elements and redox elements are low until ~5706 feet and then increase in abundance. This core contains a 2nd order regressive systems tract and 2nd order transgressive system tract, with four 3rd order regressive

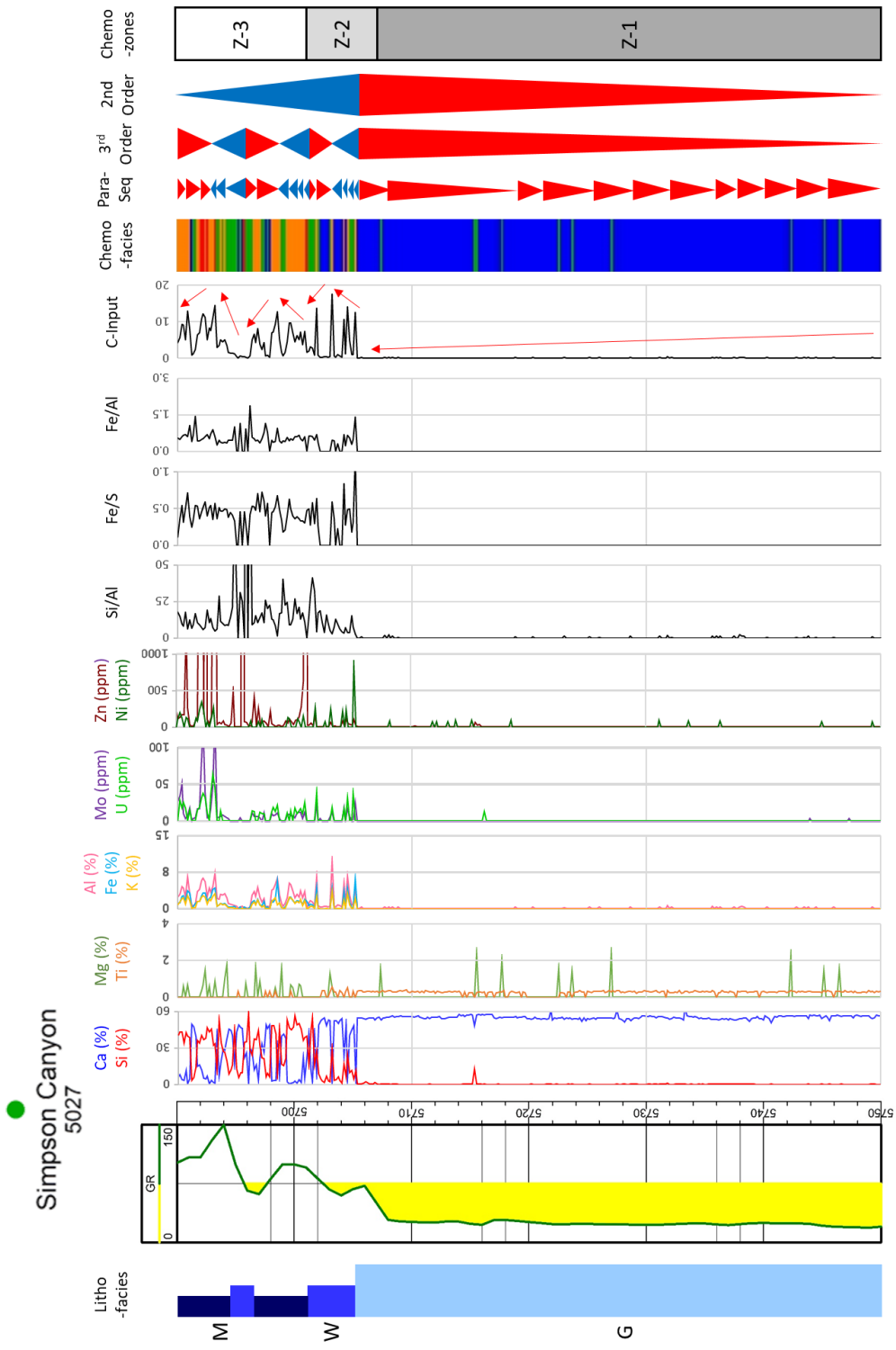

Figure 238: Chemostratigraphy of well Simpson Canyon 5027 containing chemozones 1-3.

cycles and three 3rd order transgressive cycles, and aggradation parasequences stacking patterns. Third order sequences cycles and parasequences exhibit long partially symmetrical cycles until ~5706 feet when the sequences become shorter and serrated to irregular. Simpson Canyon 5027 is mostly composed of carbonate with laminations of mixed carbonate mudstone, until ~5706 feet when it changes to mixed siliceous mudstone interbedded with mixed carbonate mudstone, carbonate, and argillaceous/siliceous mudstone comprising of chemozones 1-3.

Simpson Canyon 1036 (fig. 10) consist of mudstone, wackestone, packstone, and rudstone to floatstone lithofacies. The gamma-ray exhibits two clean beds (~10-20 feet thick) separated by shale beds (~8-10 feet thick). Si is relatively low while Ca is high until ~6296 feet when they periodically interchange or signatures narrow, Mg and Ti exhibit independence, and clay elements and redox elements are low until ~6252 feet and then increase in abundance. This core contains a 2nd order transgressive system tract, with two 3rd order regressive cycles and five 3rd order transgressive cycles, and aggradation parasequences stacking patterns. Third order sequences cycles and parasequences exhibit both longer symmetrical cycles and shorted serrated to irregular until ~6260 when most of the parasequences are serrated to irregular. Simpson Canyon 1036 is mostly composed of carbonate interbedded with mixed

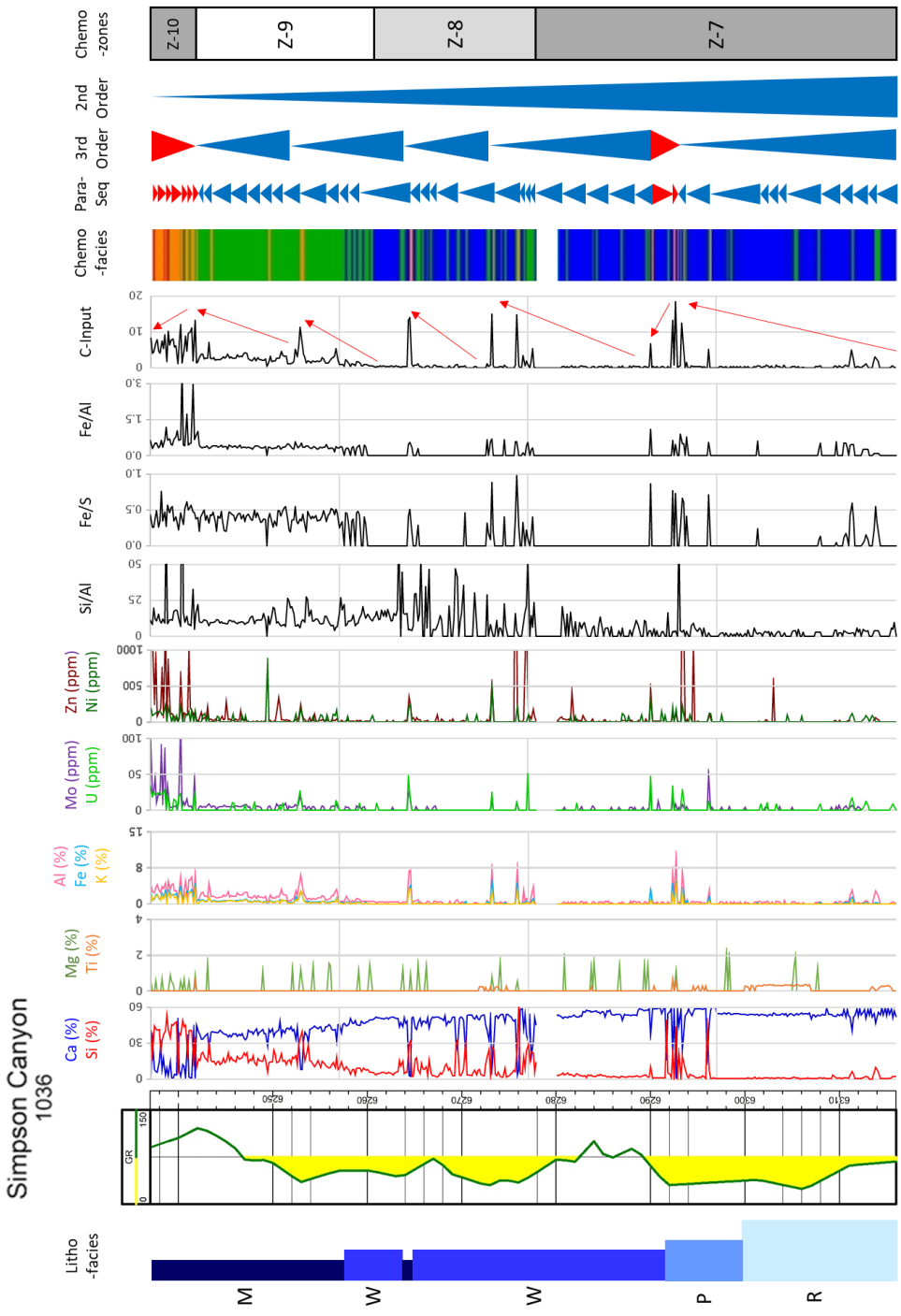

Figure 258: Chemostratigraphy of well Simpson Canyon 1036 containing chemozones 7-10.

carbonate mudstone, until ~6260 feet when it changes to mixed carbonate mudstone interbedded with mixed siliceous mudstone and clay-rich siliceous mudstone comprising of chemozones 7-10. Elemental relationships were identified from the chemostratigraphy of the Simpson Canyon wells.

The major elemental signatures correlate to the main rock-forming minerals found within the Wolfcamp Formation (fig. 6-10). Ca and Si are inversely related and provide accurate indicators for carbonate vs. siliciclastic influx in the area. Ca has a direct correlation to low-Mg calcite ($CaCO_3$), while Si primarily correlates to siliciclastics including silt-sized quartz (SiO_2), orthoclase (KAlSi3O8), plagioclase ($(Na,Ca)(Si,Al)_4O_8$), illite ($(K,H_3O)(Al,Mg,Fe)_2(Si,Al)4O_{10}[(OH)_2,(H_2O)]$), kaolinite ($Al_2Si_2O_5(OH)_4$), smectite ($(Na,Ca)_{0.33}(Al,Mg)_2(Si4O_{10})(OH)_2 \cdot nH_2O$), and muscovite ($KAl_2(Si_3Al)O_{10}(OH,F)_2$). Within the siliciclastics, K-Al-Fe contain positive relationships with the deposition of detrital clays, primarily illite, while Fe also has some correlation to the authigenesis of pyrite (FeS_2).

Mg and Ti both have independent signatures linked to diagenetic processes. Mg correlates to high-Mg calcite ($MgCO_3$) marine syndiagenetic cementation while Ti could potentially link to the abilitization of Ti-rich orthoclase feldspars due to hydrothermal alteration (Stafford, 2008).

Redox-sensitive trace metals Mo, U, Zn, and Ni all have a direct relationship with the preservation of organic matter as shown by the presence

TOC in the samples. These trace elements behave as micronutrients that form strong complexes with organic matter in oxic marine environments (Tribovillard et al., 2006; Calvert and Pederson, 1993; Algeo and Maynard, 2004). The positive relationship is from the redox metals being more soluble in oxidizing conditions and less soluble in reducing conditions (Tribovillard et al., 2006). In these cores, U and Mo are both enriched in anoxic-euxinic environments while U shows a better correlation to the organic matter than Mo possibly by chemofacies 3 (highest quartz content) filling the accommodation space in the bathymetric low (fig. 11) creating a restriction. Zn is potentially associated with pyrite in reducing environments after being expelled, while Ni correlates with organic carbon sinking-productivity (Tribovillard et al., 2006).

5.4. Regional Correlation

Chemozone 1 increases the thickness of the southwest up-slope towards the platform. Chemozone 2 is thickest where it pinches in at Simpson Canyon 1044 and thinnest where it pinches out at Simpson Canyon 5027. Chemozone 3 has regionalized thickening and thinning across the study area as well as decreases the abundance of mixed carbonate mudstones down-slope. Chemozone 4 is located only in Simpson Canyon 4045 due to a possible filling in of accommodation space in a bathymetric low between Simpson Canyon 1044

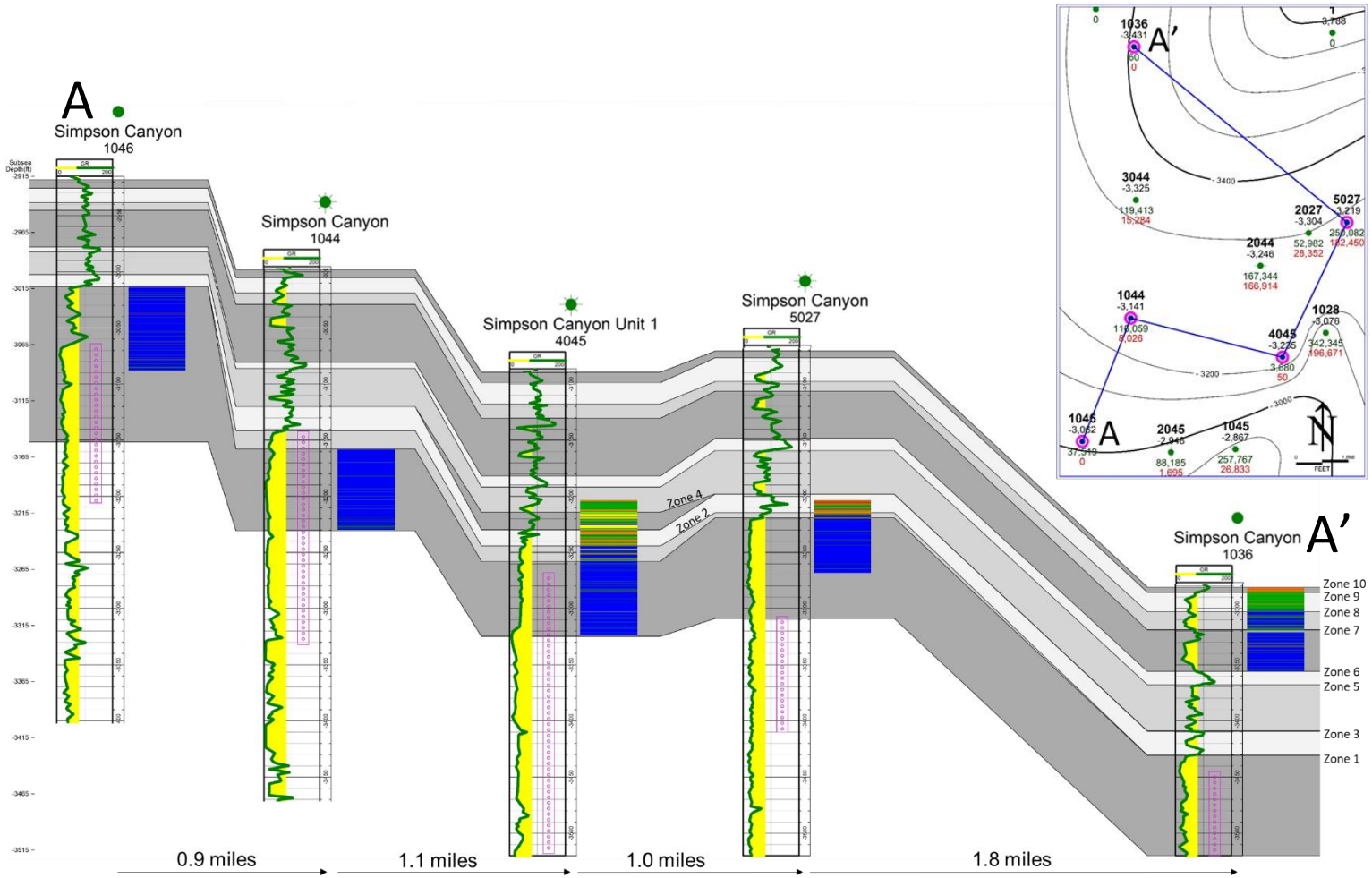

Figure 285: Wolfcamp Formation structural cross-section from A-A' with correlated chemozones with distances between well locations. Completion intervals are the pink bricks on tracks.

and Simpson Canyon 5027 (fig. 11). Chemozone 5 increases zone thickness and net clean gravity flow thickness to the northeast downslope. Chemozone 6 is the only zone that does not contain core data, but due to the increased gamma-ray measurement being laterally homogenous that increases down-slope, it can be inferred that it is not associated with gravity flows and is possibly a hemipelagic shale. Chemozone 7 is thickest near the middle of the study area with increase net clean gravity flows downslope. Chemozone 8 and 9 increase zone thickness, and net clean gravity flows downslope. Chemozone 10 is relatively the same thickness across the study area.

6. DISCUSSION

6.1. Gravity Flows and Stratigraphic Relationships

The gravity flows in the Simpson Canyon lease consist of slides to slumps, debris flows, turbidity currents, and hemiturbiditic plumes, as seen in these cores and further characterized based upon the chemostratigraphy with the addition of XRD and TOC. The principal processes of transported sediments and organic matter in deep-water environments in this region can be readily explained by the model proposed by Stow et al. (2001) (fig. 12). Gravity flows are transported and deposited singularly or sequentially forming a flow transformation that decreases in energy and finely grades upward (Stow et al., 2001). Flow transformation is initially transported as a slide-slump, followed by a debris flow, then high to low-density turbidity current, capped by a hemiturbiditic plume. These processes are the result either a single event or combination of initiation events, such as tectonic pulses or high frequency sea-level fluctuations.

The slides to slumps in this model are massive events that allow for the transportation of large volumes of grain-to-grain deposits that are common across deep marine slopes, especially in these Wolfcamp Formation cores (Hampton et al., 1997; Mulder and Cochonat, 1996). The

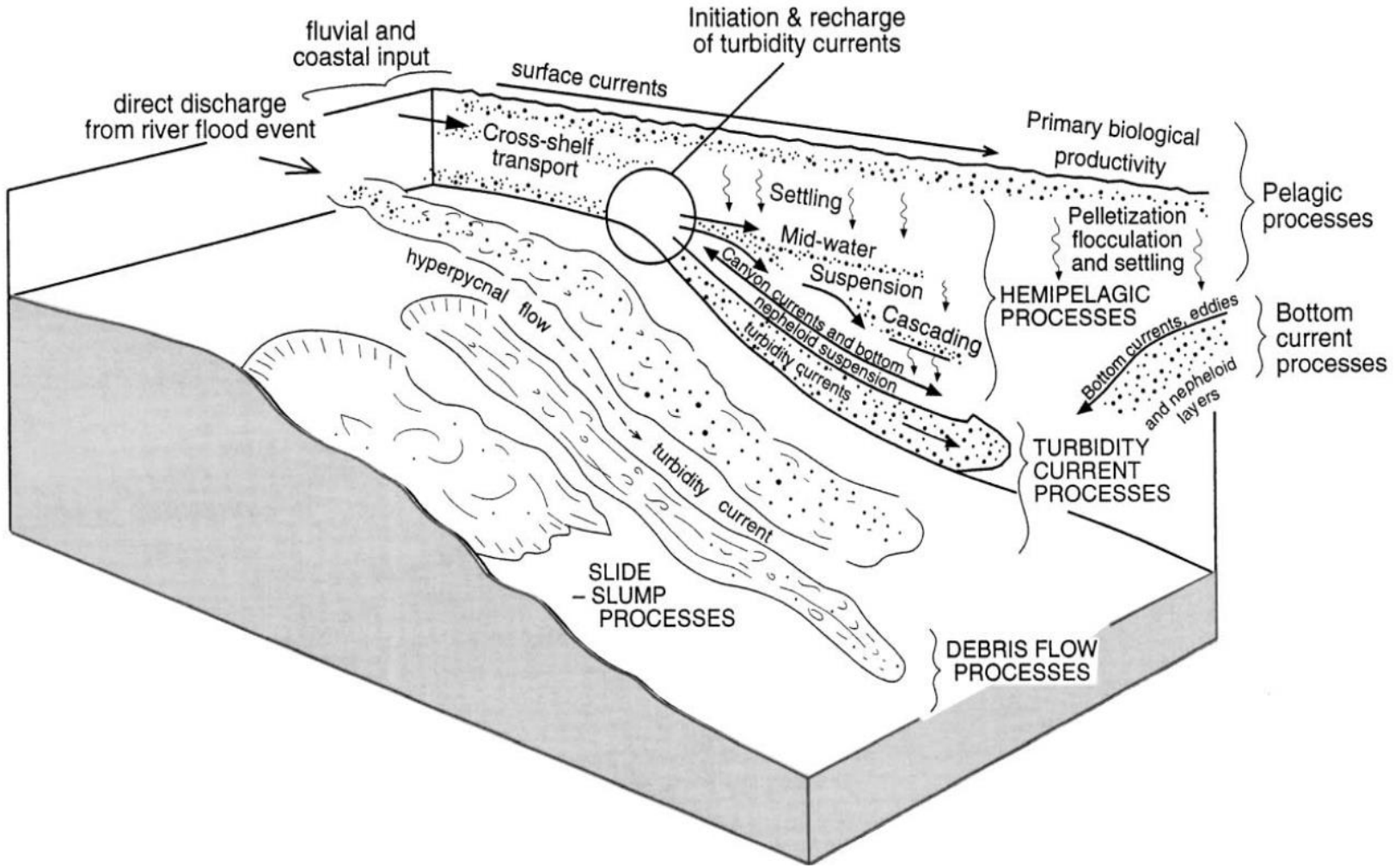

Figure 310: Principal transported deposition processes model in a deep-water marine environment (Stow et. al., 2001).

bioclast packstone to grainstone and porous bioclast packstone to grainstone lithofacies in these cores appear to be slide to slump deposits described in the model, migrating carbonate debris from the platform downslope towards the basin. The large clasts within these facies combined with the lack of a clay-sized matrix indicate these are relatively high-velocity, massive deposits caused by gravity. These are often capped by laminated shale, indicating a hiatus between events.

Debris flows, though, are often convoluted events that move coarse clasts within a fine-grained matrix allowing for large amounts of material transported downslope (Masson, 1996; Masson et al., 1997). Here, the debris flows deposited the lithoclast rudstone to floatstone and bioclast to lithoclast wackestone lithofacies. These are a combination of fining upwards sequences through poorly sorted yet oriented carbonate grains of broken material that have been transported from the platform to the slope with its fine-grained matrix. The high-density fine-grained matrix allows for the large clasts to be transported for extensive distances.

Turbidity currents are mostly fine-grained material in a dilute suspension that can be transported the longest downslope into the basin (Pickering et al., 1989; Stow et al., 1994; Stow et al., 1996). These high-density turbidity currents deposited the mixed carbonate mudstone lithofacies while the low-density turbidities are depositing the clay-rich siliceous mudstone and mixed siliceous

mudstone seen in these cores. Hemiturbiditic plumes are the final deposit of a turbidity sequence and consist of upward dispersion mixing with hemipelagic material and vertical settling (Stow and Wetzel, 1990). This depositional process contains the argillaceous/siliceous mudstone lithofacies consisting of the highest amount of clay minerals.

These highly heterogeneous slope-deposits are a result of Permian glacioeustasy and high frequency sea-level fluctuations and tectonic pulses. The parasequence stacking patterns represent aggradation from both the cylindrical-massive carbonate grain flows and serrated-interbedded debris flows and turbidity currents that are significantly influenced by paleoceanography and paleoclimate (Mitchum and Van Wagoner, 1991; Read, 1995; Canuneanu et. al., 2011).

Low energy systems with little erosion to the substrate transport fine-grained, thin turbidity currents, depositing lithofacies that grade upward with mixed carbonate mudstone, clay-rich siliceous mudstone, mixed siliceous mudstone, and end with the hemiturbiditic plume of argillaceous/siliceous mudstone. Higher energy systems with high rates of erosion caused by storm events would transport larger clasts leading to thin debris flows, depositing bioclast to lithoclast wackestone lithofacies. The required energy system to deposit the massive slide to slump during a sea-level lowstand is the result from the middle Wolfcampian tectonic pulse (fig. 1) (Sarg et al., 1999), as shown in

Simpson Canyon 1036 (fig. 10). A tectonic pulse would create a large enough energy system to promote carbonate slope failure and deposit large volumes of reef material. This massive bed contains flow transformation and normal grading of lithofacies from grainstone to argillaceous/siliceous mudstone. One approach to support this theory is to perform high-resolution biostratigraphy, dating the *Nealian* fusulinids throughout these cores to tie the beds to tectonic event (Williams, 1963). Sea-level then rises to a transgressive system tract during the upper Wolfcampian (fig. 1) (Sarg et al., 1999).

The lower Wolfcampian is characterized as a sea-level highstand (Sarg et. al., 1999; Mazzullo and Reid, 1989). Sea-level highstands (fig. 6-9) initiated the carbonate factory in shallow marine waters forming reef and organic buildups. Increased sea levels then drowned the platform leading to overproduction and oversteeping of the carbonate platform slope, which causes shedding of slides to slumps, influencing the downslope topography. The massive volume of these reef material gravity flows deposited the bioclast packstones to grainstones lithofacies. The larger, partially symmetrical sequence cycles found in the lower Wolfcampian massive carbonate slumps are associated with periodic parasequences in response to regional glacioeustatic sea-level changes (Weber et al., 1995). Sea-level then regressed to a lowstand during the middle Wolfcampian (fig. 1) (Sarg et al., 1999).

The sea-level lowstands (fig. 8-10) led to a sub-aerially exposed carbonate platform that is influenced by fluvial/deltaic siliciclastic influx. This drop of sea-level also creates instability of the carbonate platform prone to slope failure. Fluvial systems and wave energy would erode the carbonate platform and transport sediment downslope. Another possible source of the siliciclastic sediment could be from the southern Marathon thrust belt and sourcing from the result of tectonic activity. The shorter irregular to serrated sequence cycles found in the middle Wolfcampian interbedded debris flows and turbidity currents are associated with episodic parasequences in response to localized delta lobe shifts and tectonic pulses (Weber et al., 1995). These episodic parasequences resulted in a variety of initiation energy systems transporting sediment down slope.

The Upper Wolfcampian represents periods of stagnation that resulted in the deposition of hemipelagic mudstones. The upper Wolfcampian hemipelagic mudstones are not included in the Simpson Canyon cores while hemipelagic deposition is shown in zone 6. The laterally continuous relationship across the study area that thickens downslope into the basin is indicative of quiescence hemipelagic deposition (fig. 5). It is possible that the hemipelagic mudstones along the slope have lower organic content compared to the mudstones associated with gravity flows due to lower sedimentation rate for rapid burial of organic matter preservation (Stow et al., 2001; Jones, 1983).

6.2. Organic Matter Preservation

The Wolfcamp Formation mudstones in the Simpson Canyon lease are organically-rich (4.65% mean TOC) due to a combination of organic matter preservation processes related to the transport and deposition of these gravity flows. The principal factors that affect the preservation of organic matter in the study site are high productivity, rapid burial, and bottom-water anoxia (Stow et al., 1994; Stow et al., 1996; and Stow et al., 2001). Each of these preservation processes are the result from rapid downslope resedimentation caused by these gravity flows (Gallois, 1976; Dean et al., 1984; and Stow et al., 2001).

During the time of the Wolfcamp Formation deposition, productivity fluctuated widely from high to low, as indicated by the chemofacies (fig. 6-10). This fluctuation allowed for increased productivity, cycling with bottom water anoxia and combined with rapid burial to further mitigate the preservation of organic matter in the mudstones throughout the cores. Similar conditions are found throughout the basin, where TOC content is the highest (8%) and the mudstones are the most extensive (Ward, 1986; Kvale and Rahman, 2016).

A sub-modern analog of organic matter preservation due to depositional processes is the Angola Basin, Southeast Atlantic Ocean (Stow et al., 2001). The downslope processes from the Walvis Ridge with the pelagic to hemipelagic black shales are turbidity currents, debris flows, and slides to slumps. These gravity flows increase the organic matter preservation with high productivity and

rapid burial (Stow et al., 2001; Arthur et al., 1984; Brooks and Fleet, 1987; Klemme and Ulmishek, 1991, North, 1979; and Wignall, 1994).

6.3. Exploration Considerations

The current conventional target of the Wolfcamp Reef is the porous packstone to grainstone lithofacies exhibiting 13% porosity (fig. 3a). Porosity in the carbonate facies often consists of secondary porosity due to the dissolution of carbonates. This play contains limitations as the reservoirs are challenging to correlate laterally between wells, have been targeted for many years, and have inconsistent production. There are a variety of plays that can be developed with modern technology in the gravity flows though. One possible unconventional play could target the tight packstone to grainstone facies with lower porosity stratified throughout the Wolfcamp Reef or overlying localized grain flows to debris flows containing carbonates to mixed carbonate mudstones facies. Another possible unconventional play in the study area targets the argillaceous/siliceous, clay-rich siliceous, and mixed siliceous mudstones that are organically rich ranging in 6-8% TOC. These mudstones are primarily composed of brittle mineralogy with non-expanding clay minerals and interparticle pore space ranging from 1 to 10 microns, possibly due to stacking arrangements or diagenetic dissolution of calcite or feldspars (fig. 13). The shale reservoirs in the study area have not been targeted but contains characteristics of a potential play for the future.

The Wolfcamp Formation gravity flows unconventional plays might not be as economical as the basinal shale plays are today, but could provide economic value in the future when the importance of development increases. These complex plays require much more research and testing before being explored in the field.

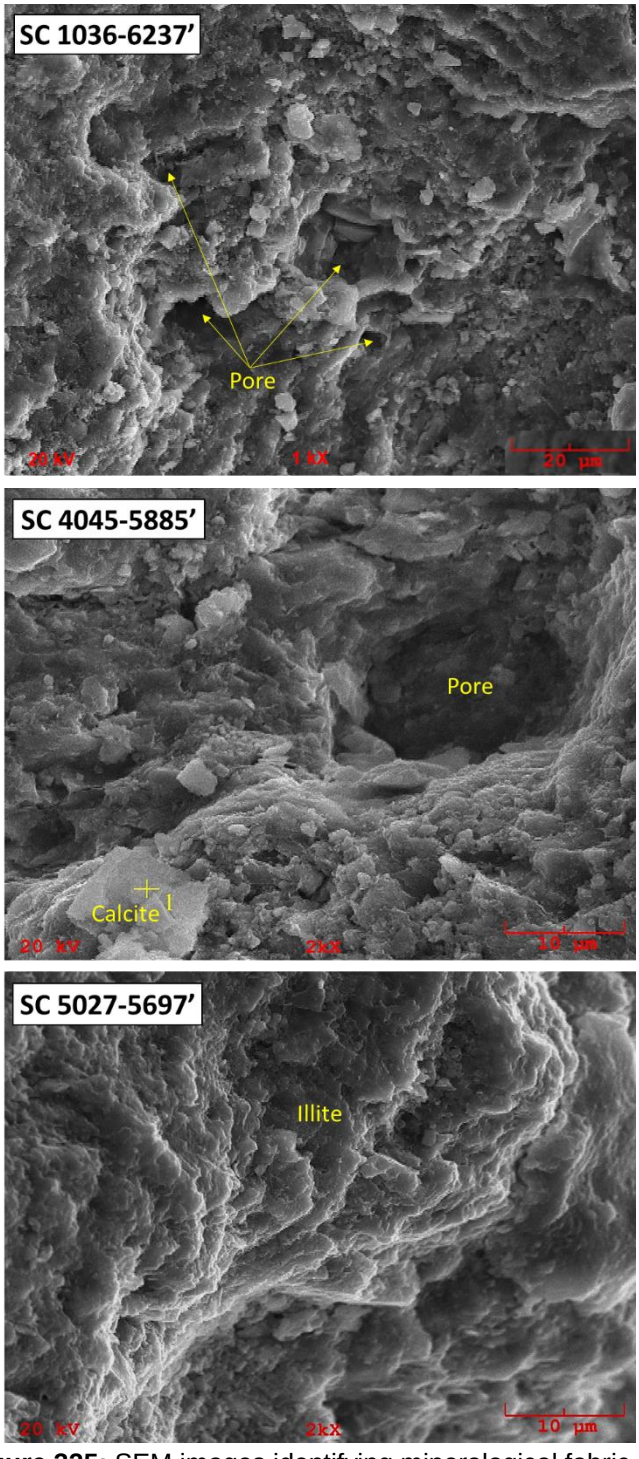

Figure 325: SEM images identifying mineralogical fabric and pore space in the Wolfcamp Formation's organic mudstones.

7. CONCLUSIONS

The carbonate gravity flows of the Wolfcamp Formation exhibit significant vertical and lateral facies complexity along the southeastern slope of the Central Basin Platform. This high-resolution geochemical study allows for the characterization of mixed carbonate and siliciclastic depositional systems that are the result of periodic glacioeustacy and episodic sea-level fluctuations to tectonic pulses. The following are conclusions based on the interpretations presented in this study on the detrital Wolfcamp Formation in the Simpson Canyon lease:

I. The application of high-resolution geochemical analyses with a hand-held XRF and data analytics of agglomerative HCA is an inexpensive yet successful approach for the characterization of complex carbonate gravity flows.

II. The elemental signatures inverse relationship between Ca and Si provide an accurate representation of mixed depositional systems of carbonate platform shedding versus fluvial/deltaic siliciclastic influx.

III. Lithology and mineralogy helped indicate that the Wolfcamp Formation in Crockett County, TX is primarily composed of bioclast packstone to grainstone, porous bioclast packstone to grainstone, lithoclast rudstone to floatstone, bioclast to lithoclast wackestone, mixed carbonate mudstone,

mixed siliceous mudstone, clay-rich argillaceous mudstone, and argillaceous-siliceous mudstone.

IV. The characterized gravity flows and depositional processes are slides to slumps, debris flows, turbidity currents, hemiturbiditic plumes, and hemipelagic.

V. The mudstones associated with gravity flows along the slope are organically-rich (4.65% mean TOC) due to the preservation of organic matter of organic supply from high productivity, rapid burial from high sedimentation rate, and disoxic conditions from slide to slump paleotopographic restriction.

8. FUTURE WORK

Research that can help expand the chemostratigraphy relationships of these carbonate gravity flows are high-resolution chemostratigraphy using oxygen and strontium isotopes and trace metal origins between diagenetic and depositional. Another project utilizing these core can apply biostratigraphy to date the fusulinids to higher sequence cycles to Milankovitch cycles. A geochemistry research project can be applying Rock-Eval pyrolysis to the slope organic-rich mudstones in the study site and comparing them to basinal organic-rich mudstones to identify maturation relationships.

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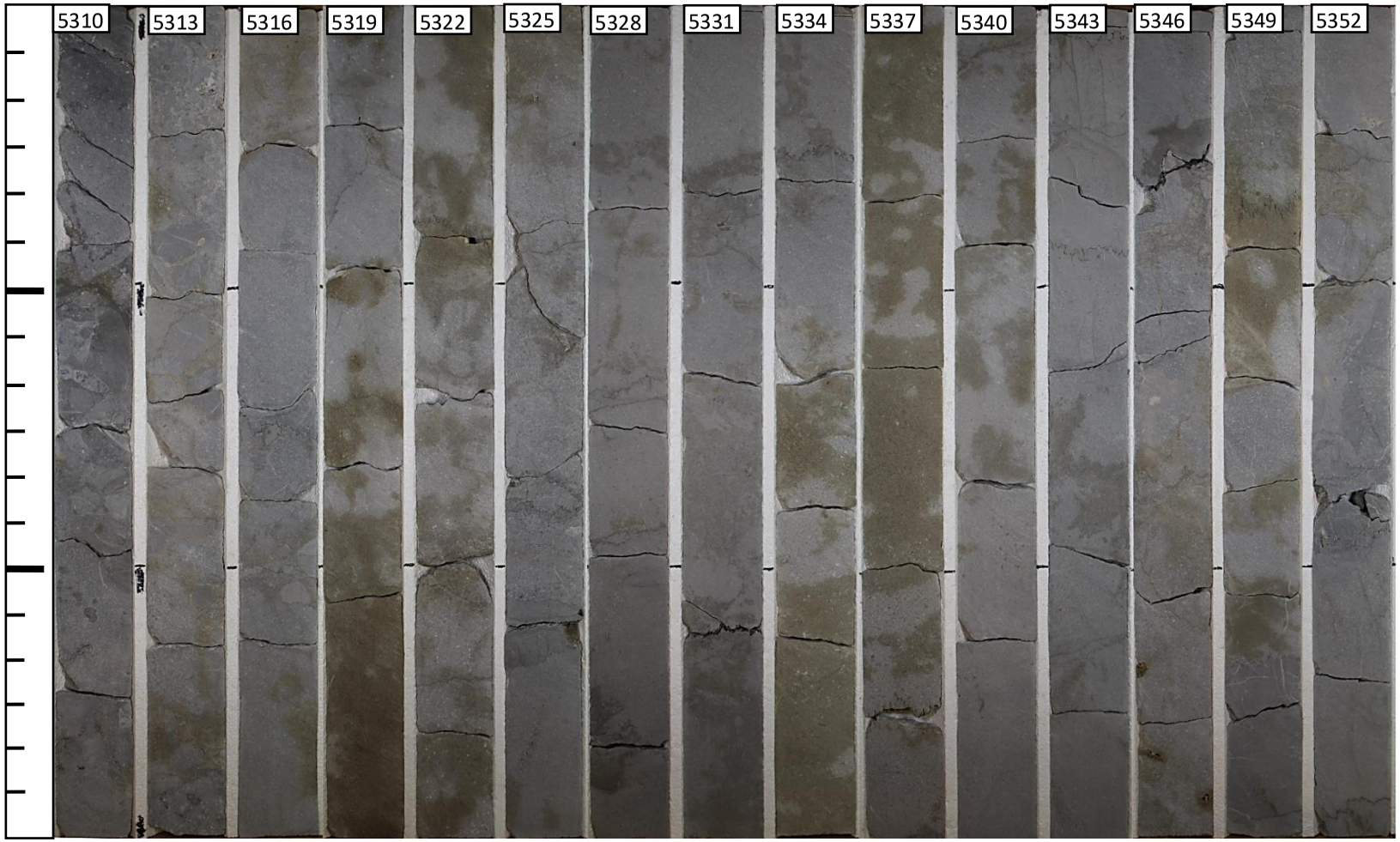
10. APPENDICES

API #	Well Name	Cored Depths (MD)	Reef Top (SS)	Cum Oil (BBLS)	Cum Gas (MCF)
42-105-39584	Simpson Canyon 1046	5,310'-5,379'	-3,062	37,519	0
42-105-39658	Simpson Canyon 1044	5,584'-5,659'	-3,141	116,059	8,026
42-105-39639	Simpson Canyon 4045	5,876'-5,997'	-3,235	3,680	50
42-105-39889	Simpson Canyon 5027	5,690'-5,750'	-3,219	250,082	182,450
42-105-30637	Simpson Canyon 1036	6,237'-6,316'	-3,431	60	0
42-105-39819	Simpson Canyon 1027		-3,273	0	0
42-105-30644	Parker 2-P		-3,229	0	0
42-105-31112	Parker Ranch Co 3		-3,299	0	0
42-105-30613	Parker Ranch Co 1		-3,227	0	0
42-105-30868	Bouscaren 1		-3,210	0	0
42-105-31695	Bouscaren 2		-3,321	84,215	62,214
42-105-30582	Bouscaren J-1		-3,299	0	0
42-105-39954	Simpson Canyon 1035		-3,788	0	0
42-105-39840	Simpson Canyon 2043		-3,262	121,543	30,236
42-105-35875	Parker Ranch 2		-2,888	0	0
42-105-39073	Simpson Canyon Jan-79		-2,827	89,477	83
42-105-39224	Simpson Canyon 2079		-2,773	311	0
42-105-39253	Simpson Canyon 1045		-2,867	257,767	26,833
42-105-39409	Simpson Canyon 2045		-2,948	88,185	1,695
42-105-39462	Simpson Canyon 1028		-3,076	342,345	196,671
42-105-39779	Simpson Canyon 2027		-3,304	52,982	28,352
42-105-39794	Simpson Canyon 2044		-3,246	167,344	166,914
42-105-39824	Simpson Canyon 3027		-3,272	388,255	269,171
42-105-39841	Simpson Canyon 4027		-3,250	89,938	66,372
42-105-39865	Simpson Canyon 1078		-2,681	0	0
42-105-39912	Simpson Canyon 3044		-3,325	119,413	15,284
42-105-40370	Parker 1026		-3,265	40,003	36,045
42-105-40743	Simpson Canyon 2045		-2,920	436	0
42-105-40756	Simpson Canyon 4027		-3,499	0	0
42-105-41347	Bouscaren 25		-3,379	0	0
42-105-41817	Parker 30		-2,877	0	0
42-105-39751	Simpson Canyon		-3,268	0	0
42-105-32155	Parker Ranch 1		-3,491	0	0

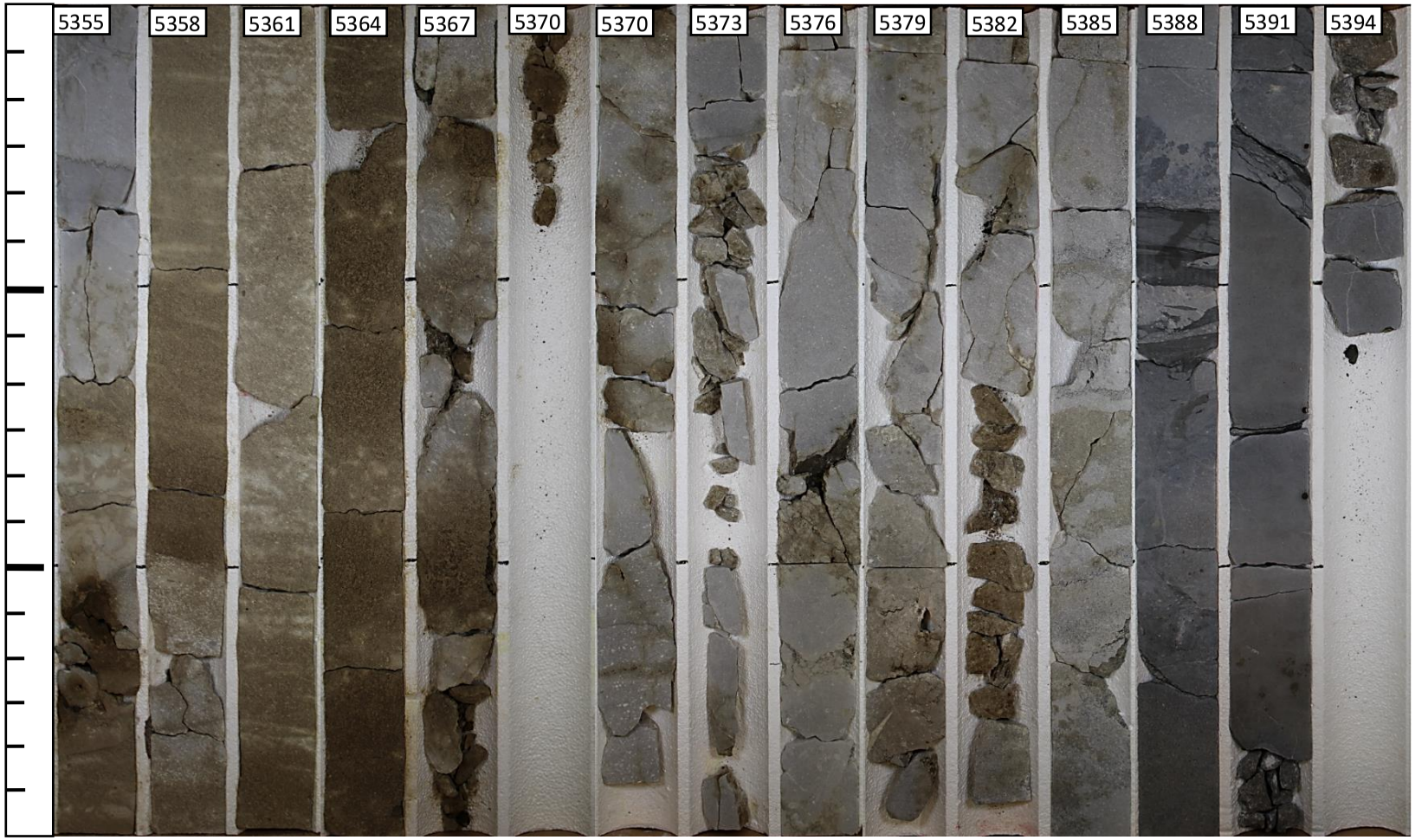
Appendix 1: Well logs used in study with API number, well name, cored depths, Wolfcamp Reef Top, cumulative oil, and cumulative gas.

Core Name	Depth (MD)	Facies	TOC (%)
Simpson Canyon 5027	5692'	1	8.13
Simpson Canyon 5027	5693.17'	1	10.86
Simpson Canyon 1036	6237'	1	6.59
Simpson Canyon 1036	6238.5'	1	7.7
Simpson Canyon 4045	5885'	2	7.63
Simpson Canyon 4045	5906'	2	4.51
Simpson Canyon 4045	5920'	2	6.72
Simpson Canyon 5027	5697'	2	5.86
Simpson Canyon 5027	5700'	2	6.86
Simpson Canyon 4045	5890'	3	7.72
Simpson Canyon 4045	5892'	3	10.51
Simpson Canyon 4045	5900'	3	10.28
Simpson Canyon 4045	5901'	3	6.29
Simpson Canyon 1036	6256'	4	3.62
Simpson Canyon 5027	5702'	4	5.49
Simpson Canyon 5027	5694.5'	4	1.62
Simpson Canyon 4045	5879'	4	4.42
Simpson Canyon 4045	5894'	4	2.08
Simpson Canyon 1046	5350'	5	0
Simpson Canyon 1044	5600'	5	0

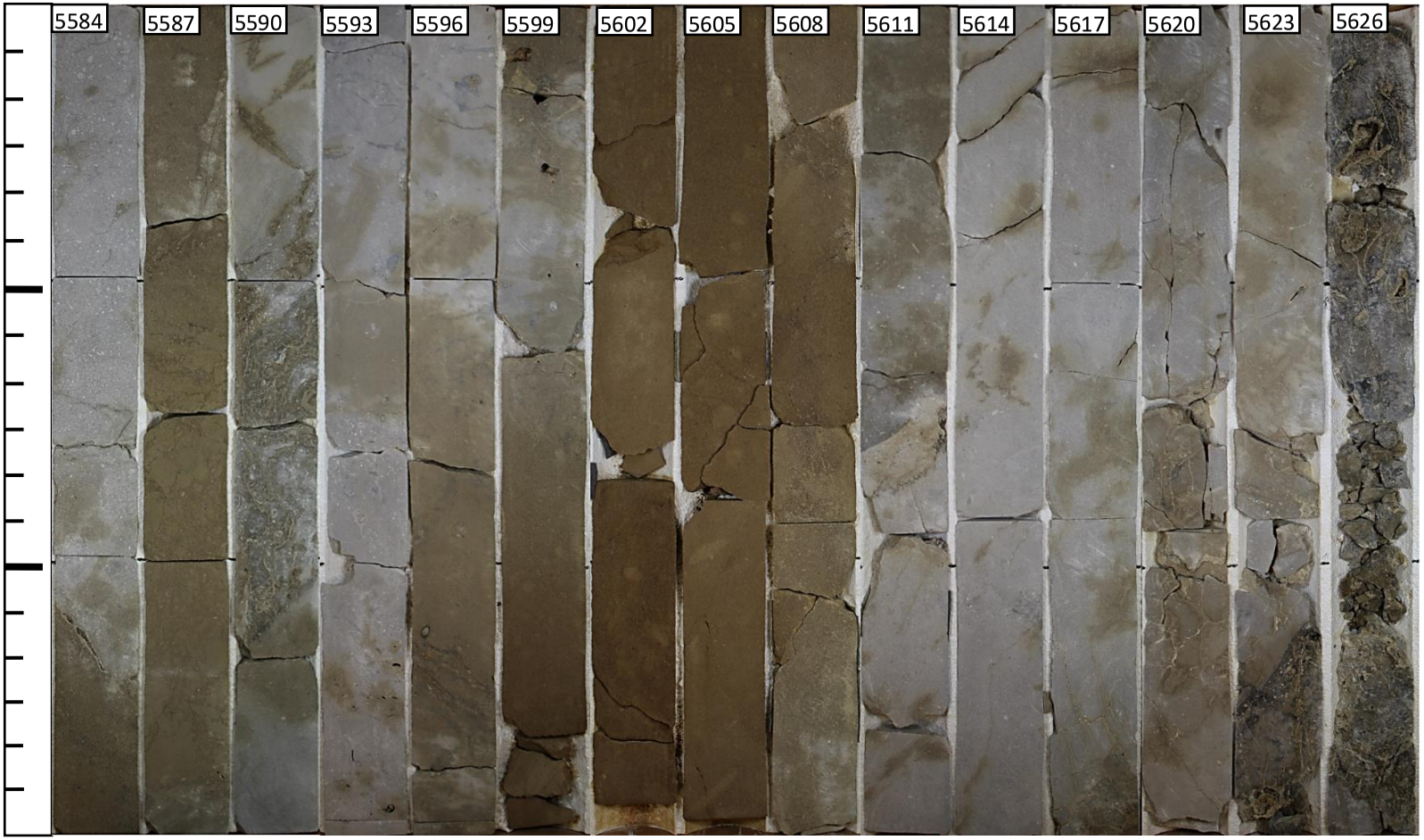
Appendix 2: TOC (%) data on cores depths (MD) with associated chemofacies 1-5.



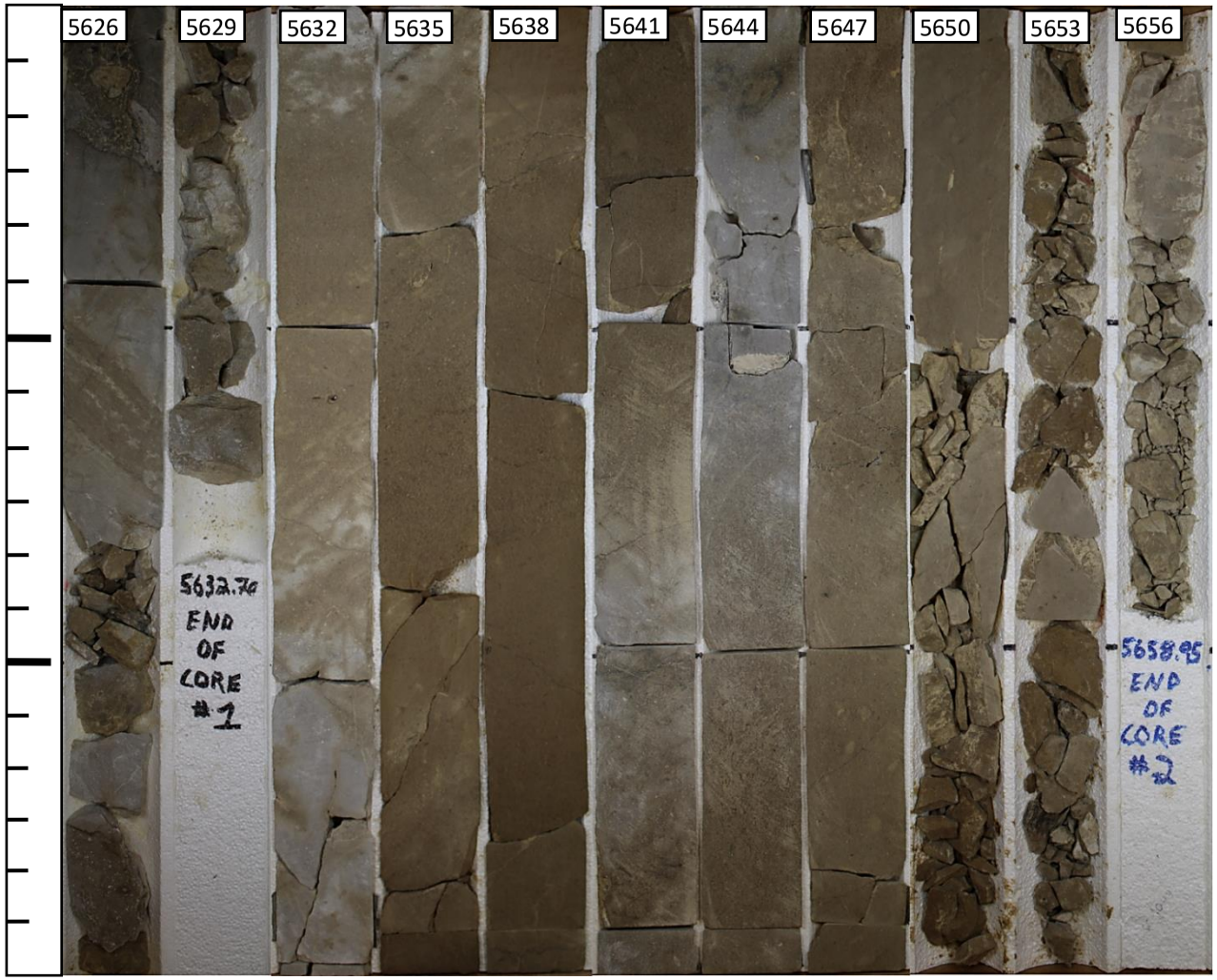
Appendix 3: Slab-pack core sample of Simpson Canyon 1046 interval 5310-5355 feet.



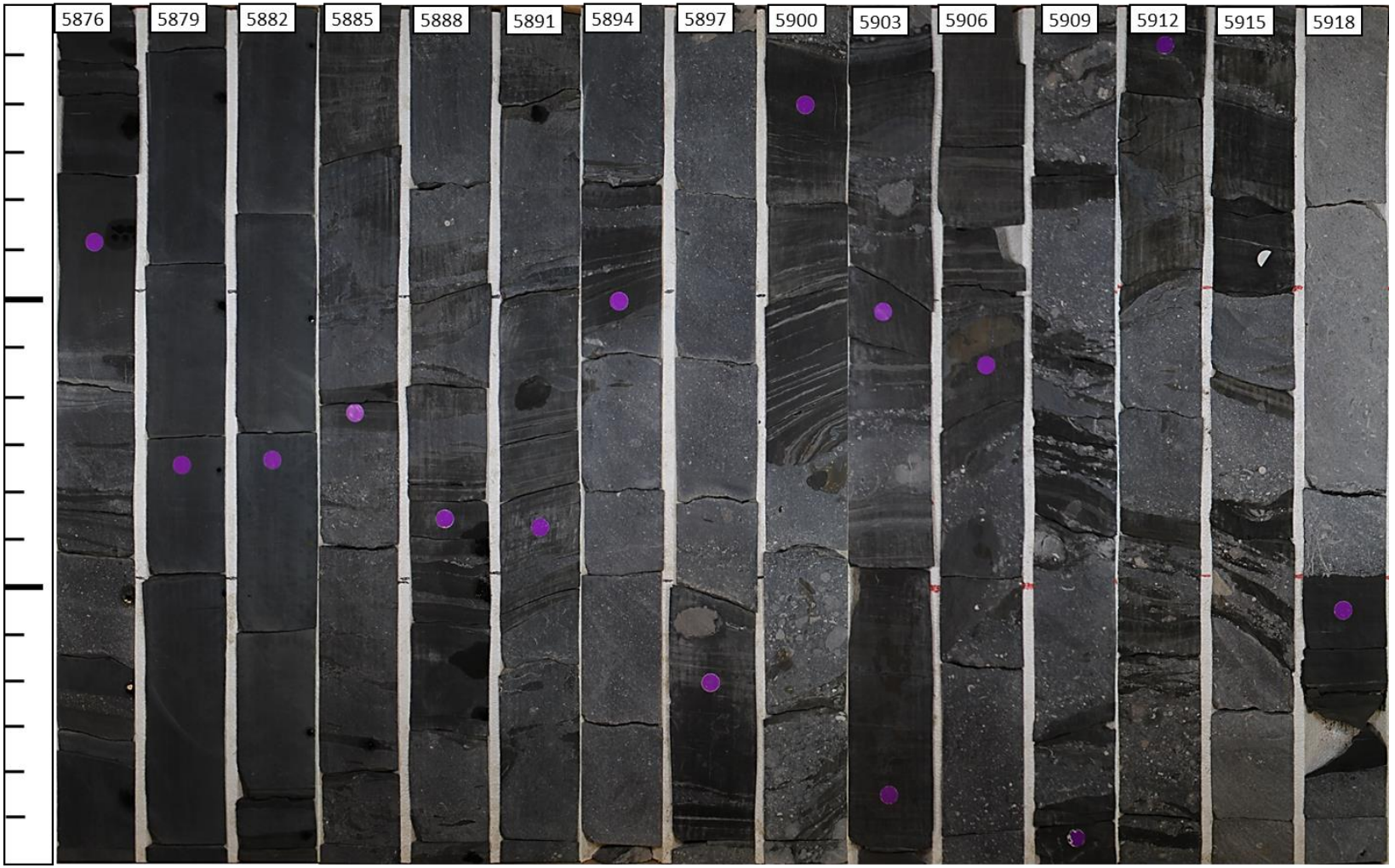
Appendix 4: Slab-pack core sample of Simpson Canyon 1046 interval 5355-5395.2 feet.



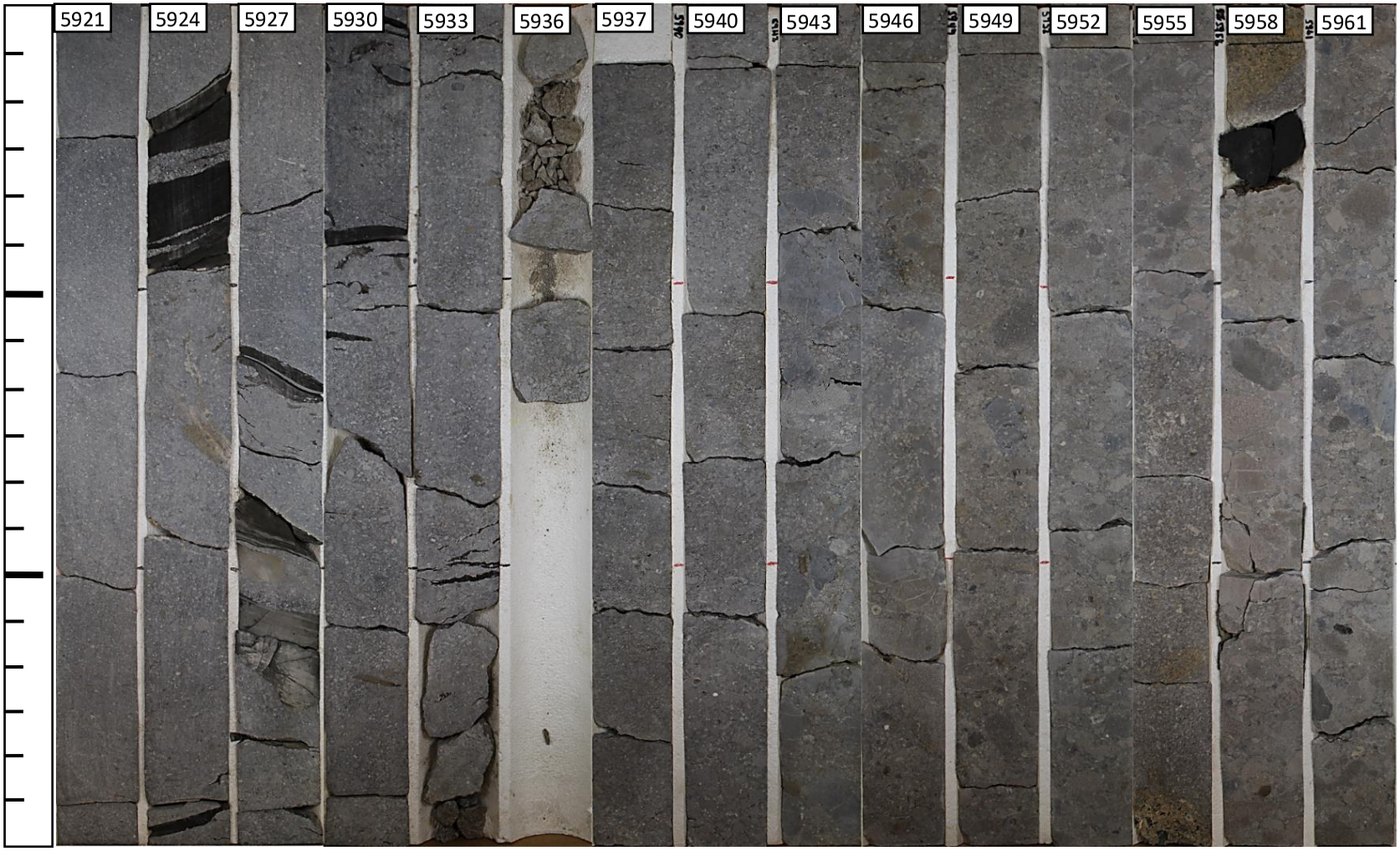
Appendix 5: Slab-pack core sample of Simpson Canyon 1044 interval 5584-5629 feet.



Appendix 6: Slab-pack core sample of Simpson Canyon 1044 interval 5626-5658.95 feet.

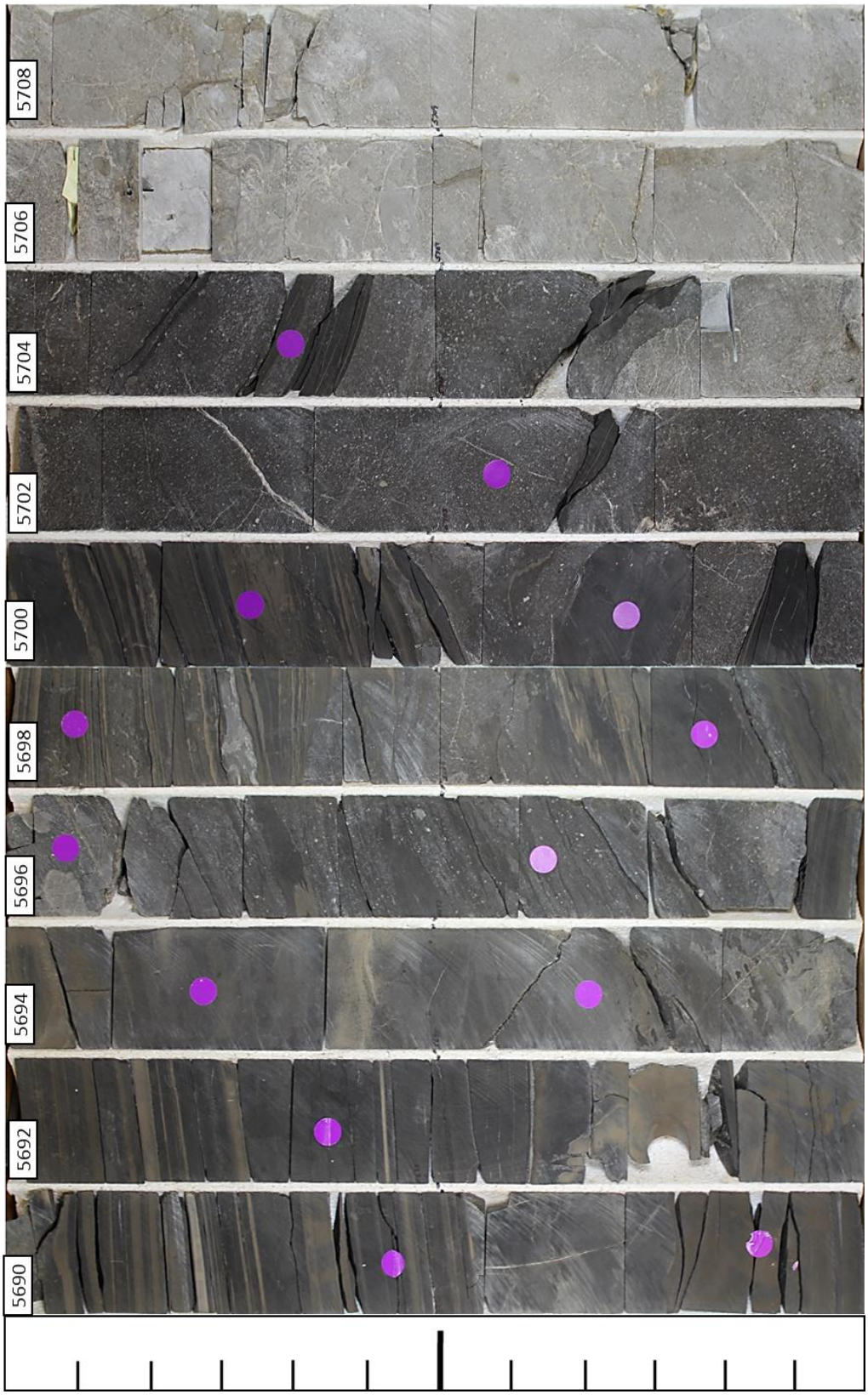


Appendix 7: Slab-pack core sample of Simpson Canyon 4045 interval 5876-5921 feet.

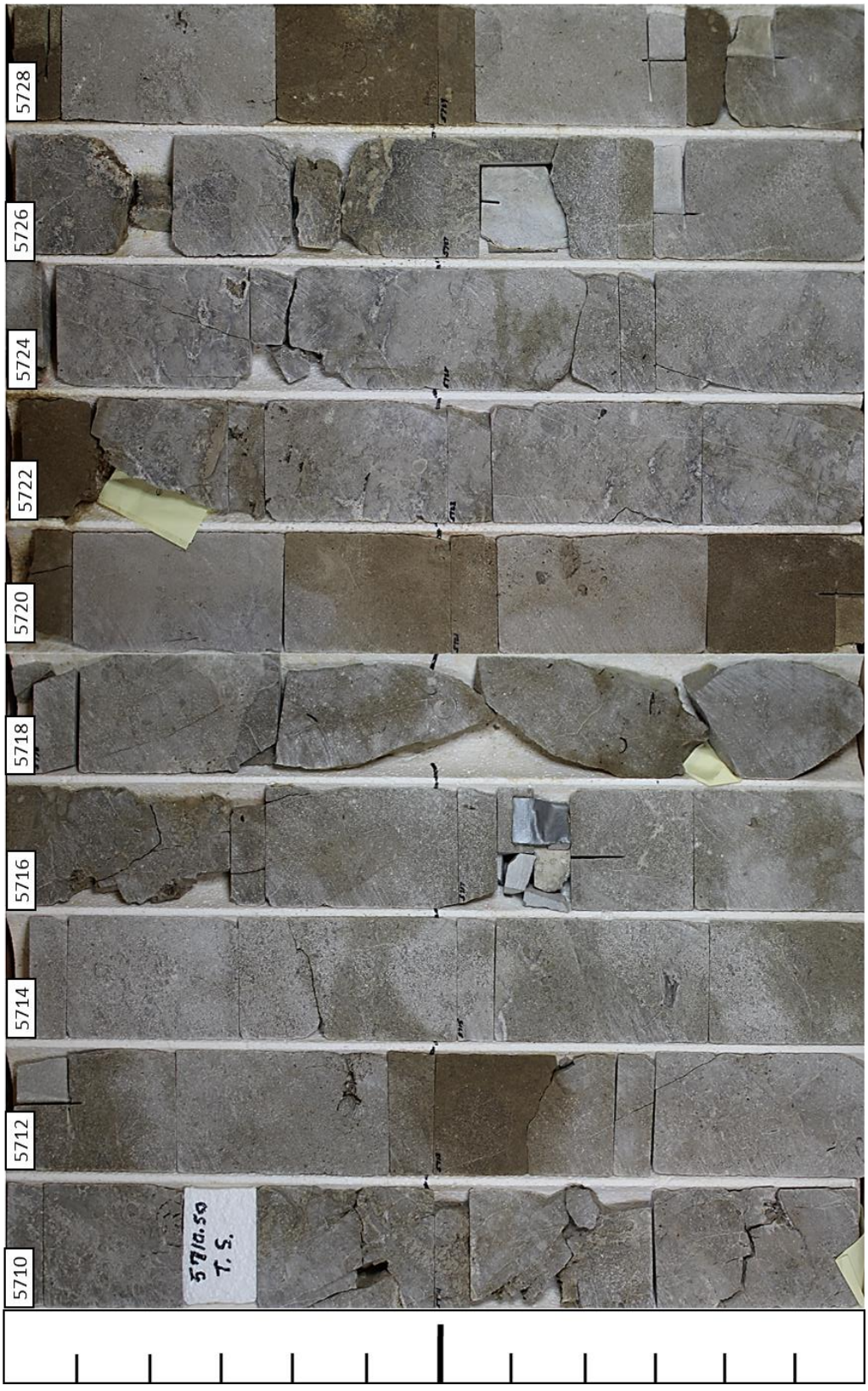


Appendix 8: Slab-pack core sample of Simpson Canyon 4045 interval 5921-5961 feet.

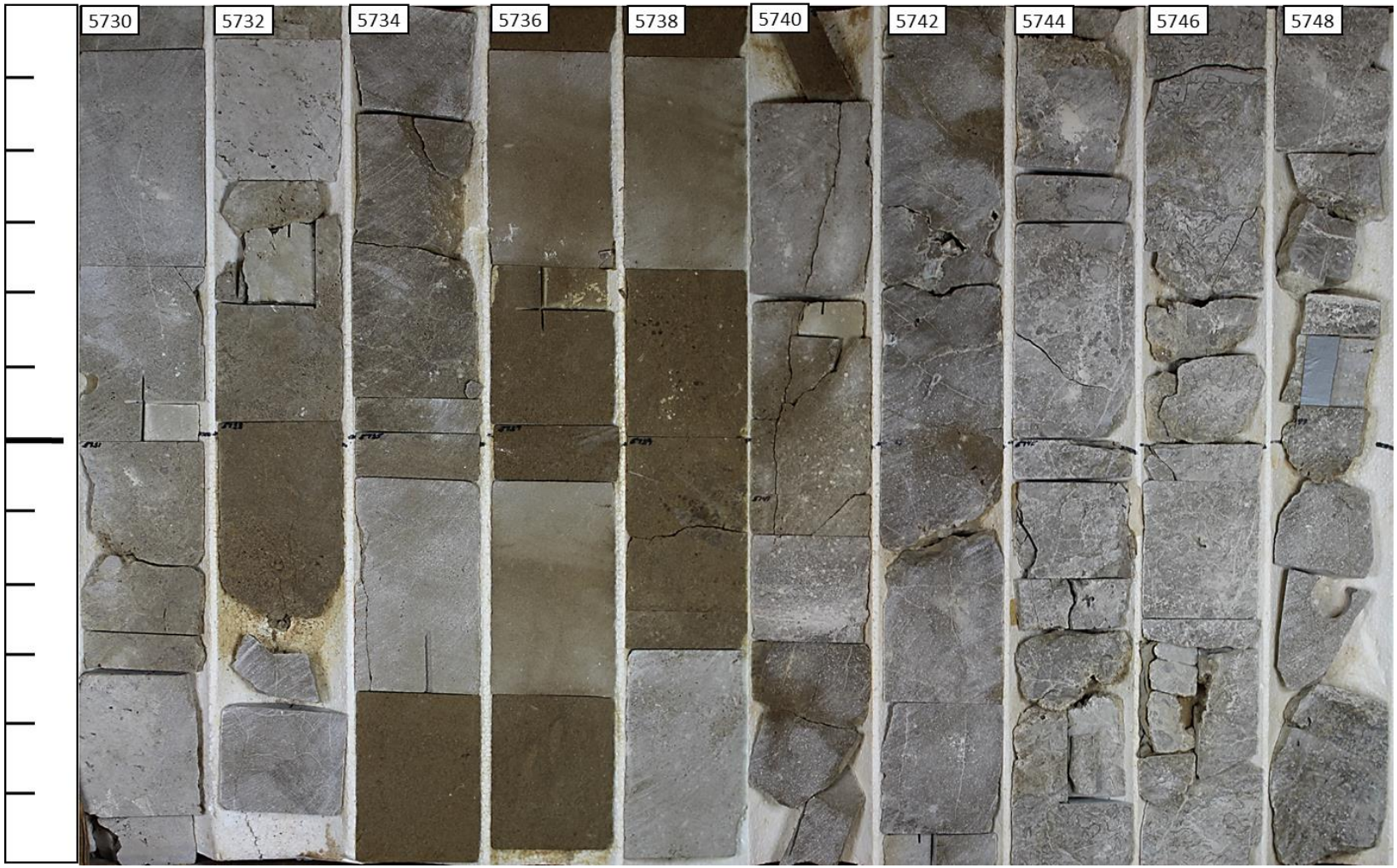
Appendix 9: Slab-pack core sample of Simpson Canyon 4045 interval 5964-5996.65 feet.



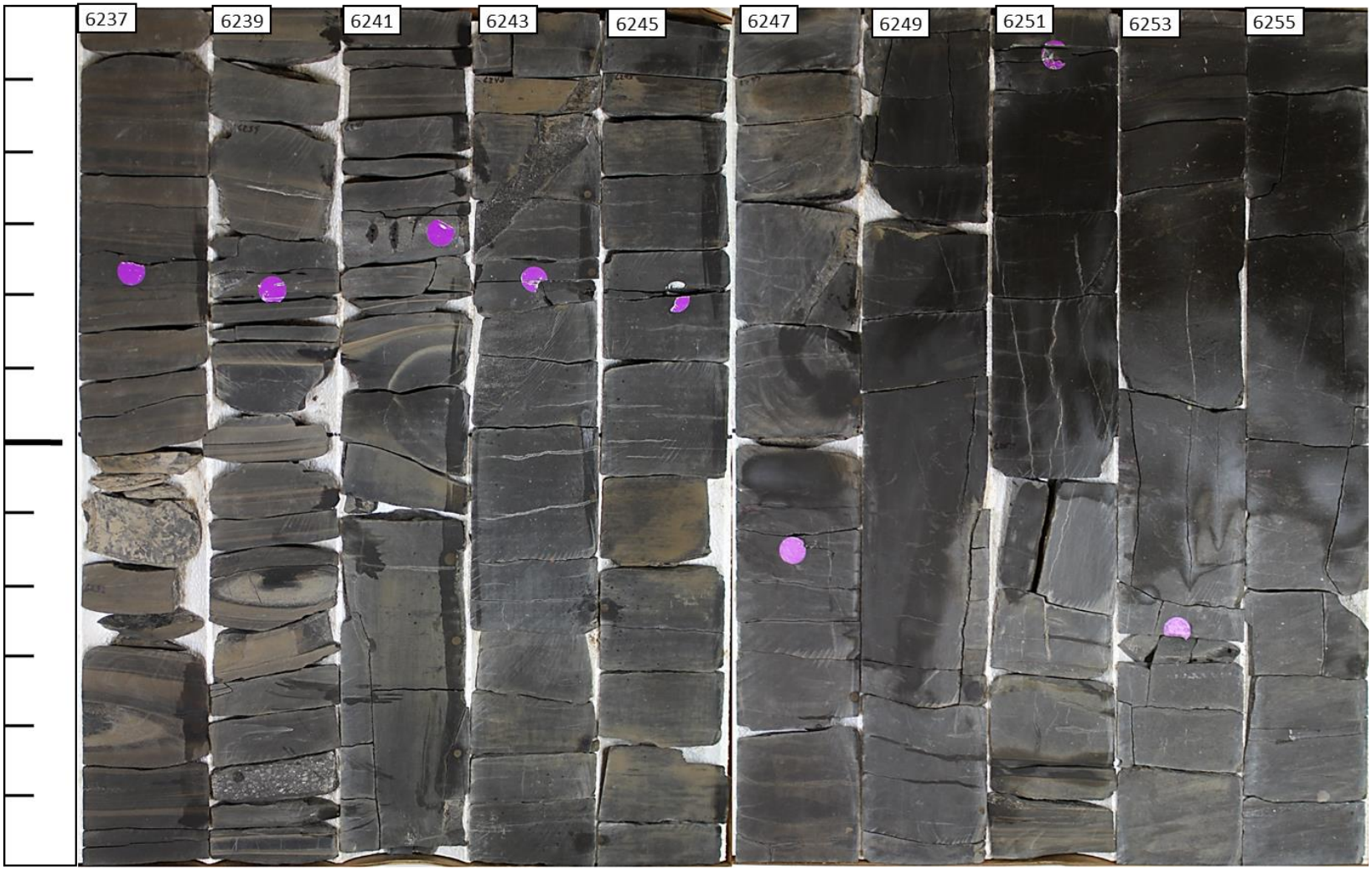
Appendix 10: Slab-pack core sample of Simpson Canyon 5027 interval 5690-5710 feet.



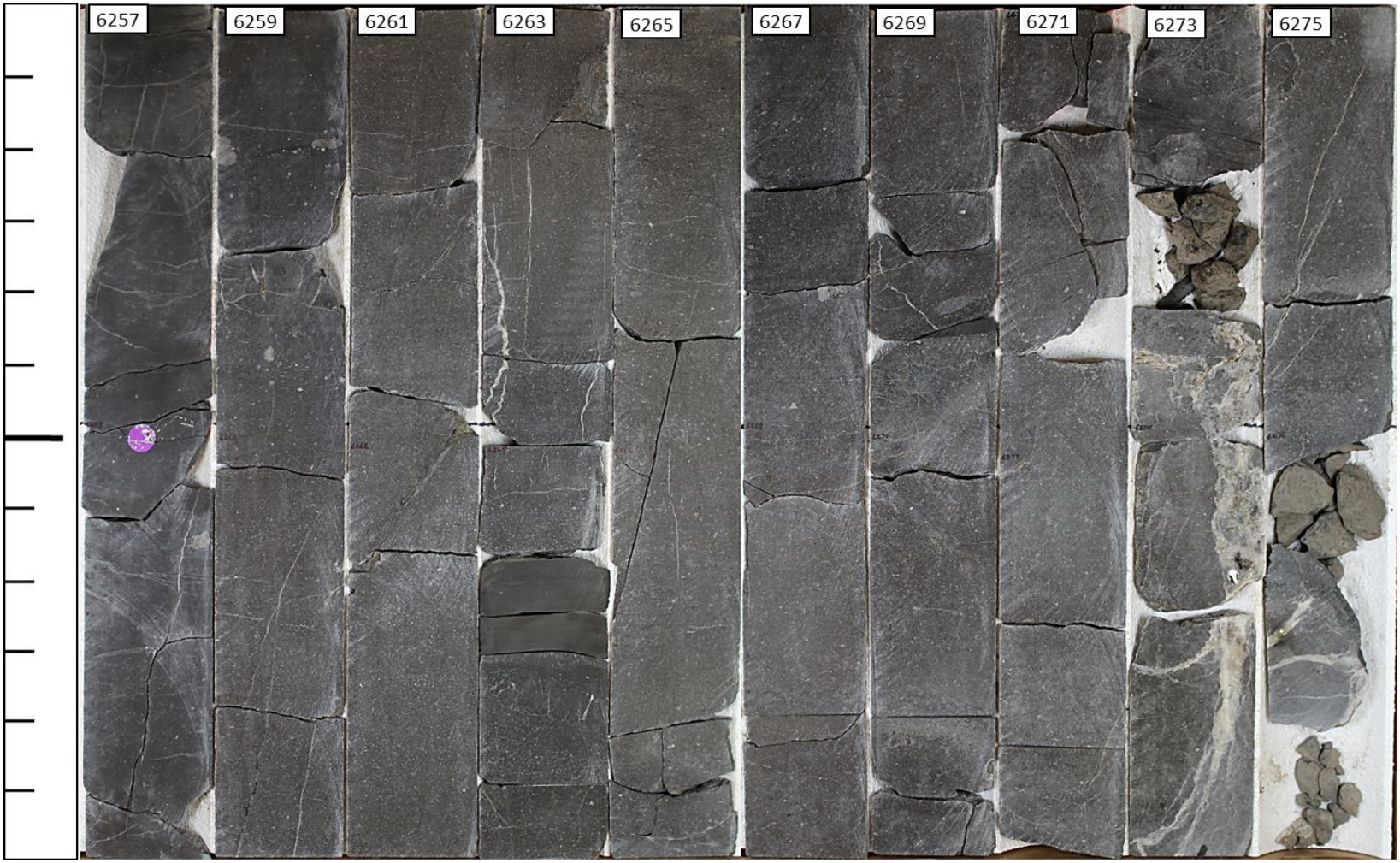
Appendix 11: Slab-pack core sample of Simpson Canyon 4045 interval 5710-5730 feet.



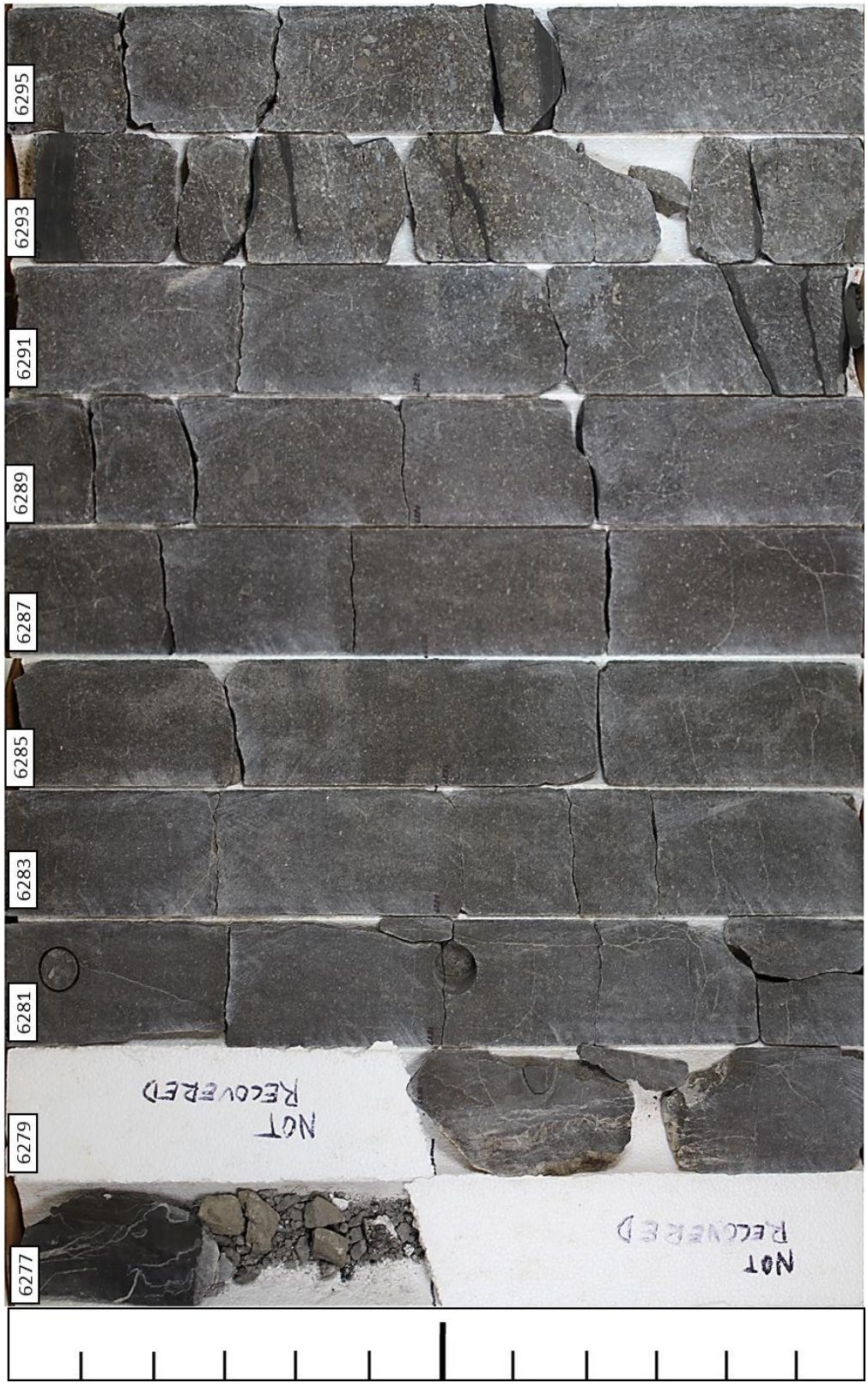
Appendix 12: Slab-pack core sample of Simpson Canyon 4045 interval 5730-5750 feet.



Appendix 13: Slab-pack core sample of Simpson Canyon 1036 interval 6237-6257 feet.



Appendix 14: Slab-pack core sample of Simpson Canyon 1036 interval 6257-6277 feet.



Appendix 15: Slab-pack core sample of Simpson Canyon 1036 interval 6277-6297 feet.

Appendix 16: Slab-pack core sample of Simpson Canyon 1036 interval 6297-6316 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
5310.00	4	45.23	1.38	7.00	0.83	0.10	0.25	1.87	0.00	3.62	0.00	0.00	0.00
5310.17	5	55.33	0.00	0.34	0.00	0.00	0.00	0.67	0.00	4.21	0.00	0.00	0.00
5310.33	5	54.48	0.00	1.61	0.00	0.00	0.00	0.64	0.00	0.00	0.00	0.00	0.00
5310.50	5	52.01	0.00	1.76	0.00	0.00	0.00	0.77	0.00	0.00	0.00	0.00	19.17
5310.67	5	54.55	0.00	0.77	0.00	0.00	0.00	1.69	0.00	0.00	0.00	0.00	0.00
5310.83	5	53.38	0.00	2.76	0.00	0.00	0.00	1.54	0.00	0.00	0.00	0.00	0.00
5311.00	2	26.97	0.00	19.29	0.00	0.00	8.32	12.78	0.00	73.77	0.00	104.04	0.00
5311.17	2	51.33	0.00	1.06	0.00	0.02	4.45	6.43	0.00	48.69	0.00	0.00	0.00
5311.33	5	54.46	0.00	0.32	0.00	0.00	0.38	1.39	0.00	4.58	0.00	0.00	0.00
5311.50	5	51.22	0.00	5.89	0.00	0.00	0.00	0.68	0.00	0.00	0.00	0.00	0.00
5311.67	5	55.12	0.00	0.42	0.00	0.00	0.33	1.22	0.00	4.80	0.00	0.00	0.00
5311.83	5	55.57	0.00	0.21	0.00	0.00	0.00	0.55	0.00	0.00	13.78	0.00	0.00
5312.00	5	54.73	0.00	0.73	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	23.82
5312.17	5	55.73	0.00	0.14	0.00	0.00	0.00	1.26	0.00	0.00	0.00	0.00	16.48
5312.33	5	55.40	0.00	0.20	0.00	0.00	0.00	3.02	0.27	0.00	0.00	0.00	20.31
5312.50	5	55.86	0.00	0.33	0.00	0.00	0.00	2.37	0.25	0.00	10.64	0.00	0.00
5312.67	5	56.32	0.00	0.11	0.00	0.00	0.00	1.01	0.00	3.82	0.00	0.00	27.39
5312.83	5	56.18	0.00	0.19	0.00	0.00	0.00	2.55	0.00	0.00	0.00	0.00	141.27
5313.00	5	55.58	0.00	0.21	0.00	0.00	0.00	3.35	0.24	0.00	0.00	76.29	22.03
5313.17	5	56.00	0.00	0.13	0.00	0.00	0.00	0.86	0.25	0.00	0.00	0.00	0.00
5313.33	5	54.81	0.00	0.34	0.00	0.00	0.00	0.77	0.28	0.00	0.00	0.00	0.00
5313.50	5	55.04	0.00	0.49	0.00	0.00	0.00	3.03	0.26	0.00	0.00	0.00	91.51
5313.67	5	55.04	0.00	0.38	0.00	0.00	0.00	2.03	0.00	0.00	8.65	0.00	0.00
5313.83	5	56.23	0.00	0.11	0.00	0.00	0.00	0.38	0.25	0.00	0.00	0.00	0.00
5314.00	5	54.71	0.00	0.48	0.00	0.00	0.00	2.52	0.25	0.00	18.26	0.00	0.00
5314.17	5	55.96	0.00	0.14	0.00	0.00	0.00	0.86	0.00	0.00	0.00	0.00	0.00
5314.33	5	55.78	0.00	0.52	0.00	0.00	0.00	1.77	0.00	0.00	12.84	0.00	0.00
5314.50	5	55.10	0.00	0.32	0.00	0.00	0.00	1.64	0.00	0.00	0.00	0.00	48.74
5314.67	5	55.03	0.00	0.48	0.00	0.00	0.00	3.40	0.28	0.00	10.55	0.00	152.54
5314.83	5	55.60	0.00	0.32	0.00	0.00	0.00	3.15	0.38	0.00	8.79	0.00	20.05
5315.00	5	55.84	0.00	0.40	0.00	0.00	0.00	1.79	0.28	0.00	11.17	0.00	565.86
5315.17	4	54.24	1.42	0.53	0.33	0.00	0.00	3.50	0.24	0.00	0.00	0.00	30.24
5315.33	5	55.08	0.00	0.47	0.00	0.00	0.00	3.98	0.29	0.00	14.60	0.00	143.39
5315.50	5	54.81	0.00	0.54	0.00	0.00	0.00	2.68	0.00	0.00	0.00	0.00	90.65
5315.67	5	55.45	0.00	0.33	0.00	0.00	0.25	2.62	0.26	4.98	0.00	0.00	177.93
5315.83	5	54.93	0.00	0.37	0.00	0.00	0.00	2.92	0.28	0.00	0.00	0.00	39.30
5316.00	5	55.97	0.00	0.30	0.27	0.00	0.00	1.74	0.30	0.00	0.00	0.00	84.53
5316.17	5	54.37	0.00	0.49	0.00	0.00	0.00	2.12	0.31	0.00	8.22	0.00	811.69
5316.33	5	53.87	0.00	0.60	0.00	0.00	0.00	4.70	0.32	0.00	0.00	0.00	151.26
5316.50	5	55.86	0.00	0.12	0.00	0.00	0.00	2.00	0.29	0.00	0.00	0.00	27.71
5316.67	5	55.81	0.00	0.11	0.00	0.00	0.00	1.00	0.38	0.00	0.00	0.00	0.00
5316.83	5	54.24	0.00	0.15	0.00	0.00	0.00	0.74	0.31	0.00	0.00	0.00	0.00
5317.00	5	56.17	0.00	0.10	0.00	0.00	0.00	0.85	0.37	0.00	0.00	0.00	16.03

Appendix 17: Core 1046 geochemistry data with major (%) and minor (ppm) elements from 5310-5317 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
5317.00	5	56.17	0.00	0.10	0.00	0.00	0.00	0.85	0.37	0.00	0.00	0.00	16.03
5317.17	5	56.21	0.00	0.10	0.00	0.00	0.00	0.82	0.36	0.00	0.00	0.00	20.87
5317.33	5	55.88	0.00	0.12	0.29	0.00	0.00	1.25	0.38	0.00	0.00	0.00	22.18
5317.50	4	55.16	0.00	0.26	0.00	0.00	0.00	0.82	0.40	0.00	41.85	0.00	70.83
5317.67	5	55.96	0.00	0.19	0.00	0.00	0.00	0.49	0.38	0.00	0.00	0.00	0.00
5317.83	5	55.57	0.00	0.29	0.26	0.00	0.00	0.41	0.40	0.00	10.57	0.00	0.00
5318.00	5	54.25	0.00	0.55	0.00	0.00	0.00	2.14	0.33	0.00	13.37	0.00	0.00
5318.17	5	55.46	0.00	0.28	0.00	0.00	0.00	1.66	0.34	0.00	0.00	0.00	0.00
5318.33	5	55.99	0.00	0.23	0.00	0.00	0.00	1.57	0.38	3.97	0.00	0.00	0.00
5318.50	5	55.98	0.00	0.23	0.00	0.00	0.00	1.14	0.37	0.00	0.00	0.00	0.00
5318.67	4	55.77	1.79	0.17	0.00	0.00	0.00	0.78	0.40	0.00	0.00	0.00	17.18
5318.83	5	55.78	0.00	0.25	0.00	0.00	0.00	0.75	0.35	0.00	0.00	0.00	15.41
5319.00	5	55.71	0.00	0.24	0.00	0.00	0.00	1.68	0.32	0.00	0.00	0.00	0.00
5319.17	5	55.45	0.00	0.19	0.00	0.00	0.00	2.73	0.39	0.00	0.00	0.00	0.00
5319.33	5	54.80	0.00	0.29	0.00	0.00	0.00	0.27	0.33	0.00	0.00	0.00	0.00
5319.50	5	55.59	0.00	0.21	0.00	0.00	0.00	1.82	0.37	0.00	0.00	0.00	0.00
5319.67	5	55.36	0.00	0.15	0.00	0.00	0.00	2.20	0.35	0.00	8.38	0.00	0.00
5319.83	5	55.61	0.00	0.17	0.00	0.00	0.00	1.63	0.30	0.00	0.00	0.00	0.00
5320.00	5	55.22	0.00	0.29	0.27	0.00	0.00	0.78	0.38	0.00	0.00	0.00	0.00
5320.17	5	55.18	0.00	0.13	0.00	0.00	0.00	2.13	0.29	0.00	0.00	0.00	0.00
5320.33	5	55.73	0.00	0.25	0.00	0.00	0.00	0.83	0.35	0.00	0.00	0.00	15.03
5320.50	5	54.97	0.00	0.23	0.00	0.00	0.00	4.48	0.32	0.00	0.00	80.62	49.54
5320.67	5	55.45	0.00	0.25	0.00	0.00	0.00	0.26	0.33	0.00	0.00	0.00	0.00
5320.83	5	55.19	0.00	0.44	0.00	0.00	0.00	0.31	0.32	0.00	0.00	0.00	49.35
5321.00	5	54.88	0.00	0.23	0.00	0.00	0.00	0.79	0.33	0.00	0.00	0.00	0.00
5321.17	4	55.00	1.36	0.30	0.00	0.00	0.00	1.19	0.38	0.00	0.00	0.00	46.10
5321.33	5	55.13	0.00	0.37	0.00	0.00	0.00	0.47	0.32	0.00	0.00	0.00	26.00
5321.50	5	54.70	0.00	0.28	0.00	0.00	0.00	0.89	0.29	0.00	0.00	0.00	20.95
5321.67	5	53.80	0.00	0.32	0.25	0.00	0.00	1.03	0.00	0.00	0.00	0.00	45.64
5321.83	5	55.24	0.00	0.23	0.00	0.00	0.00	1.66	0.33	0.00	0.00	0.00	0.00
5322.00	5	55.01	0.00	0.48	0.28	0.00	0.00	1.51	0.30	0.00	0.00	0.00	80.84
5322.17	5	55.95	0.00	0.27	0.34	0.00	0.00	0.26	0.34	0.00	0.00	0.00	0.00
5322.33	5	56.13	0.00	0.23	0.00	0.00	0.00	1.31	0.34	0.00	0.00	0.00	39.18
5322.50	5	55.43	0.00	0.23	0.00	0.00	0.00	3.95	0.33	0.00	0.00	87.80	0.00
5322.67	5	55.96	0.00	0.29	0.25	0.00	0.00	0.30	0.40	0.00	8.67	0.00	23.35
5322.83	5	55.59	0.00	0.33	0.00	0.00	0.00	0.57	0.39	0.00	0.00	0.00	225.53
5323.00	5	55.81	0.00	0.34	0.00	0.00	0.00	0.68	0.38	0.00	0.00	0.00	0.00
5323.17	5	55.56	0.00	0.25	0.00	0.00	0.00	0.79	0.37	0.00	0.00	0.00	13.94
5323.33	5	55.23	0.00	0.20	0.00	0.00	0.00	3.99	0.35	0.00	0.00	0.00	0.00
5323.50	5	56.09	0.00	0.36	0.00	0.00	0.00	0.31	0.40	0.00	0.00	0.00	55.12
5323.67	5	55.68	0.00	0.21	0.00	0.00	0.00	2.33	0.37	0.00	0.00	0.00	0.00
5323.83	5	55.46	0.00	0.26	0.00	0.00	0.00	1.56	0.35	0.00	9.57	0.00	0.00
5324.00	5	55.19	0.00	0.38	0.00	0.00	0.00	0.28	0.39	0.00	8.72	0.00	0.00

Appendix 18: Core 1046 geochemistry data with major (%) and minor (ppm) elements from 5317-5324 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
5324.00	5	55.19	0.00	0.38	0.00	0.00	0.00	0.28	0.39	0.00	8.72	0.00	0.00
5324.17	4	56.01	1.51	0.22	0.00	0.00	0.00	1.61	0.31	0.00	0.00	0.00	0.00
5324.33	5	55.63	0.00	0.22	0.00	0.00	0.00	1.50	0.32	0.00	8.49	0.00	0.00
5324.50	5	55.86	0.00	0.21	0.00	0.00	0.00	2.78	0.35	0.00	8.71	0.00	22.27
5324.67	5	55.74	0.00	0.27	0.00	0.00	0.00	0.34	0.38	0.00	9.00	0.00	34.69
5324.83	5	56.01	0.00	0.32	0.00	0.00	0.00	0.56	0.29	0.00	0.00	88.66	29.82
5325.00	5	55.63	0.00	0.27	0.00	0.00	0.00	0.95	0.33	0.00	0.00	0.00	17.93
5325.17	5	56.45	0.00	0.34	0.00	0.00	0.00	0.30	0.42	0.00	9.55	0.00	17.81
5325.33	5	56.20	0.00	0.29	0.00	0.00	0.00	0.22	0.36	0.00	0.00	0.00	98.47
5325.50	5	56.40	0.00	0.32	0.34	0.00	0.00	0.30	0.34	0.00	11.70	0.00	25.17
5325.67	5	56.42	0.00	0.29	0.00	0.00	0.00	0.22	0.32	0.00	0.00	0.00	27.08
5325.83	5	56.65	0.00	0.19	0.25	0.00	0.00	0.21	0.39	0.00	0.00	0.00	21.13
5326.00	5	56.40	0.00	0.28	0.00	0.00	0.00	0.15	0.35	0.00	0.00	0.00	42.39
5326.17	5	56.33	0.00	0.14	0.00	0.00	0.00	0.25	0.38	0.00	0.00	0.00	24.20
5326.33	5	56.32	0.00	0.27	0.00	0.00	0.00	0.22	0.35	0.00	0.00	0.00	323.95
5326.50	5	56.11	0.00	0.19	0.00	0.00	0.00	0.32	0.33	0.00	12.34	0.00	42.59
5326.67	5	55.74	0.00	0.26	0.00	0.00	0.00	1.62	0.39	0.00	21.61	92.55	516.09
5326.83	5	56.62	0.00	0.20	0.00	0.00	0.00	1.10	0.28	0.00	20.78	81.91	0.00
5327.00	5	56.27	0.00	0.25	0.00	0.00	0.00	0.60	0.39	0.00	17.51	0.00	0.00
5327.17	5	55.92	0.00	0.40	0.00	0.00	0.00	0.54	0.36	0.00	26.71	111.11	223.66
5327.33	5	55.49	0.00	0.50	0.30	0.00	0.00	0.65	0.36	0.00	30.52	0.00	637.18
5327.50	5	56.75	0.00	0.20	0.00	0.00	0.00	0.13	0.35	0.00	11.27	0.00	0.00
5327.67	5	56.57	0.00	0.23	0.00	0.00	0.00	0.22	0.31	0.00	0.00	0.00	0.00
5327.83	5	56.49	0.00	0.19	0.00	0.00	0.00	0.44	0.35	0.00	10.15	0.00	0.00
5328.00	5	56.45	0.00	0.21	0.00	0.00	0.00	0.97	0.32	0.00	0.00	0.00	0.00
5328.17	5	56.12	0.00	0.19	0.00	0.00	0.00	1.20	0.40	0.00	0.00	0.00	0.00
5328.33	5	56.39	0.00	0.19	0.26	0.00	0.00	1.02	0.37	0.00	0.00	0.00	39.42
5328.50	5	56.15	0.00	0.14	0.00	0.00	0.00	0.93	0.34	0.00	0.00	0.00	20.71
5328.67	5	55.36	0.00	0.15	0.00	0.00	0.00	2.27	0.35	0.00	0.00	0.00	22.35
5328.83	5	56.16	0.00	0.25	0.00	0.00	0.00	0.60	0.33	0.00	0.00	0.00	65.87
5329.00	5	56.24	0.00	0.15	0.00	0.00	0.00	0.89	0.35	0.00	0.00	0.00	54.95
5329.17	5	56.38	0.00	0.20	0.00	0.00	0.00	1.26	0.32	0.00	0.00	0.00	34.71
5329.33	5	55.90	0.00	0.22	0.00	0.00	0.00	0.84	0.31	0.00	0.00	0.00	24.80
5329.50	5	55.78	0.00	0.23	0.00	0.00	0.00	0.67	0.32	0.00	0.00	0.00	31.57
5329.67	5	56.29	0.00	0.24	0.00	0.00	0.00	0.22	0.34	3.82	0.00	0.00	0.00
5329.83	5	55.88	0.00	0.34	0.00	0.00	0.00	0.51	0.46	0.00	0.00	0.00	105.24
5330.00	5	55.66	0.00	0.39	0.27	0.00	0.00	0.58	0.29	0.00	0.00	0.00	42.09
5330.17	5	55.36	0.00	0.43	0.00	0.00	0.00	0.26	0.36	0.00	0.00	0.00	20.43
5330.33	5	56.02	0.00	0.31	0.00	0.00	0.00	0.80	0.27	0.00	0.00	0.00	0.00
5330.50	5	56.06	0.00	0.49	0.00	0.00	0.00	0.32	0.38	0.00	0.00	0.00	0.00
5330.67	5	56.30	0.00	0.20	0.00	0.00	0.00	0.54	0.36	0.00	0.00	0.00	0.00
5330.83	5	56.06	0.00	0.23	0.00	0.00	0.00	0.84	0.33	0.00	0.00	0.00	47.26
5331.00	5	56.44	0.00	0.25	0.00	0.00	0.00	0.67	0.37	0.00	0.00	0.00	0.00

Appendix 19: Core 1046 geochemistry data with major (%) and minor (ppm) elements from 5324-5331 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
5331.00	5	56.44	0.00	0.25	0.00	0.00	0.00	0.67	0.37	0.00	0.00	0.00	0.00
5331.17	5	56.57	0.00	0.21	0.00	0.00	0.00	0.55	0.34	0.00	0.00	0.00	206.28
5331.33	5	56.69	0.00	0.23	0.00	0.00	0.00	0.53	0.37	0.00	0.00	0.00	0.00
5331.50	5	56.50	0.00	0.19	0.00	0.00	0.00	0.34	0.32	0.00	0.00	0.00	0.00
5331.67	5	52.54	0.00	0.43	0.29	0.00	0.00	0.50	0.31	0.00	0.00	136.19	24.73
5331.83	5	56.20	0.00	0.19	0.00	0.00	0.00	0.29	0.34	0.00	0.00	0.00	0.00
5332.00	4	56.36	1.48	0.18	0.00	0.00	0.00	0.40	0.36	0.00	0.00	0.00	0.00
5332.17	5	56.92	0.00	0.12	0.00	0.00	0.00	0.36	0.36	0.00	0.00	0.00	0.00
5332.33	5	56.57	0.00	0.20	0.00	0.00	0.00	0.68	0.27	0.00	0.00	0.00	91.14
5332.50	5	56.43	0.00	0.20	0.00	0.00	0.00	0.18	0.35	0.00	0.00	0.00	15.62
5332.67	5	56.35	0.00	0.12	0.00	0.00	0.00	0.19	0.35	0.00	0.00	0.00	0.00
5332.83	5	56.39	0.00	0.19	0.00	0.00	0.00	0.21	0.40	0.00	0.00	0.00	20.36
5333.00	5	56.28	0.00	0.16	0.00	0.00	0.00	0.18	0.39	0.00	0.00	100.26	0.00
5333.17	1	60.99	0.00	1.12	0.67	0.16	1.26	2.29	0.00	8.93	125.21	260.07	7583.37
5333.33	5	56.14	0.00	0.20	0.28	0.00	0.00	0.32	0.38	0.00	0.00	0.00	51.98
5333.50	5	56.39	0.00	0.24	0.00	0.00	0.00	0.22	0.40	0.00	0.00	0.00	40.27
5333.67	5	56.36	0.00	0.21	0.00	0.00	0.00	0.24	0.37	0.00	0.00	0.00	0.00
5333.83	5	56.15	0.00	0.30	0.00	0.00	0.00	0.24	0.41	0.00	0.00	0.00	46.91
5334.00	5	56.56	0.00	0.28	0.00	0.00	0.00	0.33	0.40	0.00	0.00	0.00	82.37
5334.17	5	56.49	0.00	0.30	0.00	0.00	0.00	0.27	0.37	0.00	0.00	0.00	33.35
5334.33	5	56.75	0.00	0.19	0.00	0.00	0.00	0.24	0.35	0.00	0.00	0.00	0.00
5334.50	5	55.17	0.00	0.73	0.43	0.04	0.00	0.80	0.35	0.00	28.19	0.00	239.00
5334.67	5	56.50	0.00	0.22	0.00	0.00	0.00	0.48	0.37	0.00	0.00	0.00	28.47
5334.83	5	57.10	0.00	0.09	0.00	0.00	0.00	1.05	0.39	0.00	0.00	0.00	16.76
5335.00	5	56.74	0.00	0.16	0.00	0.00	0.00	1.72	0.33	0.00	0.00	0.00	16.65
5335.17	5	56.53	0.00	0.16	0.00	0.00	0.00	0.53	0.38	0.00	0.00	92.84	0.00
5335.33	5	56.31	0.00	0.14	0.00	0.00	0.00	3.41	0.38	0.00	12.38	0.00	21.60
5335.50	4	56.18	1.51	0.30	0.00	0.00	0.00	0.59	0.36	0.00	0.00	0.00	44.22
5335.67	5	56.22	0.00	0.09	0.00	0.00	0.00	3.62	0.37	0.00	0.00	0.00	56.47
5335.83	5	56.01	0.00	0.16	0.00	0.00	0.00	2.86	0.40	0.00	9.53	0.00	45.27
5336.00	5	56.77	0.00	0.14	0.00	0.00	0.00	1.70	0.36	0.00	0.00	0.00	0.00
5336.17	5	55.98	0.00	0.17	0.00	0.00	0.00	1.25	0.33	0.00	12.21	73.97	16.99
5336.33	5	56.81	0.00	0.24	0.00	0.00	0.00	0.67	0.38	0.00	8.21	0.00	14.34
5336.50	5	56.66	0.00	0.19	0.00	0.00	0.00	1.20	0.37	0.00	10.44	0.00	0.00
5336.67	5	56.95	0.00	0.21	0.00	0.00	0.00	0.82	0.38	0.00	14.65	0.00	0.00
5336.83	5	56.70	0.00	0.18	0.00	0.00	0.00	1.48	0.38	0.00	11.74	0.00	17.28
5337.00	5	56.40	0.00	0.24	0.00	0.00	0.00	1.16	0.38	0.00	0.00	0.00	17.87
5337.17	5	56.61	0.00	0.24	0.00	0.00	0.00	1.06	0.40	0.00	0.00	0.00	46.94
5337.33	5	56.45	0.00	0.23	0.00	0.00	0.00	1.22	0.33	0.00	0.00	0.00	21.86
5337.50	5	56.43	0.00	0.18	0.00	0.00	0.00	3.35	0.29	0.00	8.10	0.00	24.15
5337.67	5	72.27	0.00	0.25	0.00	0.00	0.00	1.55	0.52	0.00	0.00	216.23	83.81
5337.83	5	56.80	0.00	0.21	0.00	0.00	0.00	0.58	0.36	0.00	0.00	0.00	45.16
5338.00	5	56.75	0.00	0.17	0.00	0.00	0.00	0.94	0.37	0.00	11.05	0.00	21.41

Appendix 20: Core 1046 geochemistry data with major (%) and minor (ppm) elements from 5331-5338 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
5338.00	5	56.75	0.00	0.17	0.00	0.00	0.00	0.94	0.37	0.00	11.05	0.00	21.41
5338.17	5	56.06	0.00	0.19	0.00	0.00	0.00	3.66	0.35	0.00	11.65	0.00	20.90
5338.33	5	56.88	0.00	0.27	0.00	0.00	0.00	1.40	0.34	0.00	13.71	0.00	32.52
5338.50	5	56.72	0.00	0.26	0.00	0.00	0.00	0.41	0.34	0.00	0.00	0.00	0.00
5338.67	5	56.80	0.00	0.26	0.00	0.00	0.00	0.41	0.40	0.00	11.06	0.00	51.84
5338.83	5	56.86	0.00	0.30	0.00	0.00	0.00	0.35	0.36	0.00	0.00	0.00	26.50
5339.00	5	57.00	0.00	0.18	0.31	0.00	0.00	0.19	0.39	0.00	0.00	0.00	0.00
5339.17	5	57.03	0.00	0.18	0.00	0.00	0.00	0.38	0.37	0.00	9.49	0.00	29.34
5339.33	5	57.08	0.00	0.20	0.00	0.00	0.00	0.31	0.35	0.00	0.00	0.00	85.68
5339.50	5	56.95	0.00	0.20	0.25	0.00	0.00	0.94	0.30	0.00	17.36	0.00	65.49
5339.67	5	57.02	0.00	0.21	0.00	0.00	0.00	0.64	0.39	0.00	0.00	0.00	26.48
5339.83	5	57.17	0.00	0.14	0.00	0.00	0.00	0.78	0.33	0.00	10.14	0.00	0.00
5340.00	5	56.77	0.00	0.24	0.00	0.00	0.00	1.70	0.32	0.00	0.00	0.00	35.93
5340.17	5	62.46	0.00	0.19	0.00	0.00	0.00	1.82	0.38	0.00	0.00	0.00	28.96
5340.33	5	61.95	0.00	0.18	0.00	0.00	0.00	1.06	0.28	0.00	0.00	0.00	41.17
5340.50	5	62.67	0.00	0.26	0.00	0.00	0.00	0.36	0.36	0.00	0.00	0.00	1183.52
5340.67	4	62.27	1.63	0.19	0.00	0.00	0.00	0.58	0.41	0.00	0.00	90.71	30.59
5340.83	5	62.97	0.00	0.27	0.00	0.00	0.00	0.59	0.43	0.00	0.00	0.00	37.66
5341.00	5	62.63	0.00	0.22	0.00	0.00	0.00	1.31	0.36	0.00	12.21	0.00	48.30
5341.17	5	62.70	0.00	0.23	0.00	0.00	0.00	0.66	0.34	0.00	12.69	0.00	42.61
5341.33	5	62.62	0.00	0.25	0.00	0.00	0.00	1.67	0.43	0.00	0.00	0.00	22.30
5341.50	5	61.98	0.00	0.19	0.00	0.00	0.00	0.19	0.33	0.00	0.00	0.00	268.08
5341.67	5	62.79	0.00	0.29	0.00	0.00	0.00	0.33	0.42	0.00	0.00	0.00	0.00
5341.83	5	62.53	0.00	0.29	0.00	0.00	0.00	0.51	0.41	0.00	0.00	0.00	16.95
5342.00	5	62.67	0.00	0.29	0.00	0.00	0.00	0.33	0.44	0.00	9.45	0.00	29.60
5342.17	5	61.99	0.00	0.26	0.00	0.00	0.00	0.52	0.36	0.00	0.00	0.00	113.48
5342.33	5	62.91	0.00	0.30	0.00	0.00	0.00	0.27	0.37	0.00	0.00	0.00	22.83
5342.50	5	62.79	0.00	0.28	0.00	0.00	0.00	0.29	0.35	0.00	0.00	0.00	20.91
5342.67	5	80.30	0.00	0.30	0.00	0.00	0.00	0.35	0.40	0.00	0.00	0.00	51.81
5342.83	5	62.28	0.00	0.18	0.00	0.00	0.00	0.24	0.28	0.00	0.00	0.00	59.79
5343.00	5	63.05	0.00	0.17	0.00	0.00	0.00	0.46	0.48	0.00	0.00	0.00	20.28
5343.17	5	56.47	0.00	0.19	0.00	0.00	0.00	0.42	0.00	0.00	9.86	0.00	17.77
5343.33	5	51.23	0.00	0.23	0.00	0.00	0.00	0.18	0.00	0.00	0.00	0.00	0.00
5343.50	5	51.83	0.00	0.29	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	15.80
5343.67	5	51.93	0.00	0.26	0.00	0.00	0.00	0.34	0.00	0.00	9.43	0.00	121.36
5343.83	5	51.60	0.00	0.28	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.00	204.08
5344.00	5	55.29	0.00	0.29	0.00	0.00	0.00	0.12	0.00	0.00	9.86	0.00	18.90
5344.17	5	52.98	0.00	0.39	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.00	0.00
5344.33	5	56.40	0.00	0.36	0.00	0.00	0.00	0.29	0.00	0.00	0.00	0.00	42.82
5344.50	5	57.62	0.00	0.28	0.00	0.00	0.00	0.18	0.39	0.00	0.00	0.00	451.92
5344.67	5	57.10	0.00	0.52	0.00	0.00	0.00	0.21	0.36	0.00	8.87	0.00	31.36
5344.83	5	57.14	0.00	0.52	0.00	0.00	0.00	0.37	0.36	0.00	0.00	0.00	19.73
5345.00	5	57.27	0.00	0.39	0.00	0.00	0.00	0.18	0.36	0.00	0.00	81.05	0.00

Appendix 21: Core 1046 geochemistry data with major (%) and minor (ppm) elements from 5338-5345 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
5345.00	5	57.27	0.00	0.39	0.00	0.00	0.00	0.18	0.36	0.00	0.00	81.05	0.00
5345.17	5	57.29	0.00	0.43	0.27	0.00	0.00	0.19	0.34	0.00	0.00	119.86	0.00
5345.33	5	57.62	0.00	0.24	0.00	0.00	0.00	0.19	0.32	0.00	0.00	0.00	82.52
5345.50	5	57.55	0.00	0.18	0.00	0.00	0.00	0.17	0.37	0.00	0.00	0.00	0.00
5345.67	5	57.43	0.00	0.28	0.00	0.00	0.00	0.24	0.40	0.00	0.00	0.00	18.96
5345.83	5	57.62	0.00	0.25	0.00	0.00	0.00	0.15	0.30	0.00	0.00	0.00	0.00
5346.00	5	57.52	0.00	0.34	0.00	0.00	0.00	0.16	0.34	0.00	0.00	0.00	28.86
5346.17	5	54.70	0.00	0.28	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00
5346.33	5	55.44	0.00	0.15	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00
5346.50	5	55.02	0.00	0.17	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	27.27
5346.67	5	53.95	0.00	0.18	0.00	0.00	0.00	0.24	0.00	0.00	19.30	0.00	29.97
5346.83	5	53.75	0.00	0.13	0.00	0.00	0.00	0.23	0.00	0.00	15.34	0.00	150.54
5347.00	4	54.89	1.96	0.09	0.00	0.00	0.00	0.29	0.00	0.00	15.09	0.00	0.00
5347.17	5	55.97	0.00	0.10	0.00	0.00	0.00	0.38	0.00	0.00	18.41	0.00	0.00
5347.33	5	54.86	0.00	0.11	0.00	0.00	0.00	3.05	0.00	0.00	24.30	0.00	0.00
5347.50	5	55.03	0.00	0.10	0.00	0.00	0.00	1.80	0.00	0.00	23.38	0.00	0.00
5347.67	4	54.80	0.00	0.30	0.00	0.00	0.00	1.31	0.00	0.00	54.70	0.00	0.00
5347.83	5	55.28	0.00	0.14	0.00	0.00	0.00	0.83	0.00	0.00	20.74	73.03	17.58
5348.00	5	55.06	0.00	0.13	0.00	0.00	0.00	1.68	0.00	0.00	15.65	0.00	0.00
5348.17	5	55.21	0.00	0.13	0.00	0.00	0.00	2.06	0.00	0.00	19.21	0.00	27.78
5348.33	5	55.22	0.00	0.13	0.00	0.00	0.00	1.95	0.00	0.00	18.72	0.00	0.00
5348.50	5	55.84	0.00	0.10	0.00	0.00	0.00	1.09	0.00	0.00	24.16	0.00	0.00
5348.67	5	55.22	0.00	0.09	0.00	0.00	0.00	1.47	0.00	0.00	16.69	0.00	0.00
5348.83	5	54.60	0.00	0.13	0.00	0.00	0.00	2.67	0.00	0.00	25.92	0.00	18.85
5349.00	5	55.27	0.00	0.25	0.00	0.00	0.00	2.05	0.00	0.00	17.07	0.00	54.35
5349.17	5	55.44	0.00	0.14	0.00	0.00	0.00	1.05	0.00	0.00	22.79	0.00	0.00
5349.33	5	55.43	0.00	0.16	0.35	0.00	0.00	0.60	0.00	0.00	16.33	0.00	22.93
5349.50	5	55.07	0.00	0.12	0.00	0.00	0.00	1.84	0.00	0.00	14.95	0.00	24.33
5349.67	5	54.62	0.00	0.09	0.00	0.00	0.00	1.82	0.25	0.00	20.18	0.00	0.00
5349.83	5	54.89	0.00	0.10	0.00	0.00	0.00	0.46	0.27	0.00	16.06	0.00	0.00
5350.00	5	55.54	0.00	0.16	0.00	0.00	0.00	0.50	0.26	0.00	12.17	0.00	0.00
5350.17	5	55.83	0.00	0.15	0.00	0.00	0.00	0.42	0.29	0.00	12.95	85.63	0.00
5350.33	5	54.97	0.00	0.13	0.00	0.00	0.00	4.99	0.00	0.00	10.96	0.00	0.00
5350.50	4	55.43	2.11	0.07	0.00	0.00	0.00	2.36	0.26	0.00	10.39	0.00	39.99
5350.67	5	52.95	0.00	0.12	0.00	0.00	0.00	0.35	0.27	0.00	10.11	0.00	134.46
5350.83	5	55.94	0.00	0.13	0.00	0.00	0.00	0.34	0.28	0.00	0.00	91.43	42.41
5351.00	5	55.64	0.00	0.09	0.00	0.00	0.00	0.68	0.32	0.00	12.79	0.00	0.00
5351.17	5	55.63	0.00	0.11	0.00	0.00	0.00	0.26	0.34	0.00	8.65	0.00	0.00
5351.33	5	55.58	0.00	0.06	0.00	0.00	0.00	0.39	0.27	0.00	0.00	0.00	16.48
5351.50	5	55.62	0.00	0.12	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00
5351.67	5	55.72	0.00	0.09	0.00	0.00	0.00	0.24	0.29	0.00	0.00	0.00	0.00
5351.83	5	55.40	0.00	0.08	0.00	0.00	0.00	0.44	0.34	0.00	0.00	0.00	0.00
5352.00	5	55.74	0.00	0.21	0.24	0.00	0.00	0.47	0.29	0.00	15.67	0.00	14.71

Appendix 22: Core 1046 geochemistry data with major (%) and minor (ppm) elements from 5345-5352 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
5352.00	5	55.74	0.00	0.21	0.24	0.00	0.00	0.47	0.29	0.00	15.67	0.00	14.71
5352.17	5	54.24	0.00	0.14	0.00	0.00	0.00	1.03	0.45	0.00	13.91	0.00	0.00
5352.33	5	53.40	0.00	0.07	0.00	0.00	0.00	0.89	0.33	0.00	0.00	0.00	0.00
5352.50	5	54.68	0.00	0.12	0.00	0.00	0.00	0.74	0.00	0.00	8.73	0.00	0.00
5352.67	5	54.08	0.00	0.13	0.00	0.00	0.00	0.57	0.00	0.00	13.34	0.00	0.00
5352.83	5	53.87	0.00	0.08	0.00	0.00	0.00	0.69	0.27	0.00	10.08	0.00	0.00
5353.00	5	54.80	0.00	0.11	0.00	0.00	0.00	0.54	0.00	0.00	9.54	0.00	0.00
5353.17	5	54.82	0.00	0.18	0.00	0.00	0.00	0.19	0.26	0.00	0.00	0.00	77.23
5353.33	5	54.20	0.00	0.16	0.00	0.00	0.00	0.19	0.00	0.00	16.50	0.00	22.78
5353.50	5	55.12	0.00	0.13	0.00	0.00	0.00	0.24	0.00	0.00	12.75	0.00	38.65
5353.67	5	54.41	0.00	0.19	0.00	0.00	0.00	0.99	0.00	0.00	17.50	0.00	0.00
5353.83	5	54.24	0.00	0.14	0.00	0.00	0.00	0.50	0.29	0.00	12.65	0.00	31.41
5354.00	5	54.70	0.00	0.11	0.00	0.00	0.00	0.21	0.24	0.00	9.75	0.00	0.00
5354.17	5	54.78	0.00	0.19	0.00	0.00	0.00	0.29	0.00	0.00	0.00	0.00	0.00
5354.33	5	54.97	0.00	0.15	0.00	0.00	0.00	0.18	0.00	0.00	0.00	73.44	29.28
5354.50	5	54.78	0.00	0.15	0.00	0.00	0.00	0.40	0.00	0.00	10.53	0.00	39.21
5354.67	5	55.16	0.00	0.17	0.00	0.00	0.00	0.28	0.23	0.00	0.00	0.00	20.88
5354.83	4	54.54	1.49	0.17	0.00	0.00	0.00	0.38	0.30	0.00	9.64	0.00	0.00
5355.00	5	54.93	0.00	0.11	0.00	0.00	0.00	0.64	0.00	0.00	10.66	0.00	0.00
5355.17	5	56.95	0.00	0.12	0.29	0.00	0.00	0.32	0.28	0.00	0.00	88.45	0.00
5355.33	5	57.45	0.00	0.11	0.00	0.00	0.00	0.26	0.30	0.00	0.00	0.00	0.00
5355.50	4	57.29	1.37	0.17	0.00	0.00	0.00	0.30	0.26	0.00	0.00	0.00	0.00
5355.67	5	56.83	0.00	0.07	0.00	0.00	0.00	0.50	0.29	0.00	0.00	0.00	0.00
5355.83	5	56.98	0.00	0.10	0.00	0.00	0.00	3.13	0.31	0.00	0.00	0.00	39.39
5356.00	5	56.54	0.00	0.12	0.00	0.00	0.00	2.48	0.31	0.00	0.00	0.00	57.32
5356.17	5	56.26	0.00	0.15	0.00	0.00	0.00	2.05	0.27	0.00	0.00	0.00	423.29
5356.33	5	56.20	0.00	0.16	0.00	0.00	0.00	2.45	0.28	0.00	0.00	0.00	962.94
5356.50	5	56.03	0.00	0.12	0.00	0.00	0.00	3.23	0.29	0.00	0.00	0.00	93.49
5356.67	5	55.64	0.00	0.12	0.00	0.00	0.00	4.54	0.28	0.00	0.00	0.00	119.11
5356.83	5	56.34	0.00	0.16	0.00	0.00	0.00	3.38	0.27	0.00	0.00	0.00	24.85
5357.00	5	56.42	0.00	0.07	0.00	0.00	0.00	2.71	0.00	0.00	0.00	0.00	89.74
5357.17	5	55.05	0.00	0.27	0.00	0.00	0.00	1.22	0.30	0.00	0.00	0.00	0.00
5357.33	5	54.97	0.00	0.49	0.00	0.00	0.00	2.40	0.27	0.00	0.00	0.00	78.35
5357.50	2	38.27	0.00	2.51	1.62	0.32	7.02	10.27	0.00	0.00	0.00	88.59	87.64
5357.67	5	56.55	0.00	0.31	0.00	0.00	0.00	2.99	0.32	0.00	0.00	0.00	0.00
5357.83	5	56.05	0.00	0.52	0.00	0.00	0.00	2.67	0.26	0.00	0.00	0.00	59.88
5358.00	5	55.58	0.00	0.36	0.00	0.00	0.00	1.92	0.26	0.00	0.00	0.00	32.56
5358.17	5	56.82	0.00	0.14	0.00	0.00	0.00	1.83	0.27	0.00	0.00	0.00	0.00
5358.33	5	56.53	0.00	0.18	0.00	0.00	0.00	2.14	0.26	0.00	0.00	0.00	0.00
5358.50	5	56.06	0.00	0.23	0.00	0.00	0.00	2.95	0.26	0.00	0.00	0.00	126.06
5358.67	5	56.38	0.00	0.24	0.00	0.00	0.00	1.85	0.00	0.00	0.00	0.00	237.18
5358.83	5	55.60	0.00	0.22	0.00	0.00	0.00	2.52	0.00	0.00	0.00	0.00	21.35
5359.00	5	56.30	0.00	0.25	0.00	0.00	0.00	3.44	0.00	0.00	0.00	0.00	25.39

Appendix 23: Core 1046 geochemistry data with major (%) and minor (ppm) elements from 5352-5359 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
5359.00	5	56.30	0.00	0.25	0.00	0.00	0.00	3.44	0.00	0.00	0.00	0.00	25.39
5359.17	5	56.18	0.00	0.19	0.00	0.00	0.00	3.54	0.33	0.00	0.00	0.00	20.04
5359.33	5	56.58	0.00	0.22	0.00	0.00	0.00	3.01	0.31	0.00	0.00	0.00	165.17
5359.50	5	55.84	0.00	0.19	0.00	0.00	0.00	3.65	0.31	0.00	0.00	0.00	221.64
5359.67	5	56.33	0.00	0.20	0.00	0.00	0.00	2.67	0.38	0.00	0.00	0.00	251.79
5359.83	5	55.85	0.00	0.21	0.00	0.00	0.00	2.77	0.31	0.00	0.00	0.00	339.43
5360.00	4	55.78	1.84	0.19	0.00	0.00	0.00	3.84	0.25	0.00	0.00	0.00	327.24
5360.17	5	55.19	0.00	0.26	0.00	0.00	0.00	2.67	0.27	0.00	0.00	0.00	543.26
5360.33	5	55.19	0.00	0.21	0.00	0.00	0.00	3.65	0.29	0.00	0.00	0.00	64.65
5360.50	5	54.71	0.00	0.12	0.00	0.00	0.00	3.69	0.26	0.00	0.00	0.00	100.98
5360.67	5	54.79	0.00	0.16	0.00	0.00	0.00	4.48	0.27	0.00	0.00	0.00	128.53
5360.83	5	55.93	0.00	0.44	0.00	0.00	0.00	2.14	0.00	0.00	0.00	0.00	18.26
5361.00	5	56.46	0.00	0.31	0.00	0.00	0.00	2.52	0.29	0.00	0.00	0.00	40.94
5361.17	5	55.24	0.00	0.16	0.00	0.00	0.00	2.65	0.23	0.00	0.00	0.00	0.00
5361.33	5	55.94	0.00	0.22	0.00	0.00	0.00	2.07	0.27	0.00	0.00	0.00	27.38
5361.50	5	55.48	0.00	0.18	0.00	0.00	0.00	2.08	0.27	0.00	0.00	0.00	17.09
5361.67	5	55.61	0.00	0.22	0.00	0.00	0.00	1.86	0.25	0.00	0.00	0.00	75.92
5361.83	5	55.45	0.00	0.19	0.00	0.00	0.00	2.16	0.25	0.00	0.00	0.00	36.26
5362.00	5	55.77	0.00	0.17	0.00	0.00	0.00	2.27	0.24	0.00	0.00	75.36	0.00
5362.17	4	55.32	1.75	0.16	0.26	0.00	0.00	2.00	0.26	0.00	0.00	0.00	0.00
5362.33	5	54.88	0.00	0.14	0.00	0.00	0.00	2.39	0.32	0.00	0.00	0.00	19.24
5362.50	5	56.08	0.00	0.13	0.00	0.00	0.00	1.89	0.32	0.00	0.00	0.00	0.00
5362.67	5	55.53	0.00	0.10	0.00	0.00	0.00	2.75	0.31	0.00	0.00	0.00	0.00
5362.83	5	55.62	0.00	0.16	0.00	0.00	0.00	2.90	0.30	0.00	0.00	0.00	14.93
5363.00	5	55.20	0.00	0.21	0.00	0.00	0.00	2.11	0.28	0.00	0.00	0.00	15.43
5363.17	5	55.49	0.00	0.29	0.00	0.00	0.00	2.04	0.28	0.00	0.00	0.00	0.00
5363.33	5	55.40	0.00	0.21	0.00	0.00	0.00	2.30	0.28	0.00	0.00	0.00	0.00
5363.50	5	54.41	0.00	0.34	0.00	0.00	0.00	1.74	0.00	0.00	0.00	0.00	43.51
5363.67	5	55.20	0.00	0.20	0.00	0.00	0.00	2.41	0.33	0.00	0.00	0.00	94.15
5363.83	5	55.14	0.00	0.37	0.27	0.00	0.00	1.48	0.36	0.00	0.00	0.00	16.44
5364.00	5	55.52	0.00	0.31	0.00	0.00	0.00	1.36	0.31	0.00	0.00	0.00	0.00
5364.17	5	55.11	0.00	0.18	0.00	0.00	0.00	2.09	0.35	0.00	0.00	0.00	0.00
5364.33	5	55.33	0.00	0.20	0.00	0.00	0.00	2.89	0.26	0.00	0.00	0.00	0.00
5364.50	5	51.56	0.00	1.04	0.28	0.00	0.00	1.10	0.27	0.00	0.00	0.00	19.14
5364.67	5	55.16	0.00	0.19	0.27	0.00	0.00	3.32	0.27	0.00	0.00	0.00	0.00
5364.83	5	55.06	0.00	0.33	0.00	0.00	0.00	1.82	0.00	0.00	0.00	0.00	0.00
5365.00	5	55.19	0.00	0.23	0.00	0.00	0.00	2.36	0.33	0.00	0.00	0.00	0.00
5365.17	5	55.19	0.00	0.17	0.00	0.00	0.00	1.25	0.29	0.00	0.00	0.00	0.00
5365.33	5	55.14	0.00	0.18	0.00	0.00	0.00	2.46	0.30	0.00	0.00	0.00	0.00
5365.50	5	54.92	0.00	0.18	0.00	0.00	0.00	2.82	0.27	0.00	0.00	0.00	0.00
5365.67	4	55.03	2.16	0.20	0.00	0.00	0.00	2.62	0.26	0.00	0.00	0.00	0.00
5365.83	5	55.82	0.00	0.24	0.00	0.00	0.00	1.80	0.35	0.00	0.00	0.00	0.00
5366.00	5	55.34	0.00	0.24	0.00	0.00	0.00	1.57	0.36	0.00	0.00	0.00	23.67

Appendix 24: Core 1046 geochemistry data with major (%) and minor (ppm) elements from 5359-5366 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
5366.00	5	55.34	0.00	0.24	0.00	0.00	0.00	1.57	0.36	0.00	0.00	0.00	23.67
5366.17	5	54.55	0.00	0.18	0.00	0.00	0.00	3.09	0.29	0.00	0.00	0.00	0.00
5366.33	5	55.31	0.00	0.18	0.00	0.00	0.00	2.73	0.32	0.00	0.00	0.00	0.00
5366.50	5	55.30	0.00	0.20	0.00	0.00	0.00	2.45	0.36	0.00	0.00	0.00	0.00
5366.67	5	55.77	0.00	0.13	0.00	0.00	0.00	2.02	0.32	0.00	0.00	0.00	0.00
5366.83	4	54.58	1.53	0.15	0.00	0.00	0.00	3.07	0.26	0.00	0.00	0.00	0.00
5367.00	5	55.25	0.00	0.15	0.00	0.00	0.00	2.58	0.35	0.00	0.00	0.00	0.00
5367.17	5	53.56	0.00	0.16	0.00	0.00	0.00	6.16	0.31	0.00	0.00	0.00	0.00
5367.33	5	55.04	0.00	0.18	0.00	0.00	0.00	2.33	0.34	0.00	0.00	0.00	0.00
5367.50	5	53.48	0.00	0.51	0.00	0.00	0.00	1.07	0.31	0.00	0.00	0.00	0.00
5367.67	5	54.33	0.00	0.30	0.00	0.00	0.00	1.38	0.30	0.00	0.00	0.00	0.00
5367.83	5	52.49	0.00	0.19	0.00	0.00	0.00	4.75	0.00	0.00	0.00	0.00	0.00
5368.00	5	54.82	0.00	0.57	0.36	0.02	0.00	1.24	0.35	0.00	0.00	0.00	0.00
5368.17	5	54.21	0.00	0.90	0.49	0.09	0.00	1.19	0.32	0.00	0.00	0.00	0.00
5368.33	5	55.51	0.00	0.20	0.00	0.00	0.00	3.51	0.30	0.00	0.00	0.00	0.00
5368.50	5	51.27	0.00	0.15	0.33	0.00	0.00	4.84	0.25	0.00	0.00	0.00	0.00
5368.67	4	54.84	1.95	0.22	0.26	0.00	0.00	3.29	0.25	0.00	0.00	90.63	0.00
5368.83	5	55.22	0.00	0.22	0.00	0.00	0.00	3.28	0.35	0.00	0.00	0.00	0.00
5369.00	5	55.54	0.00	0.22	0.00	0.00	0.00	2.21	0.31	0.00	0.00	0.00	0.00
5369.17	5	54.91	0.00	0.40	0.24	0.00	0.00	2.19	0.38	0.00	0.00	0.00	0.00
5369.33	5	12.02	0.00	0.39	0.00	0.00	0.00	9.61	4.40	0.00	0.00	0.00	0.00
5369.50	5	54.87	0.00	0.31	0.00	0.00	0.00	1.52	0.35	0.00	0.00	0.00	0.00
5369.67	5	53.59	0.00	0.20	0.00	0.00	0.00	3.74	0.00	0.00	0.00	0.00	0.00
5369.83	4	53.24	1.81	0.22	0.00	0.00	0.00	3.83	0.29	0.00	0.00	0.00	0.00
5370.00	5	53.48	0.00	2.27	0.57	0.00	0.00	0.48	0.40	3.54	0.00	0.00	43.21
5370.17	6	5.19	6.02	0.15	0.00	0.00	0.00	0.08	27.18	0.00	0.00	0.00	118.07
5370.33	6	8.93	0.00	0.17	0.00	0.00	0.00	0.10	21.86	0.00	7.01	0.00	119.26
5370.50	6	12.00	1.32	0.13	0.00	0.00	0.00	0.17	18.23	0.00	11.07	0.00	118.35
5370.67	5	55.80	0.00	0.13	0.00	0.00	0.00	0.39	0.42	0.00	0.00	0.00	35.10
5370.83	5	55.69	0.00	0.20	0.00	0.00	0.00	0.52	0.33	0.00	0.00	96.95	18.81
5371.00	5	57.19	0.00	0.14	0.00	0.00	0.00	0.84	0.33	0.00	0.00	0.00	0.00
5371.17	5	55.35	0.00	0.14	0.00	0.00	0.00	0.62	0.37	0.00	0.00	0.00	34.98
5371.33	5	63.17	0.00	0.23	0.00	0.00	0.00	0.73	0.40	0.00	0.00	0.00	71.54
5371.50	5	55.55	0.00	0.27	0.00	0.00	0.00	0.65	0.34	0.00	0.00	0.00	90.61
5371.67	5	55.93	0.00	0.10	0.00	0.00	0.00	0.75	0.29	0.00	0.00	0.00	146.55
5371.83	5	55.46	0.00	0.12	0.00	0.00	0.00	1.32	0.33	0.00	0.00	0.00	16.66
5372.00	4	55.69	1.53	0.25	0.00	0.00	0.00	1.28	0.36	0.00	0.00	0.00	109.32
5372.17	5	55.52	0.00	0.13	0.00	0.00	0.00	1.40	0.31	0.00	0.00	0.00	0.00
5372.33	5	55.71	0.00	0.15	0.00	0.00	0.00	0.68	0.31	0.00	0.00	0.00	19.04
5372.50	5	55.90	0.00	0.12	0.32	0.00	0.00	1.13	0.33	0.00	0.00	0.00	14.52
5372.67	5	55.24	0.00	0.10	0.00	0.00	0.00	2.86	0.28	0.00	0.00	0.00	0.00
5372.83	5	55.50	0.00	0.19	0.00	0.00	0.00	3.14	0.38	0.00	0.00	0.00	43.07
5373.00	5	55.28	0.00	0.37	0.32	0.00	0.00	2.05	0.32	0.00	0.00	0.00	65.93

Appendix 25: Core 1046 geochemistry data with major (%) and minor (ppm) elements from 5366-5373 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
5373.00	5	55.28	0.00	0.37	0.32	0.00	0.00	2.05	0.32	0.00	0.00	0.00	65.93
5373.17	5	55.50	0.00	0.15	0.00	0.00	0.00	1.58	0.30	0.00	0.00	0.00	20.90
5373.33	5	55.36	0.00	0.13	0.00	0.00	0.00	1.00	0.35	0.00	0.00	73.39	24.46
5373.50	5	55.24	0.00	0.32	0.00	0.00	0.00	1.44	0.35	0.00	0.00	0.00	28.75
5373.67	4	48.56	0.00	5.29	2.63	0.44	0.34	1.78	0.00	0.00	0.00	0.00	123.98
5373.83	5	51.95	0.00	2.54	0.77	0.00	0.00	2.02	0.39	0.00	0.00	0.00	80.59
5374.00	5	55.64	0.00	0.12	0.00	0.00	0.00	3.62	0.34	0.00	0.00	0.00	120.74
5374.17	5	55.86	0.00	0.14	0.00	0.00	0.00	1.22	0.35	0.00	0.00	0.00	99.01
5374.33	5	55.89	0.00	0.10	0.00	0.00	0.00	0.36	0.34	0.00	0.00	0.00	47.97
5374.50	5	55.88	0.00	0.14	0.00	0.00	0.00	0.59	0.32	0.00	0.00	0.00	79.86
5374.67	5	52.37	0.00	2.55	0.60	0.00	0.00	0.63	0.38	0.00	0.00	0.00	146.92
5374.83	5	52.78	0.00	2.83	0.91	0.00	0.00	1.28	0.00	0.00	0.00	0.00	249.82
5375.00	5	55.64	0.00	0.14	0.00	0.00	0.00	0.53	0.31	0.00	0.00	0.00	41.41
5375.17	5	55.66	0.00	0.17	0.00	0.00	0.00	1.09	0.32	0.00	0.00	0.00	26.35
5375.33	5	55.96	0.00	0.13	0.00	0.00	0.00	1.32	0.36	0.00	0.00	0.00	0.00
5375.50	5	55.76	0.00	0.16	0.00	0.00	0.00	2.35	0.33	0.00	0.00	0.00	16.02
5375.67	5	55.45	0.00	0.30	0.00	0.00	0.00	1.00	0.32	0.00	0.00	0.00	50.01
5375.83	4	55.54	1.40	0.31	0.00	0.00	0.00	0.93	0.32	0.00	0.00	0.00	70.69
5376.00	5	55.44	0.00	0.22	0.28	0.00	0.00	0.39	0.29	0.00	0.00	0.00	49.77
5376.17	4	54.59	1.67	0.31	0.26	0.00	0.00	3.13	0.33	0.00	0.00	0.00	48.97
5376.33	5	55.54	0.00	0.11	0.00	0.00	0.00	1.75	0.29	0.00	0.00	0.00	30.90
5376.50	4	63.55	1.00	0.12	0.00	0.00	0.00	2.06	0.34	2.19	0.00	0.00	28.50
5376.67	4	55.88	1.75	0.11	0.00	0.00	0.00	1.86	0.30	3.83	0.00	0.00	19.06
5376.83	5	55.87	0.00	0.09	0.00	0.00	0.00	1.51	0.32	0.00	0.00	0.00	18.79
5377.00	5	55.70	0.00	0.09	0.00	0.00	0.00	1.16	0.31	0.00	0.00	0.00	23.68
5377.17	5	56.32	0.00	0.07	0.00	0.00	0.00	1.02	0.38	0.00	0.00	0.00	20.89
5377.33	5	55.78	0.00	0.11	0.00	0.00	0.00	1.71	0.32	0.00	0.00	0.00	38.38
5377.50	5	55.21	0.00	0.20	0.00	0.00	0.00	3.29	0.30	0.00	0.00	0.00	731.70
5377.67	5	55.01	0.00	0.21	0.00	0.00	0.00	1.37	0.31	0.00	0.00	0.00	146.26
5377.83	5	53.97	0.00	0.79	0.00	0.00	0.00	1.35	0.00	0.00	0.00	0.00	0.00
5378.00	5	54.70	0.00	0.41	0.25	0.00	0.00	1.47	0.35	0.00	0.00	0.00	0.00
5378.17	5	55.41	0.00	0.39	0.48	0.00	0.00	1.97	0.32	0.00	0.00	0.00	0.00
5378.33	5	55.20	0.00	0.69	0.45	0.00	0.00	0.81	0.36	0.00	0.00	0.00	33.87
5378.50	5	54.86	0.00	0.34	0.00	0.00	0.00	1.13	0.32	0.00	0.00	0.00	0.00
5378.67	5	55.56	0.00	0.19	0.38	0.00	0.00	0.87	0.34	0.00	0.00	0.00	0.00
5378.83	5	55.69	0.00	0.19	0.00	0.00	0.00	0.80	0.25	0.00	0.00	0.00	0.00
5379.00	5	54.95	0.00	0.16	0.00	0.00	0.00	3.90	0.33	0.00	0.00	0.00	0.00

Appendix 26: Core 1046 geochemistry data with major (%) and minor (ppm) elements from 5373-5379 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
5584.00	5	51.19	0.00	0.06	0.00	0.00	0.00	2.14	0.00	0.00	0.00	0.00	0.00
5584.17	5	50.25	0.00	0.07	0.00	0.00	0.00	2.48	0.00	0.00	0.00	0.00	0.00
5584.33	5	52.11	0.00	0.07	0.00	0.00	0.00	1.80	0.00	0.00	10.52	0.00	0.00
5584.50	5	53.70	0.00	0.06	0.00	0.00	0.00	2.03	0.00	0.00	0.00	0.00	0.00
5584.67	5	53.30	0.00	0.07	0.00	0.00	0.00	1.65	0.00	0.00	0.00	0.00	0.00
5584.83	5	53.91	0.00	0.05	0.00	0.00	0.00	2.82	0.00	0.00	0.00	0.00	0.00
5585.00	5	52.83	0.00	0.12	0.00	0.23	0.00	2.69	0.00	0.00	0.00	0.00	0.00
5585.17	5	53.04	0.00	0.10	0.00	0.02	0.00	2.02	0.00	0.00	0.00	0.00	0.00
5585.33	5	52.73	0.00	0.09	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00
5585.50	5	53.32	0.00	0.14	0.00	0.00	0.00	2.58	0.00	0.00	0.00	0.00	0.00
5585.67	5	54.35	0.00	0.18	0.00	0.00	0.00	1.51	0.00	0.00	0.00	0.00	0.00
5585.83	5	53.18	0.00	0.17	0.00	0.02	0.00	2.52	0.00	0.00	0.00	0.00	0.00
5586.00	5	52.81	0.00	0.23	0.00	0.15	0.00	2.20	0.00	0.00	0.00	0.00	651.56
5586.17	5	52.58	0.00	0.22	0.00	0.06	0.00	1.59	0.00	0.00	0.00	0.00	0.00
5586.33	5	52.85	0.00	0.19	0.00	0.10	0.00	1.10	0.00	0.00	0.00	0.00	0.00
5586.50	5	52.26	0.00	0.27	0.00	0.05	0.00	1.99	0.00	0.00	0.00	0.00	0.00
5586.67	5	52.73	0.00	0.28	0.00	0.00	0.00	2.16	0.00	0.00	0.00	0.00	0.00
5586.83	5	53.21	0.00	0.28	0.00	0.00	0.00	2.33	0.00	0.00	8.69	0.00	0.00
5587.00	5	52.60	0.00	0.35	0.00	0.00	0.00	1.55	0.00	0.00	0.00	0.00	0.00
5587.17	5	52.39	0.00	0.30	0.00	0.00	0.00	1.19	0.00	0.00	0.00	0.00	0.00
5587.33	5	52.53	0.00	0.27	0.00	0.00	0.00	1.02	0.00	0.00	0.00	0.00	0.00
5587.50	5	52.67	0.00	0.24	0.00	0.00	0.00	0.84	0.00	0.00	0.00	0.00	0.00
5587.67	5	52.58	0.00	0.15	0.00	0.00	0.00	2.10	0.00	0.00	0.00	0.00	0.00
5587.83	5	52.48	0.00	0.06	0.00	0.00	0.00	3.36	0.00	0.00	0.00	0.00	0.00
5588.00	5	52.15	0.00	0.14	0.00	0.00	0.00	1.22	0.00	0.00	0.00	0.00	0.00
5588.17	5	52.52	0.00	0.15	0.00	0.00	0.00	1.91	0.00	0.00	0.00	0.00	0.00
5588.33	5	52.05	0.00	0.17	0.00	0.00	0.00	1.34	0.26	0.00	0.00	0.00	0.00
5588.50	5	52.28	0.00	0.19	0.00	0.00	0.00	0.65	0.00	3.45	0.00	0.00	0.00
5588.67	5	52.20	0.00	0.21	0.00	0.00	0.00	1.36	0.00	0.00	0.00	0.00	0.00
5588.83	5	52.59	0.00	0.19	0.00	0.00	0.00	1.06	0.00	0.00	0.00	0.00	0.00
5589.00	5	52.98	0.00	0.17	0.25	0.00	0.00	0.77	0.00	0.00	0.00	0.00	0.00
5589.17	5	52.76	0.00	0.22	0.00	0.00	0.00	1.83	0.23	0.00	0.00	0.00	0.00
5589.33	4	53.04	1.63	0.18	0.00	0.00	0.00	0.48	0.00	0.00	0.00	0.00	0.00
5589.50	5	52.52	0.00	0.23	0.00	0.00	0.00	0.57	0.25	0.00	0.00	0.00	0.00
5589.67	5	53.40	0.00	0.13	0.00	0.00	0.00	0.74	0.25	0.00	9.37	0.00	0.00
5589.83	5	53.01	0.00	0.20	0.00	0.00	0.00	0.68	0.00	0.00	0.00	0.00	0.00
5590.00	5	52.88	0.00	0.15	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.00	0.00
5590.17	5	52.62	0.00	0.09	0.28	0.00	0.00	0.52	0.29	0.00	0.00	0.00	0.00
5590.33	5	52.95	0.00	0.08	0.00	0.00	0.00	2.47	0.24	0.00	0.00	0.00	0.00
5590.50	5	53.04	0.00	0.10	0.00	0.00	0.00	1.10	0.00	0.00	8.33	0.00	0.00
5590.67	5	53.11	0.00	0.10	0.00	0.00	0.00	0.99	0.00	0.00	10.51	0.00	0.00
5590.83	5	53.35	0.00	0.11	0.00	0.00	0.00	0.79	0.00	0.00	0.00	0.00	0.00
5591.00	5	53.59	0.00	0.11	0.00	0.00	0.00	0.59	0.00	0.00	0.00	0.00	0.00

Appendix 27: Core 1044 geochemistry data with major (%) and minor (ppm) elements from 5584-5591 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
5591.00	5	53.59	0.00	0.11	0.00	0.00	0.00	0.59	0.00	0.00	0.00	0.00	0.00
5591.17	5	53.42	0.00	0.12	0.00	0.00	0.00	1.10	0.00	0.00	8.61	0.00	0.00
5591.33	5	53.11	0.00	0.12	0.00	0.00	0.00	1.01	0.00	0.00	0.00	0.00	0.00
5591.50	5	53.02	0.00	0.10	0.00	0.00	0.00	0.78	0.00	0.00	10.48	85.96	0.00
5591.67	5	52.98	0.00	0.07	0.00	0.00	0.00	2.22	0.00	0.00	7.41	0.00	0.00
5591.83	5	53.70	0.00	0.07	0.00	0.00	0.00	1.10	0.00	0.00	8.90	0.00	0.00
5592.00	5	53.17	0.00	0.07	0.00	0.00	0.00	2.01	0.00	0.00	0.00	0.00	0.00
5592.17	5	52.35	0.00	0.24	0.00	0.00	0.00	1.21	0.00	0.00	12.37	0.00	0.00
5592.33	5	52.20	0.00	0.33	0.00	0.00	0.00	2.03	0.00	0.00	0.00	0.00	0.00
5592.50	5	52.05	0.00	0.41	0.00	0.00	0.00	2.84	0.00	0.00	0.00	0.00	0.00
5592.67	5	51.56	0.00	0.27	0.00	0.00	0.00	2.48	0.00	0.00	0.00	0.00	0.00
5592.83	5	51.98	0.00	0.21	0.00	0.00	0.00	2.50	0.00	0.00	0.00	0.00	0.00
5593.00	5	52.19	0.00	0.18	0.00	0.00	0.00	2.51	0.00	0.00	0.00	0.00	0.00
5593.17	5	52.12	0.00	0.14	0.00	0.00	0.00	2.51	0.00	0.00	0.00	0.00	0.00
5593.33	5	52.39	0.00	0.08	0.00	0.00	0.00	1.88	0.21	0.00	0.00	0.00	0.00
5593.50	5	52.65	0.00	0.09	0.00	0.00	0.00	1.63	0.00	0.00	0.00	0.00	0.00
5593.67	5	52.92	0.00	0.11	0.00	0.00	0.00	1.38	0.00	0.00	0.00	0.00	0.00
5593.83	5	53.18	0.00	0.12	0.00	0.00	0.00	1.13	0.00	0.00	0.00	0.00	0.00
5594.00	5	53.44	0.00	0.14	0.00	0.00	0.00	0.89	0.28	0.00	0.00	0.00	0.00
5594.17	5	53.31	0.00	0.13	0.00	0.00	0.00	0.58	0.00	0.00	0.00	0.00	0.00
5594.33	5	53.19	0.00	0.12	0.00	0.00	0.00	0.28	0.00	0.00	0.00	0.00	25.66
5594.50	5	53.16	0.00	0.14	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00
5594.67	5	52.59	0.00	0.11	0.00	0.00	0.00	1.42	0.00	0.00	0.00	0.00	0.00
5594.83	5	53.56	0.00	0.06	0.00	0.00	0.00	0.16	0.27	0.00	0.00	0.00	0.00
5595.00	5	53.30	0.00	0.11	0.00	0.00	0.00	0.17	0.00	0.00	0.00	0.00	0.00
5595.17	5	53.32	0.00	0.11	0.00	0.00	0.00	0.65	0.00	0.00	0.00	0.00	0.00
5595.33	5	53.34	0.00	0.11	0.00	0.00	0.00	1.13	0.23	0.00	0.00	0.00	0.00
5595.50	5	52.73	0.00	0.14	0.00	0.00	0.00	0.73	0.00	0.00	0.00	0.00	0.00
5595.67	5	52.00	0.00	0.17	0.00	0.00	0.00	0.38	0.00	0.00	0.00	0.00	0.00
5595.83	5	52.40	0.00	0.14	0.00	0.00	0.00	0.77	0.00	0.00	0.00	0.00	0.00
5596.00	4	55.39	1.67	0.12	0.00	0.00	0.00	1.21	0.00	0.00	0.00	0.00	0.00
5596.17	5	54.95	0.00	0.11	0.00	0.00	0.00	2.63	0.00	0.00	0.00	0.00	0.00
5596.33	5	55.46	0.00	0.08	0.00	0.00	0.00	0.66	0.00	0.00	0.00	0.00	0.00
5596.50	5	55.72	0.00	0.07	0.00	0.00	0.00	0.56	0.00	0.00	0.00	0.00	0.00
5596.67	5	55.85	0.00	0.07	0.00	0.00	0.00	0.48	0.00	0.00	0.00	0.00	0.00
5596.83	5	55.99	0.00	0.06	0.00	0.00	0.00	0.41	0.23	0.00	0.00	0.00	0.00
5597.00	5	55.45	0.00	0.09	0.00	0.00	0.00	0.91	0.00	0.00	0.00	0.00	0.00
5597.17	5	54.90	0.00	0.11	0.00	0.00	0.00	1.41	0.00	0.00	0.00	0.00	15.96
5597.33	5	55.22	0.00	0.14	0.00	0.00	0.00	1.14	0.00	0.00	0.00	0.00	0.00
5597.50	5	55.54	0.00	0.17	0.00	0.00	0.00	0.88	0.26	0.00	0.00	0.00	16.01
5597.67	5	55.57	0.00	0.20	0.00	0.00	0.00	0.54	0.00	0.00	0.00	77.20	0.00
5597.83	5	53.96	0.00	0.35	0.00	0.00	0.00	2.04	0.27	0.00	0.00	0.00	0.00
5598.00	5	54.45	0.00	0.30	0.00	0.00	0.00	1.38	0.00	0.00	0.00	0.00	0.00

Appendix 28: Core 1044 geochemistry data with major (%) and minor (ppm) elements from 5591-5598 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
5598.00	5	54.45	0.00	0.30	0.00	0.00	0.00	1.38	0.00	0.00	0.00	0.00	0.00
5598.17	5	54.70	0.00	0.27	0.00	0.00	0.00	1.06	0.00	0.00	0.00	0.00	0.00
5598.33	5	54.95	0.00	0.25	0.00	0.00	0.00	0.73	0.00	0.00	0.00	0.00	0.00
5598.50	5	54.92	0.00	0.31	0.00	0.00	0.00	1.10	0.00	0.00	0.00	0.00	0.00
5598.67	5	54.89	0.00	0.37	0.00	0.00	0.00	1.48	0.00	0.00	0.00	0.00	0.00
5598.83	5	55.10	0.00	0.19	0.00	0.00	0.00	2.54	0.00	0.00	0.00	0.00	0.00
5599.00	5	55.02	0.00	0.14	0.00	0.00	0.00	3.86	0.00	0.00	0.00	0.00	0.00
5599.17	5	57.15	0.00	0.25	0.00	0.00	0.00	1.62	0.00	0.00	0.00	0.00	28.07
5599.33	5	57.44	0.00	0.21	0.00	0.00	0.00	1.85	0.00	0.00	0.00	0.00	0.00
5599.50	5	57.74	0.00	0.18	0.00	0.00	0.00	2.08	0.00	0.00	0.00	0.00	0.00
5599.67	5	56.95	0.00	0.20	0.00	0.00	0.00	0.80	0.00	0.00	0.00	0.00	25.03
5599.83	5	58.34	0.00	0.25	0.00	0.00	0.00	0.59	0.00	0.00	0.00	0.00	0.00
5600.00	5	57.90	0.00	0.13	0.00	0.00	0.00	1.10	0.00	0.00	0.00	0.00	0.00
5600.17	5	58.45	0.00	0.15	0.00	0.00	0.00	1.57	0.00	0.00	0.00	0.00	0.00
5600.33	5	57.74	0.00	0.14	0.00	0.00	0.00	0.53	0.00	0.00	0.00	0.00	0.00
5600.50	5	58.15	0.00	0.15	0.00	0.00	0.00	1.44	0.00	0.00	0.00	0.00	0.00
5600.67	5	57.85	0.00	0.13	0.00	0.00	0.00	1.28	0.00	0.00	0.00	0.00	0.00
5600.83	5	57.62	0.00	0.21	0.00	0.00	0.00	1.09	0.00	0.00	0.00	0.00	0.00
5601.00	5	57.40	0.00	0.28	0.00	0.00	0.00	0.89	0.00	0.00	0.00	0.00	0.00
5601.17	5	56.66	0.00	0.26	0.00	0.00	0.00	0.97	0.00	0.00	0.00	0.00	53.58
5601.33	5	58.01	0.00	0.31	0.00	0.00	0.00	0.93	0.00	0.00	0.00	0.00	15.12
5601.50	5	57.59	0.00	0.35	0.00	0.00	0.00	0.88	0.30	0.00	0.00	0.00	0.00
5601.67	5	57.33	0.00	0.39	0.00	0.00	0.00	1.55	0.00	0.00	0.00	0.00	18.62
5601.83	5	55.28	0.00	0.58	0.00	0.02	0.00	0.57	0.00	0.00	0.00	0.00	19.06
5602.00	5	55.06	0.00	0.51	0.00	0.00	0.00	1.19	0.00	0.00	0.00	0.00	0.00
5602.17	5	54.84	0.00	0.43	0.00	0.00	0.00	1.81	0.00	0.00	0.00	0.00	0.00
5602.33	5	55.39	0.00	0.31	0.00	0.00	0.00	0.87	0.25	3.94	0.00	0.00	0.00
5602.50	5	55.33	0.00	0.40	0.00	0.00	0.00	0.82	0.26	0.00	0.00	0.00	0.00
5602.67	5	55.10	0.00	0.68	0.00	0.00	0.00	1.84	0.00	0.00	0.00	0.00	0.00
5602.83	5	55.00	0.00	0.97	0.39	0.00	0.00	1.30	0.24	0.00	0.00	0.00	0.00
5603.00	5	56.08	0.00	0.41	0.00	0.00	0.00	1.27	0.00	0.00	0.00	0.00	0.00
5603.17	5	55.99	0.00	0.30	0.00	0.00	0.00	1.49	0.00	0.00	0.00	0.00	0.00
5603.33	5	55.77	0.00	0.30	0.00	0.00	0.00	1.40	0.00	0.00	0.00	0.00	0.00
5603.50	5	55.55	0.00	0.31	0.00	0.00	0.00	1.30	0.23	0.00	0.00	0.00	0.00
5603.67	5	55.75	0.00	0.28	0.00	0.00	0.00	1.29	0.26	0.00	0.00	0.00	0.00
5603.83	5	55.46	0.00	0.30	0.00	0.00	0.00	1.32	0.00	0.00	0.00	0.00	0.00
5604.00	5	55.37	0.00	0.27	0.00	0.00	0.00	1.36	0.00	0.00	0.00	0.00	0.00
5604.17	5	55.28	0.00	0.24	0.00	0.00	0.00	1.41	0.00	0.00	0.00	0.00	0.00
5604.33	5	53.54	0.00	0.23	0.00	0.00	0.00	1.54	0.27	0.00	0.00	0.00	18.73
5604.50	5	55.57	0.00	0.33	0.00	0.00	0.00	1.27	0.28	0.00	0.00	93.73	0.00
5604.67	5	55.18	0.00	0.34	0.00	0.00	0.00	1.38	0.00	0.00	0.00	0.00	0.00
5604.83	5	53.65	0.00	0.35	0.00	0.00	0.00	1.46	0.00	0.00	0.00	0.00	0.00
5605.00	5	54.11	0.00	0.21	0.00	0.00	0.00	1.32	0.00	0.00	0.00	0.00	0.00

Appendix 29: Core 1044 geochemistry data with major (%) and minor (ppm) elements from 5598-5605 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
5605.00	5	54.11	0.00	0.21	0.00	0.00	0.00	1.32	0.00	0.00	0.00	0.00	0.00
5605.17	5	54.88	0.00	0.39	0.00	0.00	0.00	1.60	0.00	0.00	0.00	0.00	0.00
5605.33	5	54.31	0.00	0.42	0.00	0.00	0.00	0.58	0.00	0.00	0.00	0.00	0.00
5605.50	5	62.52	0.00	0.46	0.00	0.00	0.00	1.34	0.00	0.00	0.00	0.00	0.00
5605.67	5	54.58	0.00	0.38	0.00	0.00	0.00	1.75	0.25	0.00	0.00	0.00	0.00
5605.83	5	54.46	0.00	0.29	0.00	0.00	0.00	1.97	0.00	0.00	0.00	0.00	0.00
5606.00	5	54.79	0.00	0.32	0.00	0.00	0.00	1.47	0.26	0.00	0.00	0.00	0.00
5606.17	5	54.45	0.00	0.28	0.00	0.00	0.00	0.93	0.27	0.00	0.00	0.00	0.00
5606.33	5	55.05	0.00	0.18	0.00	0.00	0.00	0.99	0.28	0.00	0.00	0.00	0.00
5606.50	5	55.02	0.00	0.26	0.00	0.00	0.00	1.16	0.00	0.00	0.00	0.00	0.00
5606.67	5	63.03	0.00	0.29	0.00	0.00	0.00	1.05	0.00	0.00	0.00	0.00	0.00
5606.83	5	54.77	0.00	0.25	0.00	0.00	0.00	0.68	0.26	0.00	0.00	0.00	0.00
5607.00	5	62.50	0.00	0.38	0.00	0.00	0.00	1.10	0.00	0.00	0.00	0.00	0.00
5607.17	5	66.94	0.00	0.45	0.00	0.00	0.00	1.34	0.00	0.00	0.00	0.00	0.00
5607.33	5	54.09	0.00	0.40	0.00	0.00	0.00	1.23	0.00	0.00	0.00	0.00	0.00
5607.50	5	54.39	0.00	0.26	0.00	0.00	0.00	0.76	0.25	0.00	0.00	0.00	0.00
5607.67	5	62.74	0.00	0.29	0.00	0.00	0.00	0.89	0.00	0.00	0.00	0.00	0.00
5607.83	5	54.95	0.00	0.24	0.00	0.00	0.00	0.97	0.28	0.00	0.00	0.00	0.00
5608.00	5	54.88	0.00	0.23	0.00	0.00	0.00	0.78	0.00	0.00	0.00	0.00	0.00
5608.17	5	55.61	0.00	0.32	0.00	0.00	0.00	0.44	0.31	0.00	0.00	0.00	0.00
5608.33	5	54.96	0.00	0.61	0.28	0.00	0.00	1.08	0.00	0.00	0.00	0.00	0.00
5608.50	4	54.78	1.73	0.33	0.00	0.00	0.00	0.93	0.00	0.00	0.00	0.00	16.03
5608.67	5	55.74	0.00	0.16	0.00	0.00	0.00	0.41	0.23	0.00	0.00	0.00	0.00
5608.83	5	63.48	0.00	0.24	0.00	0.00	0.00	0.76	0.27	0.00	0.00	0.00	0.00
5609.00	4	54.83	1.44	0.26	0.00	0.00	0.00	0.92	0.24	0.00	0.00	0.00	0.00
5609.17	5	54.48	0.00	0.35	0.00	0.00	0.00	1.84	0.00	0.00	0.00	0.00	0.00
5609.33	5	54.44	0.00	0.38	0.00	0.00	0.00	2.08	0.00	0.00	0.00	0.00	18.19
5609.50	5	54.62	0.00	0.30	0.00	0.00	0.00	1.79	0.24	0.00	0.00	0.00	0.00
5609.67	5	63.10	0.00	0.29	0.00	0.00	0.00	1.49	0.27	0.00	0.00	0.00	0.00
5609.83	5	55.28	0.00	0.20	0.00	0.00	0.00	0.80	0.23	0.00	0.00	0.00	0.00
5610.00	5	55.27	0.00	0.16	0.28	0.00	0.00	0.40	0.00	0.00	0.00	0.00	0.00
5610.17	5	54.60	0.00	0.15	0.00	0.00	0.00	0.45	0.28	0.00	0.00	0.00	0.00
5610.33	5	63.58	0.00	0.16	0.00	0.00	0.00	1.66	0.16	0.00	0.00	0.00	0.00
5610.50	5	56.15	0.00	0.12	0.00	0.00	0.00	2.44	0.00	0.00	0.00	0.00	0.00
5610.67	5	56.10	0.00	0.14	0.00	0.00	0.00	1.04	0.00	0.00	0.00	0.00	0.00
5610.83	5	64.50	0.00	0.14	0.00	0.00	0.00	0.90	0.16	0.00	0.00	0.00	0.00
5611.00	5	56.24	0.00	0.11	0.00	0.00	0.00	0.52	0.29	0.00	0.00	0.00	0.00
5611.17	5	55.93	0.00	0.20	0.00	0.00	0.00	2.12	0.00	0.00	0.00	0.00	0.00
5611.33	5	55.11	0.00	0.16	0.00	0.00	0.00	0.70	0.00	0.00	0.00	0.00	26.61
5611.50	5	55.08	0.00	0.23	0.00	0.00	0.00	1.25	0.00	0.00	0.00	0.00	0.00
5611.67	5	52.96	0.00	0.32	0.00	0.00	0.00	1.37	0.00	0.00	0.00	0.00	0.00
5611.83	5	55.60	0.00	0.12	0.00	0.00	0.00	1.83	0.00	0.00	0.00	0.00	0.00
5612.00	5	54.91	0.00	0.11	0.00	0.00	0.00	4.42	0.00	0.00	0.00	0.00	0.00

Appendix 30: Core 1044 geochemistry data with major (%) and minor (ppm) elements from 5605-5612 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
5612.00	5	54.91	0.00	0.11	0.00	0.00	0.00	4.42	0.00	0.00	0.00	0.00	0.00
5612.17	5	55.24	0.00	0.10	0.00	0.00	0.00	3.48	0.00	0.00	0.00	0.00	0.00
5612.33	5	55.96	0.00	0.13	0.00	0.00	0.00	2.47	0.00	0.00	0.00	0.00	70.78
5612.50	5	56.12	0.00	0.10	0.00	0.00	0.00	0.49	0.00	0.00	0.00	0.00	0.00
5612.67	5	56.00	0.00	0.11	0.00	0.02	0.00	0.57	0.35	0.00	0.00	0.00	0.00
5612.83	5	56.38	0.00	0.05	0.00	0.00	0.00	1.26	0.00	0.00	0.00	0.00	0.00
5613.00	5	53.82	0.00	0.16	0.00	0.00	0.00	1.10	0.00	0.00	0.00	0.00	0.00
5613.17	5	55.77	0.00	0.10	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.00	0.00
5613.33	5	56.39	0.00	0.06	0.00	0.00	0.00	0.92	0.00	0.00	0.00	0.00	0.00
5613.50	5	55.94	0.00	0.08	0.00	0.00	0.00	0.58	0.00	0.00	0.00	0.00	30.69
5613.67	5	55.85	0.00	0.13	0.00	0.00	0.00	0.26	0.00	0.00	0.00	0.00	0.00
5613.83	5	55.86	0.00	0.05	0.00	0.00	0.00	0.18	0.00	0.00	0.00	0.00	0.00
5614.00	5	56.25	0.00	0.05	0.00	0.00	0.00	1.15	0.00	0.00	0.00	0.00	0.00
5614.17	5	57.37	0.00	0.08	0.00	0.00	0.00	0.62	0.00	0.00	0.00	0.00	0.00
5614.33	5	57.44	0.00	0.08	0.00	0.00	0.00	0.21	0.00	0.00	0.00	0.00	0.00
5614.50	5	56.49	0.00	0.20	0.00	0.00	0.00	0.62	0.00	0.00	0.00	0.00	0.00
5614.67	5	57.10	0.00	0.07	0.00	0.00	0.00	0.34	0.00	0.00	0.00	0.00	0.00
5614.83	5	55.78	0.00	0.05	0.00	0.00	0.00	0.44	0.00	0.00	0.00	0.00	41.43
5615.00	5	57.05	0.00	0.08	0.00	0.00	0.00	1.06	0.00	0.00	0.00	0.00	0.00
5615.17	5	56.75	0.00	0.00	0.00	0.00	0.00	0.97	0.00	0.00	0.00	0.00	0.00
5615.33	5	57.41	0.00	0.09	0.00	0.00	0.00	1.27	0.00	0.00	0.00	0.00	0.00
5615.50	5	57.04	0.00	0.06	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00
5615.67	5	57.28	0.00	0.05	0.00	0.00	0.00	0.58	0.00	0.00	0.00	0.00	0.00
5615.83	5	57.11	0.00	0.09	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00
5616.00	5	57.38	0.00	0.09	0.00	0.00	0.00	0.17	0.00	0.00	0.00	0.00	0.00
5616.17	5	57.06	0.00	0.08	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.00	0.00
5616.33	5	57.34	0.00	0.06	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.00
5616.50	5	56.90	0.00	0.07	0.00	0.00	0.00	0.26	0.00	0.00	0.00	0.00	0.00
5616.67	5	57.04	0.00	0.06	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.00
5616.83	5	57.19	0.00	0.07	0.00	0.00	0.00	1.05	0.00	0.00	0.00	0.00	0.00
5617.00	5	56.62	0.00	0.00	0.00	0.00	0.00	1.05	0.00	0.00	0.00	81.13	0.00
5617.17	5	53.27	0.00	0.62	0.00	0.00	0.00	0.53	0.00	0.00	0.00	0.00	0.00
5617.33	5	57.65	0.00	0.10	0.00	0.00	0.00	0.37	0.00	0.00	0.00	0.00	0.00
5617.50	5	57.28	0.00	0.07	0.00	0.00	0.00	2.07	0.00	0.00	0.00	0.00	0.00
5617.67	5	57.64	0.00	0.06	0.00	0.00	0.00	0.62	0.00	0.00	0.00	0.00	0.00
5617.83	5	57.56	0.00	0.08	0.00	0.00	0.00	1.08	0.00	0.00	0.00	0.00	0.00
5618.00	5	57.48	0.00	0.10	0.00	0.00	0.00	1.55	0.00	0.00	0.00	0.00	0.00
5618.17	5	57.04	0.00	0.00	0.00	0.00	0.00	3.29	0.24	0.00	0.00	0.00	0.00
5618.33	5	57.23	0.00	0.00	0.00	0.00	0.00	1.22	0.23	0.00	0.00	0.00	0.00
5618.50	5	57.68	0.00	0.12	0.00	0.00	0.00	0.53	0.00	0.00	0.00	0.00	0.00
5618.67	5	56.58	0.00	0.18	0.00	0.00	0.00	1.03	0.00	0.00	0.00	0.00	33.74
5618.83	5	57.44	0.00	0.07	0.00	0.00	0.00	2.48	0.00	0.00	0.00	90.19	0.00
5619.00	5	57.20	0.00	0.10	0.00	0.00	0.00	1.97	0.00	0.00	0.00	0.00	19.87

Appendix 31: Core 1044 geochemistry data with major (%) and minor (ppm) elements from 5612-5619 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
5619.00	5	57.20	0.00	0.10	0.00	0.00	0.00	1.97	0.00	0.00	0.00	0.00	19.87
5619.17	5	57.36	0.00	0.09	0.00	0.00	0.00	1.45	0.00	0.00	0.00	0.00	0.00
5619.33	5	56.21	0.00	0.16	0.00	0.00	0.00	0.29	0.00	0.00	0.00	0.00	31.51
5619.50	5	57.92	0.00	0.06	0.00	0.00	0.00	0.17	0.24	4.22	0.00	0.00	0.00
5619.67	5	56.36	0.00	0.12	0.28	0.00	0.00	0.29	0.23	0.00	0.00	0.00	0.00
5619.83	5	57.74	0.00	0.09	0.00	0.00	0.00	1.24	0.00	0.00	0.00	0.00	0.00
5620.00	5	57.19	0.00	0.22	0.00	0.00	0.00	0.52	0.00	0.00	0.00	0.00	24.39
5620.17	5	54.98	0.00	0.08	0.00	0.00	0.00	0.55	0.00	0.00	0.00	0.00	0.00
5620.33	5	54.42	0.00	0.07	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00
5620.50	5	54.38	0.00	0.06	0.00	0.00	0.00	0.27	0.00	0.00	0.00	0.00	0.00
5620.67	4	54.93	1.47	0.07	0.00	0.00	0.00	0.28	0.00	0.00	0.00	0.00	0.00
5620.83	5	54.88	0.00	0.07	0.00	0.00	0.00	0.54	0.00	0.00	0.00	0.00	26.97
5621.00	5	55.02	0.00	0.07	0.00	0.00	0.00	0.95	0.00	0.00	0.00	0.00	0.00
5621.17	5	54.90	0.00	0.10	0.00	0.00	0.00	0.76	0.00	0.00	0.00	0.00	0.00
5621.33	5	54.70	0.00	0.00	0.00	0.00	0.00	1.77	0.00	0.00	0.00	0.00	0.00
5621.50	5	54.69	0.00	0.12	0.00	0.00	0.00	1.53	0.00	0.00	0.00	0.00	0.00
5621.67	5	54.69	0.00	0.09	0.00	0.00	0.00	0.29	0.00	0.00	0.00	0.00	0.00
5621.83	5	54.93	0.00	0.07	0.00	0.00	0.00	0.24	0.00	0.00	0.00	81.55	0.00
5622.00	5	54.36	0.00	0.12	0.00	0.00	0.00	1.76	0.00	0.00	0.00	0.00	0.00
5622.17	5	54.74	0.00	0.05	0.00	0.04	0.00	0.22	0.00	0.00	0.00	0.00	0.00
5622.33	5	54.26	0.00	0.10	0.00	0.00	0.00	0.26	0.00	0.00	0.00	0.00	0.00
5622.50	5	53.28	0.00	0.12	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00
5622.67	5	54.42	0.00	0.11	0.00	0.00	0.00	0.92	0.00	0.00	0.00	0.00	0.00
5622.83	5	54.88	0.00	0.08	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.00	0.00
5623.00	5	54.82	0.00	0.10	0.00	0.00	0.00	0.65	0.00	0.00	0.00	0.00	0.00
5623.17	5	55.21	0.00	0.11	0.00	0.00	0.00	1.88	0.00	0.00	0.00	0.00	20.12
5623.33	5	56.78	0.00	0.14	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.00	0.00
5623.50	5	56.68	0.00	0.09	0.00	0.00	0.00	0.41	0.00	0.00	0.00	117.29	0.00
5623.67	4	56.53	2.00	0.13	0.33	0.00	0.00	0.37	0.00	0.00	0.00	0.00	0.00
5623.83	5	56.97	0.00	0.07	0.00	0.00	0.00	0.51	0.00	0.00	0.00	0.00	0.00
5624.00	5	56.55	0.00	0.07	0.00	0.00	0.00	0.68	0.00	0.00	0.00	0.00	0.00
5624.17	5	56.42	0.00	0.07	0.00	0.00	0.00	1.11	0.00	0.00	0.00	97.91	0.00
5624.33	5	56.02	0.00	0.10	0.00	0.00	0.00	0.86	0.00	0.00	0.00	0.00	0.00
5624.50	5	56.01	0.00	0.11	0.00	0.00	0.00	1.94	0.00	0.00	0.00	0.00	0.00
5624.67	5	56.18	0.00	0.10	0.00	0.00	0.00	2.80	0.00	0.00	0.00	0.00	0.00
5624.83	5	56.02	0.00	0.13	0.00	0.00	0.00	1.27	0.00	0.00	0.00	0.00	0.00
5625.00	5	56.55	0.00	0.10	0.00	0.00	0.00	1.21	0.00	0.00	0.00	0.00	0.00
5625.17	5	54.73	0.00	0.24	0.00	0.43	0.00	1.36	0.00	0.00	0.00	0.00	0.00
5625.33	5	56.10	0.00	0.11	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00
5625.50	5	56.48	0.00	0.10	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.00	79.96
5625.67	5	57.55	0.00	0.08	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00
5625.83	5	56.76	0.00	0.07	0.00	0.00	0.00	0.50	0.00	3.64	0.00	83.96	0.00
5626.00	5	56.10	0.00	0.08	0.00	0.00	0.00	0.58	0.25	0.00	0.00	0.00	0.00

Appendix 32: Core 1044 geochemistry data with major (%) and minor (ppm) elements from 5619-5626 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
5626.00	5	56.10	0.00	0.08	0.00	0.00	0.00	0.58	0.25	0.00	0.00	0.00	0.00
5626.17	5	55.09	0.00	0.14	0.00	0.00	0.00	0.45	0.23	0.00	0.00	0.00	189.23
5626.33	5	54.95	0.00	0.11	0.00	0.00	0.00	0.70	0.00	0.00	0.00	0.00	0.00
5626.50	5	55.09	0.00	0.06	0.00	0.00	0.00	1.16	0.00	0.00	0.00	0.00	0.00
5626.67	5	54.88	0.00	0.08	0.24	0.00	0.00	0.71	0.00	0.00	0.00	0.00	214.73
5626.83	5	54.89	0.00	0.18	0.00	0.00	0.00	0.73	0.00	0.00	0.00	0.00	90.63
5627.00	5	54.03	0.00	0.27	0.00	0.00	0.00	1.04	0.00	0.00	0.00	0.00	86.20
5627.17	5	54.66	0.00	0.10	0.00	0.00	0.00	1.89	0.00	0.00	0.00	0.00	0.00
5627.33	5	54.79	0.00	0.06	0.00	0.00	0.00	1.95	0.00	0.00	0.00	0.00	0.00
5627.50	5	55.27	0.00	0.06	0.00	0.00	0.00	1.31	0.00	0.00	0.00	0.00	0.00
5627.67	4	49.89	1.42	3.89	0.77	0.04	0.00	1.51	0.00	0.00	0.00	0.00	37.55
5627.83	5	53.28	0.00	0.84	0.00	0.00	0.31	4.55	0.00	0.00	0.00	98.59	36.63
5628.00	5	51.34	0.00	3.21	0.74	0.04	0.00	1.54	0.00	0.00	0.00	0.00	604.90
5628.17	5	49.53	0.00	2.62	0.29	0.02	0.00	1.42	0.00	0.00	0.00	0.00	0.00
5628.33	5	49.18	0.00	0.68	0.26	0.00	0.24	0.68	0.00	0.00	0.00	0.00	0.00
5628.50	5	55.31	0.00	0.08	0.00	0.00	0.00	0.56	0.00	0.00	0.00	0.00	0.00
5628.67	5	54.09	0.00	0.14	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00
5628.83	5	54.55	0.00	0.06	0.00	0.00	0.00	0.71	0.00	0.00	0.00	0.00	0.00
5629.00	5	54.78	0.00	0.07	0.00	0.00	0.00	0.70	0.00	0.00	0.00	0.00	19.11
5629.17	5	54.93	0.00	0.22	0.00	0.00	0.00	0.63	0.00	0.00	0.00	0.00	0.00
5629.33	5	54.91	0.00	0.18	0.00	0.00	0.00	0.55	0.00	0.00	0.00	0.00	100.44
5629.50	5	55.44	0.00	0.18	0.00	0.00	0.00	0.62	0.00	0.00	0.00	0.00	0.00
5629.67	5	55.24	0.00	0.15	0.00	0.00	0.00	0.54	0.00	0.00	0.00	0.00	14.76
5629.83	5	54.45	0.00	0.24	0.00	0.00	0.00	3.59	0.00	0.00	0.00	0.00	0.00
5630.00	5	54.76	0.00	0.12	0.00	0.00	0.00	1.54	0.00	0.00	0.00	0.00	0.00
5630.17	5	54.48	0.00	0.15	0.00	0.00	0.00	1.87	0.00	0.00	0.00	0.00	0.00
5630.33	5	54.26	0.00	0.19	0.00	0.00	0.00	1.37	0.00	0.00	0.00	0.00	0.00
5630.50	5	54.89	0.00	0.16	0.00	0.00	0.00	1.12	0.00	0.00	0.00	0.00	0.00
5630.67	5	54.51	0.00	0.16	0.00	0.00	0.00	0.99	0.00	0.00	0.00	0.00	0.00
5630.83	4	45.25	0.00	7.63	1.55	0.40	0.29	1.39	0.00	0.00	0.00	0.00	43.47
5631.00	5	53.58	0.00	2.44	0.61	0.02	0.00	1.12	0.00	0.00	0.00	0.00	16.33
5631.17	5	51.42	0.00	0.31	0.00	0.06	0.00	0.67	0.00	0.00	0.00	0.00	81.07
5631.33	5	54.39	0.00	0.19	0.00	0.00	0.00	0.65	0.00	0.00	0.00	0.00	0.00
5631.50	5	54.69	0.00	0.06	0.00	0.00	0.00	0.39	0.00	0.00	0.00	0.00	0.00
5631.67	5	55.10	0.00	0.13	0.00	0.00	0.00	0.45	0.00	0.00	0.00	0.00	0.00
5631.83	5	55.12	0.00	0.07	0.00	0.00	0.00	0.36	0.00	0.00	0.00	0.00	0.00
5632.00	5	49.81	0.00	1.20	0.00	0.13	0.00	0.65	0.00	0.00	0.00	0.00	0.00
5632.17	5	52.66	0.00	3.43	0.61	0.04	0.00	0.70	0.00	0.00	0.00	100.05	346.93
5632.33	5	50.47	0.00	3.91	0.78	0.11	0.00	0.73	0.00	0.00	0.00	0.00	424.16
5632.50	5	51.56	0.00	1.61	0.00	0.00	0.00	0.52	0.00	0.00	0.00	0.00	433.15
5632.67	5	53.35	0.00	1.23	0.35	0.00	0.00	0.41	0.00	0.00	0.00	0.00	44.25
5632.83	5	52.55	0.00	1.59	0.00	0.13	0.00	0.49	0.00	0.00	0.00	0.00	160.24
5633.00	5	51.37	0.00	1.05	0.00	0.13	0.18	0.41	0.00	0.00	0.00	0.00	145.57

Appendix 33: Core 1044 geochemistry data with major (%) and minor (ppm) elements from 5626-5633 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
5633.00	5	51.37	0.00	1.05	0.00	0.13	0.18	0.41	0.00	0.00	0.00	0.00	145.57
5633.17	5	53.20	0.00	1.91	0.40	0.00	0.00	1.32	0.00	0.00	0.00	0.00	58.47
5633.33	5	54.34	0.00	0.85	0.00	0.00	0.00	0.69	0.00	0.00	0.00	0.00	0.00
5633.50	5	51.67	0.00	1.68	0.25	0.00	0.00	0.91	0.00	4.20	0.00	0.00	32.34
5633.67	5	56.11	0.00	0.06	0.00	0.00	0.00	1.26	0.23	0.00	0.00	74.30	0.00
5633.83	5	56.09	0.00	0.08	0.00	0.00	0.00	2.50	0.00	0.00	0.00	0.00	0.00
5634.00	5	54.69	0.00	0.21	0.00	0.00	0.00	0.95	0.00	0.00	0.00	0.00	0.00
5634.17	5	54.52	0.00	0.23	0.00	0.00	0.00	2.26	0.00	0.00	0.00	0.00	0.00
5634.33	5	54.64	0.00	0.23	0.00	0.00	0.00	1.03	0.00	0.00	0.00	0.00	0.00
5634.50	5	54.06	0.00	0.32	0.00	0.00	0.00	0.92	0.00	0.00	0.00	0.00	77.92
5634.67	5	54.14	0.00	0.37	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	128.71
5634.83	5	53.83	0.00	0.35	0.00	0.00	0.00	1.03	0.00	0.00	0.00	0.00	18.70
5635.00	5	54.08	0.00	0.42	0.00	0.00	0.00	0.83	0.00	0.00	0.00	0.00	0.00
5635.17	5	53.93	0.00	0.33	0.00	0.00	0.00	0.43	0.00	0.00	0.00	0.00	13.47
5635.33	5	53.80	0.00	0.32	0.00	0.00	0.00	0.95	0.00	0.00	0.00	0.00	18.95
5635.50	5	54.47	0.00	0.45	0.00	0.00	0.00	0.97	0.00	0.00	0.00	0.00	106.75
5635.67	4	54.52	1.64	0.27	0.00	0.00	0.00	1.12	0.00	0.00	0.00	0.00	0.00
5635.83	5	54.53	0.00	0.16	0.00	0.00	0.00	1.12	0.00	0.00	0.00	0.00	0.00
5636.00	5	54.45	0.00	0.13	0.00	0.00	0.00	0.66	0.00	0.00	0.00	0.00	0.00
5636.17	5	54.84	0.00	0.10	0.00	0.00	0.00	0.42	0.00	0.00	0.00	0.00	0.00
5636.33	5	54.50	0.00	0.16	0.00	0.00	0.00	0.42	0.00	0.00	0.00	0.00	179.12
5636.50	5	54.96	0.00	0.09	0.00	0.00	0.00	1.73	0.00	0.00	0.00	0.00	0.00
5636.67	5	54.76	0.00	0.14	0.00	0.00	0.00	0.91	0.00	0.00	0.00	0.00	56.36
5636.83	5	54.90	0.00	0.13	0.00	0.00	0.00	0.86	0.00	0.00	0.00	0.00	45.39
5637.00	5	54.14	0.00	0.20	0.00	0.00	0.00	1.43	0.00	0.00	0.00	0.00	22.38
5637.17	5	54.71	0.00	0.20	0.00	0.00	0.00	0.80	0.00	0.00	0.00	0.00	23.07
5637.33	5	54.76	0.00	0.16	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.00
5637.50	5	54.65	0.00	0.17	0.00	0.00	0.00	0.29	0.00	0.00	0.00	0.00	21.26
5637.67	5	54.57	0.00	0.14	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	33.11
5637.83	5	54.12	0.00	0.18	0.00	0.00	0.00	1.03	0.00	0.00	0.00	0.00	0.00
5638.00	5	54.33	0.00	0.21	0.00	0.00	0.00	0.58	0.00	0.00	0.00	0.00	27.69
5638.17	5	54.34	0.00	0.22	0.00	0.00	0.00	0.55	0.00	0.00	0.00	0.00	0.00
5638.33	5	54.47	0.00	0.20	0.00	0.00	0.00	0.40	0.00	0.00	0.00	0.00	14.58
5638.50	5	54.29	0.00	0.37	0.00	0.00	0.00	0.70	0.00	0.00	0.00	0.00	0.00
5638.67	5	54.78	0.00	0.27	0.00	0.00	0.00	0.40	0.00	0.00	0.00	0.00	0.00
5638.83	5	54.31	0.00	0.30	0.28	0.00	0.00	1.50	0.00	0.00	0.00	0.00	0.00
5639.00	5	53.54	0.00	0.29	0.00	0.00	0.00	1.15	0.00	0.00	0.00	0.00	0.00
5639.17	5	55.49	0.00	0.80	0.00	0.00	0.00	0.53	0.00	0.00	0.00	0.00	0.00
5639.33	4	55.30	1.36	0.49	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.00	0.00
5639.50	5	55.77	0.00	0.26	0.00	0.00	0.00	0.76	0.00	0.00	0.00	0.00	26.24
5639.67	5	55.87	0.00	0.26	0.00	0.00	0.00	0.63	0.00	0.00	0.00	0.00	0.00
5639.83	5	55.96	0.00	0.23	0.33	0.00	0.00	0.43	0.00	0.00	0.00	0.00	0.00
5640.00	5	54.52	0.00	0.37	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.00	0.00

Appendix 34: Core 1044 geochemistry data with major (%) and minor (ppm) elements from 5633-5640 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
5640.00	5	54.52	0.00	0.37	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.00	0.00
5640.17	5	55.27	0.00	0.50	0.24	0.00	0.00	0.41	0.00	0.00	0.00	0.00	0.00
5640.33	5	56.02	0.00	0.28	0.00	0.00	0.00	0.39	0.00	0.00	0.00	0.00	0.00
5640.50	5	55.76	0.00	0.18	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.00
5640.67	5	56.35	0.00	0.25	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.00
5640.83	5	56.69	0.00	0.21	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.00	16.01
5641.00	5	56.26	0.00	0.22	0.00	0.00	0.00	0.42	0.00	0.00	0.00	0.00	0.00
5641.17	5	55.75	0.00	0.30	0.00	0.00	0.00	0.47	0.00	0.00	0.00	0.00	0.00
5641.33	5	56.48	0.00	0.31	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.00	0.00
5641.50	5	56.47	0.00	0.33	0.00	0.00	0.00	0.47	0.00	0.00	0.00	0.00	0.00
5641.67	5	55.79	0.00	0.32	0.00	0.00	0.00	0.48	0.00	0.00	0.00	0.00	0.00
5641.83	5	55.48	0.00	0.38	0.00	0.00	0.00	0.84	0.00	0.00	0.00	0.00	0.00
5642.00	5	53.08	0.00	0.24	0.00	0.00	0.00	0.26	0.00	0.00	0.00	0.00	0.00
5642.17	5	56.17	0.00	0.24	0.00	0.00	0.00	0.26	0.00	0.00	0.00	0.00	0.00
5642.33	5	54.01	0.00	0.31	0.00	0.00	0.00	0.27	0.00	0.00	0.00	0.00	33.77
5642.50	5	54.93	0.00	0.28	0.00	0.00	0.00	0.29	0.24	0.00	0.00	0.00	0.00
5642.67	5	54.30	0.00	0.31	0.00	0.00	0.00	0.95	0.25	0.00	0.00	0.00	0.00
5642.83	5	52.23	0.00	0.88	0.00	0.00	0.00	0.73	0.00	0.00	0.00	0.00	0.00
5643.00	5	54.92	0.00	0.40	0.00	0.00	0.00	0.50	0.24	0.00	0.00	0.00	0.00
5643.17	5	54.66	0.00	0.27	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00
5643.33	5	54.79	0.00	0.61	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.00
5643.50	5	54.74	0.00	0.67	0.00	0.00	0.00	0.50	0.27	0.00	0.00	0.00	28.69
5643.67	5	55.08	0.00	0.43	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.00	0.00
5643.83	5	54.65	0.00	0.38	0.00	0.00	0.00	0.61	0.00	0.00	0.00	0.00	0.00
5644.00	5	54.39	0.00	0.56	0.00	0.00	0.00	0.49	0.28	0.00	0.00	0.00	0.00
5644.17	5	54.95	0.00	0.31	0.00	0.00	0.00	1.48	0.27	0.00	0.00	0.00	0.00
5644.33	5	54.46	0.00	0.32	0.00	0.00	0.00	4.83	0.24	0.00	0.00	0.00	0.00
5644.50	5	54.19	0.00	0.39	0.00	0.00	0.00	1.27	0.00	0.00	0.00	0.00	0.00
5644.67	5	54.70	0.00	0.22	0.00	0.00	0.00	1.95	0.00	0.00	0.00	0.00	0.00
5644.83	5	54.95	0.00	0.33	0.00	0.00	0.00	1.22	0.00	0.00	0.00	0.00	0.00
5645.00	5	54.58	0.00	0.22	0.00	0.00	0.00	1.77	0.00	0.00	0.00	0.00	0.00
5645.17	5	54.32	0.00	0.23	0.00	0.00	0.00	1.67	0.00	0.00	0.00	72.89	0.00
5645.33	5	53.58	0.00	0.37	0.00	0.00	0.00	1.22	0.00	0.00	0.00	75.66	0.00
5645.50	5	54.49	0.00	0.22	0.00	0.00	0.00	2.95	0.26	0.00	0.00	0.00	0.00
5645.67	4	54.30	2.08	0.21	0.00	0.00	0.00	2.49	0.00	0.00	0.00	0.00	0.00
5645.83	5	54.74	0.00	0.19	0.00	0.00	0.00	2.15	0.29	0.00	0.00	79.84	0.00
5646.00	5	54.71	0.00	0.20	0.00	0.00	0.00	1.24	0.25	0.00	0.00	0.00	0.00
5646.17	5	55.00	0.00	0.17	0.00	0.00	0.00	0.32	0.23	0.00	0.00	0.00	0.00
5646.33	5	54.63	0.00	1.31	0.00	0.00	0.00	1.31	0.00	0.00	0.00	0.00	0.00
5646.50	5	54.51	0.00	0.67	0.00	0.00	0.00	1.36	0.25	0.00	0.00	0.00	0.00
5646.67	5	54.05	0.00	0.66	0.25	0.07	0.00	0.37	0.64	0.00	0.00	0.00	22.58
5646.83	5	54.81	0.00	0.74	0.00	0.00	0.00	0.35	0.30	0.00	0.00	0.00	0.00
5647.00	5	54.46	0.00	0.90	0.00	0.00	0.00	0.71	0.26	0.00	0.00	0.00	0.00

Appendix 35: Core 1044 geochemistry data with major (%) and minor (ppm) elements from 5640-5647 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
5647.00	5	54.46	0.00	0.90	0.00	0.00	0.00	0.71	0.26	0.00	0.00	0.00	0.00
5647.17	5	54.24	0.00	0.99	0.00	0.00	0.00	0.75	0.25	3.90	0.00	0.00	0.00
5647.33	4	54.22	1.91	0.84	0.00	0.00	0.00	0.51	0.28	0.00	0.00	0.00	18.99
5647.50	5	53.82	0.00	0.86	0.00	0.00	0.00	0.40	0.29	0.00	0.00	0.00	53.47
5647.67	5	53.35	0.00	1.03	0.00	0.00	0.00	1.00	0.29	0.00	0.00	0.00	0.00
5647.83	5	54.21	0.00	0.74	0.00	0.00	0.00	0.55	0.28	0.00	0.00	0.00	257.17
5648.00	5	53.76	0.00	0.88	0.33	0.00	0.00	0.57	0.26	0.00	0.00	0.00	87.87
5648.17	5	53.80	0.00	0.85	0.00	0.00	0.00	1.28	0.26	0.00	0.00	0.00	0.00
5648.33	5	52.69	0.00	1.13	0.00	0.00	0.00	0.49	0.31	0.00	0.00	0.00	0.00
5648.50	5	52.83	0.00	0.93	0.12	0.00	0.00	1.20	0.28	0.00	0.00	0.00	0.00
5648.67	5	52.97	0.00	0.74	0.25	0.00	0.00	1.91	0.26	0.00	0.00	0.00	0.00
5648.83	5	52.18	0.00	1.02	0.00	0.00	0.00	1.83	0.24	0.00	0.00	0.00	0.00
5649.00	5	50.69	0.00	1.11	0.24	0.03	0.00	0.48	0.28	0.00	0.00	0.00	0.00
5649.17	5	53.08	0.00	0.85	0.00	0.00	0.00	1.39	0.25	0.00	0.00	0.00	0.00
5649.33	5	52.69	0.00	0.88	0.00	0.00	0.00	1.25	0.00	0.00	0.00	0.00	0.00
5649.50	5	52.77	0.00	1.53	0.00	0.00	0.00	0.42	0.30	0.00	0.00	0.00	0.00
5649.67	5	50.25	0.00	1.06	0.00	0.00	0.00	0.93	0.00	0.00	0.00	0.00	0.00
5649.83	4	50.88	1.43	0.95	0.27	0.00	0.00	0.94	0.00	0.00	0.00	0.00	0.00
5650.00	5	53.17	0.00	0.60	0.00	0.00	0.00	1.28	0.26	0.00	0.00	0.00	0.00
5650.17	5	53.18	0.00	0.57	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
5650.33	5	52.33	0.00	0.45	0.00	0.00	0.00	0.33	0.23	0.00	0.00	0.00	0.00
5650.50	5	52.23	0.00	0.65	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00
5650.67	5	53.14	0.00	0.69	0.00	0.00	0.00	0.31	0.00	0.00	0.00	0.00	0.00
5650.83	5	53.18	0.00	0.60	0.27	0.00	0.00	0.23	0.22	0.00	0.00	0.00	0.00
5651.00	5	53.43	0.00	0.52	0.00	0.00	0.00	0.38	0.25	4.01	0.00	0.00	0.00
5651.17	5	53.62	0.00	0.43	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00
5651.33	4	55.15	1.46	0.43	0.00	0.00	0.00	0.33	0.27	0.00	0.00	0.00	0.00
5651.50	5	55.49	0.00	0.45	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00
5651.67	5	55.42	0.00	0.38	0.00	0.00	0.00	0.18	0.00	0.00	0.00	0.00	0.00
5651.83	5	55.55	0.00	0.36	0.00	0.00	0.00	0.21	0.00	0.00	0.00	0.00	0.00
5652.00	5	55.35	0.00	0.39	0.00	0.00	0.00	0.19	0.00	0.00	0.00	0.00	0.00
5652.17	4	55.20	1.97	0.33	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00
5652.33	5	55.34	0.00	0.41	0.00	0.00	0.00	0.19	0.00	0.00	0.00	0.00	0.00
5652.50	5	50.42	0.00	2.45	0.23	0.15	0.00	0.44	0.00	0.00	0.00	0.00	22.72
5652.67	5	55.78	0.00	0.31	0.00	0.00	0.00	0.32	0.26	0.00	0.00	0.00	0.00
5652.83	5	55.40	0.00	0.34	0.00	0.00	0.00	0.22	0.24	0.00	0.00	0.00	0.00
5653.00	5	55.00	0.00	0.37	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00
5653.17	5	55.53	0.00	0.25	0.00	0.00	0.00	0.18	0.24	0.00	0.00	0.00	0.00
5653.33	5	52.45	0.00	1.23	0.00	0.09	0.00	0.38	0.26	0.00	0.00	0.00	24.58
5653.50	5	52.35	0.00	0.61	0.00	0.02	0.00	0.25	0.25	0.00	0.00	0.00	17.07
5653.67	5	53.34	0.00	1.93	0.00	0.10	0.00	0.40	0.25	0.00	0.00	0.00	0.00
5653.83	4	48.39	1.26	7.45	1.25	0.17	0.18	0.80	0.00	0.00	0.00	0.00	18.75
5654.00	5	52.49	0.00	2.90	0.60	0.08	0.00	0.51	0.27	0.00	0.00	0.00	0.00

Appendix 36: Core 1044 geochemistry data with major (%) and minor (ppm) elements from 5647-5654 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
5654.00	5	52.49	0.00	2.90	0.60	0.08	0.00	0.51	0.27	0.00	0.00	0.00	0.00
5654.17	5	46.77	0.00	3.67	0.66	0.18	0.00	0.76	0.00	0.00	0.00	0.00	25.73
5654.33	5	47.67	0.00	5.85	0.96	0.10	0.00	1.33	0.29	0.00	0.00	0.00	16.56
5654.50	5	53.17	0.00	3.12	0.00	0.00	0.00	0.46	0.00	0.00	0.00	0.00	14.95
5654.67	5	50.49	0.00	3.89	0.56	0.05	0.00	0.69	0.31	0.00	0.00	0.00	0.00
5654.83	4	45.98	0.00	6.93	1.25	0.15	0.25	0.82	0.00	0.00	0.00	0.00	20.54
5655.00	5	46.62	0.00	5.06	0.63	0.12	0.00	0.66	0.00	0.00	0.00	0.00	23.26
5655.17	4	48.04	2.19	6.07	0.97	0.16	0.18	0.67	0.00	0.00	0.00	0.00	20.50
5655.33	5	54.75	0.00	1.53	0.45	0.00	0.00	0.24	0.29	3.94	0.00	0.00	0.00
5655.50	4	42.99	0.00	10.69	1.72	0.31	0.40	1.11	0.00	0.00	0.00	0.00	24.52
5655.67	5	54.92	0.00	0.45	0.00	0.00	0.00	0.24	0.26	0.00	0.00	0.00	0.00
5655.83	5	54.90	0.00	0.28	0.00	0.00	0.00	0.19	0.00	0.00	0.00	0.00	0.00
5656.00	4	47.22	1.22	7.58	1.50	0.20	0.19	0.84	0.00	0.00	0.00	0.00	16.10
5656.17	4	47.30	1.81	8.59	1.77	0.24	0.23	1.41	0.31	0.00	0.00	0.00	28.14
5656.33	4	45.76	0.00	5.33	0.82	0.06	0.26	1.30	0.00	0.00	0.00	0.00	235.32
5656.50	5	50.59	0.00	5.43	0.91	0.08	0.00	0.51	0.00	0.00	0.00	0.00	17.66
5656.67	5	44.99	0.00	0.89	0.00	0.00	1.01	3.07	0.00	0.00	0.00	142.79	91.87
5656.83	5	51.69	0.00	2.83	0.60	0.03	0.00	2.15	0.00	0.00	0.00	0.00	166.07
5657.00	5	52.06	0.00	3.98	1.03	0.08	0.00	1.27	0.00	0.00	0.00	0.00	38.20
5657.17	5	53.69	0.00	2.47	0.61	0.07	0.00	1.68	0.29	0.00	0.00	0.00	0.00
5657.33	4	55.82	2.06	0.34	0.00	0.00	0.00	0.33	0.27	0.00	0.00	87.19	0.00
5657.50	5	56.23	0.00	0.49	0.00	0.00	0.00	0.68	0.28	0.00	0.00	0.00	42.31
5657.67	5	56.19	0.00	0.37	0.00	0.00	0.00	0.54	0.24	0.00	0.00	0.00	107.28
5657.83	5	55.83	0.00	0.38	0.35	0.00	0.00	0.49	0.25	0.00	0.00	0.00	24.35
5658.00	4	52.25	1.56	0.93	0.00	0.00	0.00	0.55	0.29	0.00	0.00	0.00	15.23
5658.17	5	54.78	0.00	0.75	0.00	0.00	0.00	0.61	0.28	0.00	0.00	0.00	0.00
5658.33	5	51.09	0.00	3.05	0.57	0.03	0.00	1.05	0.00	0.00	0.00	0.00	31.65
5658.50	5	50.32	0.00	2.57	0.41	0.03	0.00	0.86	0.00	0.00	0.00	0.00	95.81
5658.67	5	49.66	0.00	3.45	0.70	0.04	0.40	0.59	0.00	0.00	0.00	0.00	32.76
5658.83	5	54.07	0.00	0.81	0.35	0.00	0.00	0.67	0.29	0.00	0.00	0.00	0.00
5659.00	5	53.72	0.00	1.81	0.55	0.00	0.00	0.91	0.29	0.00	0.00	0.00	0.00

Appendix 37: Core 1044 geochemistry data with major (%) and minor (ppm) elements from 5654-5659 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
5876.00	2	19.35	0.00	32.63	2.47	1.01	1.51	2.85	0.00	23.99	17.73	141.05	551.84
5876.17	2	7.81	0.84	38.30	5.06	2.28	2.41	3.87	0.00	11.60	26.21	174.99	148.35
5876.33	2	4.94	0.00	39.93	5.54	2.50	2.16	3.44	0.00	8.97	18.93	130.59	886.25
5876.50	2	20.22	0.00	33.70	1.85	0.86	1.49	2.81	0.00	0.00	9.06	0.00	23.54
5876.67	2	2.16	0.00	44.22	5.45	2.72	2.51	3.58	0.35	4.76	0.00	80.11	178.96
5876.83	2	3.05	0.00	42.71	5.38	2.67	2.43	3.43	0.00	0.00	0.00	105.43	114.72
5877.00	2	7.79	0.00	41.02	4.34	2.17	2.33	3.49	0.00	8.26	0.00	113.47	36.79
5877.17	2	11.11	0.63	37.12	4.32	2.06	2.23	3.46	0.00	7.11	0.00	0.00	0.00
5877.33	4	8.73	0.00	52.41	0.00	0.01	0.17	0.51	0.00	0.00	0.00	0.00	579.53
5877.50	2	23.26	0.00	27.44	3.46	1.38	1.85	3.05	0.00	8.80	12.11	107.57	17.72
5877.67	4	31.51	0.00	21.63	2.03	0.73	1.15	1.97	0.00	5.90	0.00	0.00	20.39
5877.83	4	30.73	0.00	19.41	2.18	1.06	1.19	5.08	0.00	4.90	11.31	85.44	0.00
5878.00	4	38.98	0.00	14.78	0.58	0.27	0.47	5.96	0.00	0.00	0.00	0.00	23.53
5878.17	4	47.39	0.00	8.44	0.43	0.14	0.37	1.14	0.00	0.00	0.00	0.00	0.00
5878.33	4	30.35	0.00	24.70	1.57	0.74	0.00	1.54	0.00	0.00	0.00	0.00	0.00
5878.50	5	53.57	0.00	2.64	0.30	0.00	0.23	0.82	0.00	0.00	0.00	0.00	0.00
5878.67	4	41.15	0.00	12.52	1.66	0.70	0.51	1.08	0.00	5.64	0.00	82.77	0.00
5878.83	4	39.03	0.00	14.88	1.75	0.72	0.65	1.39	0.00	4.26	0.00	0.00	0.00
5879.00	4	33.66	0.00	18.83	2.22	0.97	0.88	1.87	0.00	8.84	0.00	75.66	14.94
5879.17	4	36.03	0.00	16.24	1.92	0.74	0.69	1.40	0.00	6.74	0.00	0.00	0.00
5879.33	4	36.06	0.00	15.90	1.56	0.73	0.76	1.53	0.00	6.75	0.00	75.56	14.17
5879.50	4	34.33	0.00	17.71	2.04	0.81	0.80	1.61	0.00	9.23	0.00	106.75	0.00
5879.67	4	36.50	0.00	15.42	1.74	0.70	0.75	1.51	0.00	6.58	0.00	83.61	0.00
5879.83	4	36.11	0.00	16.36	1.81	0.76	0.72	1.51	0.00	5.18	9.81	0.00	0.00
5880.00	4	37.50	1.05	15.28	1.77	0.67	0.71	1.42	0.00	4.48	0.00	0.00	23.77
5880.17	4	34.07	0.00	17.16	2.12	0.88	0.84	1.73	0.00	7.19	9.66	69.69	0.00
5880.33	4	36.20	0.00	15.87	1.88	0.78	0.84	1.68	0.00	6.45	0.00	87.38	0.00
5880.50	4	37.06	0.00	14.73	1.64	0.73	0.73	1.93	0.00	5.15	0.00	0.00	0.00
5880.67	4	35.02	0.00	16.49	1.98	0.84	0.93	1.78	0.00	7.83	11.32	98.61	25.98
5880.83	4	40.96	1.15	11.57	1.10	0.48	0.49	1.22	0.00	0.00	0.00	0.00	0.00
5881.00	4	39.21	0.00	14.17	1.16	0.48	0.45	1.29	0.00	3.72	0.00	0.00	0.00
5881.17	4	33.50	0.00	18.20	2.10	0.89	0.83	1.71	0.00	7.25	14.75	0.00	0.00
5881.33	4	34.16	0.00	18.10	2.04	0.81	0.76	1.47	0.00	7.39	9.29	103.88	0.00
5881.50	4	38.43	0.00	12.72	1.11	0.52	0.52	1.12	0.00	5.55	0.00	0.00	0.00
5881.67	4	36.19	0.00	16.39	1.70	0.69	0.70	1.36	0.00	6.53	0.00	0.00	17.29
5881.83	4	38.06	0.00	15.29	1.58	0.54	0.53	1.13	0.00	7.87	0.00	0.00	0.00
5882.00	4	38.05	0.00	14.08	1.52	0.57	0.54	1.19	0.00	4.69	0.00	0.00	0.00
5882.17	4	37.26	0.00	15.85	1.75	0.63	0.64	1.25	0.00	7.21	0.00	0.00	38.74
5882.33	4	39.25	0.00	14.14	1.45	0.49	0.54	1.16	0.00	3.71	0.00	0.00	0.00
5882.50	4	35.32	0.00	17.50	1.83	0.67	0.66	1.41	0.00	5.93	0.00	0.00	0.00
5882.67	4	36.59	0.00	16.66	1.47	0.59	0.56	1.42	0.00	0.00	0.00	0.00	0.00
5882.83	4	41.49	0.00	19.17	1.84	0.70	0.69	1.71	0.00	4.36	0.00	0.00	13.61
5883.00	4	36.08	0.00	16.91	1.75	0.64	0.64	1.57	0.00	7.64	0.00	0.00	23.83

Appendix 38: Core 4045 geochemistry data with major (%) and minor (ppm) elements from 5876-5883 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
5883.00	4	36.08	0.00	16.91	1.75	0.64	0.64	1.57	0.00	7.64	0.00	0.00	23.83
5883.17	4	36.24	0.00	16.60	1.72	0.64	0.65	1.53	0.00	7.72	0.00	0.00	0.00
5883.33	4	35.32	1.30	17.42	1.99	0.69	0.65	1.63	0.00	6.34	8.99	0.00	0.00
5883.50	4	34.81	0.00	18.69	1.63	0.64	0.66	1.34	0.00	4.58	0.00	0.00	0.00
5883.67	4	39.16	0.00	14.54	1.22	0.49	0.50	1.08	0.00	4.29	0.00	0.00	0.00
5883.83	4	35.51	0.00	18.23	1.51	0.58	0.64	1.25	0.00	4.24	9.45	80.63	0.00
5884.00	4	33.79	0.00	19.89	1.52	0.58	0.68	1.62	0.00	5.02	11.80	0.00	0.00
5884.17	4	31.56	0.00	21.72	1.96	0.77	0.78	1.91	0.00	5.41	8.77	78.64	0.00
5884.33	4	31.28	0.00	21.41	1.97	0.77	0.95	2.09	0.00	7.48	0.00	0.00	0.00
5884.50	4	35.87	1.26	16.55	2.01	0.73	0.92	1.95	0.00	5.20	8.92	0.00	17.20
5884.67	4	36.03	0.00	18.53	2.73	0.72	0.96	1.70	0.00	4.08	10.40	0.00	20.37
5884.83	2	0.61	0.00	40.79	6.15	2.95	2.97	3.31	0.00	12.70	12.72	91.19	0.00
5885.00	2	15.15	0.00	38.17	3.81	1.93	1.68	4.74	0.00	8.43	17.37	0.00	25.46
5885.17	2	17.18	0.00	36.16	4.04	1.76	2.09	4.62	0.00	7.07	10.10	0.00	16.50
5885.33	2	9.70	0.00	43.19	4.69	2.13	1.97	3.95	0.00	9.06	0.00	0.00	18.56
5885.50	2	2.28	0.00	50.35	4.59	2.17	1.98	3.77	0.00	8.38	0.00	0.00	0.00
5885.67	2	25.11	0.00	35.27	2.00	0.75	1.11	2.24	0.00	4.35	9.42	0.00	0.00
5885.83	2	9.01	0.00	44.34	3.23	1.53	1.59	5.44	0.00	4.74	13.52	0.00	21.01
5886.00	4	49.73	0.00	9.96	1.01	0.31	0.60	1.63	0.00	0.00	0.00	0.00	31.71
5886.17	2	6.19	0.00	36.71	6.15	2.91	3.09	6.29	0.00	18.20	34.82	201.20	31.35
5886.33	4	37.20	0.00	20.10	2.48	0.93	1.36	2.74	0.00	7.27	12.72	76.80	14.73
5886.50	4	28.99	0.00	35.92	1.18	0.44	0.84	2.13	0.00	0.00	0.00	0.00	56.86
5886.67	4	41.56	1.16	17.53	1.78	0.54	0.94	2.65	0.00	4.51	0.00	102.88	22.49
5886.83	4	37.85	0.00	22.26	1.76	0.59	0.91	1.58	0.00	0.00	11.95	0.00	0.00
5887.00	4	1.71	0.00	35.34	8.06	0.39	0.00	3.53	6.21	0.00	71.86	0.00	127.07
5887.17	3	15.63	0.73	35.88	6.93	1.56	1.99	3.67	0.50	7.47	19.98	0.00	25.07
5887.33	4	40.88	0.00	13.72	3.53	0.26	0.70	2.10	0.00	0.00	0.00	0.00	0.00
5887.50	3	35.86	1.26	16.40	5.32	0.58	1.16	2.67	0.48	0.00	30.10	0.00	23.34
5887.67	3	11.66	1.73	38.73	9.45	1.06	1.08	5.64	0.00	0.00	31.35	0.00	0.00
5887.83	3	35.35	1.39	22.69	5.31	0.17	0.43	1.10	0.35	0.00	19.98	0.00	17.91
5888.00	4	43.68	1.27	11.50	3.04	0.03	0.48	1.22	0.39	0.00	18.28	0.00	0.00
5888.17	4	41.22	0.00	12.62	3.43	0.13	0.49	1.50	0.48	0.00	25.78	0.00	22.93
5888.33	4	42.71	0.00	11.74	2.73	0.12	0.40	1.81	0.52	0.00	34.11	0.00	18.56
5888.50	3	35.21	1.67	14.95	5.89	1.18	0.68	1.74	1.07	0.00	28.14	0.00	21.04
5888.67	3	16.01	2.52	29.18	11.39	1.89	1.85	2.99	1.14	0.00	88.95	0.00	43.01
5888.83	3	3.32	3.13	30.79	13.15	2.11	2.28	8.45	0.45	0.00	70.11	0.00	32.44
5889.00	2	7.27	0.00	30.80	5.03	0.31	0.41	2.21	0.00	0.00	27.47	0.00	16.20
5889.17	3	2.58	2.46	42.99	12.43	2.45	2.74	4.11	0.39	9.60	16.43	0.00	0.00
5889.33	3	13.70	1.96	33.80	10.70	1.99	2.80	4.03	0.00	11.03	32.12	0.00	18.45
5889.50	3	11.61	2.71	29.00	10.73	2.24	2.88	4.22	0.55	10.71	63.84	154.49	56.37
5889.67	3	7.00	2.56	34.36	10.82	2.43	2.71	5.31	0.51	8.85	51.29	123.34	37.33
5889.83	3	2.38	2.41	39.72	10.91	2.61	2.53	6.39	0.48	6.99	38.73	92.19	18.30
5890.00	3	3.71	2.53	40.88	14.64	2.18	1.83	2.56	0.36	8.92	30.98	0.00	19.79

Appendix 39: Core 4045 geochemistry data with major (%) and minor (ppm) elements from 5883-5890 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
5890.00	3	3.71	2.53	40.88	14.64	2.18	1.83	2.56	0.36	8.92	30.98	0.00	19.79
5890.17	3	3.02	2.70	36.84	13.12	2.29	2.55	4.05	0.46	13.37	86.96	142.12	74.69
5890.33	3	1.14	3.13	42.06	13.15	2.17	2.21	4.38	0.48	0.00	54.87	0.00	23.23
5890.50	3	1.49	2.82	42.57	13.71	2.24	2.95	4.42	0.46	0.00	53.19	0.00	26.17
5890.67	4	36.94	0.00	15.41	5.63	1.11	0.79	2.14	1.00	0.00	49.93	0.00	45.17
5890.83	4	41.59	0.00	11.83	4.14	1.01	0.43	1.52	1.25	0.00	52.95	0.00	30.24
5891.00	3	4.40	2.55	34.40	10.22	1.75	2.20	7.65	0.41	7.93	26.65	0.00	21.68
5891.17	3	11.69	1.23	36.19	9.98	1.32	1.39	4.00	0.47	0.00	43.96	0.00	35.87
5891.33	3	6.60	1.27	36.64	7.76	1.60	1.84	4.63	0.00	5.37	26.48	0.00	14.63
5891.50	4	43.15	0.00	12.22	2.52	0.55	0.52	1.90	0.51	0.00	25.03	0.00	21.42
5891.67	4	42.03	0.00	11.95	3.52	1.08	0.41	1.16	1.16	0.00	41.91	0.00	20.92
5891.83	2	22.95	1.11	27.03	7.05	1.40	1.90	3.14	0.61	6.24	42.59	117.75	47.08
5892.00	3	3.12	0.94	43.30	9.82	2.16	2.74	6.01	0.38	6.61	22.31	0.00	24.34
5892.17	3	4.67	1.40	43.32	8.74	2.15	2.15	4.62	0.49	7.13	22.18	0.00	24.42
5892.33	2	4.92	0.00	31.56	4.30	2.23	2.62	15.18	0.00	8.59	17.90	131.96	18.66
5892.50	3	5.10	1.45	35.02	7.58	2.44	2.79	10.15	0.00	7.57	16.05	105.31	0.00
5892.67	3	4.19	0.74	30.28	7.50	2.79	3.34	13.33	0.43	4.76	29.38	0.00	33.18
5892.83	2	12.77	0.00	29.09	8.03	2.31	3.12	7.64	0.00	9.56	55.67	126.92	40.84
5893.00	3	7.65	1.83	35.25	9.38	2.79	3.84	6.07	0.00	9.32	38.09	154.02	49.04
5893.17	4	45.06	0.00	11.62	2.16	0.40	0.55	2.33	0.41	0.00	18.50	0.00	19.94
5893.33	4	42.87	0.00	12.50	2.68	0.65	0.48	1.34	0.44	0.00	26.41	0.00	16.71
5893.50	4	35.51	0.00	21.43	3.21	0.74	0.82	2.17	0.48	0.00	23.13	0.00	20.85
5893.67	4	44.58	0.00	13.18	1.34	0.62	0.40	1.33	0.50	0.00	24.54	0.00	0.00
5893.83	4	47.12	0.00	10.77	1.34	0.69	0.45	1.41	0.63	0.00	19.60	0.00	18.07
5894.00	4	40.67	0.00	14.72	0.91	0.38	0.37	0.85	0.00	0.00	0.00	0.00	0.00
5894.17	4	47.96	0.00	7.29	0.56	0.19	0.28	0.75	0.00	0.00	0.00	0.00	0.00
5894.33	4	36.33	1.27	16.82	1.46	0.49	0.71	2.01	0.00	0.00	0.00	0.00	0.00
5894.50	2	3.11	0.00	27.27	4.56	2.80	3.94	13.95	0.00	16.96	0.00	117.86	306.01
5894.67	2	2.63	0.80	38.61	4.12	2.07	2.71	7.35	0.00	19.90	0.00	171.80	303.11
5894.83	2	2.53	0.00	38.86	5.13	2.44	3.02	6.25	0.00	33.96	0.00	123.14	186.06
5895.00	4	45.82	0.00	6.96	0.72	0.12	0.32	1.98	0.00	0.00	12.56	0.00	15.59
5895.17	4	46.11	0.00	9.47	0.68	0.17	0.27	1.33	0.00	0.00	0.00	0.00	23.96
5895.33	4	42.97	0.00	15.50	0.00	0.00	0.00	0.73	0.00	0.00	0.00	0.00	0.00
5895.50	4	41.74	0.00	14.09	0.52	0.03	0.00	0.57	0.00	0.00	0.00	0.00	0.00
5895.67	4	44.71	0.00	9.00	0.00	0.00	0.00	2.04	0.00	0.00	0.00	0.00	0.00
5895.83	4	42.77	0.00	15.61	0.00	0.03	0.00	0.42	0.00	0.00	0.00	0.00	0.00
5896.00	5	49.52	0.00	7.93	0.32	0.07	0.00	0.71	0.00	0.00	0.00	0.00	0.00
5896.17	5	52.07	0.00	4.08	0.00	0.07	0.00	1.13	0.00	0.00	0.00	0.00	0.00
5896.33	4	48.63	2.57	5.11	0.83	0.00	0.00	1.51	0.00	0.00	0.00	0.00	0.00
5896.50	4	48.57	0.00	4.33	0.78	0.39	0.00	1.26	0.49	0.00	33.30	0.00	16.91
5896.67	4	43.80	1.79	10.09	1.69	0.59	0.00	1.05	0.66	0.00	28.77	0.00	16.33
5896.83	3	36.21	3.39	16.64	2.69	0.58	0.00	0.87	0.55	0.00	17.38	0.00	23.13
5897.00	4	46.41	0.00	13.34	0.83	0.54	0.33	0.94	0.55	0.00	0.00	0.00	0.00

Appendix 40: Core 4045 geochemistry data with major (%) and minor (ppm) elements from 5890-5897 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
5897.00	4	46.41	0.00	13.34	0.83	0.54	0.33	0.94	0.55	0.00	0.00	0.00	0.00
5897.17	4	46.81	2.11	14.44	1.02	0.14	0.00	0.75	0.00	4.58	0.00	0.00	0.00
5897.33	4	46.34	2.24	12.65	1.41	0.30	0.34	2.20	0.00	0.00	14.38	0.00	0.00
5897.50	5	50.00	0.00	9.03	0.53	0.30	0.00	1.72	0.39	0.00	0.00	0.00	0.00
5897.67	2	5.38	0.00	17.49	1.00	0.35	0.00	1.49	0.00	0.00	13.00	0.00	0.00
5897.83	5	53.90	0.00	6.57	0.00	0.07	0.00	1.18	0.00	0.00	0.00	0.00	0.00
5898.00	5	51.60	0.00	8.71	0.47	0.17	0.00	1.29	0.00	0.00	0.00	0.00	0.00
5898.17	4	48.27	0.00	11.93	0.62	0.21	0.19	1.44	0.00	0.00	12.00	0.00	14.76
5898.33	5	52.33	0.00	7.75	0.66	0.07	0.00	1.13	0.00	0.00	0.00	0.00	0.00
5898.50	5	51.07	0.00	7.42	0.96	0.23	0.27	0.99	0.33	0.00	0.00	0.00	0.00
5898.67	4	39.78	0.00	16.18	2.84	0.53	0.40	3.19	0.40	0.00	15.03	0.00	0.00
5898.83	4	42.85	0.00	11.86	2.26	0.59	0.47	3.95	0.43	0.00	22.90	0.00	74.36
5899.00	3	20.51	2.70	29.34	5.69	0.97	1.11	4.99	0.00	0.00	19.79	0.00	23.28
5899.17	3	7.50	2.09	26.93	5.65	1.60	2.10	16.53	0.00	5.74	37.44	0.00	28.83
5899.33	3	2.91	2.47	36.76	6.98	1.76	2.27	10.58	0.38	0.00	22.11	0.00	24.99
5899.50	3	0.76	3.56	47.38	8.93	1.64	1.75	3.88	0.00	0.00	10.44	0.00	0.00
5899.67	3	0.86	4.07	47.84	8.62	1.33	1.34	2.63	0.00	0.00	21.66	0.00	50.27
5899.83	3	30.64	2.43	25.63	4.21	0.50	0.45	3.62	0.33	0.00	21.61	0.00	106.80
5900.00	3	2.91	3.27	53.81	7.94	0.88	1.00	2.35	0.00	0.00	12.26	0.00	44.84
5900.17	3	3.18	4.02	50.17	7.73	0.92	1.14	2.85	0.00	0.00	9.92	0.00	47.89
5900.33	3	5.59	3.76	45.38	8.96	1.48	1.76	3.79	0.34	0.00	21.16	85.68	111.03
5900.50	3	4.79	3.36	43.18	8.81	1.68	2.27	5.44	0.37	4.99	28.22	144.19	139.94
5900.67	3	6.64	3.89	46.40	7.75	1.14	1.04	3.31	0.00	0.00	8.82	0.00	238.86
5900.83	3	17.01	2.34	34.03	4.72	0.43	0.47	10.49	0.00	0.00	42.83	0.00	56.54
5901.00	3	6.81	7.62	47.06	8.09	0.55	0.62	3.81	0.00	0.00	19.53	0.00	82.08
5901.17	3	4.24	3.31	52.15	6.93	0.81	0.78	2.12	0.00	0.00	14.71	0.00	105.68
5901.33	3	11.35	2.83	46.10	6.53	0.74	0.76	3.00	0.00	0.00	12.42	0.00	117.74
5901.50	3	48.46	3.42	7.89	1.99	1.20	0.35	2.43	1.34	0.00	27.83	0.00	30.75
5901.67	4	51.06	1.47	9.25	1.62	0.57	0.24	1.79	0.63	0.00	16.89	0.00	27.67
5901.83	4	45.12	0.00	18.93	1.34	0.19	0.00	0.71	0.00	0.00	11.47	0.00	0.00
5902.00	4	42.19	0.00	21.41	1.17	0.43	0.00	0.56	0.45	0.00	0.00	0.00	0.00
5902.17	4	40.59	1.67	22.87	2.31	0.28	0.38	1.06	0.00	4.57	10.74	0.00	33.63
5902.33	3	24.18	2.60	31.23	5.99	1.57	1.40	4.11	0.67	0.00	33.04	0.00	111.90
5902.50	3	7.24	3.30	37.76	9.78	2.78	3.25	6.34	0.00	17.33	16.50	141.23	157.06
5902.67	2	15.37	0.00	36.21	4.96	2.04	2.55	6.66	0.00	11.23	22.13	98.39	56.69
5902.83	4	42.09	1.34	18.04	2.06	0.61	0.77	2.74	0.00	0.00	0.00	0.00	44.48
5903.00	2	18.74	0.00	23.44	5.31	1.90	2.62	5.51	0.00	8.96	37.10	224.87	122.17
5903.17	2	17.61	0.00	24.17	5.47	2.26	3.12	5.54	0.00	11.46	23.29	192.10	104.55
5903.33	4	40.53	0.00	13.63	1.56	0.48	0.81	1.93	0.00	0.00	0.00	0.00	33.30
5903.50	4	44.38	0.00	14.40	0.29	0.00	0.00	0.43	0.00	0.00	0.00	0.00	0.00
5903.67	2	4.54	0.00	34.73	3.84	1.77	2.19	11.06	0.36	0.00	0.00	0.00	17.33
5903.83	2	5.60	0.00	22.50	2.30	1.44	1.92	8.36	0.38	0.00	0.00	0.00	32.07
5904.00	2	5.20	0.00	32.22	3.19	1.37	1.89	12.65	0.00	0.00	0.00	0.00	14.54

Appendix 41: Core 4045 geochemistry data with major (%) and minor (ppm) elements from 5897-5904 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
5904.00	2	5.20	0.00	32.22	3.19	1.37	1.89	12.65	0.00	0.00	0.00	0.00	14.54
5904.17	2	4.48	0.00	41.94	3.01	1.26	1.31	7.40	0.00	0.00	0.00	0.00	19.78
5904.33	5	49.49	0.00	5.96	0.25	0.00	0.00	1.23	0.00	0.00	0.00	0.00	14.97
5904.50	4	32.49	0.00	15.67	2.04	0.70	1.07	5.34	0.00	4.66	0.00	0.00	46.95
5904.67	2	5.14	0.00	31.89	5.03	2.40	2.94	12.04	0.00	9.78	13.12	92.91	49.09
5904.83	2	5.44	0.00	27.76	3.85	1.96	2.63	14.46	0.00	14.04	16.49	0.00	35.97
5905.00	2	16.94	0.00	31.94	4.62	1.58	1.66	5.10	0.00	4.85	19.02	87.25	108.84
5905.17	4	21.63	0.00	39.01	1.09	0.05	0.57	2.04	0.00	0.00	11.80	0.00	2054.88
5905.33	2	24.74	0.00	26.61	2.70	0.83	1.37	4.12	0.00	0.00	33.14	126.78	3472.25
5905.50	2	2.23	0.00	48.49	3.71	1.58	1.83	5.75	0.00	3.89	16.98	78.50	53.51
5905.67	2	5.57	0.51	41.29	4.52	2.00	1.97	5.55	0.00	6.56	15.36	81.22	88.78
5905.83	2	6.02	0.00	34.52	4.03	1.96	2.25	10.61	0.00	8.85	15.27	0.00	65.30
5906.00	2	5.65	0.00	36.55	4.49	1.94	2.38	10.23	0.00	8.05	12.91	0.00	61.62
5906.17	2	8.02	0.00	36.80	4.37	1.96	2.11	8.32	0.00	6.24	15.65	0.00	250.80
5906.33	2	6.35	0.00	32.60	4.81	2.29	2.80	12.18	0.00	8.34	13.13	86.21	37.60
5906.50	2	9.21	0.00	33.79	5.22	2.66	3.31	17.66	0.00	8.32	17.16	113.76	44.33
5906.67	2	8.79	0.00	22.98	3.77	2.09	2.66	16.86	0.00	5.35	15.09	100.91	35.32
5906.83	2	7.76	0.00	25.60	5.07	2.29	3.48	13.78	0.48	20.07	16.69	125.16	51.86
5907.00	2	13.35	0.00	31.50	4.25	1.07	1.63	8.27	0.00	6.66	8.78	0.00	24.78
5907.17	2	6.90	0.00	28.85	2.64	1.44	1.99	10.08	0.00	6.26	0.00	0.00	22.86
5907.33	4	31.42	0.00	22.94	1.54	0.30	0.68	2.79	0.00	4.02	0.00	0.00	47.46
5907.50	4	36.39	0.00	22.02	0.94	0.13	0.36	0.81	0.00	0.00	9.20	0.00	0.00
5907.67	4	30.13	0.00	23.60	1.90	0.57	0.76	3.31	0.00	0.00	0.00	85.26	558.32
5907.83	4	41.06	0.00	14.29	0.54	0.11	0.29	2.54	0.00	0.00	12.01	0.00	22.63
5908.00	4	44.80	0.00	11.93	0.29	0.00	0.30	0.67	0.00	0.00	9.85	0.00	26.13
5908.17	4	38.07	0.00	19.22	0.60	0.03	0.21	0.62	0.00	0.00	0.00	0.00	0.00
5908.33	5	49.33	0.00	8.12	0.00	0.00	0.00	0.49	0.00	0.00	0.00	0.00	0.00
5908.50	5	48.16	0.00	9.19	0.29	0.00	0.00	0.45	0.00	0.00	0.00	0.00	0.00
5908.67	4	44.43	0.00	12.81	0.27	0.00	0.00	0.50	0.00	4.04	0.00	0.00	0.00
5908.83	4	48.99	2.01	6.19	0.39	0.04	0.00	1.22	0.00	0.00	0.00	0.00	0.00
5909.00	4	41.16	0.00	15.56	0.74	0.15	0.66	1.18	0.00	0.00	0.00	0.00	19.04
5909.17	2	20.65	0.86	23.32	3.45	1.32	2.60	7.89	0.00	10.46	12.61	112.99	75.39
5909.33	4	44.52	0.00	8.87	0.59	0.13	0.27	1.92	0.00	0.00	0.00	0.00	21.05
5909.50	4	30.89	0.00	15.32	1.50	0.58	1.14	7.36	0.00	7.17	0.00	0.00	42.58
5909.67	4	46.01	0.00	8.92	0.36	0.00	0.43	1.56	0.00	0.00	0.00	0.00	71.26
5909.83	4	40.48	0.00	13.28	0.64	0.16	0.40	2.06	0.00	5.55	0.00	0.00	132.25
5910.00	2	23.51	0.00	14.37	1.43	0.77	1.41	13.42	0.00	5.67	0.00	0.00	170.65
5910.17	4	40.99	0.00	10.18	1.52	0.51	0.85	3.41	0.00	0.00	0.00	95.77	526.30
5910.33	2	20.66	0.00	20.39	3.38	1.29	2.26	10.03	0.00	5.20	13.31	103.55	48.77
5910.50	2	8.47	0.00	26.25	2.71	1.60	1.85	14.05	0.00	11.17	17.97	100.28	304.42
5910.67	4	17.98	0.00	29.79	1.61	0.65	1.13	7.83	0.00	3.89	10.49	0.00	2457.80
5910.83	4	42.50	0.00	9.95	0.95	0.30	0.64	3.07	0.00	0.00	0.00	0.00	1718.24
5911.00	4	42.25	0.00	11.14	1.08	0.28	0.66	2.56	0.00	0.00	11.80	0.00	1708.36

Appendix 42: Core 4045 geochemistry data with major (%) and minor (ppm) elements from 5904-5911 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
5911.00	4	42.25	0.00	11.14	1.08	0.28	0.66	2.56	0.00	0.00	11.80	0.00	1708.36
5911.17	5	44.73	0.00	8.28	0.61	0.17	0.41	1.89	0.00	0.00	0.00	0.00	1044.20
5911.33	2	8.23	0.00	14.39	1.17	1.01	1.44	19.24	0.00	7.56	0.00	0.00	165.48
5911.50	4	28.87	1.19	21.33	1.82	0.61	0.87	4.77	0.00	0.00	0.00	0.00	639.32
5911.67	2	9.94	0.00	14.13	1.69	1.24	2.27	21.94	0.00	9.48	0.00	78.46	748.53
5911.83	2	12.83	0.00	23.47	2.38	1.12	1.84	14.22	0.00	11.60	19.38	117.06	2326.43
5912.00	2	15.95	0.00	3.73	0.49	0.55	2.06	31.58	0.00	9.42	12.82	0.00	1115.82
5912.17	2	12.76	0.00	9.51	0.81	0.74	1.47	26.85	0.00	0.00	11.92	76.17	826.27
5912.33	2	12.16	0.00	11.10	1.05	0.75	1.64	25.98	0.00	7.64	13.84	0.00	776.35
5912.50	2	11.24	0.00	18.70	1.54	0.98	1.68	19.70	0.00	5.39	12.13	0.00	657.93
5912.67	2	13.16	0.00	10.42	0.70	0.78	1.71	26.52	0.00	6.43	10.03	0.00	776.79
5912.83	4	29.26	0.00	16.66	1.19	0.42	1.10	8.52	0.00	0.00	0.00	0.00	3112.58
5913.00	4	44.34	0.00	11.22	0.63	0.13	0.50	2.91	0.00	0.00	0.00	0.00	209.67
5913.17	4	43.92	0.00	12.83	0.67	0.13	0.53	1.88	0.00	0.00	0.00	85.35	18.82
5913.33	4	44.15	0.00	12.14	0.62	0.14	0.52	1.54	0.00	0.00	0.00	0.00	27.30
5913.50	4	43.77	0.00	13.28	0.96	0.27	0.56	1.87	0.00	0.00	0.00	91.28	30.07
5913.67	2	11.71	1.38	13.10	2.41	1.52	2.76	24.45	0.00	14.43	17.07	155.90	94.22
5913.83	4	40.30	0.00	14.31	0.50	0.22	0.98	1.81	0.00	4.68	0.00	0.00	254.50
5914.00	4	26.50	0.00	30.84	1.18	0.35	0.61	2.04	0.00	0.00	15.54	0.00	39.57
5914.17	4	38.99	0.00	16.03	0.86	0.30	0.45	4.10	0.00	0.00	0.00	0.00	31.95
5914.33	4	41.23	0.00	13.42	0.55	0.13	0.38	1.44	0.00	0.00	0.00	0.00	0.00
5914.50	4	39.60	0.00	17.41	0.78	0.12	0.50	3.11	0.00	0.00	0.00	0.00	98.78
5914.67	2	27.50	0.00	17.24	1.37	0.55	1.64	10.38	0.00	12.03	13.42	0.00	60.09
5914.83	4	42.81	0.00	11.15	0.84	0.26	0.64	3.38	0.00	0.00	12.41	0.00	41.97
5915.00	2	3.70	0.00	30.83	1.70	0.14	0.98	13.97	0.00	0.00	0.00	0.00	33.51
5915.17	2	26.06	0.00	15.30	1.05	0.62	0.99	17.40	0.00	6.66	24.59	0.00	123.11
5915.33	2	16.93	0.00	5.42	0.50	0.71	1.35	28.22	0.00	15.68	28.97	84.52	101.43
5915.50	2	12.31	1.00	8.78	0.65	0.69	1.19	26.72	0.00	7.23	0.00	0.00	1126.16
5915.67	2	16.61	0.00	3.96	0.47	0.51	1.51	28.81	0.00	14.20	8.84	84.07	1289.80
5915.83	2	9.20	0.00	10.12	1.28	1.32	3.03	25.00	0.00	9.64	0.00	229.45	1356.57
5916.00	4	34.08	0.00	17.38	0.57	0.20	0.45	7.00	0.00	0.00	0.00	75.85	246.99
5916.17	2	22.85	0.00	8.51	0.59	0.36	1.28	22.66	0.00	4.05	0.00	0.00	498.61
5916.33	4	47.67	0.00	9.32	0.43	0.06	0.34	1.39	0.00	0.00	0.00	0.00	382.23
5916.50	4	39.55	0.00	18.70	0.47	0.04	0.00	0.88	0.00	0.00	0.00	0.00	234.10
5916.67	2	16.61	0.00	4.60	0.94	0.71	2.41	29.30	0.00	23.80	16.92	122.84	811.59
5916.83	2	25.90	0.00	5.35	0.69	0.42	1.27	23.27	0.00	12.65	18.89	0.00	53.08
5917.00	2	30.58	0.00	7.25	0.90	0.49	1.24	16.52	0.00	9.18	13.22	75.20	56.92
5917.17	5	51.98	0.00	3.87	0.33	0.08	0.33	1.85	0.00	0.00	0.00	0.00	465.89
5917.33	4	47.25	0.00	9.28	0.00	0.06	0.19	2.49	0.00	0.00	0.00	0.00	292.30
5917.50	4	40.04	0.00	18.58	0.00	0.00	0.00	0.29	0.00	0.00	0.00	0.00	41.68
5917.67	5	54.57	0.00	1.52	0.00	0.00	0.00	0.48	0.00	0.00	0.00	0.00	42.06
5917.83	5	54.17	0.00	1.98	0.00	0.00	0.00	0.55	0.00	0.00	0.00	0.00	19.47
5918.00	5	53.70	0.00	2.89	0.00	0.00	0.00	0.35	0.00	0.00	0.00	0.00	0.00

Appendix 43: Core 4045 geochemistry data with major (%) and minor (ppm) elements from 5911-5918 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
5918.00	5	53.70	0.00	2.89	0.00	0.00	0.00	0.35	0.00	0.00	0.00	0.00	0.00
5918.17	5	55.44	0.00	0.69	0.00	0.00	0.00	0.37	0.00	0.00	0.00	0.00	18.70
5918.33	5	54.34	0.00	1.14	0.00	0.00	0.00	0.78	0.00	0.00	0.00	0.00	0.00
5918.50	5	52.40	0.00	3.91	0.00	0.00	0.00	0.83	0.00	0.00	0.00	0.00	0.00
5918.67	5	50.46	0.00	6.67	0.00	0.00	0.00	0.88	0.00	0.00	0.00	0.00	0.00
5918.83	5	55.04	0.00	0.67	0.00	0.00	0.00	0.96	0.00	0.00	0.00	0.00	0.00
5919.00	5	50.07	0.00	7.99	0.00	0.00	0.00	1.60	0.00	0.00	0.00	0.00	0.00
5919.17	5	53.71	0.00	4.08	0.00	0.00	0.00	0.96	0.00	0.00	0.00	0.00	0.00
5919.33	5	52.74	0.00	3.10	0.00	0.00	0.00	0.96	0.00	0.00	0.00	0.00	0.00
5919.50	5	49.90	0.00	6.80	0.00	0.00	0.00	0.78	0.00	0.00	0.00	0.00	0.00
5919.67	5	49.38	0.00	6.22	0.60	0.14	0.28	1.46	0.00	0.00	0.00	74.99	15.68
5919.83	4	43.46	0.00	13.20	0.00	0.04	0.00	0.79	0.00	0.00	0.00	0.00	0.00
5920.00	2	1.26	0.80	33.90	10.09	3.80	4.90	5.80	0.60	28.58	27.51	300.00	106.73
5920.17	2	1.90	0.00	36.60	7.69	3.53	3.09	4.24	0.00	21.89	17.03	192.15	171.71
5920.33	2	2.85	0.58	34.93	9.71	3.85	4.12	4.81	0.00	15.88	28.13	151.52	64.94
5920.50	2	2.79	0.87	35.22	9.11	3.65	3.90	4.94	0.00	17.22	28.73	151.79	88.75
5920.67	4	26.13	0.94	32.20	0.67	0.14	2.49	4.45	0.00	0.00	0.00	0.00	2605.15
5920.83	4	46.78	0.00	8.53	0.38	0.07	0.73	2.88	0.00	0.00	0.00	0.00	352.62
5921.00	4	45.22	0.00	10.14	0.38	0.06	0.30	1.58	0.00	4.34	0.00	0.00	152.69
5921.17	5	49.01	0.00	6.51	0.00	0.00	0.00	1.23	0.00	0.00	0.00	0.00	91.14
5921.33	5	46.50	0.00	6.10	0.00	0.03	0.00	2.37	0.00	0.00	0.00	0.00	154.85
5921.50	5	47.98	0.00	6.16	0.28	0.00	0.17	2.44	0.00	0.00	0.00	0.00	53.30
5921.67	4	46.15	0.00	9.90	0.00	0.02	0.00	1.60	0.00	0.00	0.00	0.00	0.00
5921.83	5	52.67	0.00	2.27	0.00	0.02	0.00	2.57	0.00	0.00	0.00	0.00	15.72
5922.00	5	53.08	0.00	1.42	0.00	0.00	0.00	2.05	0.00	0.00	0.00	0.00	0.00
5922.17	5	49.45	0.00	5.69	0.00	0.03	0.00	2.18	0.00	0.00	0.00	0.00	16.37
5922.33	5	51.49	0.00	3.87	0.00	0.04	0.00	2.16	0.00	0.00	0.00	84.43	0.00
5922.50	5	49.72	0.00	5.79	0.34	0.05	0.00	2.15	0.00	0.00	0.00	0.00	26.41
5922.67	4	49.88	1.95	5.93	0.36	0.05	0.00	2.26	0.00	4.20	0.00	0.00	23.04
5922.83	4	50.07	1.82	5.18	0.26	0.03	0.00	2.27	0.00	0.00	0.00	0.00	26.78
5923.00	5	49.56	0.00	6.12	0.00	0.03	0.16	2.16	0.00	0.00	0.00	0.00	45.16
5923.17	5	48.63	0.00	6.98	0.00	0.05	0.21	1.98	0.00	4.52	0.00	0.00	45.47
5923.33	5	47.16	0.00	7.63	0.24	0.02	0.00	1.45	0.00	3.75	0.00	83.60	43.33
5923.50	5	49.53	0.00	6.79	0.24	0.02	0.00	1.96	0.00	0.00	0.00	0.00	60.11
5923.67	4	47.14	1.92	8.28	0.35	0.06	0.00	2.22	0.00	0.00	0.00	0.00	58.54
5923.83	4	43.00	0.00	10.26	0.47	0.12	0.22	2.73	0.00	0.00	38.15	0.00	58.44
5924.00	5	56.69	0.00	7.53	0.32	0.06	0.00	1.42	0.00	0.00	0.00	0.00	96.29
5924.17	4	46.84	0.00	8.04	0.89	0.18	0.27	0.90	0.00	0.00	0.00	0.00	87.72
5924.33	2	13.74	0.00	9.08	1.36	0.97	2.08	24.32	0.00	16.95	18.07	126.81	59.18
5924.50	1	37.70	0.00	8.73	0.38	0.14	0.21	10.77	0.00	0.00	0.00	0.00	8973.23
5924.67	2	20.60	0.00	0.73	0.00	0.15	1.03	32.05	0.00	10.80	10.06	0.00	79.18
5924.83	2	23.83	0.00	5.27	0.73	0.37	1.08	22.92	0.00	14.59	25.41	72.14	169.03
5925.00	4	44.80	0.00	11.73	0.00	0.10	0.40	1.41	0.00	0.00	0.00	0.00	107.01

Appendix 44: Core 4045 geochemistry data with major (%) and minor (ppm) elements from 5918-5925 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
5925.00	4	44.80	0.00	11.73	0.00	0.10	0.40	1.41	0.00	0.00	0.00	0.00	107.01
5925.17	5	51.54	0.00	3.91	0.40	0.06	0.00	1.40	0.00	0.00	0.00	0.00	196.28
5925.33	5	55.78	0.00	0.58	0.00	0.00	0.18	1.06	0.32	0.00	0.00	0.00	134.61
5925.50	5	53.36	0.00	2.95	0.00	0.00	0.00	0.95	0.24	0.00	0.00	0.00	0.00
5925.67	5	55.13	0.00	0.60	0.00	0.00	0.00	1.14	0.27	0.00	0.00	0.00	21.51
5925.83	5	54.02	0.00	2.32	0.28	0.02	0.00	1.53	0.28	0.00	0.00	0.00	0.00
5926.00	5	53.82	0.00	2.15	0.36	0.00	0.00	1.89	0.00	0.00	0.00	0.00	0.00
5926.17	5	51.72	0.00	3.67	0.00	0.03	0.00	2.65	0.00	0.00	0.00	0.00	0.00
5926.33	5	50.71	0.00	4.69	0.26	0.06	0.00	2.41	0.30	0.00	0.00	0.00	0.00
5926.50	5	50.00	0.00	5.45	0.00	0.04	0.16	1.79	0.00	0.00	0.00	0.00	13.18
5926.67	5	50.57	0.00	5.07	0.34	0.08	0.00	2.14	0.29	0.00	0.00	0.00	0.00
5926.83	5	49.15	0.00	6.37	0.61	0.15	0.19	2.02	0.00	0.00	12.32	89.68	0.00
5927.00	5	50.34	0.00	5.47	0.86	0.13	0.29	1.71	0.00	6.20	0.00	0.00	74.88
5927.17	5	51.30	0.00	4.03	0.37	0.07	0.00	1.42	0.00	0.00	0.00	0.00	0.00
5927.33	5	52.32	0.00	2.98	0.29	0.06	0.00	1.52	0.28	0.00	0.00	0.00	0.00
5927.50	5	49.66	0.00	5.41	0.59	0.09	0.21	1.89	0.00	0.00	0.00	0.00	0.00
5927.67	5	51.43	0.00	2.46	0.31	0.07	0.19	1.43	0.00	0.00	0.00	0.00	0.00
5927.83	5	53.83	0.00	1.83	0.00	0.02	0.00	1.48	0.29	0.00	0.00	0.00	0.00
5928.00	5	53.17	0.00	1.78	0.33	0.03	0.00	3.37	0.31	0.00	0.00	0.00	15.84
5928.17	5	52.22	0.00	3.12	0.30	0.06	0.00	1.18	0.00	0.00	0.00	0.00	0.00
5928.33	2	33.62	0.00	6.78	1.11	0.66	2.08	8.16	0.00	5.08	21.19	0.00	115.92
5928.50	5	45.34	0.00	7.77	0.47	0.16	0.00	5.19	0.00	4.27	0.00	0.00	0.00
5928.67	5	52.52	0.00	1.95	0.34	0.04	0.21	4.30	0.31	0.00	0.00	0.00	0.00
5928.83	2	14.23	0.00	13.09	2.70	1.17	2.67	20.96	0.00	7.86	19.05	0.00	211.16
5929.00	4	39.03	0.00	17.51	0.49	0.13	0.00	2.89	0.00	0.00	0.00	0.00	109.92
5929.17	4	17.50	0.00	43.46	0.00	0.04	0.00	0.98	0.00	0.00	0.00	0.00	0.00
5929.33	4	8.20	0.00	18.50	0.42	0.21	0.42	15.12	0.00	0.00	0.00	0.00	4021.88
5929.50	2	5.97	0.00	38.05	1.33	0.70	0.88	9.26	0.00	3.79	0.00	0.00	0.00
5929.67	4	42.57	0.00	10.06	0.60	0.14	0.38	3.08	0.00	3.93	0.00	0.00	0.00
5929.83	4	49.73	1.86	6.29	0.52	0.08	0.00	1.32	0.00	0.00	0.00	0.00	0.00
5930.00	4	44.91	1.33	9.11	0.76	0.19	0.24	2.77	0.00	0.00	0.00	0.00	0.00
5930.17	5	48.80	0.00	9.17	0.61	0.05	0.00	0.73	0.00	0.00	0.00	0.00	209.47
5930.33	4	45.33	0.00	9.49	0.84	0.22	0.32	0.60	0.00	4.79	0.00	0.00	0.00
5930.50	4	44.64	0.00	10.48	0.00	0.04	0.00	0.42	0.00	0.00	0.00	0.00	0.00
5930.67	5	50.53	0.00	4.84	0.60	0.16	0.18	0.45	0.00	0.00	0.00	0.00	0.00
5930.83	2	16.60	0.00	8.40	2.24	1.24	3.50	18.29	0.00	8.40	34.72	131.68	92.61
5931.00	4	47.54	0.00	7.70	0.48	0.13	0.00	1.83	0.00	0.00	0.00	0.00	393.91
5931.17	5	48.95	0.00	4.53	0.81	0.13	0.19	2.46	0.00	4.06	0.00	0.00	17.49
5931.33	5	49.58	0.00	4.45	0.34	0.05	0.22	2.33	0.00	0.00	0.00	0.00	0.00
5931.50	5	49.26	0.00	4.11	0.00	0.03	0.26	3.22	0.24	0.00	0.00	0.00	0.00
5931.67	5	51.98	0.00	3.89	0.00	0.02	0.00	1.11	0.26	0.00	0.00	0.00	24.63
5931.83	5	52.75	0.00	3.04	0.00	0.02	0.00	1.91	0.28	0.00	0.00	0.00	0.00
5932.00	5	48.58	0.00	6.91	0.00	0.04	0.00	1.73	0.00	0.00	0.00	0.00	0.00

Appendix 45: Core 4045 geochemistry data with major (%) and minor (ppm) elements from 5925-5932 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
5932.00	5	48.58	0.00	6.91	0.00	0.04	0.00	1.73	0.00	0.00	0.00	0.00	0.00
5932.17	5	51.94	0.00	3.53	0.37	0.03	0.00	1.74	0.28	0.00	0.00	0.00	0.00
5932.33	5	53.84	0.00	2.16	0.35	0.03	0.00	1.72	0.00	0.00	0.00	79.42	0.00
5932.50	5	53.68	0.00	2.52	0.00	0.00	0.00	2.31	0.00	3.94	0.00	0.00	0.00
5932.67	5	50.22	0.00	5.33	0.26	0.07	0.00	2.50	0.00	4.17	0.00	0.00	0.00
5932.83	5	52.94	0.00	1.92	0.36	0.03	0.00	3.22	0.25	6.02	0.00	0.00	18.06
5933.00	4	43.14	0.00	14.31	0.00	0.00	0.00	0.74	0.00	0.00	0.00	0.00	0.00
5933.17	5	51.86	0.00	3.45	0.92	0.21	0.40	0.51	0.00	0.00	0.00	0.00	134.94
5933.33	5	55.43	0.00	0.73	0.00	0.00	0.00	0.35	0.00	0.00	0.00	0.00	0.00
5933.50	5	53.99	0.00	1.77	0.00	0.03	0.00	0.55	0.00	0.00	0.00	0.00	0.00
5933.67	4	53.02	2.10	2.03	0.32	0.04	0.00	2.39	0.00	0.00	0.00	0.00	0.00
5933.83	5	53.56	0.00	1.55	0.40	0.03	0.00	1.73	0.00	0.00	20.57	0.00	0.00
5934.00	5	53.73	0.00	1.65	0.00	0.00	0.00	4.95	0.00	0.00	0.00	0.00	0.00
5934.17	4	54.49	1.51	1.16	0.00	0.00	0.00	1.92	0.00	0.00	0.00	0.00	0.00
5934.33	5	54.43	0.00	1.41	0.00	0.02	0.00	1.78	0.00	0.00	0.00	0.00	0.00
5934.50	5	54.32	0.00	1.53	0.00	0.04	0.00	1.18	0.29	0.00	0.00	0.00	0.00
5934.67	5	52.95	0.00	2.39	0.25	0.03	0.00	2.87	0.00	0.00	0.00	0.00	0.00
5934.83	5	50.62	0.00	5.58	0.27	0.04	0.00	1.13	0.00	0.00	0.00	0.00	403.78
5935.00	5	51.25	0.00	2.70	0.79	0.23	0.19	2.44	0.00	0.00	0.00	0.00	134.43
5935.17	5	52.49	0.00	2.44	0.72	0.13	0.00	2.29	0.00	0.00	0.00	0.00	29.81
5935.33	5	54.23	0.00	1.32	0.31	0.00	0.00	1.41	0.00	0.00	0.00	0.00	0.00
5935.50	5	53.39	0.00	1.36	0.35	0.04	0.00	2.27	0.00	4.26	0.00	0.00	34.94
5935.67	5	50.62	0.00	4.36	0.35	0.09	0.00	2.06	0.27	0.00	0.00	0.00	0.00
5935.83	5	52.12	0.00	3.51	0.33	0.05	0.00	2.10	0.00	0.00	0.00	0.00	0.00
5936.00	4	46.60	0.00	6.17	0.88	0.18	0.19	1.03	0.00	0.00	0.00	0.00	21.23
5936.17	5	55.10	0.00	1.82	0.26	0.00	0.00	0.40	0.00	0.00	0.00	0.00	16.10
5936.33	5	49.21	0.00	4.70	0.53	0.05	0.00	1.04	0.00	0.00	0.00	0.00	56.47
5936.50	5	49.36	0.00	1.73	0.00	0.02	0.00	0.31	0.23	0.00	0.00	0.00	146.29
5936.67	5	52.69	0.00	1.86	0.00	0.00	0.00	3.10	0.00	0.00	0.00	0.00	0.00
5936.83	5	52.41	0.00	3.29	0.30	0.04	0.00	3.33	0.00	0.00	0.00	0.00	15.58
5937.00	5	55.46	0.00	1.42	0.00	0.00	0.00	1.34	0.00	0.00	0.00	0.00	0.00
5937.17	5	54.52	0.00	1.52	0.28	0.00	0.00	1.86	0.29	0.00	0.00	84.22	0.00
5937.33	5	54.25	0.00	2.83	0.26	0.04	0.00	1.14	0.30	0.00	0.00	0.00	0.00
5937.50	5	56.88	0.00	0.34	0.00	0.00	0.00	1.39	0.25	0.00	0.00	0.00	0.00
5937.67	5	54.24	0.00	2.55	0.35	0.02	0.00	0.90	0.00	0.00	0.00	0.00	0.00
5937.83	5	53.02	0.00	4.13	0.29	0.04	0.00	1.48	0.00	0.00	0.00	0.00	0.00
5938.00	5	54.67	0.00	2.05	0.28	0.03	0.00	1.54	0.00	0.00	0.00	0.00	28.16
5938.17	5	54.87	0.00	1.67	0.38	0.02	0.00	1.15	0.27	0.00	0.00	0.00	20.57
5938.33	5	53.55	0.00	3.66	0.25	0.03	0.00	1.32	0.28	4.33	0.00	84.02	0.00
5938.50	5	52.56	0.00	3.33	0.40	0.06	0.00	1.14	0.00	0.00	0.00	0.00	0.00
5938.67	4	51.44	0.00	2.17	0.42	0.05	0.00	1.77	0.28	4.45	62.39	0.00	0.00
5938.83	5	55.01	0.00	0.95	0.00	0.00	0.00	1.55	0.28	0.00	0.00	0.00	0.00
5939.00	5	54.42	0.00	2.23	0.36	0.07	0.00	1.07	0.29	0.00	0.00	0.00	0.00

Appendix 46: Core 4045 geochemistry data with major (%) and minor (ppm) elements from 5932-5939 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
5939.00	5	54.42	0.00	2.23	0.36	0.07	0.00	1.07	0.29	0.00	0.00	0.00	0.00
5939.17	5	54.10	0.00	2.05	0.57	0.10	0.00	1.02	0.26	0.00	0.00	0.00	0.00
5939.33	5	54.99	0.00	1.28	0.33	0.02	0.00	1.02	0.27	0.00	0.00	0.00	17.26
5939.50	5	54.59	0.00	1.86	0.32	0.05	0.00	1.57	0.35	0.00	0.00	0.00	29.01
5939.67	5	55.29	0.00	1.35	0.00	0.03	0.00	2.06	0.00	0.00	0.00	0.00	0.00
5939.83	5	54.51	0.00	1.87	0.00	0.00	0.00	1.29	0.00	0.00	0.00	79.06	0.00
5940.00	5	56.20	0.00	0.38	0.00	0.00	0.00	2.11	0.29	0.00	0.00	0.00	0.00
5940.17	4	42.98	0.00	12.28	0.00	0.00	0.00	1.68	0.00	0.00	0.00	0.00	0.00
5940.33	5	55.73	0.00	0.34	0.00	0.00	0.00	0.95	0.00	0.00	0.00	0.00	0.00
5940.50	5	55.54	0.00	0.40	0.00	0.00	0.00	0.98	0.00	0.00	0.00	0.00	0.00
5940.67	5	55.48	0.00	0.46	0.00	0.00	0.00	1.19	0.00	0.00	0.00	0.00	0.00
5940.83	5	53.52	0.00	2.78	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00
5941.00	5	55.18	0.00	0.78	0.00	0.00	0.00	0.62	0.00	0.00	0.00	0.00	0.00
5941.17	5	54.24	0.00	1.50	0.31	0.00	0.00	0.42	0.00	0.00	0.00	0.00	0.00
5941.33	5	53.36	0.00	2.34	0.00	0.04	0.00	0.79	0.00	0.00	0.00	0.00	0.00
5941.50	5	55.26	0.00	0.90	0.00	0.00	0.00	0.41	0.00	0.00	0.00	0.00	19.80
5941.67	5	54.50	0.00	1.42	0.00	0.02	0.00	0.97	0.00	0.00	0.00	0.00	33.63
5941.83	5	53.87	0.00	1.98	0.00	0.02	0.00	0.44	0.00	0.00	0.00	0.00	0.00
5942.00	5	54.62	0.00	0.63	0.00	0.00	0.20	1.28	0.00	4.80	0.00	0.00	0.00
5942.17	5	56.10	0.00	0.34	0.00	0.00	0.00	0.70	0.25	0.00	0.00	0.00	0.00
5942.33	5	55.68	0.00	0.50	0.00	0.00	0.00	0.93	0.00	0.00	0.00	0.00	0.00
5942.50	5	54.35	0.00	1.08	0.00	0.00	0.00	1.02	0.00	0.00	0.00	0.00	0.00
5942.67	5	52.97	0.00	2.03	0.45	0.08	0.00	1.24	0.00	0.00	0.00	0.00	0.00
5942.83	5	53.14	0.00	2.23	0.00	0.06	0.00	1.03	0.27	0.00	0.00	0.00	0.00
5943.00	5	52.19	0.00	2.15	0.52	0.09	0.17	2.06	0.00	0.00	0.00	0.00	29.98
5943.17	5	52.96	0.00	1.56	0.26	0.00	0.00	1.80	0.41	0.00	0.00	0.00	26.07
5943.33	5	55.61	0.00	1.37	0.00	0.02	0.00	1.06	0.00	0.00	0.00	0.00	26.89
5943.50	5	54.82	0.00	1.86	0.43	0.02	0.00	1.72	0.00	0.00	0.00	0.00	0.00
5943.67	5	54.41	0.00	1.77	0.44	0.03	0.23	2.06	0.29	0.00	0.00	0.00	0.00
5943.83	5	55.81	0.00	0.29	0.00	0.00	0.00	2.90	0.00	0.00	0.00	0.00	0.00
5944.00	5	56.41	0.00	0.32	0.00	0.00	0.00	2.97	0.28	0.00	0.00	0.00	0.00
5944.17	5	53.09	0.00	1.15	0.27	0.00	0.00	2.74	0.34	0.00	0.00	0.00	0.00
5944.33	5	53.33	0.00	2.16	0.27	0.09	0.00	2.49	0.25	0.00	0.00	0.00	0.00
5944.50	5	56.03	0.00	0.56	0.30	0.00	0.00	1.87	0.31	0.00	0.00	0.00	0.00
5944.67	5	54.79	0.00	1.49	0.42	0.03	0.20	1.66	0.00	0.00	0.00	0.00	212.56
5944.83	5	56.23	0.00	0.88	0.30	0.00	0.00	1.11	0.26	0.00	0.00	0.00	50.43
5945.00	4	56.42	1.51	0.78	0.34	0.00	0.00	1.52	0.00	0.00	0.00	0.00	0.00
5945.17	5	54.48	0.00	2.23	0.00	0.06	0.00	1.43	0.30	0.00	0.00	0.00	64.73
5945.33	5	56.21	0.00	0.77	0.00	0.00	0.00	2.08	0.26	0.00	0.00	0.00	0.00
5945.50	5	56.37	0.00	0.40	0.31	0.00	0.00	1.66	0.00	0.00	11.28	0.00	0.00
5945.67	5	54.39	0.00	1.71	0.28	0.07	0.00	1.16	0.35	4.12	0.00	83.68	0.00
5945.83	5	56.28	0.00	0.16	0.00	0.00	0.00	1.38	0.30	0.00	0.00	0.00	0.00
5946.00	5	52.21	0.00	1.58	0.50	0.00	0.00	1.42	0.36	0.00	0.00	0.00	0.00

Appendix 47: Core 4045 geochemistry data with major (%) and minor (ppm) elements from 5939-5946 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
5946.00	5	52.21	0.00	1.58	0.50	0.00	0.00	1.42	0.36	0.00	0.00	0.00	0.00
5946.17	5	53.83	0.00	2.60	0.38	0.04	0.00	1.09	0.00	0.00	0.00	0.00	107.98
5946.33	5	53.01	0.00	1.66	0.25	0.02	0.00	2.81	0.00	0.00	0.00	0.00	54.98
5946.50	5	51.13	0.00	1.98	0.49	0.07	0.00	2.76	0.00	13.86	0.00	0.00	17.91
5946.67	5	45.48	0.00	0.81	0.00	0.00	0.00	1.69	0.27	0.00	0.00	0.00	28.48
5946.83	5	40.19	0.00	0.33	0.38	0.00	0.00	2.45	0.00	0.00	0.00	0.00	0.00
5947.00	5	53.19	0.00	1.24	0.00	0.00	0.00	1.84	0.25	0.00	0.00	0.00	0.00
5947.17	5	56.74	0.00	0.24	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.00	0.00
5947.33	5	49.52	0.00	0.29	0.00	0.00	0.00	1.47	0.00	0.00	0.00	0.00	18.50
5947.50	5	49.65	0.00	0.25	0.00	0.00	0.00	0.56	0.00	0.00	0.00	0.00	0.00
5947.67	5	48.49	0.00	0.25	0.00	0.00	0.00	0.38	0.00	0.00	0.00	0.00	19.89
5947.83	5	56.90	0.00	0.24	0.00	0.00	0.00	0.71	0.00	0.00	0.00	0.00	18.55
5948.00	5	56.35	0.00	0.22	0.00	0.00	0.00	4.38	0.29	0.00	0.00	0.00	0.00
5948.17	5	56.84	0.00	0.38	0.00	0.00	0.00	2.38	0.32	7.21	0.00	0.00	0.00
5948.33	5	56.62	0.00	0.21	0.00	0.00	0.00	2.04	0.00	0.00	0.00	0.00	0.00
5948.50	5	56.60	0.00	0.25	0.00	0.00	0.00	2.66	0.00	0.00	0.00	0.00	0.00
5948.67	5	55.51	0.00	0.64	0.00	0.00	0.00	1.51	0.00	0.00	0.00	0.00	0.00
5948.83	4	54.55	1.97	2.04	0.56	0.05	0.00	0.46	0.00	0.00	0.00	0.00	0.00
5949.00	5	54.26	0.00	2.03	0.49	0.13	0.19	0.74	0.00	7.47	0.00	0.00	0.00
5949.17	5	55.82	0.00	0.84	0.00	0.00	0.00	1.06	0.00	0.00	0.00	0.00	0.00
5949.33	5	54.45	0.00	1.38	0.36	0.04	0.00	1.83	0.27	3.79	0.00	0.00	0.00
5949.50	5	52.43	0.00	0.68	0.48	0.00	0.00	2.62	0.26	4.82	0.00	0.00	0.00
5949.67	5	53.14	0.00	1.08	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	23.82
5949.83	5	54.86	0.00	0.64	0.00	0.00	0.00	1.56	0.32	0.00	12.31	0.00	0.00
5950.00	5	54.29	0.00	1.30	0.00	0.02	0.00	1.48	0.00	0.00	0.00	0.00	0.00
5950.17	5	53.14	0.00	0.28	0.00	0.00	0.00	1.90	0.25	0.00	0.00	0.00	0.00
5950.33	5	52.71	0.00	1.26	0.00	0.05	0.00	2.09	0.00	0.00	0.00	0.00	0.00
5950.50	4	31.92	0.00	24.64	0.00	0.00	0.00	1.37	0.00	0.00	0.00	0.00	0.00
5950.67	5	54.49	0.00	0.57	0.34	0.00	0.00	1.52	0.26	0.00	0.00	0.00	0.00
5950.83	5	54.11	0.00	0.70	0.00	0.00	0.00	1.48	0.28	0.00	0.00	0.00	0.00
5951.00	5	54.26	0.00	1.48	0.32	0.04	0.00	2.74	0.30	0.00	0.00	0.00	0.00
5951.17	5	54.50	0.00	0.74	0.00	0.00	0.00	1.84	0.27	0.00	0.00	0.00	0.00
5951.33	5	53.69	0.00	2.02	0.32	0.03	0.00	0.86	0.31	0.00	0.00	0.00	0.00
5951.50	5	55.46	0.00	0.43	0.31	0.00	0.00	2.04	0.00	0.00	0.00	0.00	0.00
5951.67	5	55.56	0.00	0.41	0.36	0.00	0.00	2.81	0.32	0.00	0.00	0.00	15.70
5951.83	4	54.64	1.64	1.25	0.36	0.14	0.00	1.41	0.29	0.00	0.00	0.00	0.00
5952.00	5	55.73	0.00	0.86	0.44	0.00	0.00	1.12	0.00	3.96	0.00	0.00	0.00
5952.17	5	55.58	0.00	1.17	0.55	0.04	0.00	2.82	0.32	0.00	0.00	0.00	20.59
5952.33	5	55.61	0.00	1.26	0.30	0.02	0.00	2.09	0.00	5.40	0.00	0.00	0.00
5952.50	5	56.01	0.00	0.56	0.30	0.03	0.00	1.76	0.29	0.00	0.00	0.00	0.00
5952.67	5	56.25	0.00	0.72	0.00	0.00	0.00	2.65	0.00	4.39	0.00	0.00	0.00
5952.83	5	56.46	0.00	0.69	0.34	0.00	0.00	1.70	0.27	0.00	0.00	0.00	0.00
5953.00	5	55.82	0.00	1.04	0.00	0.03	0.00	2.10	0.27	4.78	0.00	0.00	0.00

Appendix 48: Core 4045 geochemistry data with major (%) and minor (ppm) elements from 5946-5953 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
5953.00	5	55.82	0.00	1.04	0.00	0.03	0.00	2.10	0.27	4.78	0.00	0.00	0.00
5953.17	5	56.39	0.00	0.35	0.00	0.00	0.00	2.14	0.29	0.00	0.00	0.00	0.00
5953.33	4	55.03	1.92	1.16	0.39	0.00	0.00	2.85	0.28	0.00	0.00	0.00	0.00
5953.50	5	56.11	0.00	0.67	0.00	0.00	0.00	2.49	0.32	0.00	0.00	0.00	0.00
5953.67	5	54.70	0.00	1.05	0.00	0.00	0.00	2.95	0.29	0.00	0.00	0.00	0.00
5953.83	5	57.37	0.00	0.13	0.00	0.00	0.00	0.61	0.00	0.00	0.00	0.00	0.00
5954.00	5	56.24	0.00	0.56	0.38	0.00	0.00	2.96	0.28	4.52	0.00	0.00	0.00
5954.17	5	54.73	0.00	1.18	0.00	0.04	0.00	3.12	0.29	0.00	0.00	0.00	36.16
5954.33	5	54.86	0.00	1.01	0.30	0.04	0.00	2.61	0.00	0.00	0.00	0.00	41.38
5954.50	5	56.38	0.00	0.92	0.00	0.00	0.00	2.53	0.00	4.63	0.00	0.00	17.49
5954.67	5	56.29	0.00	0.73	0.00	0.00	0.00	1.97	0.26	0.00	0.00	0.00	0.00
5954.83	5	54.57	0.00	3.43	0.35	0.00	0.00	1.65	0.26	0.00	0.00	0.00	0.00
5955.00	5	54.15	0.00	0.86	0.00	0.00	0.00	2.35	0.00	0.00	12.45	0.00	62.05
5955.17	5	53.30	0.00	0.96	0.00	0.02	0.00	4.82	0.00	0.00	0.00	0.00	0.00
5955.33	5	54.16	0.00	0.79	0.00	0.03	0.00	3.20	0.00	0.00	0.00	0.00	0.00
5955.50	5	53.55	0.00	1.30	0.28	0.08	0.00	1.96	0.00	0.00	0.00	0.00	0.00
5955.67	5	54.58	0.00	0.63	0.29	0.02	0.00	2.32	0.00	0.00	0.00	0.00	0.00
5955.83	5	53.63	0.00	0.96	0.40	0.08	0.20	2.62	0.00	4.63	0.00	0.00	29.61
5956.00	4	50.87	1.59	3.16	0.33	0.09	0.00	2.60	0.00	16.20	9.20	0.00	15.21
5956.17	4	54.85	3.05	0.37	0.00	0.00	0.00	3.22	0.00	0.00	0.00	0.00	0.00
5956.33	5	55.88	0.00	0.31	0.00	0.00	0.00	1.33	0.00	0.00	0.00	0.00	0.00
5956.50	5	55.14	0.00	0.41	0.00	0.00	0.00	0.79	0.00	0.00	0.00	0.00	1254.07
5956.67	5	53.26	0.00	0.76	0.00	0.05	0.00	1.50	0.00	5.06	0.00	0.00	115.71
5956.83	4	55.66	0.00	0.60	0.00	0.00	0.00	0.60	0.26	0.00	0.00	0.00	2238.24
5957.00	4	55.51	1.67	0.39	0.00	0.00	0.00	1.10	0.32	4.60	0.00	0.00	53.07
5957.17	5	54.02	0.00	1.77	0.00	0.00	0.00	1.43	0.00	0.00	0.00	81.24	252.56
5957.33	5	53.16	0.00	2.89	0.29	0.00	0.00	0.83	0.00	0.00	0.00	0.00	24.28
5957.50	4	55.58	1.53	0.28	0.00	0.00	0.00	1.17	0.27	0.00	0.00	0.00	31.66
5957.67	5	54.70	0.00	2.42	0.00	0.00	0.00	0.93	0.26	0.00	0.00	0.00	50.32
5957.83	1	55.04	0.00	0.34	0.00	0.00	0.00	1.78	0.27	0.00	0.00	0.00	12353.98
5958.00	4	11.41	0.00	48.54	0.00	0.01	0.00	0.23	0.00	0.00	0.00	0.00	0.00
5958.17	4	25.50	0.00	27.30	0.00	0.00	0.00	0.48	0.00	0.00	0.00	0.00	14.42
5958.33	5	53.14	0.00	2.15	0.00	0.00	0.00	0.31	0.25	0.00	0.00	0.00	423.08
5958.50	2	9.76	0.00	5.07	1.26	1.53	4.76	26.67	0.00	54.40	24.58	150.49	133.88
5958.67	5	55.07	0.00	0.85	0.26	0.00	0.00	2.48	0.31	0.00	0.00	0.00	20.45
5958.83	5	54.81	0.00	0.99	0.37	0.00	0.00	1.26	0.00	0.00	0.00	0.00	219.07
5959.00	5	55.58	0.00	0.48	0.00	0.00	0.00	1.49	0.28	0.00	0.00	0.00	500.13
5959.17	5	54.34	0.00	0.67	0.00	0.00	0.00	2.23	0.34	0.00	0.00	0.00	0.00
5959.33	5	55.17	0.00	0.52	0.00	0.00	0.00	1.02	0.31	0.00	0.00	0.00	0.00
5959.50	5	54.03	0.00	0.78	0.30	0.02	0.00	3.02	0.29	0.00	0.00	80.07	0.00
5959.67	4	52.68	1.46	1.37	0.00	0.06	0.00	2.31	0.30	5.75	0.00	0.00	89.80
5959.83	5	54.43	0.00	0.83	0.32	0.04	0.00	2.15	0.35	0.00	0.00	0.00	47.28
5960.00	5	52.40	0.00	1.38	0.52	0.04	0.00	1.77	0.34	3.75	0.00	0.00	0.00

Appendix 49: Core 4045 geochemistry data with major (%) and minor (ppm) elements from 5953-5960 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
5960.00	5	52.40	0.00	1.38	0.52	0.04	0.00	1.77	0.34	3.75	0.00	0.00	0.00
5960.17	5	52.99	0.00	0.99	0.00	0.06	0.00	1.72	0.36	5.04	0.00	0.00	40.36
5960.33	5	62.34	0.00	1.02	0.21	0.05	0.00	1.93	0.39	6.78	0.00	0.00	48.41
5960.50	5	54.84	0.00	0.77	0.36	0.03	0.00	1.63	0.33	6.69	0.00	0.00	43.38
5960.67	5	52.91	0.00	2.22	0.76	0.13	0.00	2.17	0.38	3.83	0.00	0.00	38.13
5960.83	5	54.98	0.00	1.00	0.29	0.00	0.00	2.27	0.34	0.00	0.00	0.00	0.00
5961.00	5	55.47	0.00	0.71	0.00	0.00	0.00	1.50	0.27	0.00	0.00	0.00	0.00
5961.17	5	56.33	0.00	0.52	0.00	0.00	0.00	0.31	0.34	4.40	0.00	0.00	0.00
5961.33	5	54.67	0.00	1.49	0.33	0.09	0.00	0.34	0.29	0.00	0.00	0.00	14.27
5961.50	5	56.85	0.00	0.20	0.00	0.00	0.00	0.38	0.39	0.00	0.00	0.00	0.00
5961.67	5	56.58	0.00	0.26	0.24	0.00	0.00	0.37	0.39	0.00	0.00	0.00	0.00
5961.83	5	64.71	0.00	0.84	0.14	0.02	0.00	1.27	0.44	2.35	0.00	0.00	0.00
5962.00	5	54.98	0.00	1.19	0.00	0.03	0.00	1.82	0.37	4.05	0.00	0.00	0.00
5962.17	5	56.51	0.00	0.12	0.00	0.00	0.00	0.75	0.30	0.00	0.00	0.00	0.00
5962.33	5	56.21	0.00	0.44	0.00	0.00	0.00	2.40	0.33	0.00	0.00	0.00	0.00
5962.50	5	55.88	0.00	0.59	0.00	0.00	0.00	0.88	0.33	0.00	0.00	0.00	0.00
5962.67	5	54.98	0.00	0.72	0.00	0.03	0.00	2.18	0.35	3.91	0.00	0.00	0.00
5962.83	5	54.42	0.00	1.20	0.00	0.05	0.00	2.22	0.37	3.46	0.00	0.00	0.00
5963.00	5	55.02	0.00	1.03	0.00	0.03	0.00	1.07	0.30	0.00	0.00	58.88	10.85
5963.17	5	56.45	0.00	0.23	0.00	0.00	0.00	1.61	0.38	0.00	0.00	0.00	0.00
5963.33	5	52.04	0.00	2.01	0.85	0.27	0.00	2.65	0.40	0.00	16.14	87.58	0.00
5963.50	5	53.77	0.00	1.89	0.66	0.10	0.00	2.78	0.41	0.00	0.00	0.00	15.97
5963.67	5	55.49	0.00	0.87	0.37	0.04	0.00	2.09	0.38	3.85	0.00	0.00	0.00
5963.83	5	53.60	0.00	2.12	0.69	0.08	0.00	3.54	0.31	0.00	0.00	0.00	1166.11
5964.00	5	56.48	0.00	0.47	0.00	0.00	0.00	0.87	0.34	0.00	0.00	0.00	0.00
5964.17	5	54.36	0.00	1.63	0.00	0.06	0.00	2.16	0.29	0.00	0.00	0.00	14.66
5964.33	4	52.48	2.04	1.21	0.42	0.00	0.00	0.13	0.00	0.00	0.00	0.00	37.42
5964.50	5	54.89	0.00	1.02	0.60	0.03	0.00	0.96	0.35	0.00	0.00	0.00	0.00
5964.67	5	56.08	0.00	0.73	0.00	0.00	0.00	0.54	0.31	0.00	0.00	103.75	0.00
5964.83	5	54.83	0.00	0.25	0.00	0.00	0.00	3.84	0.37	0.00	0.00	0.00	0.00
5965.00	5	56.32	0.00	0.12	0.00	0.00	0.00	0.52	0.37	0.00	0.00	0.00	17.09
5965.17	5	52.82	0.00	1.35	0.50	0.05	0.00	0.80	0.31	0.00	0.00	0.00	51.66
5965.33	5	52.83	0.00	0.76	0.00	0.00	0.00	1.06	0.35	0.00	0.00	0.00	0.00
5965.50	4	53.86	1.68	0.35	0.00	0.00	0.00	3.15	0.35	0.00	11.64	0.00	0.00
5965.67	5	55.40	0.00	0.29	0.27	0.00	0.00	1.05	0.25	0.00	0.00	0.00	0.00
5965.83	5	54.30	0.00	0.36	0.00	0.00	0.00	0.49	0.39	0.00	0.00	0.00	0.00
5966.00	5	53.54	0.00	1.05	0.33	0.04	0.00	3.13	0.33	0.00	0.00	0.00	0.00
5966.17	5	54.58	0.00	0.58	0.28	0.00	0.00	3.73	0.37	0.00	0.00	0.00	17.80
5966.33	5	55.37	0.00	0.33	0.00	0.00	0.00	1.72	0.41	0.00	0.00	0.00	0.00
5966.50	5	54.17	0.00	0.74	0.00	0.03	0.00	3.38	0.36	0.00	0.00	0.00	14.01
5966.67	5	51.56	0.00	0.79	0.00	0.00	0.00	0.98	0.30	4.40	0.00	0.00	0.00
5966.83	4	46.98	0.00	5.88	1.49	0.19	0.26	1.70	0.00	0.00	0.00	0.00	25.56
5967.00	5	54.74	0.00	0.90	0.46	0.00	0.00	0.29	0.37	0.00	0.00	0.00	0.00

Appendix 50: Core 4045 geochemistry data with major (%) and minor (ppm) elements from 5960-5967 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
5967.00	5	54.74	0.00	0.90	0.46	0.00	0.00	0.29	0.37	0.00	0.00	0.00	0.00
5967.17	5	54.32	0.00	1.15	0.49	0.05	0.00	0.42	0.32	0.00	0.00	0.00	0.00
5967.33	5	55.34	0.00	1.06	0.44	0.05	0.00	0.28	0.33	0.00	8.82	0.00	0.00
5967.50	5	56.84	0.00	0.11	0.00	0.00	0.00	0.10	0.43	0.00	0.00	0.00	0.00
5967.67	5	56.11	0.00	0.65	0.24	0.03	0.00	0.17	0.44	0.00	0.00	0.00	0.00
5967.83	5	55.81	0.00	0.59	0.00	0.00	0.00	1.89	0.34	4.56	0.00	0.00	70.02
5968.00	5	55.97	0.00	0.41	0.00	0.00	0.00	0.29	0.35	0.00	0.00	0.00	0.00
5968.17	5	55.90	0.00	0.46	0.30	0.00	0.00	0.68	0.40	3.65	0.00	0.00	0.00
5968.33	4	56.54	1.84	0.14	0.00	0.00	0.00	0.81	0.29	0.00	0.00	0.00	0.00
5968.50	5	56.74	0.00	0.11	0.00	0.00	0.00	0.18	0.36	0.00	0.00	0.00	0.00
5968.67	5	54.29	0.00	1.30	0.32	0.06	0.00	0.91	0.32	5.02	0.00	0.00	0.00
5968.83	5	56.64	0.00	0.11	0.00	0.00	0.00	0.57	0.32	0.00	0.00	0.00	0.00
5969.00	5	56.82	0.00	0.14	0.00	0.00	0.00	0.38	0.32	0.00	0.00	79.40	0.00
5969.17	5	56.50	0.00	0.22	0.00	0.00	0.00	0.69	0.32	0.00	0.00	0.00	0.00
5969.33	5	55.94	0.00	0.37	0.00	0.00	0.00	1.26	0.31	0.00	0.00	0.00	0.00
5969.50	5	56.19	0.00	0.30	0.00	0.00	0.00	1.41	0.31	0.00	0.00	0.00	0.00
5969.67	5	54.54	0.00	0.69	0.37	0.08	0.00	3.54	0.33	0.00	0.00	0.00	0.00
5969.83	5	54.46	0.00	0.59	0.00	0.00	0.00	2.54	0.34	0.00	11.48	0.00	0.00
5970.00	5	56.35	0.00	0.14	0.00	0.00	0.00	0.54	0.31	0.00	0.00	0.00	0.00
5970.17	5	55.22	0.00	0.33	0.00	0.00	0.00	1.10	0.36	0.00	0.00	0.00	0.00
5970.33	5	64.40	0.00	0.34	0.15	0.00	0.00	1.09	0.37	0.00	0.00	0.00	0.00
5970.50	5	56.05	0.00	0.27	0.25	0.00	0.00	0.79	0.28	0.00	0.00	0.00	0.00
5970.67	5	58.25	0.00	0.16	0.00	0.00	0.00	0.20	0.42	0.00	0.00	0.00	0.00
5970.83	5	57.87	0.00	0.29	0.00	0.00	0.00	0.14	0.31	0.00	0.00	0.00	0.00
5971.00	5	58.73	0.00	0.14	0.00	0.00	0.00	0.15	0.26	0.00	0.00	0.00	0.00
5971.17	5	57.59	0.00	0.13	0.00	0.00	0.00	0.19	0.40	0.00	0.00	0.00	0.00
5971.33	5	56.17	0.00	0.65	0.00	0.04	0.00	3.91	0.32	0.00	0.00	0.00	0.00
5971.50	5	58.25	0.00	0.09	0.00	0.00	0.00	0.34	0.32	0.00	0.00	0.00	0.00
5971.67	5	57.03	0.00	0.55	0.00	0.03	0.00	2.35	0.37	4.52	0.00	0.00	0.00
5971.83	5	57.72	0.00	0.36	0.00	0.00	0.00	0.49	0.33	0.00	0.00	0.00	0.00
5972.00	5	58.40	0.00	0.09	0.00	0.00	0.00	0.39	0.33	0.00	0.00	0.00	0.00
5972.17	5	57.57	0.00	0.34	0.00	0.00	0.00	2.39	0.30	0.00	0.00	0.00	0.00
5972.33	5	56.88	0.00	0.58	0.00	0.00	0.00	1.75	0.00	0.00	0.00	0.00	0.00
5972.50	5	57.81	0.00	0.13	0.00	0.00	0.00	0.69	0.30	0.00	0.00	0.00	0.00
5972.67	5	57.46	0.00	0.09	0.00	0.00	0.00	0.37	0.34	0.00	0.00	0.00	0.00
5972.83	5	57.90	0.00	0.09	0.00	0.00	0.00	0.12	0.27	0.00	0.00	0.00	0.00
5973.00	5	58.47	0.00	0.10	0.00	0.00	0.00	0.12	0.29	0.00	0.00	0.00	0.00
5973.17	5	57.42	0.00	0.43	0.00	0.00	0.00	3.00	0.32	0.00	0.00	0.00	0.00
5973.33	5	56.54	0.00	1.28	0.51	0.05	0.00	0.43	0.26	5.32	0.00	0.00	0.00
5973.50	5	54.24	0.00	3.22	0.78	0.18	0.00	0.54	0.00	5.64	0.00	0.00	16.53
5973.67	5	54.79	0.00	2.16	0.49	0.10	0.00	0.21	0.00	0.00	0.00	0.00	0.00
5973.83	5	56.94	0.00	0.39	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	35.33
5974.00	5	56.97	0.00	0.42	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00

Appendix 51: Core 4045 geochemistry data with major (%) and minor (ppm) elements from 5967-5974 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
5974.00	5	56.97	0.00	0.42	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00
5974.17	5	57.74	0.00	0.09	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00
5974.33	5	56.81	0.00	0.63	0.00	0.00	0.00	0.20	0.00	0.00	12.21	0.00	0.00
5974.50	5	57.49	0.00	0.07	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00
5974.67	5	57.09	0.00	0.22	0.00	0.00	0.00	0.13	0.00	5.94	0.00	0.00	0.00
5974.83	5	57.72	0.00	0.10	0.30	0.00	0.00	0.15	0.00	0.00	0.00	0.00	0.00
5975.00	5	57.41	0.00	0.42	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00
5975.17	5	57.47	0.00	0.27	0.00	0.00	0.00	0.19	0.00	5.45	0.00	0.00	0.00
5975.33	5	57.81	0.00	0.05	0.00	0.00	0.00	0.06	0.24	0.00	0.00	90.82	0.00
5975.50	5	57.84	0.00	0.09	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00
5975.67	5	58.13	0.00	0.15	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00
5975.83	5	55.62	0.00	1.44	0.45	0.10	0.00	0.28	0.00	12.20	0.00	0.00	30.41
5976.00	4	56.88	1.67	0.61	0.32	0.00	0.00	0.18	0.25	0.00	0.00	95.81	0.00
5976.17	5	57.65	0.00	0.21	0.00	0.00	0.00	0.11	0.28	0.00	0.00	0.00	22.52
5976.33	5	57.43	0.00	0.25	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00
5976.50	5	54.74	0.00	2.52	0.51	0.09	0.00	0.18	0.00	4.64	0.00	0.00	0.00
5976.67	2	43.19	0.00	1.28	0.58	0.14	14.72	17.20	0.00	48.17	0.00	0.00	3918.79
5976.83	5	56.41	0.00	0.45	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00
5977.00	5	55.57	0.00	1.04	0.00	0.00	0.00	0.24	0.00	0.00	9.93	0.00	0.00
5977.17	5	56.09	0.00	0.28	0.31	0.00	0.00	0.12	0.25	0.00	0.00	0.00	0.00
5977.33	5	55.77	0.00	0.83	0.00	0.00	0.00	0.67	0.00	0.00	0.00	0.00	0.00
5977.50	5	56.33	0.00	0.22	0.00	0.00	0.00	0.43	0.25	5.55	9.71	0.00	0.00
5977.67	5	54.72	0.00	0.47	0.00	0.00	0.00	5.07	0.00	4.16	0.00	0.00	0.00
5977.83	5	52.51	0.00	3.08	0.66	0.22	0.00	0.96	0.00	4.53	0.00	80.57	0.00
5978.00	5	56.83	0.00	0.16	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.00	0.00
5978.17	5	56.90	0.00	0.17	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.00	0.00
5978.33	5	56.64	0.00	0.15	0.00	0.00	0.00	0.13	0.29	0.00	0.00	0.00	0.00
5978.50	5	56.92	0.00	0.08	0.00	0.00	0.00	0.16	0.25	0.00	0.00	0.00	0.00
5978.67	5	57.00	0.00	0.10	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.00
5978.83	4	56.63	2.27	0.32	0.00	0.00	0.00	0.14	0.27	0.00	0.00	0.00	0.00
5979.00	5	55.70	0.00	0.61	0.00	0.00	0.00	0.14	0.27	0.00	0.00	0.00	0.00
5979.17	5	53.67	0.00	1.80	0.63	0.13	0.29	0.34	0.00	7.63	0.00	0.00	17.43
5979.33	5	55.07	0.00	0.94	0.45	0.08	0.39	0.47	0.00	11.22	0.00	0.00	0.00
5979.50	5	53.57	0.00	2.49	0.41	0.11	0.00	0.19	0.00	4.95	0.00	0.00	0.00
5979.67	5	55.72	0.00	0.74	0.29	0.00	0.00	0.41	0.26	0.00	0.00	0.00	0.00
5979.83	5	56.89	0.00	0.10	0.00	0.00	0.00	0.27	0.31	0.00	0.00	0.00	0.00
5980.00	5	56.61	0.00	0.22	0.00	0.00	0.00	0.18	0.00	0.00	0.00	0.00	0.00
5980.17	5	55.41	0.00	0.91	0.00	0.02	0.00	2.11	0.00	5.12	0.00	0.00	0.00
5980.33	5	56.52	0.00	0.19	0.00	0.00	0.00	1.89	0.29	0.00	0.00	0.00	0.00
5980.50	5	55.21	0.00	0.67	0.00	0.00	0.00	5.69	0.25	0.00	0.00	0.00	0.00
5980.67	5	54.20	0.00	0.66	0.00	0.05	0.00	5.27	0.26	4.54	0.00	0.00	0.00
5980.83	5	50.47	0.00	1.14	0.42	0.08	0.00	8.39	0.00	0.00	0.00	0.00	0.00
5981.00	5	56.20	0.00	0.31	0.31	0.00	0.00	1.39	0.29	0.00	0.00	0.00	0.00

Appendix 52: Core 4045 geochemistry data with major (%) and minor (ppm) elements from 5974-5981 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
5981.00	5	56.20	0.00	0.31	0.31	0.00	0.00	1.39	0.29	0.00	0.00	0.00	0.00
5981.17	4	53.06	1.97	0.85	0.00	0.07	0.00	7.24	0.29	4.38	0.00	0.00	0.00
5981.33	5	53.41	0.00	1.13	0.00	0.05	0.00	6.26	0.26	0.00	0.00	0.00	0.00
5981.50	5	55.31	0.00	0.85	0.27	0.03	0.00	1.57	0.00	0.00	0.00	0.00	0.00
5981.67	5	56.07	0.00	0.17	0.00	0.00	0.00	1.18	0.27	0.00	0.00	0.00	0.00
5981.83	5	55.28	0.00	0.36	0.31	0.00	0.32	2.34	0.29	0.00	11.64	0.00	25.55
5982.00	5	53.91	0.00	1.29	0.43	0.08	0.00	3.95	0.29	0.00	0.00	0.00	0.00
5982.17	5	56.51	0.00	0.15	0.00	0.00	0.00	1.30	0.00	0.00	0.00	0.00	0.00
5982.33	5	56.99	0.00	0.15	0.00	0.00	0.00	0.24	0.28	0.00	0.00	0.00	0.00
5982.50	5	56.34	0.00	0.37	0.00	0.00	0.00	0.43	0.26	0.00	0.00	0.00	0.00
5982.67	4	54.22	2.38	2.00	0.41	0.06	0.00	0.53	0.31	3.93	0.00	0.00	0.00
5982.83	5	56.68	0.00	0.21	0.00	0.00	0.00	0.82	0.00	0.00	0.00	0.00	0.00
5983.00	5	56.94	0.00	0.15	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00
5983.17	5	54.90	0.00	1.19	0.41	0.05	0.00	3.36	0.00	0.00	0.00	0.00	0.00
5983.33	5	57.09	0.00	0.15	0.00	0.00	0.00	0.19	0.30	0.00	0.00	0.00	0.00
5983.50	5	55.74	0.00	0.27	0.00	0.00	0.00	5.55	0.29	0.00	0.00	0.00	0.00
5983.67	5	56.87	0.00	0.21	0.00	0.00	0.00	2.37	0.25	25.64	0.00	0.00	0.00
5983.83	5	55.50	0.00	0.61	0.00	0.00	0.00	1.85	0.30	4.66	0.00	0.00	0.00
5984.00	5	56.49	0.00	0.17	0.00	0.00	0.00	1.78	0.26	0.00	0.00	0.00	0.00
5984.17	5	55.02	0.00	0.74	0.00	0.00	0.00	3.73	0.29	5.81	0.00	0.00	0.00
5984.33	5	52.18	0.00	1.51	0.26	0.11	0.00	6.49	0.00	0.00	0.00	0.00	0.00
5984.50	5	55.34	0.00	0.88	0.30	0.02	0.00	2.82	0.29	4.13	0.00	0.00	0.00
5984.67	5	56.61	0.00	0.26	0.00	0.00	0.00	0.75	0.29	0.00	0.00	0.00	0.00
5984.83	5	51.40	0.00	0.39	0.00	0.02	0.00	3.33	0.26	0.00	0.00	0.00	14.60
5985.00	5	54.55	0.00	0.79	0.29	0.11	0.00	3.33	0.00	0.00	0.00	0.00	0.00
5985.17	5	57.12	0.00	0.16	0.00	0.00	0.00	1.06	0.31	0.00	0.00	0.00	0.00
5985.33	5	56.43	0.00	0.17	0.00	0.00	0.00	1.56	0.00	0.00	0.00	0.00	0.00
5985.50	5	56.46	0.00	0.31	0.00	0.00	0.00	0.98	0.00	0.00	0.00	0.00	0.00
5985.67	4	56.58	1.83	0.28	0.00	0.00	0.00	0.76	0.21	0.00	0.00	0.00	0.00
5985.83	5	57.88	0.00	0.18	0.00	0.00	0.00	0.74	0.00	0.00	10.11	0.00	0.00
5986.00	5	56.62	0.00	1.71	0.00	0.00	0.00	1.09	0.34	0.00	0.00	0.00	0.00
5986.17	5	56.99	0.00	0.29	0.00	0.00	0.00	1.35	0.30	0.00	0.00	0.00	0.00
5986.33	5	56.67	0.00	0.40	0.00	0.00	0.00	1.38	0.28	0.00	0.00	0.00	0.00
5986.50	5	54.80	0.00	1.02	0.33	0.10	0.00	5.21	0.29	3.98	0.00	0.00	0.00
5986.67	5	56.82	0.00	0.38	0.00	0.00	0.00	2.96	0.30	0.00	0.00	0.00	0.00
5986.83	5	57.24	0.00	0.26	0.00	0.00	0.00	2.59	0.29	0.00	0.00	0.00	0.00
5987.00	5	56.35	0.00	0.38	0.00	0.00	0.00	3.91	0.28	0.00	0.00	0.00	0.00
5987.17	5	51.91	0.00	2.01	0.42	0.14	0.00	8.45	0.00	7.08	0.00	0.00	0.00
5987.33	5	57.63	0.00	0.19	0.00	0.00	0.00	0.29	0.33	0.00	0.00	0.00	0.00
5987.50	5	54.46	0.00	0.83	0.34	0.07	0.00	4.22	0.00	0.00	0.00	0.00	0.00
5987.67	5	54.59	0.00	1.45	0.40	0.10	0.00	3.84	0.00	5.84	0.00	80.66	0.00
5987.83	5	55.86	0.00	0.71	0.31	0.04	0.00	2.00	0.29	0.00	0.00	0.00	0.00
5988.00	5	55.13	0.00	1.00	0.00	0.06	0.00	3.18	0.00	3.90	0.00	0.00	17.76

Appendix 53: Core 4045 geochemistry data with major (%) and minor (ppm) elements from 5981-5988 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
5988.00	5	55.13	0.00	1.00	0.00	0.06	0.00	3.18	0.00	3.90	0.00	0.00	17.76
5988.17	5	55.85	0.00	0.47	0.00	0.00	0.00	2.38	0.27	0.00	0.00	0.00	0.00
5988.33	5	57.21	0.00	0.50	0.00	0.00	0.00	1.37	0.00	0.00	0.00	0.00	0.00
5988.50	5	56.59	0.00	0.37	0.00	0.00	0.00	2.01	0.28	0.00	9.78	0.00	0.00
5988.67	4	55.31	1.67	0.87	0.53	0.09	0.00	2.32	0.28	4.87	0.00	0.00	0.00
5988.83	5	55.78	0.00	0.26	0.00	0.00	0.00	4.91	0.30	0.00	0.00	73.01	0.00
5989.00	5	56.40	0.00	0.27	0.00	0.00	0.00	1.79	0.29	0.00	0.00	0.00	0.00
5989.17	5	55.33	0.00	0.55	0.00	0.00	0.00	1.71	0.29	0.00	0.00	0.00	0.00
5989.33	5	57.03	0.00	0.26	0.25	0.00	0.00	0.64	0.30	0.00	0.00	0.00	0.00
5989.50	5	56.39	0.00	0.24	0.00	0.00	0.00	1.13	0.29	0.00	0.00	0.00	0.00
5989.67	5	56.51	0.00	0.22	0.00	0.00	0.00	1.62	0.24	3.87	0.00	0.00	0.00
5989.83	5	54.67	0.00	1.16	0.27	0.05	0.00	1.69	0.30	4.28	0.00	0.00	0.00
5990.00	5	55.67	0.00	0.38	0.00	0.00	0.00	3.35	0.27	0.00	0.00	0.00	0.00
5990.17	5	56.93	0.00	0.17	0.00	0.00	0.00	0.46	0.30	0.00	0.00	0.00	18.37
5990.33	5	53.11	0.00	1.15	0.00	0.05	0.00	6.66	0.27	0.00	10.20	0.00	0.00
5990.50	4	54.94	2.11	0.64	0.00	0.00	0.00	3.33	0.00	0.00	12.82	0.00	0.00
5990.67	5	54.44	0.00	1.72	0.00	0.08	0.00	1.31	0.00	4.34	0.00	0.00	0.00
5990.83	5	55.19	0.00	1.07	0.31	0.03	0.00	1.21	0.00	3.93	0.00	0.00	0.00
5991.00	5	56.06	0.00	0.43	0.00	0.00	0.00	1.81	0.29	0.00	0.00	0.00	0.00
5991.17	5	54.26	0.00	0.22	0.00	0.00	0.00	8.66	0.26	0.00	10.41	0.00	0.00
5991.33	4	54.94	1.49	1.27	0.30	0.03	0.00	1.20	0.00	0.00	0.00	0.00	0.00
5991.50	5	55.94	0.00	0.33	0.00	0.00	0.00	1.71	0.00	0.00	0.00	0.00	0.00
5991.67	5	56.52	0.00	0.42	0.37	0.00	0.00	1.10	0.28	0.00	0.00	0.00	0.00
5991.83	5	56.22	0.00	0.34	0.00	0.00	0.00	1.78	0.24	0.00	0.00	0.00	0.00
5992.00	5	55.76	0.00	0.29	0.00	0.00	0.00	1.56	0.34	0.00	0.00	0.00	0.00
5992.17	5	56.19	0.00	0.20	0.30	0.00	0.00	0.48	0.00	0.00	0.00	0.00	0.00
5992.33	5	54.74	0.00	0.70	0.31	0.03	0.00	2.44	0.00	5.82	0.00	0.00	0.00
5992.50	5	55.54	0.00	0.29	0.00	0.00	0.00	2.23	0.26	0.00	0.00	0.00	0.00
5992.67	5	55.50	0.00	0.26	0.00	0.00	0.00	3.24	0.00	0.00	0.00	0.00	0.00
5992.83	5	54.11	0.00	1.66	0.00	0.08	0.00	0.80	0.00	0.00	14.56	0.00	0.00
5993.00	5	53.89	0.00	1.55	0.35	0.06	0.00	1.86	0.28	6.45	10.40	0.00	0.00
5993.17	5	54.72	0.00	1.41	0.35	0.04	0.00	0.86	0.27	4.03	0.00	0.00	19.22
5993.33	5	55.60	0.00	0.61	0.26	0.02	0.00	0.92	0.00	0.00	0.00	0.00	0.00
5993.50	5	55.61	0.00	0.52	0.00	0.00	0.00	0.97	0.00	0.00	0.00	0.00	0.00
5993.67	5	55.96	0.00	0.15	0.00	0.00	0.00	0.94	0.30	0.00	0.00	0.00	0.00
5993.83	5	54.69	0.00	0.48	0.00	0.00	0.00	1.56	0.26	0.00	0.00	0.00	0.00
5994.00	5	54.09	0.00	0.77	0.32	0.07	0.00	2.95	0.00	5.32	0.00	0.00	0.00
5994.17	5	57.02	0.00	0.15	0.00	0.00	0.00	0.42	0.00	0.00	0.00	0.00	0.00
5994.33	5	56.41	0.00	0.17	0.00	0.00	0.00	0.18	0.23	0.00	0.00	0.00	0.00
5994.50	5	56.26	0.00	0.12	0.00	0.00	0.00	0.13	0.27	0.00	0.00	0.00	0.00
5994.67	4	8.40	0.00	36.47	0.00	0.38	0.00	2.25	0.00	0.00	0.00	0.00	828.16
5994.83	5	54.54	0.00	1.27	0.26	0.10	0.00	1.57	0.28	0.00	12.60	0.00	0.00
5995.00	5	56.89	0.00	0.21	0.00	0.00	0.00	0.40	0.00	0.00	0.00	0.00	0.00

Appendix 54: Core 4045 geochemistry data with major (%) and minor (ppm) elements from 5988-5995 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
5995.00	5	56.89	0.00	0.21	0.00	0.00	0.00	0.40	0.00	0.00	0.00	0.00	0.00
5995.17	5	55.04	0.00	1.01	0.36	0.07	0.00	1.61	0.00	4.93	0.00	0.00	0.00
5995.33	5	56.37	0.00	0.21	0.00	0.00	0.00	1.09	0.34	0.00	0.00	0.00	0.00
5995.50	5	56.69	0.00	0.20	0.00	0.00	0.00	0.68	0.24	0.00	0.00	0.00	0.00
5995.67	5	57.17	0.00	0.15	0.00	0.00	0.00	0.28	0.31	0.00	0.00	0.00	0.00
5995.83	4	48.88	0.00	3.68	1.56	0.47	0.42	2.34	0.00	5.98	20.18	0.00	16.36
5996.00	5	54.76	0.00	0.77	0.00	0.03	0.00	4.44	0.26	0.00	0.00	0.00	0.00
5996.17	5	56.62	0.00	0.52	0.00	0.00	0.00	1.52	0.00	0.00	0.00	0.00	0.00
5996.33	5	57.03	0.00	0.15	0.00	0.00	0.00	0.64	0.25	0.00	0.00	0.00	0.00
5996.50	5	57.09	0.00	0.12	0.00	0.00	0.00	0.47	0.29	0.00	0.00	0.00	0.00
5996.67	5	56.48	0.00	0.11	0.00	0.00	0.00	1.75	0.27	0.00	0.00	0.00	0.00
5996.83	5	52.46	0.00	2.34	1.05	0.03	0.00	1.53	0.00	0.00	0.00	0.00	40.81
5997.00	4	45.26	0.00	4.87	1.81	0.22	0.35	1.86	0.00	4.20	0.00	0.00	90.97

Appendix 55: Core 4045 geochemistry data with major (%) and minor (ppm) elements from 5995-5997 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
5690.00	2	6.04	0.00	40.15	2.26	0.87	1.22	10.62	0.00	27.10	0.00	0.00	206.85
5690.17	2	7.98	0.00	43.03	2.88	1.45	1.34	3.77	0.00	35.02	27.24	114.59	105.49
5690.33	2	3.93	0.00	43.14	4.49	2.10	2.64	4.89	0.00	51.81	16.77	198.73	130.58
5690.50	2	3.14	0.58	34.02	4.16	2.27	2.74	8.84	0.00	10.67	24.42	127.74	169.02
5690.67	2	11.40	0.00	42.49	2.42	0.97	1.64	3.29	0.00	4.29	16.34	0.00	169.23
5690.83	2	0.57	0.65	39.44	6.45	2.78	3.75	5.26	0.00	7.50	0.00	138.21	1319.26
5691.00	2	4.83	0.00	38.60	3.06	1.69	3.25	8.28	0.00	18.66	14.29	117.04	254.50
5691.17	5	49.66	0.00	3.45	0.52	0.14	0.21	0.85	0.00	0.00	0.00	0.00	32.03
5691.33	4	46.99	0.00	5.53	0.61	0.21	0.40	1.17	0.00	3.62	0.00	0.00	0.00
5691.50	4	39.36	0.00	14.07	0.83	0.30	1.20	2.22	0.00	4.55	0.00	0.00	19.84
5691.67	2	15.20	0.00	36.00	3.43	1.53	1.50	2.79	0.00	17.41	13.92	121.79	98.77
5691.83	2	15.94	0.00	33.83	3.81	1.54	1.62	4.46	0.00	17.34	18.18	86.56	97.22
5692.00	1	11.95	0.37	40.17	5.69	2.41	2.75	6.09	0.00	86.50	31.28	244.26	4279.56
5692.17	1	5.12	0.65	37.01	6.23	2.71	3.23	6.28	0.00	135.20	36.97	344.16	7449.18
5692.33	2	4.57	1.48	37.95	5.44	2.38	3.29	5.55	0.00	39.57	31.66	224.83	241.60
5692.50	1	6.63	0.00	46.47	2.43	1.04	1.67	4.19	0.00	5.35	10.23	0.00	8858.48
5692.67	2	0.60	0.59	43.07	4.13	2.05	2.15	4.17	0.00	4.76	0.00	76.63	96.03
5692.83	2	3.62	0.00	45.33	3.34	1.76	2.40	4.43	0.00	17.27	34.90	0.00	42.50
5693.00	2	1.90	0.00	32.38	4.48	2.51	3.95	11.15	0.00	48.45	62.64	124.55	140.52
5693.17	1	1.03	0.86	33.22	7.12	3.17	4.24	7.46	0.00	138.30	44.73	269.63	4243.93
5693.33	4	41.26	0.00	12.20	1.94	0.55	0.49	1.38	0.00	4.84	0.00	0.00	5286.81
5693.50	4	6.87	0.00	53.11	1.83	0.87	0.85	1.64	0.00	5.48	0.00	0.00	29.94
5693.67	2	20.38	0.00	34.19	2.93	1.07	1.09	2.36	0.00	7.08	13.07	0.00	58.42
5693.83	4	29.61	0.00	26.86	2.70	0.90	0.94	2.00	0.00	8.59	0.00	0.00	37.14
5694.00	2	28.33	1.00	26.38	3.03	0.99	1.08	2.17	0.00	7.18	0.00	0.00	75.81
5694.17	4	37.17	1.78	19.76	2.20	0.59	0.72	1.48	0.00	4.87	0.00	0.00	29.24
5694.33	4	45.67	0.00	8.33	0.96	0.26	0.44	1.16	0.00	4.26	0.00	0.00	19.61
5694.50	4	44.14	0.00	11.78	0.84	0.20	0.39	0.87	0.00	0.00	0.00	0.00	0.00
5694.67	4	40.54	0.00	16.10	0.77	0.22	0.35	0.86	0.00	0.00	0.00	0.00	52.21
5694.83	4	16.91	0.00	44.79	0.50	0.19	0.50	1.52	0.00	0.00	0.00	0.00	486.40
5695.00	4	43.18	0.00	12.76	0.40	0.07	0.00	0.46	0.00	0.00	0.00	0.00	0.00
5695.17	5	48.98	0.00	5.83	0.00	0.03	0.00	0.48	0.32	0.00	0.00	0.00	0.00
5695.33	4	46.40	0.00	9.57	0.31	0.02	0.35	0.76	0.00	4.57	0.00	0.00	0.00
5695.50	5	46.14	0.00	9.48	0.38	0.06	0.00	0.53	0.00	0.00	0.00	0.00	0.00
5695.67	1	21.86	0.00	34.53	0.00	0.03	0.44	0.97	0.00	0.00	0.00	0.00	12559.80
5695.83	4	25.78	0.73	35.19	0.17	0.02	0.16	0.54	0.00	0.00	0.00	0.00	70.02
5696.00	4	0.51	0.00	58.85	0.00	0.02	0.00	0.34	0.00	0.00	0.00	0.00	61.64
5696.17	4	30.54	0.00	28.11	0.20	0.02	0.37	0.90	0.00	0.00	0.00	0.00	16.68
5696.33	4	26.68	0.00	24.43	2.68	0.93	1.49	2.77	0.00	11.45	12.94	88.37	0.00
5696.50	2	11.80	0.00	37.54	3.49	1.38	1.74	3.35	0.00	6.87	12.23	0.00	66.47
5696.67	2	15.88	1.63	36.98	2.41	0.88	1.05	2.19	0.00	7.13	0.00	0.00	401.57
5696.83	2	3.70	0.00	44.25	4.29	1.85	1.98	2.83	0.00	6.46	0.00	0.00	18.15
5697.00	2	21.37	0.86	32.23	2.31	0.83	0.81	1.78	0.00	5.16	11.48	78.70	248.56

Appendix 56: Core 5027 geochemistry data with major (%) and minor (ppm) elements from 5690-5697 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
5697.00	2	21.37	0.86	32.23	2.31	0.83	0.81	1.78	0.00	5.16	11.48	78.70	248.56
5697.17	4	33.19	0.00	22.04	1.28	0.37	0.63	0.87	0.00	0.00	9.58	0.00	19.31
5697.33	4	26.32	0.00	21.52	2.01	0.71	1.53	2.56	0.00	11.20	8.76	103.63	63.23
5697.50	5	48.88	0.00	6.29	0.24	0.03	0.27	0.69	0.32	0.00	0.00	0.00	77.47
5697.67	4	45.78	0.00	9.39	0.47	0.10	0.35	0.62	0.00	0.00	0.00	0.00	53.97
5697.83	5	48.73	0.00	6.14	0.27	0.01	0.00	0.36	0.31	0.00	0.00	0.00	0.00
5698.00	2	2.76	0.00	48.25	3.68	1.60	1.68	3.79	0.00	10.82	11.53	0.00	218.21
5698.17	2	3.15	0.00	48.56	3.87	1.91	1.44	3.20	0.00	7.40	17.80	0.00	40.46
5698.33	2	3.33	0.51	41.69	4.91	2.33	1.94	3.70	0.33	8.63	11.78	0.00	18.47
5698.50	2	31.72	0.00	8.42	6.10	0.82	5.79	8.53	0.00	11.89	20.29	0.00	0.00
5698.67	2	6.74	0.00	46.15	2.79	1.25	1.17	2.41	0.00	4.39	0.00	0.00	18.83
5698.83	4	39.70	1.56	16.67	0.96	0.25	0.31	0.91	0.00	0.00	0.00	0.00	23.35
5699.00	4	41.23	0.00	15.58	0.38	0.06	0.16	0.90	0.00	0.00	0.00	0.00	0.00
5699.17	4	37.86	0.00	21.23	0.95	0.19	0.37	1.82	0.00	0.00	0.00	0.00	17.53
5699.33	2	2.15	0.00	53.19	2.17	1.12	1.21	3.02	0.00	8.65	9.84	0.00	75.26
5699.50	2	0.52	0.00	46.79	5.20	2.39	2.13	3.41	0.00	9.82	0.00	135.84	49.15
5699.67	2	0.89	0.66	44.94	4.86	2.31	2.45	4.98	0.34	7.62	12.82	111.77	108.53
5699.83	2	1.40	0.50	47.04	3.60	1.80	1.64	4.15	0.00	7.66	0.00	0.00	70.44
5700.00	2	2.58	0.00	56.15	2.09	1.08	1.23	3.43	0.00	4.56	17.24	0.00	30.15
5700.17	2	0.95	0.00	48.88	2.91	1.52	1.71	4.36	0.00	11.25	9.15	0.00	89.83
5700.33	2	4.11	0.68	50.19	2.36	1.27	1.51	4.19	0.00	12.72	12.59	113.55	98.57
5700.50	2	1.51	0.60	45.45	3.53	1.95	1.76	5.23	0.00	12.49	15.68	80.54	139.68
5700.67	2	22.42	0.00	36.40	2.11	0.71	0.90	2.69	0.00	3.83	9.27	0.00	272.24
5700.83	2	5.27	0.00	38.37	3.49	1.76	2.06	6.84	0.00	12.92	24.36	151.30	613.13
5701.00	1	21.63	0.00	39.49	0.00	0.05	1.53	3.20	0.00	0.00	0.00	0.00	9680.22
5701.17	4	41.74	0.00	16.52	1.06	0.24	0.66	1.34	0.00	0.00	0.00	0.00	17.44
5701.33	4	10.68	0.00	44.67	1.55	0.62	0.95	3.53	0.00	0.00	0.00	0.00	26.44
5701.50	4	2.44	0.00	54.84	1.33	0.60	0.79	1.37	0.00	0.00	0.00	0.00	52.43
5701.67	4	41.82	0.00	16.22	0.51	0.09	0.23	0.79	0.00	0.00	0.00	0.00	16.80
5701.83	2	8.63	0.00	26.98	6.58	2.64	4.48	7.05	0.00	25.07	38.74	264.43	153.34
5702.00	4	48.81	0.00	8.75	0.50	0.07	0.19	0.71	0.00	0.00	0.00	0.00	0.00
5702.17	5	52.23	0.00	4.56	0.24	0.04	0.00	0.50	0.00	4.00	0.00	0.00	0.00
5702.33	5	53.29	0.00	2.62	0.25	0.02	0.00	0.34	0.37	0.00	0.00	0.00	0.00
5702.50	5	54.52	0.00	1.43	0.36	0.00	0.00	0.90	0.37	0.00	0.00	0.00	0.00
5702.67	5	48.17	0.00	7.00	0.45	0.08	0.00	2.15	0.00	0.00	0.00	81.31	0.00
5702.83	5	52.78	0.00	2.85	0.26	0.05	0.00	0.47	0.00	0.00	0.00	0.00	0.00
5703.00	4	52.64	1.26	2.30	0.43	0.04	0.00	0.41	0.27	5.62	0.00	0.00	0.00
5703.17	2	1.76	0.55	29.37	9.61	3.65	4.32	7.33	0.57	13.03	18.17	250.48	58.78
5703.33	5	52.37	0.00	3.48	0.45	0.08	0.19	0.52	0.28	0.00	0.00	0.00	0.00
5703.50	5	52.48	0.00	4.02	0.31	0.04	0.00	0.45	0.29	0.00	0.00	0.00	15.16
5703.67	5	49.81	0.00	6.14	0.65	0.09	0.20	0.86	0.00	0.00	0.00	0.00	0.00
5703.83	5	52.14	0.00	3.29	0.54	0.06	0.00	1.10	0.37	0.00	0.00	0.00	0.00
5704.00	5	54.12	0.00	1.37	0.33	0.00	0.00	0.45	0.25	0.00	0.00	0.00	0.00

Appendix 57: Core 5027 geochemistry data with major (%) and minor (ppm) elements from 5697-5704 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
5711.00	5	54.38	0.00	0.13	0.00	0.00	0.00	1.45	0.27	0.00	0.00	0.00	0.00
5711.17	5	53.92	0.00	0.13	0.00	0.00	0.00	0.89	0.35	0.00	0.00	0.00	0.00
5711.33	5	55.11	0.00	0.08	0.00	0.00	0.00	0.35	0.31	0.00	0.00	0.00	0.00
5711.50	5	54.22	0.00	0.45	0.00	0.00	0.00	1.21	0.30	0.00	0.00	0.00	0.00
5711.67	5	55.31	0.00	0.21	0.00	0.00	0.00	0.91	0.29	0.00	0.00	0.00	0.00
5711.83	5	55.03	0.00	0.09	0.00	0.00	0.00	0.26	0.32	0.00	0.00	77.80	0.00
5712.00	5	55.23	0.00	0.09	0.00	0.00	0.00	0.15	0.23	0.00	0.00	0.00	0.00
5712.17	5	55.37	0.00	0.11	0.00	0.00	0.00	0.27	0.32	0.00	0.00	77.96	0.00
5712.33	5	55.65	0.00	0.06	0.00	0.00	0.00	0.39	0.28	0.00	0.00	0.00	0.00
5712.50	5	54.15	0.00	0.14	0.00	0.00	0.00	0.52	0.27	0.00	0.00	0.00	0.00
5712.67	5	54.05	0.00	0.24	0.00	0.00	0.00	0.87	0.26	0.00	0.00	0.00	0.00
5712.83	5	54.21	0.00	0.15	0.00	0.00	0.00	0.48	0.30	0.00	0.00	0.00	0.00
5713.00	5	54.48	0.00	0.14	0.00	0.00	0.00	0.33	0.29	0.00	0.00	0.00	0.00
5713.17	5	55.03	0.00	0.17	0.00	0.00	0.00	0.72	0.34	0.00	0.00	79.73	0.00
5713.33	5	55.07	0.00	0.20	0.00	0.00	0.00	1.28	0.30	0.00	0.00	0.00	0.00
5713.50	5	55.14	0.00	0.24	0.00	0.00	0.00	0.37	0.27	0.00	0.00	0.00	0.00
5713.67	5	55.03	0.00	0.15	0.00	0.00	0.00	0.54	0.31	0.00	0.00	0.00	0.00
5713.83	5	54.97	0.00	0.12	0.00	0.00	0.00	0.52	0.28	0.00	0.00	91.42	0.00
5714.00	5	57.32	0.00	0.20	0.00	0.00	0.00	0.25	0.32	0.00	0.00	0.00	0.00
5714.17	5	56.61	0.00	0.21	0.00	0.00	0.00	0.28	0.27	0.00	0.00	0.00	0.00
5714.33	5	57.11	0.00	0.41	0.00	0.00	0.00	0.68	0.00	0.00	0.00	0.00	0.00
5714.50	5	56.00	0.00	0.31	0.00	0.00	0.00	0.59	0.30	0.00	0.00	0.00	0.00
5714.67	5	57.10	0.00	0.62	0.00	0.00	0.00	0.34	0.00	0.00	0.00	0.00	0.00
5714.83	5	56.88	0.00	0.25	0.00	0.00	0.00	0.29	0.25	0.00	0.00	0.00	0.00
5715.00	5	57.32	0.00	0.25	0.00	0.00	0.00	0.25	0.27	0.00	0.00	0.00	0.00
5715.17	5	56.99	0.00	0.39	0.00	0.00	0.00	0.26	0.24	0.00	0.00	92.43	0.00
5715.33	4	48.38	0.00	12.35	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00
5715.50	4	56.88	2.42	0.50	0.00	0.00	0.00	0.18	0.25	0.00	0.00	0.00	58.91
5715.67	5	57.30	0.00	0.42	0.00	0.00	0.00	0.49	0.30	0.00	0.00	0.00	25.55
5715.83	5	56.94	0.00	0.26	0.00	0.00	0.00	0.24	0.27	0.00	0.00	0.00	30.82
5716.00	5	57.45	0.00	0.17	0.00	0.00	0.00	0.61	0.25	0.00	0.00	0.00	0.00
5716.17	5	56.90	0.00	0.35	0.00	0.00	0.00	0.48	0.30	0.00	12.11	0.00	0.00
5716.33	5	57.47	0.00	0.21	0.00	0.00	0.00	0.48	0.00	0.00	0.00	0.00	0.00
5716.50	5	57.43	0.00	0.15	0.00	0.00	0.00	0.37	0.25	0.00	0.00	0.00	0.00
5716.67	5	57.43	0.00	0.13	0.00	0.00	0.00	0.32	0.28	0.00	0.00	0.00	0.00
5716.83	5	57.73	0.00	0.11	0.00	0.00	0.00	0.34	0.29	0.00	0.00	0.00	0.00
5717.00	5	54.91	0.00	0.22	0.00	0.00	0.00	0.57	0.00	0.00	0.00	0.00	0.00
5717.17	5	53.97	0.00	0.15	0.00	0.00	0.00	0.78	0.27	0.00	0.00	0.00	0.00
5717.33	5	54.94	0.00	0.29	0.00	0.00	0.00	0.52	0.26	0.00	0.00	0.00	0.00
5717.50	5	55.20	0.00	0.19	0.00	0.00	0.00	0.43	0.30	0.00	0.00	0.00	0.00
5717.67	4	54.55	2.03	0.21	0.00	0.00	0.00	0.26	0.29	0.00	0.00	0.00	0.00
5717.83	5	55.29	0.00	0.13	0.00	0.00	0.00	0.37	0.35	0.00	0.00	0.00	0.00
5718.00	5	55.19	0.00	0.23	0.00	0.00	0.00	0.71	0.00	0.00	0.00	0.00	0.00

Appendix 58: Core 5027 geochemistry data with major (%) and minor (ppm) elements from 5711-5718 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
5718.00	5	55.19	0.00	0.23	0.00	0.00	0.00	0.71	0.00	0.00	0.00	0.00	0.00
5718.17	5	55.19	0.00	0.13	0.00	0.00	0.00	0.27	0.00	0.00	0.00	0.00	0.00
5718.33	5	55.43	0.00	0.11	0.00	0.00	0.00	0.38	0.26	0.00	0.00	0.00	0.00
5718.50	5	55.19	0.00	0.21	0.00	0.00	0.00	0.50	0.31	0.00	0.00	96.18	0.00
5718.67	5	55.14	0.00	0.17	0.00	0.00	0.00	0.30	0.28	0.00	0.00	0.00	0.00
5718.83	5	55.66	0.00	0.21	0.30	0.00	0.00	0.23	0.25	0.00	0.00	0.00	0.00
5719.00	5	54.95	0.00	0.19	0.00	0.00	0.00	0.41	0.26	0.00	0.00	0.00	0.00
5719.17	5	55.48	0.00	0.18	0.00	0.00	0.00	0.33	0.29	0.00	0.00	0.00	0.00
5719.33	5	55.14	0.00	0.15	0.00	0.00	0.00	0.36	0.00	0.00	0.00	0.00	0.00
5719.50	5	55.62	0.00	0.15	0.00	0.00	0.00	0.32	0.28	0.00	0.00	0.00	0.00
5719.67	5	55.54	0.00	0.12	0.00	0.00	0.00	0.26	0.26	0.00	0.00	0.00	0.00
5719.83	5	54.19	0.00	0.20	0.00	0.00	0.00	0.29	0.00	0.00	0.00	0.00	0.00
5720.00	5	54.29	0.00	0.20	0.00	0.00	0.00	0.28	0.00	0.00	0.00	0.00	0.00
5720.17	5	53.31	0.00	0.27	0.00	0.00	0.00	0.44	0.00	0.00	0.00	0.00	0.00
5720.33	5	53.92	0.00	0.20	0.25	0.00	0.00	0.41	0.00	0.00	0.00	0.00	0.00
5720.50	5	55.08	0.00	0.16	0.00	0.00	0.00	0.37	0.00	0.00	0.00	0.00	0.00
5720.67	5	54.25	0.00	0.12	0.00	0.00	0.00	0.38	0.00	0.00	0.00	0.00	0.00
5720.83	5	54.22	0.00	0.17	0.00	0.00	0.00	0.34	0.00	0.00	0.00	0.00	0.00
5721.00	5	53.46	0.00	0.23	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.00	0.00
5721.17	5	54.38	0.00	0.23	0.00	0.00	0.00	1.14	0.00	0.00	0.00	0.00	0.00
5721.33	5	53.96	0.00	0.23	0.00	0.00	0.00	0.61	0.00	0.00	0.00	0.00	0.00
5721.50	5	53.81	0.00	0.32	0.00	0.00	0.00	0.48	0.00	0.00	0.00	0.00	0.00
5721.67	5	54.03	0.00	0.29	0.00	0.00	0.00	0.44	0.00	0.00	0.00	0.00	0.00
5721.83	5	60.97	0.00	0.30	0.00	0.00	0.00	0.69	0.00	0.00	0.00	0.00	0.00
5722.00	5	53.04	0.00	0.24	0.00	0.00	0.00	0.76	0.00	0.00	0.00	0.00	0.00
5722.17	5	54.77	0.00	0.12	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.00
5722.33	5	54.28	0.00	0.28	0.00	0.00	0.00	0.65	0.00	0.00	0.00	0.00	0.00
5722.50	4	54.75	1.57	0.19	0.00	0.00	0.00	1.04	0.00	0.00	0.00	0.00	0.00
5722.67	5	54.58	0.00	0.22	0.00	0.00	0.00	0.70	0.24	0.00	0.00	0.00	0.00
5722.83	5	55.18	0.00	0.13	0.00	0.00	0.00	0.34	0.27	0.00	0.00	0.00	0.00
5723.00	5	53.74	0.00	0.20	0.17	0.00	0.00	0.67	0.22	0.00	0.00	0.00	0.00
5723.17	5	54.70	0.00	0.18	0.00	0.00	0.00	0.78	0.00	0.00	0.00	0.00	0.00
5723.33	5	54.37	0.00	0.26	0.00	0.00	0.00	1.25	0.29	0.00	0.00	0.00	0.00
5723.50	5	54.82	0.00	0.14	0.00	0.00	0.00	0.47	0.29	0.00	0.00	0.00	0.00
5723.67	4	53.62	1.43	0.27	0.00	0.00	0.00	0.88	0.00	0.00	0.00	0.00	0.00
5723.83	5	53.99	0.00	0.14	0.00	0.00	0.00	0.38	0.26	0.00	0.00	0.00	0.00
5724.00	5	53.86	0.00	0.17	0.00	0.00	0.00	1.05	0.28	0.00	0.00	0.00	0.00
5724.17	5	53.54	0.00	0.20	0.00	0.00	0.00	0.43	0.30	0.00	0.00	0.00	0.00
5724.33	5	54.63	0.00	0.15	0.00	0.00	0.00	1.08	0.36	0.00	0.00	0.00	0.00
5724.50	5	52.04	0.00	0.21	0.00	0.00	0.00	1.37	0.30	0.00	0.00	0.00	0.00
5724.67	5	54.56	0.00	0.08	0.00	0.00	0.00	0.40	0.28	0.00	0.00	0.00	0.00
5724.83	5	52.12	0.00	0.13	0.00	0.00	0.00	1.03	0.00	0.00	0.00	0.00	0.00
5725.00	5	53.90	0.00	0.20	0.00	0.00	0.00	0.53	0.33	0.00	0.00	0.00	0.00

Appendix 59: Core 5027 geochemistry data with major (%) and minor (ppm) elements from 5718-5725 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
5725.00	5	53.90	0.00	0.20	0.00	0.00	0.00	0.53	0.33	0.00	0.00	0.00	0.00
5725.17	5	53.47	0.00	0.29	0.26	0.00	0.00	0.63	0.30	0.00	0.00	0.00	0.00
5725.33	5	53.99	0.00	0.20	0.00	0.00	0.00	0.83	0.26	0.00	0.00	0.00	0.00
5725.50	5	54.79	0.00	0.13	0.00	0.00	0.00	0.26	0.32	0.00	0.00	0.00	0.00
5725.67	5	53.58	0.00	0.18	0.00	0.00	0.00	0.69	0.32	0.00	0.00	0.00	0.00
5725.83	5	54.64	0.00	0.10	0.00	0.00	0.00	0.12	0.32	0.00	0.00	0.00	0.00
5726.00	5	54.81	0.00	0.15	0.29	0.00	0.00	0.35	0.34	0.00	0.00	0.00	0.00
5726.17	5	54.76	0.00	0.20	0.00	0.00	0.00	0.94	0.34	0.00	0.00	0.00	0.00
5726.33	5	54.93	0.00	0.06	0.00	0.00	0.00	0.52	0.35	0.00	0.00	0.00	0.00
5726.50	5	54.52	0.00	0.20	0.00	0.00	0.00	1.15	0.26	0.00	0.00	0.00	0.00
5726.67	5	54.50	0.00	0.10	0.00	0.00	0.00	0.29	0.29	0.00	0.00	0.00	0.00
5726.83	5	54.46	0.00	0.19	0.00	0.00	0.00	0.31	0.35	0.00	0.00	0.00	0.00
5727.00	4	54.71	2.44	0.24	0.00	0.00	0.00	0.41	0.30	0.00	0.00	0.00	0.00
5727.17	5	54.39	0.00	0.13	0.00	0.00	0.00	0.22	0.35	0.00	0.00	0.00	0.00
5727.33	5	54.39	0.00	0.23	0.00	0.00	0.00	0.51	0.31	0.00	0.00	0.00	0.00
5727.50	5	61.12	0.00	0.26	0.00	0.00	0.00	0.55	0.38	0.00	0.00	0.00	0.00
5727.67	5	54.14	0.00	0.23	0.00	0.00	0.00	0.47	0.36	0.00	0.00	0.00	0.00
5727.83	5	53.81	0.00	0.15	0.00	0.00	0.00	0.26	0.23	0.00	0.00	0.00	0.00
5728.00	5	52.26	0.00	0.30	0.00	0.00	0.00	0.72	0.31	0.00	0.00	0.00	0.00
5728.17	5	50.97	0.00	0.28	0.00	0.00	0.00	0.43	0.26	0.00	0.00	0.00	0.00
5728.33	5	54.06	0.00	0.22	0.00	0.00	0.00	0.80	0.30	0.00	0.00	0.00	0.00
5728.50	5	54.24	0.00	0.20	0.00	0.00	0.00	0.36	0.33	0.00	0.00	0.00	0.00
5728.67	5	52.52	0.00	0.33	0.24	0.00	0.00	0.42	0.33	0.00	0.00	0.00	0.00
5728.83	5	53.26	0.00	0.33	0.00	0.00	0.00	0.40	0.27	0.00	0.00	0.00	0.00
5729.00	5	54.76	0.00	0.33	0.00	0.00	0.00	0.84	0.31	0.00	0.00	0.00	0.00
5729.17	5	54.88	0.00	0.26	0.00	0.00	0.00	0.46	0.23	0.00	0.00	0.00	0.00
5729.33	5	54.01	0.00	0.20	0.00	0.00	0.00	0.57	0.30	0.00	0.00	0.00	0.00
5729.50	5	55.54	0.00	0.24	0.00	0.00	0.00	0.72	0.28	0.00	0.00	0.00	0.00
5729.67	5	56.28	0.00	0.18	0.00	0.00	0.00	0.39	0.30	0.00	0.00	0.00	0.00
5729.83	5	56.15	0.00	0.21	0.00	0.00	0.00	0.22	0.37	0.00	0.00	0.00	0.00
5730.00	5	55.64	0.00	0.18	0.00	0.00	0.00	0.48	0.32	0.00	0.00	0.00	0.00
5730.17	5	55.69	0.00	0.28	0.00	0.00	0.00	0.30	0.32	0.00	0.00	0.00	0.00
5730.33	5	56.12	0.00	0.27	0.00	0.00	0.00	0.44	0.30	0.00	0.00	0.00	0.00
5730.50	5	56.04	0.00	0.22	0.00	0.00	0.00	0.27	0.28	0.00	0.00	0.00	0.00
5730.67	5	55.72	0.00	0.30	0.00	0.00	0.00	0.19	0.34	0.00	0.00	0.00	0.00
5730.83	5	54.77	0.00	0.32	0.00	0.00	0.00	0.47	0.36	0.00	0.00	0.00	0.00
5731.00	5	56.04	0.00	0.21	0.00	0.00	0.00	0.33	0.31	0.00	0.00	0.00	0.00
5731.17	5	55.62	0.00	0.37	0.28	0.00	0.00	0.48	0.25	0.00	0.00	94.09	0.00
5731.33	5	55.97	0.00	0.26	0.00	0.00	0.00	0.55	0.34	0.00	0.00	0.00	0.00
5731.50	5	55.50	0.00	0.40	0.00	0.00	0.00	0.42	0.32	0.00	0.00	0.00	0.00
5731.67	5	54.47	0.00	0.33	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00
5731.83	5	54.55	0.00	0.82	0.49	0.00	0.00	0.17	0.36	0.00	0.00	0.00	0.00
5732.00	5	53.24	0.00	0.22	0.00	0.00	0.00	0.53	0.27	0.00	0.00	0.00	0.00

Appendix 60: Core 5027 geochemistry data with major (%) and minor (ppm) elements from 5725-5732 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
5732.00	5	53.24	0.00	0.22	0.00	0.00	0.00	0.53	0.27	0.00	0.00	0.00	0.00
5732.17	5	54.06	0.00	0.15	0.26	0.00	0.00	1.08	0.25	0.00	0.00	0.00	0.00
5732.33	5	55.38	0.00	0.16	0.00	0.00	0.00	0.50	0.25	0.00	0.00	0.00	0.00
5732.50	5	54.92	0.00	0.35	0.00	0.00	0.00	0.61	0.31	0.00	0.00	0.00	0.00
5732.67	5	54.74	0.00	0.25	0.00	0.00	0.00	0.33	0.25	0.00	0.00	0.00	0.00
5732.83	5	54.75	0.00	0.27	0.00	0.00	0.00	0.59	0.35	0.00	0.00	0.00	0.00
5733.00	5	54.23	0.00	0.25	0.00	0.00	0.00	0.65	0.23	0.00	0.00	0.00	0.00
5733.17	5	52.77	0.00	0.33	0.00	0.00	0.00	0.54	0.25	0.00	0.00	0.00	0.00
5733.33	5	62.53	0.00	0.25	0.00	0.00	0.00	0.41	0.32	0.00	0.00	0.00	0.00
5733.50	5	56.20	0.00	0.11	0.00	0.00	0.00	0.17	0.31	0.00	0.00	0.00	0.00
5733.67	5	55.96	0.00	0.09	0.00	0.00	0.00	0.18	0.27	0.00	0.00	87.01	0.00
5733.83	5	55.63	0.00	0.27	0.00	0.00	0.00	0.13	0.29	0.00	0.00	0.00	0.00
5734.00	5	55.18	0.00	0.22	0.00	0.00	0.00	0.34	0.30	0.00	0.00	0.00	0.00
5734.17	5	55.88	0.00	0.16	0.00	0.00	0.00	0.37	0.36	0.00	0.00	0.00	0.00
5734.33	5	55.41	0.00	0.19	0.00	0.00	0.00	0.30	0.32	0.00	0.00	0.00	0.00
5734.50	5	54.28	0.00	0.34	0.00	0.00	0.00	0.59	0.28	0.00	0.00	0.00	0.00
5734.67	5	54.46	0.00	0.22	0.00	0.00	0.00	0.23	0.31	0.00	0.00	0.00	0.00
5734.83	5	54.38	0.00	0.43	0.00	0.00	0.00	0.32	0.33	0.00	0.00	0.00	0.00
5735.00	5	54.21	0.00	0.24	0.00	0.00	0.00	1.10	0.29	0.00	0.00	0.00	0.00
5735.17	5	54.11	0.00	0.24	0.00	0.00	0.00	0.68	0.31	0.00	0.00	0.00	0.00
5735.33	5	54.44	0.00	0.27	0.00	0.00	0.00	0.95	0.30	0.00	0.00	0.00	0.00
5735.50	5	53.61	0.00	0.45	0.00	0.00	0.00	0.41	0.29	0.00	0.00	0.00	0.00
5735.67	5	53.58	0.00	0.51	0.35	0.00	0.00	0.56	0.36	0.00	0.00	0.00	0.00
5735.83	5	53.24	0.00	0.38	0.00	0.00	0.00	0.51	0.30	0.00	0.00	0.00	0.00
5736.00	5	53.55	0.00	0.36	0.23	0.00	0.00	0.34	0.00	0.00	0.00	0.00	0.00
5736.17	5	53.22	0.00	0.37	0.00	0.00	0.00	0.35	0.25	0.00	0.00	0.00	0.00
5736.33	5	53.26	0.00	0.33	0.26	0.00	0.00	0.27	0.24	0.00	0.00	86.17	0.00
5736.50	5	53.82	0.00	0.27	0.00	0.00	0.00	0.36	0.36	0.00	0.00	0.00	0.00
5736.67	5	53.72	0.00	0.28	0.00	0.00	0.00	0.32	0.29	0.00	0.00	0.00	0.00
5736.83	5	53.88	0.00	0.33	0.00	0.00	0.00	0.49	0.28	0.00	0.00	0.00	0.00
5737.00	5	53.21	0.00	0.27	0.00	0.00	0.00	0.82	0.26	0.00	0.00	0.00	0.00
5737.17	5	53.82	0.00	0.32	0.00	0.00	0.00	0.32	0.33	0.00	0.00	0.00	0.00
5737.33	5	53.46	0.00	0.27	0.00	0.00	0.00	0.31	0.30	0.00	0.00	0.00	0.00
5737.50	5	53.20	0.00	0.36	0.29	0.00	0.00	0.44	0.26	0.00	0.00	0.00	0.00
5737.67	5	53.17	0.00	0.28	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.00	0.00
5737.83	5	53.65	0.00	0.30	0.00	0.00	0.00	0.27	0.31	0.00	0.00	0.00	0.00
5738.00	5	54.07	0.00	0.61	0.25	0.00	0.00	0.29	0.29	0.00	0.00	0.00	0.00
5738.17	5	54.08	0.00	0.41	0.35	0.00	0.00	0.36	0.34	0.00	0.00	0.00	0.00
5738.33	5	54.80	0.00	0.34	0.26	0.00	0.00	0.35	0.34	0.00	0.00	0.00	0.00
5738.50	5	54.70	0.00	0.25	0.00	0.00	0.00	0.53	0.31	0.00	0.00	0.00	0.00
5738.67	5	53.55	0.00	0.38	0.00	0.00	0.00	0.41	0.25	0.00	0.00	0.00	0.00
5738.83	5	51.96	0.00	0.37	0.00	0.00	0.00	0.45	0.28	0.00	0.00	0.00	0.00
5739.00	5	53.94	0.00	0.44	0.00	0.00	0.00	0.49	0.27	0.00	0.00	0.00	0.00

Appendix 61: Core 5027 geochemistry data with major (%) and minor (ppm) elements from 5732-5739 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
5739.00	5	53.94	0.00	0.44	0.00	0.00	0.00	0.49	0.27	0.00	0.00	0.00	0.00
5739.17	5	54.54	0.00	0.28	0.00	0.00	0.00	0.41	0.30	0.00	0.00	0.00	0.00
5739.33	5	54.83	0.00	0.23	0.00	0.00	0.00	0.34	0.33	0.00	0.00	0.00	0.00
5739.50	5	55.66	0.00	0.22	0.00	0.00	0.00	0.21	0.32	0.00	0.00	0.00	0.00
5739.67	5	53.93	0.00	0.18	0.00	0.00	0.00	0.40	0.00	0.00	0.00	0.00	0.00
5739.83	5	54.04	0.00	0.23	0.00	0.00	0.00	0.27	0.28	0.00	0.00	0.00	0.00
5740.00	5	53.01	0.00	0.16	0.00	0.00	0.00	0.15	0.31	0.00	0.00	0.00	0.00
5740.17	5	56.52	0.00	0.22	0.00	0.00	0.00	0.20	0.29	0.00	0.00	0.00	0.00
5740.33	5	55.38	0.00	0.14	0.29	0.00	0.00	0.13	0.27	0.00	0.00	0.00	0.00
5740.50	5	54.28	0.00	0.24	0.00	0.00	0.00	0.25	0.27	0.00	0.00	0.00	0.00
5740.67	5	50.84	0.00	0.29	0.00	0.00	0.00	0.42	0.28	0.00	0.00	0.00	0.00
5740.83	5	53.96	0.00	0.20	0.00	0.00	0.00	0.53	0.28	0.00	0.00	0.00	0.00
5741.00	5	55.84	0.00	0.13	0.00	0.00	0.00	0.44	0.30	0.00	0.00	0.00	0.00
5741.17	5	55.29	0.00	0.18	0.00	0.00	0.00	0.17	0.27	0.00	0.00	0.00	0.00
5741.33	5	56.30	0.00	0.07	0.00	0.00	0.00	0.13	0.35	0.00	0.00	0.00	0.00
5741.50	5	56.17	0.00	0.12	0.00	0.00	0.00	0.29	0.31	0.00	0.00	0.00	0.00
5741.67	5	55.85	0.00	0.22	0.00	0.00	0.00	0.23	0.32	0.00	0.00	0.00	0.00
5741.83	5	55.78	0.00	0.16	0.00	0.00	0.00	0.18	0.34	0.00	0.00	0.00	0.00
5742.00	5	56.53	0.00	0.10	0.00	0.00	0.00	0.11	0.27	0.00	0.00	0.00	0.00
5742.17	5	56.38	0.00	0.10	0.00	0.00	0.00	0.13	0.29	0.00	0.00	0.00	0.00
5742.33	4	56.28	2.30	0.12	0.00	0.00	0.00	0.14	0.37	0.00	0.00	0.00	0.00
5742.50	5	56.30	0.00	0.09	0.00	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.00
5742.67	5	55.90	0.00	0.11	0.00	0.00	0.00	0.17	0.31	0.00	0.00	0.00	0.00
5742.83	5	56.22	0.00	0.15	0.33	0.00	0.00	0.19	0.26	0.00	0.00	0.00	0.00
5743.00	5	56.27	0.00	0.15	0.00	0.00	0.00	0.21	0.34	0.00	0.00	0.00	0.00
5743.17	5	56.49	0.00	0.12	0.00	0.00	0.00	0.18	0.28	0.00	0.00	0.00	0.00
5743.33	5	56.28	0.00	0.08	0.00	0.00	0.00	0.08	0.32	0.00	0.00	0.00	0.00
5743.50	5	56.55	0.00	0.07	0.31	0.00	0.00	0.10	0.30	0.00	0.00	0.00	0.00
5743.67	5	56.53	0.00	0.11	0.00	0.00	0.00	0.13	0.29	0.00	0.00	0.00	0.00
5743.83	5	54.12	0.00	0.32	0.24	0.00	0.00	0.52	0.32	0.00	0.00	0.00	0.00
5744.00	5	56.90	0.00	0.18	0.00	0.00	0.00	0.22	0.31	4.01	0.00	0.00	0.00
5744.17	5	56.38	0.00	0.20	0.00	0.00	0.00	0.09	0.27	0.00	0.00	0.00	0.00
5744.33	5	56.71	0.00	0.21	0.00	0.00	0.00	0.30	0.30	0.00	0.00	0.00	0.00
5744.50	5	56.61	0.00	0.17	0.29	0.00	0.00	0.16	0.31	0.00	0.00	0.00	0.00
5744.67	5	56.49	0.00	0.16	0.00	0.00	0.00	0.24	0.29	0.00	0.00	0.00	0.00
5744.83	5	56.80	0.00	0.10	0.00	0.00	0.00	0.30	0.30	0.00	0.00	0.00	0.00
5745.00	5	54.01	0.00	0.42	0.00	0.00	0.00	1.08	0.24	0.00	0.00	81.30	0.00
5745.17	4	55.13	1.46	0.20	0.00	0.00	0.00	0.34	0.35	0.00	0.00	0.00	0.00
5745.33	5	56.32	0.00	0.23	0.00	0.00	0.00	0.22	0.29	0.00	0.00	0.00	0.00
5745.50	5	55.40	0.00	0.17	0.00	0.00	0.00	0.11	0.37	0.00	0.00	0.00	0.00
5745.67	5	52.40	0.00	0.43	0.00	0.00	0.00	0.45	0.31	0.00	0.00	0.00	0.00
5745.83	5	56.56	0.00	0.15	0.00	0.00	0.00	0.15	0.30	0.00	0.00	0.00	0.00
5746.00	5	56.52	0.00	0.16	0.26	0.00	0.00	0.17	0.00	0.00	0.00	0.00	0.00

Appendix 62: Core 5027 geochemistry data with major (%) and minor (ppm) elements from 5739-5746 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
5746.00	5	56.52	0.00	0.16	0.26	0.00	0.00	0.17	0.00	0.00	0.00	0.00	0.00
5746.17	5	56.64	0.00	0.17	0.00	0.00	0.00	0.15	0.32	0.00	0.00	0.00	0.00
5746.33	5	56.82	0.00	0.20	0.00	0.00	0.00	0.20	0.33	0.00	0.00	0.00	0.00
5746.50	4	56.62	1.53	0.12	0.00	0.00	0.00	0.08	0.34	0.00	0.00	0.00	0.00
5746.67	5	56.07	0.00	0.28	0.00	0.00	0.00	0.24	0.31	0.00	0.00	0.00	0.00
5746.83	5	56.35	0.00	0.09	0.00	0.00	0.00	0.15	0.29	0.00	0.00	0.00	0.00
5747.00	5	56.63	0.00	0.15	0.00	0.00	0.00	0.22	0.37	0.00	0.00	0.00	0.00
5747.17	5	56.58	0.00	0.19	0.00	0.00	0.00	0.21	0.29	0.00	0.00	0.00	0.00
5747.33	5	56.23	0.00	0.21	0.00	0.00	0.00	0.31	0.30	3.82	0.00	0.00	0.00
5747.50	5	56.33	0.00	0.15	0.00	0.00	0.00	0.20	0.31	0.00	0.00	0.00	0.00
5747.67	5	54.75	0.00	0.12	0.00	0.00	0.00	0.16	0.26	0.00	0.00	0.00	0.00
5747.83	5	56.38	0.00	0.12	0.00	0.00	0.00	0.08	0.35	0.00	0.00	0.00	0.00
5748.00	5	56.81	0.00	0.16	0.00	0.00	0.00	0.32	0.26	0.00	0.00	0.00	0.00
5748.17	5	56.25	0.00	0.19	0.00	0.00	0.00	0.36	0.26	0.00	0.00	0.00	0.00
5748.33	5	55.69	0.00	0.21	0.00	0.00	0.00	0.41	0.25	0.00	0.00	0.00	0.00
5748.50	5	56.54	0.00	0.17	0.00	0.00	0.00	0.44	0.30	0.00	0.00	0.00	0.00
5748.67	5	56.43	0.00	0.15	0.00	0.00	0.00	0.47	0.28	0.00	0.00	0.00	0.00
5748.83	5	56.42	0.00	0.20	0.00	0.00	0.00	0.34	0.26	0.00	0.00	0.00	0.00
5749.00	5	56.34	0.00	0.23	0.00	0.00	0.00	0.15	0.36	0.00	0.00	0.00	0.00
5749.17	5	54.76	0.00	0.31	0.00	0.00	0.00	0.23	0.27	0.00	0.00	0.00	0.00
5749.33	5	54.08	0.00	0.25	0.24	0.00	0.00	0.22	0.33	0.00	0.00	78.11	0.00
5749.50	5	54.89	0.00	0.81	0.00	0.00	0.00	0.08	0.25	0.00	0.00	0.00	0.00
5749.67	5	56.73	0.00	0.20	0.00	0.00	0.00	0.17	0.31	0.00	0.00	0.00	0.00
5749.83	5	56.46	0.00	0.16	0.00	0.00	0.00	0.15	0.31	0.00	0.00	0.00	0.00
5750.00	5	56.16	0.00	0.22	0.00	0.00	0.00	0.10	0.33	0.00	0.00	0.00	0.00

Appendix 63: Core 5027 geochemistry data with major (%) and minor (ppm) elements from 5746-5750 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
6237.00	1	4.23	0.51	41.15	3.77	2.03	2.39	5.50	0.00	118.30	33.66	194.80	3154.30
6237.17	2	34.46	0.00	19.72	2.47	0.77	0.71	2.73	0.00	21.69	18.49	88.43	1197.85
6237.33	2	8.00	0.00	44.12	2.22	1.29	0.90	3.46	0.00	25.77	25.59	101.24	315.00
6237.50	2	6.48	0.58	41.90	3.46	1.68	1.77	4.63	0.00	45.18	20.98	125.39	904.59
6237.67	2	5.53	0.00	40.94	3.93	1.91	2.02	4.09	0.00	11.30	22.34	134.18	87.32
6237.83	2	14.22	0.00	41.59	2.67	1.21	0.89	3.44	0.00	23.78	24.14	141.32	152.69
6238.00	2	29.07	0.00	23.47	2.25	0.83	0.91	2.62	0.00	21.37	23.36	137.47	188.88
6238.17	1	7.94	0.70	31.62	3.52	1.77	2.23	2.94	0.00	84.93	22.74	95.41	695.24
6238.33	2	17.24	0.00	36.66	3.07	1.26	1.05	3.06	0.00	15.05	22.05	118.34	132.86
6238.50	1	3.52	0.00	40.24	4.30	2.10	2.86	6.08	0.00	79.81	29.10	229.98	1306.41
6238.67	4	9.32	0.00	53.67	0.70	0.21	0.82	3.07	0.00	0.00	0.00	0.00	80.90
6238.83	2	2.74	0.00	41.24	4.68	2.44	2.95	5.16	0.00	33.89	22.64	199.53	812.27
6239.00	2	14.55	0.88	34.67	3.00	1.31	2.06	4.43	0.00	5.38	0.00	87.53	109.98
6239.17	2	1.31	0.51	45.78	3.93	2.01	1.78	3.37	0.00	4.07	0.00	0.00	119.24
6239.33	2	0.70	0.39	45.17	4.14	2.06	1.80	3.29	0.00	3.90	0.00	79.41	104.41
6239.50	2	3.94	0.00	46.91	2.71	1.30	1.81	5.30	0.00	5.22	16.10	0.00	68.69
6239.67	2	3.26	0.00	48.07	2.65	1.48	2.06	5.14	0.00	5.75	12.65	87.70	42.40
6239.83	4	46.57	0.00	8.76	0.50	0.09	0.52	1.67	0.00	0.00	0.00	0.00	0.00
6240.00	2	6.66	0.00	38.85	3.14	1.88	2.04	9.41	0.00	11.06	18.35	88.69	50.36
6240.17	1	2.22	0.54	36.94	5.63	2.70	3.68	7.93	0.00	117.18	23.54	221.49	642.61
6240.33	4	12.23	0.00	49.14	0.28	0.09	1.01	2.65	0.00	4.19	0.00	0.00	29.83
6240.50	2	10.46	0.66	43.67	2.66	1.08	1.17	3.95	0.00	11.82	0.00	0.00	135.27
6240.67	2	1.93	0.00	44.79	4.66	2.20	1.90	3.66	0.00	6.64	0.00	80.60	107.72
6240.83	4	32.70	0.00	21.09	1.49	0.43	2.60	4.23	0.00	15.51	0.00	96.53	102.64
6241.00	2	1.58	0.56	40.38	4.98	2.45	2.17	4.36	0.00	6.37	0.00	139.38	996.51
6241.17	2	1.28	0.00	41.07	5.02	2.48	2.41	4.56	0.00	4.86	0.00	0.00	194.03
6241.33	2	1.14	0.00	40.58	5.61	2.57	2.96	5.21	0.00	6.27	0.00	140.27	168.88
6241.50	4	40.84	0.00	15.07	0.46	0.03	1.38	2.92	0.00	0.00	0.00	0.00	87.64
6241.67	2	1.74	0.89	31.02	6.15	2.95	4.05	8.75	0.57	44.58	25.81	141.88	151.88
6241.83	4	44.75	0.00	9.96	0.62	0.13	0.50	1.31	0.00	0.00	0.00	0.00	25.80
6242.00	4	39.07	0.00	16.72	0.76	0.15	0.78	1.96	0.00	0.00	0.00	0.00	23.37
6242.17	4	37.03	0.00	15.70	1.54	0.53	0.69	3.44	0.00	4.65	0.00	0.00	80.81
6242.33	4	33.58	0.00	21.61	2.28	0.70	0.77	1.91	0.00	5.64	0.00	0.00	137.62
6242.50	4	33.70	0.00	22.34	2.32	0.72	0.73	1.65	0.00	3.91	0.00	81.61	47.71
6242.67	4	35.94	0.00	17.91	1.54	0.49	0.52	1.04	0.00	4.77	0.00	117.78	67.50
6242.83	4	36.68	0.00	16.69	1.50	0.53	0.54	1.50	0.00	4.63	0.00	0.00	39.60
6243.00	4	37.97	1.60	15.19	1.45	0.58	0.61	1.43	0.00	6.05	0.00	92.85	214.76
6243.17	2	24.75	0.00	30.58	4.31	1.47	1.20	3.73	0.00	8.54	0.00	0.00	36.45
6243.33	4	39.03	0.00	15.29	1.58	0.51	0.52	1.20	0.00	5.66	0.00	0.00	40.68
6243.50	4	39.98	0.00	14.24	1.48	0.49	0.55	1.29	0.00	4.27	0.00	0.00	23.94
6243.67	4	39.04	0.00	15.22	1.58	0.57	0.64	1.37	0.00	5.75	0.00	0.00	26.37
6243.83	4	39.22	0.00	12.16	1.19	0.47	0.49	1.42	0.00	5.38	0.00	0.00	45.07
6244.00	4	38.46	0.00	14.66	1.25	0.49	0.49	2.49	0.00	0.00	0.00	73.80	0.00

Appendix 64: Core 1036 geochemistry data with major (%) and minor (ppm) elements from 6237-6244 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
6244.00	4	38.46	0.00	14.66	1.25	0.49	0.49	2.49	0.00	0.00	0.00	73.80	0.00
6244.17	4	39.05	0.00	14.81	1.29	0.45	0.45	1.08	0.00	4.53	0.00	70.06	24.10
6244.33	4	40.94	0.00	12.13	1.35	0.45	0.50	1.30	0.00	5.50	0.00	0.00	22.41
6244.50	4	39.17	0.00	13.77	1.36	0.54	0.58	1.21	0.00	5.38	0.00	0.00	82.36
6244.67	4	38.08	0.00	17.11	1.85	0.60	0.62	1.97	0.00	4.87	0.00	0.00	34.43
6244.83	4	37.37	0.00	13.78	1.52	0.54	0.58	2.78	0.00	7.16	0.00	0.00	41.86
6245.00	4	37.60	0.00	14.77	1.70	0.62	0.62	3.12	0.00	5.56	0.00	0.00	282.27
6245.17	4	34.89	0.00	21.72	2.49	0.74	0.67	1.98	0.00	5.25	0.00	0.00	39.21
6245.33	4	37.01	0.00	15.60	1.43	0.57	0.64	1.35	0.00	5.18	0.00	0.00	40.12
6245.50	4	35.22	0.00	18.54	1.68	0.71	0.71	1.52	0.00	5.52	0.00	0.00	24.66
6245.67	4	37.89	0.00	15.83	1.57	0.59	0.55	1.27	0.00	4.88	10.63	105.46	17.46
6245.83	4	37.68	0.00	15.78	1.53	0.58	0.58	1.39	0.00	3.69	9.70	0.00	26.96
6246.00	4	38.27	0.00	14.67	1.55	0.55	0.61	1.75	0.00	5.89	0.00	0.00	48.16
6246.17	4	36.01	0.00	18.85	2.18	0.67	0.72	1.70	0.00	5.61	0.00	0.00	25.38
6246.33	4	37.59	0.00	17.00	1.77	0.65	0.65	1.46	0.00	5.23	0.00	0.00	29.99
6246.50	4	36.49	0.00	17.18	1.78	0.75	0.79	1.73	0.00	5.07	0.00	0.00	161.61
6246.67	4	37.91	0.00	17.94	1.82	0.59	0.56	1.50	0.00	5.07	0.00	87.27	32.17
6246.83	4	33.99	0.00	21.70	2.25	0.82	0.78	1.82	0.00	6.64	0.00	0.00	30.88
6247.00	4	32.70	0.00	19.51	2.46	0.90	0.88	2.61	0.00	7.71	8.35	81.48	34.66
6247.17	4	34.84	0.00	21.99	2.39	0.78	0.78	1.87	0.00	7.64	0.00	0.00	0.00
6247.33	4	40.85	0.00	13.58	1.43	0.53	0.49	1.10	0.00	4.27	0.00	0.00	16.86
6247.50	4	39.27	0.00	16.57	1.37	0.48	0.45	1.11	0.00	5.15	0.00	0.00	0.00
6247.67	4	39.65	0.00	15.69	1.15	0.35	0.35	0.95	0.00	0.00	0.00	0.00	0.00
6247.83	4	37.34	0.00	19.49	1.41	0.41	0.39	1.09	0.00	0.00	0.00	0.00	14.84
6248.00	4	39.73	0.00	13.93	1.66	0.57	0.61	1.23	0.00	0.00	11.79	0.00	0.00
6248.17	4	42.01	0.00	11.57	1.07	0.41	0.43	1.10	0.00	4.66	0.00	0.00	19.28
6248.33	4	36.92	0.00	17.44	1.60	0.60	0.65	1.40	0.00	6.25	0.00	0.00	18.15
6248.50	4	39.27	0.00	15.66	1.35	0.49	0.52	1.25	0.00	5.41	0.00	0.00	0.00
6248.67	4	40.13	0.00	15.13	1.39	0.42	0.44	1.33	0.00	3.80	0.00	0.00	19.35
6248.83	4	41.45	1.14	14.93	1.24	0.39	0.39	1.15	0.00	0.00	0.00	0.00	0.00
6249.00	4	37.94	0.00	19.54	1.22	0.36	0.40	1.06	0.00	0.00	0.00	0.00	18.95
6249.17	4	38.07	0.00	16.40	1.47	0.47	0.56	1.53	0.00	0.00	0.00	0.00	16.33
6249.33	2	27.50	0.00	5.90	0.00	0.42	0.00	0.42	0.00	0.00	0.00	811.82	0.00
6249.50	4	41.64	0.00	13.82	1.01	0.36	0.36	0.94	0.00	4.81	0.00	0.00	0.00
6249.67	4	39.07	0.00	14.53	1.83	0.66	0.64	1.44	0.00	6.49	0.00	0.00	22.19
6249.83	4	42.11	0.00	14.33	1.04	0.31	0.30	0.91	0.00	0.00	0.00	0.00	0.00
6250.00	4	36.00	0.00	24.45	1.20	0.31	0.35	1.33	0.00	0.00	0.00	0.00	16.13
6250.17	4	38.45	0.00	21.01	1.09	0.34	0.37	1.06	0.00	0.00	0.00	0.00	14.76
6250.33	4	40.00	0.00	14.03	1.58	0.58	0.52	1.88	0.00	8.49	0.00	0.00	133.88
6250.50	4	41.14	0.00	14.28	1.42	0.58	0.57	1.16	0.00	5.75	0.00	0.00	339.10
6250.67	4	48.38	0.00	17.23	2.00	0.00	0.74	1.51	0.00	7.50	5.89	0.00	219.32
6250.83	4	36.51	0.00	21.43	2.92	0.91	0.76	1.83	0.00	7.16	0.00	0.00	33.93
6251.00	4	40.84	0.00	14.92	1.98	0.67	0.69	1.41	0.00	6.96	9.98	0.00	32.57

Appendix 65: Core 1036 geochemistry data with major (%) and minor (ppm) elements from 6244-6251 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
6251.00	4	40.84	0.00	14.92	1.98	0.67	0.69	1.41	0.00	6.96	9.98	0.00	32.57
6251.17	4	38.70	0.00	15.32	1.87	0.70	0.67	1.27	0.00	6.95	0.00	0.00	21.93
6251.33	4	42.30	0.00	12.14	1.83	0.67	0.71	1.29	0.00	9.88	0.00	0.00	33.18
6251.50	4	42.46	0.00	15.12	0.57	0.21	0.28	0.74	0.00	0.00	0.00	0.00	25.29
6251.67	4	41.32	0.00	16.09	0.65	0.24	0.29	1.34	0.00	6.48	0.00	0.00	24.90
6251.83	4	43.88	0.00	12.89	0.65	0.22	0.26	1.31	0.00	4.30	0.00	0.00	0.00
6252.00	4	40.26	1.32	18.17	0.89	0.24	0.28	0.78	0.00	3.94	0.00	0.00	0.00
6252.17	4	41.62	0.00	17.05	1.09	0.27	0.28	0.76	0.00	5.38	0.00	0.00	17.38
6252.33	4	33.57	0.00	19.72	2.66	0.93	1.54	2.80	0.00	8.12	0.00	99.79	32.88
6252.50	4	43.35	0.00	11.94	1.70	0.64	0.72	2.07	0.00	5.76	0.00	0.00	38.01
6252.67	2	29.36	0.00	29.02	3.47	1.32	1.07	3.45	0.00	6.60	11.14	0.00	64.27
6252.83	2	8.13	1.23	35.91	6.05	2.79	2.39	6.43	0.00	18.94	27.00	189.82	241.95
6253.00	2	8.01	0.57	39.80	4.04	2.18	2.12	6.14	0.00	13.91	13.24	98.35	109.30
6253.17	4	31.69	0.00	26.39	2.28	0.79	0.78	1.76	0.00	5.36	0.00	0.00	49.98
6253.33	4	39.16	0.00	15.79	1.68	0.55	0.57	1.94	0.00	5.89	0.00	0.00	33.83
6253.50	4	36.23	0.00	22.75	0.84	0.20	0.33	1.72	0.00	0.00	0.00	0.00	0.00
6253.67	4	30.62	0.00	28.59	1.13	0.35	0.45	0.93	0.00	3.71	0.00	0.00	25.17
6253.83	4	41.71	0.00	15.46	1.11	0.30	0.38	0.88	0.00	4.77	0.00	0.00	61.05
6254.00	4	42.24	0.00	15.08	0.83	0.19	0.24	0.64	0.00	0.00	0.00	0.00	0.00
6254.17	4	43.26	1.43	12.03	1.13	0.34	0.37	0.88	0.00	4.70	0.00	77.38	28.83
6254.33	4	44.51	0.00	10.32	0.98	0.29	0.38	0.98	0.00	5.28	0.00	0.00	113.83
6254.50	4	43.40	0.00	11.94	1.01	0.28	0.31	0.75	0.00	0.00	0.00	0.00	23.14
6254.67	4	42.18	0.00	15.42	1.29	0.33	0.34	0.97	0.00	0.00	0.00	0.00	0.00
6254.83	4	43.02	0.00	12.73	1.23	0.00	0.37	1.06	0.00	0.00	0.00	46.73	11.67
6255.00	4	43.86	0.00	10.04	1.17	0.38	0.40	1.15	0.00	0.00	0.00	93.45	23.34
6255.17	4	39.56	0.00	14.96	1.70	0.57	0.56	1.36	0.00	6.55	0.00	84.30	33.53
6255.33	4	40.46	0.00	13.06	1.45	0.52	0.51	1.04	0.00	5.13	0.00	0.00	22.44
6255.50	4	43.59	0.00	11.82	0.85	0.26	0.29	0.66	0.00	0.00	0.00	0.00	20.92
6255.67	4	43.56	0.00	10.53	0.75	0.28	0.35	1.03	0.00	0.00	0.00	91.87	29.97
6255.83	4	45.71	1.56	9.44	0.90	0.23	0.26	0.61	0.00	0.00	0.00	0.00	0.00
6256.00	4	44.12	1.40	10.04	1.14	0.33	0.34	0.76	0.00	0.00	0.00	0.00	0.00
6256.17	4	41.32	0.00	11.91	1.62	0.49	0.53	1.02	0.00	4.82	0.00	0.00	33.50
6256.33	4	40.66	0.00	13.74	1.74	0.53	0.53	1.05	0.00	6.21	0.00	100.59	29.81
6256.50	4	41.67	0.00	9.88	2.51	0.41	0.39	0.91	0.00	5.23	0.00	83.64	23.99
6256.67	4	31.58	0.00	18.45	3.03	1.15	1.17	2.28	0.00	8.61	13.59	161.87	44.34
6256.83	4	45.79	0.00	8.26	1.21	0.40	0.40	0.87	0.00	4.70	9.81	0.00	27.40
6257.00	4	46.27	0.00	9.05	0.56	0.13	0.18	0.73	0.00	0.00	0.00	0.00	0.00
6257.17	4	38.60	0.00	14.50	0.54	0.16	0.20	0.69	0.00	0.00	0.00	0.00	21.64
6257.33	4	45.28	0.00	10.12	0.55	0.11	0.20	0.59	0.00	0.00	0.00	0.00	15.62
6257.50	5	46.84	0.00	7.24	0.33	0.10	0.00	0.88	0.00	0.00	0.00	0.00	0.00
6257.67	4	44.42	0.00	10.42	1.46	0.39	0.40	0.86	0.00	4.96	0.00	0.00	23.35
6257.83	4	45.04	0.00	8.87	1.11	0.34	0.37	0.82	0.00	4.44	0.00	71.00	21.15
6258.00	4	45.97	0.00	7.62	0.71	0.26	0.21	0.65	0.00	3.73	0.00	0.00	0.00

Appendix 66: Core 1036 geochemistry data with major (%) and minor (ppm) elements from 6251-6258 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
6258.00	4	45.97	0.00	7.62	0.71	0.26	0.21	0.65	0.00	3.73	0.00	0.00	0.00
6258.17	5	50.47	0.00	4.01	0.37	0.07	0.00	0.56	0.00	0.00	0.00	0.00	17.66
6258.33	4	46.44	0.00	7.88	0.70	0.21	0.21	0.62	0.00	0.00	0.00	0.00	18.23
6258.50	4	46.79	0.00	8.18	0.55	0.20	0.21	0.56	0.00	0.00	0.00	0.00	16.87
6258.67	5	48.71	0.00	3.29	0.45	0.04	0.00	0.56	0.00	0.00	0.00	0.00	0.00
6258.83	4	45.40	0.00	9.34	1.08	0.29	0.35	0.75	0.00	6.27	0.00	0.00	26.80
6259.00	4	45.21	1.15	9.01	1.01	0.31	0.38	0.80	0.00	4.30	0.00	0.00	16.10
6259.17	4	45.07	0.00	9.42	0.76	0.30	0.32	0.75	0.00	5.16	9.76	0.00	22.01
6259.33	5	48.29	0.00	6.48	0.42	0.11	0.00	0.57	0.00	0.00	0.00	0.00	16.61
6259.50	4	46.52	0.00	9.51	0.47	0.08	0.00	0.45	0.00	4.31	0.00	0.00	0.00
6259.67	4	46.70	0.00	8.30	0.52	0.14	0.22	0.55	0.00	5.53	0.00	0.00	15.67
6259.83	4	47.54	0.00	7.41	0.59	0.15	0.21	0.68	0.00	0.00	0.00	0.00	18.35
6260.00	5	47.71	0.00	8.13	0.53	0.11	0.00	0.59	0.00	0.00	0.00	0.00	19.13
6260.17	4	49.30	1.48	5.91	0.42	0.07	0.00	0.74	0.00	0.00	0.00	0.00	15.49
6260.33	4	49.49	0.74	5.83	0.48	0.00	0.00	0.67	0.00	0.00	0.00	42.99	7.75
6260.50	5	49.67	0.00	5.75	0.53	0.08	0.00	0.60	0.00	0.00	0.00	85.98	0.00
6260.67	5	50.70	0.00	4.62	0.36	0.04	0.00	0.46	0.00	0.00	0.00	0.00	0.00
6260.83	5	51.81	0.00	3.54	0.25	0.00	0.00	0.61	0.00	0.00	0.00	0.00	0.00
6261.00	5	51.12	0.00	4.77	0.27	0.02	0.00	0.68	0.00	0.00	9.58	0.00	0.00
6261.17	5	51.33	0.00	4.39	0.38	0.03	0.00	0.49	0.00	0.00	0.00	0.00	0.00
6261.33	5	50.62	0.00	5.11	0.42	0.05	0.00	1.15	0.00	0.00	0.00	0.00	0.00
6261.50	5	50.55	0.00	5.65	0.31	0.06	0.00	0.83	0.00	0.00	0.00	0.00	0.00
6261.67	5	50.25	0.00	6.02	0.43	0.06	0.00	0.58	0.00	0.00	0.00	0.00	0.00
6261.83	5	50.62	0.00	5.30	0.30	0.06	0.00	0.66	0.00	0.00	0.00	0.00	0.00
6262.00	5	51.17	0.00	4.63	0.35	0.03	0.00	0.59	0.00	0.00	0.00	0.00	22.30
6262.17	5	50.39	0.00	5.56	0.29	0.08	0.00	0.59	0.00	0.00	0.00	0.00	0.00
6262.33	5	51.25	0.00	5.16	0.37	0.07	0.00	0.45	0.00	0.00	0.00	0.00	0.00
6262.50	5	51.90	0.00	4.54	0.43	0.07	0.00	0.43	0.00	0.00	0.00	0.00	0.00
6262.67	5	51.88	0.00	3.72	0.33	0.06	0.00	0.42	0.00	3.94	0.00	0.00	20.88
6262.83	5	51.01	0.00	5.08	0.32	0.03	0.00	0.34	0.00	0.00	0.00	0.00	0.00
6263.00	5	50.87	0.00	5.95	0.41	0.03	0.00	1.15	0.00	0.00	0.00	0.00	0.00
6263.17	5	50.91	0.00	6.37	0.34	0.02	0.00	0.46	0.00	0.00	0.00	0.00	0.00
6263.33	4	43.85	0.00	15.38	0.23	0.03	0.00	0.74	0.00	0.00	0.00	0.00	0.00
6263.50	4	47.33	0.00	11.10	0.00	0.02	0.00	0.68	0.00	0.00	0.00	0.00	0.00
6263.67	4	43.65	1.23	14.95	0.34	0.03	0.00	0.52	0.00	0.00	0.00	0.00	0.00
6263.83	5	51.32	0.00	4.68	0.29	0.04	0.00	0.54	0.00	0.00	0.00	0.00	17.69
6264.00	5	46.39	0.00	5.72	0.37	0.05	0.00	0.69	0.00	0.00	0.00	0.00	22.36
6264.17	5	48.48	0.00	6.02	0.38	0.04	0.00	0.64	0.00	0.00	0.00	0.00	16.47
6264.33	2	3.01	0.00	29.26	6.86	3.15	3.10	7.43	0.00	25.51	48.31	226.76	349.82
6264.50	2	2.37	0.97	31.91	6.98	3.25	3.79	7.50	0.00	20.57	21.80	242.11	234.53
6264.67	5	51.45	0.00	2.27	0.61	0.12	0.21	1.11	0.00	0.00	0.00	0.00	40.60
6264.83	5	51.87	0.00	2.39	0.34	0.07	0.00	0.63	0.00	0.00	0.00	0.00	60.51
6265.00	4	42.72	0.00	16.76	0.57	0.10	0.00	0.52	0.00	0.00	0.00	0.00	17.63

Appendix 67: Core 1036 geochemistry data with major (%) and minor (ppm) elements from 6258-6265 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
6265.00	4	42.72	0.00	16.76	0.57	0.10	0.00	0.52	0.00	0.00	0.00	0.00	17.63
6265.17	4	41.41	0.00	17.79	0.59	0.13	0.00	0.53	0.00	5.27	0.00	0.00	61.84
6265.33	4	46.83	1.51	8.35	0.79	0.13	0.24	0.83	0.00	0.00	0.00	0.00	33.66
6265.50	5	50.65	0.00	4.52	0.29	0.00	0.00	0.53	0.00	0.00	0.00	0.00	30.26
6265.67	4	45.04	0.00	13.09	0.24	0.02	0.00	0.52	0.00	0.00	0.00	0.00	0.00
6265.83	5	48.66	0.00	8.59	0.00	0.00	0.00	0.38	0.00	0.00	0.00	0.00	0.00
6266.00	5	48.32	0.00	7.91	0.00	0.00	0.00	0.41	0.00	0.00	0.00	0.00	17.49
6266.17	4	46.84	1.44	10.13	0.29	0.04	0.00	0.60	0.00	0.00	0.00	0.00	17.83
6266.33	5	51.45	0.00	3.18	0.53	0.08	0.00	0.79	0.00	5.14	0.00	0.00	27.42
6266.50	4	42.74	0.00	15.98	0.34	0.00	0.00	0.38	0.00	0.00	0.00	0.00	0.00
6266.67	5	50.09	0.00	4.52	0.00	0.03	0.00	0.62	0.00	0.00	0.00	0.00	0.00
6266.83	5	51.94	0.00	2.84	0.00	0.05	0.00	0.38	0.00	0.00	0.00	0.00	0.00
6267.00	5	51.26	0.00	2.66	0.53	0.11	0.00	0.51	0.00	4.34	0.00	0.00	0.00
6267.17	5	51.63	0.00	2.29	0.55	0.13	0.00	0.52	0.00	6.40	0.00	0.00	14.33
6267.33	5	51.91	0.00	1.83	0.28	0.12	0.00	0.40	0.00	0.00	0.00	0.00	106.54
6267.50	5	51.60	0.00	3.05	0.35	0.09	0.00	0.32	0.00	0.00	0.00	0.00	0.00
6267.67	5	50.43	0.00	4.91	0.35	0.04	0.00	0.33	0.00	0.00	0.00	0.00	0.00
6267.83	5	50.42	0.00	4.16	0.36	0.05	0.00	0.39	0.00	0.00	0.00	0.00	39.46
6268.00	5	48.93	0.00	6.90	0.00	0.00	0.00	0.28	0.00	0.00	0.00	0.00	18.08
6268.17	5	52.96	0.00	10.93	0.00	0.00	0.00	0.34	0.00	0.00	0.00	0.00	10.19
6268.33	4	45.03	0.00	12.48	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.00
6268.50	5	48.30	0.00	7.33	0.00	0.02	0.00	0.37	0.00	0.00	0.00	0.00	0.00
6268.67	5	47.36	0.00	9.46	0.45	0.04	0.00	0.45	0.00	0.00	0.00	0.00	21.81
6268.83	5	49.18	0.00	6.01	0.00	0.02	0.00	0.33	0.00	0.00	0.00	0.00	0.00
6269.00	5	52.12	0.00	2.72	0.00	0.02	0.00	0.31	0.00	0.00	0.00	0.00	46.29
6269.17	5	51.59	0.00	2.72	0.23	0.00	0.00	0.38	0.00	0.00	0.00	0.00	0.00
6269.33	4	30.39	0.00	29.21	0.62	0.07	0.00	0.48	0.00	0.00	0.00	0.00	0.00
6269.50	4	24.50	0.00	32.35	0.80	0.10	0.00	0.79	0.00	0.00	0.00	0.00	0.00
6269.67	5	50.69	0.00	3.60	0.00	0.00	0.00	1.34	0.00	0.00	0.00	0.00	0.00
6269.83	5	51.66	0.00	2.85	0.28	0.07	0.00	0.59	0.00	0.00	0.00	0.00	16.00
6270.00	5	51.00	0.00	5.45	0.34	0.04	0.00	0.57	0.00	0.00	0.00	0.00	16.87
6270.17	5	49.17	0.00	8.65	0.24	0.04	0.00	0.35	0.00	0.00	0.00	0.00	25.84
6270.33	4	20.76	0.00	31.94	0.00	0.00	0.49	1.08	0.00	0.00	0.00	0.00	0.00
6270.50	5	52.90	0.00	3.74	0.00	0.00	0.00	0.30	0.00	0.00	0.00	84.65	0.00
6270.67	5	53.30	0.00	3.19	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.00	0.00
6270.83	5	53.47	0.00	3.30	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00
6271.00	5	53.85	0.00	2.74	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.00	0.00
6271.17	5	51.53	0.00	5.81	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.00	0.00
6271.33	5	49.84	0.00	7.51	0.25	0.03	0.00	0.36	0.00	0.00	0.00	0.00	0.00
6271.50	5	53.26	0.00	3.51	0.25	0.02	0.00	0.42	0.00	0.00	0.00	94.14	0.00
6271.67	5	50.29	0.00	7.51	0.00	0.00	0.00	0.34	0.00	0.00	0.00	0.00	0.00
6271.83	5	49.42	0.00	8.29	0.00	0.00	0.00	0.35	0.23	0.00	0.00	0.00	0.00
6272.00	5	52.63	0.00	4.23	0.00	0.00	0.00	0.31	0.26	0.00	0.00	0.00	17.51

Appendix 68: Core 1036 geochemistry data with major (%) and minor (ppm) elements from 6265-6272 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
6272.00	5	52.63	0.00	4.23	0.00	0.00	0.00	0.31	0.26	0.00	0.00	0.00	17.51
6272.17	5	53.69	0.00	3.18	0.00	0.00	0.00	0.29	0.27	0.00	0.00	0.00	0.00
6272.33	5	53.68	0.00	3.02	0.00	0.00	0.00	0.37	0.00	0.00	0.00	0.00	0.00
6272.50	4	44.92	0.00	12.61	0.00	0.00	0.00	0.53	0.23	0.00	0.00	0.00	0.00
6272.67	4	41.14	0.00	18.32	0.64	0.13	0.42	1.31	0.00	0.00	0.00	0.00	30.38
6272.83	4	32.53	0.00	25.00	0.00	0.03	0.27	1.55	0.00	0.00	0.00	0.00	0.00
6273.00	5	51.54	0.00	3.78	0.47	0.07	0.28	3.34	0.26	0.00	0.00	0.00	139.94
6273.17	2	8.18	0.80	26.81	7.25	2.62	4.97	5.66	0.00	15.33	24.89	483.76	520.13
6273.33	4	31.79	0.00	24.83	0.00	0.06	0.48	2.44	0.00	0.00	0.00	0.00	24.50
6273.50	5	52.63	0.00	4.31	0.00	0.00	0.00	0.40	0.22	0.00	0.00	0.00	0.00
6273.67	5	53.17	0.00	2.74	0.24	0.00	0.00	0.79	0.25	0.00	0.00	0.00	0.00
6273.83	5	50.84	0.00	5.54	0.00	0.00	0.00	0.25	0.23	0.00	0.00	0.00	0.00
6274.00	4	53.68	1.64	2.42	0.43	0.00	0.00	0.38	0.00	0.00	0.00	0.00	0.00
6274.17	5	54.35	0.00	1.48	0.27	0.00	0.00	0.39	0.00	0.00	0.00	0.00	0.00
6274.33	5	54.11	0.00	1.98	0.00	0.00	0.00	0.35	0.00	0.00	0.00	0.00	0.00
6274.50	4	47.25	0.00	9.22	0.41	0.06	0.27	0.68	0.00	0.00	0.00	0.00	0.00
6274.67	5	54.25	0.00	1.85	0.28	0.00	0.00	0.46	0.29	0.00	0.00	0.00	0.00
6274.83	5	53.90	0.00	2.18	0.00	0.00	0.00	0.34	0.00	0.00	0.00	0.00	0.00
6275.00	5	53.13	0.00	2.92	0.00	0.00	0.00	0.38	0.00	0.00	0.00	0.00	0.00
6275.17	5	51.66	0.00	4.54	0.00	0.00	0.00	0.57	0.00	0.00	0.00	0.00	0.00
6275.33	5	49.66	0.00	6.00	0.00	0.02	0.00	0.51	0.00	0.00	0.00	0.00	0.00
6275.50	5	48.58	0.00	7.45	0.00	0.04	0.00	0.44	0.00	0.00	0.00	0.00	0.00
6275.67	4	49.52	0.00	6.10	0.38	0.13	0.22	0.57	0.00	0.00	0.00	0.00	3624.66
6275.83	2	3.35	0.55	30.01	7.56	2.77	4.46	4.56	0.00	11.17	12.05	213.83	231.68
6276.00	4	8.26	0.00	63.48	0.00	0.03	0.55	2.14	0.00	0.00	0.00	0.00	0.00
6276.17	5	58.14	0.00	4.43	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00	18.05
6276.33	5	58.72	0.00	3.77	0.00	0.00	0.00	1.13	0.00	0.00	0.00	0.00	0.00
6276.50	4	42.23	0.00	18.31	2.79	0.18	0.36	1.12	0.00	0.00	0.00	0.00	41.88
6276.67	5	54.24	0.00	9.20	0.54	0.06	0.00	2.61	0.00	0.00	0.00	0.00	796.47
6276.83	4	37.05	0.00	23.87	1.12	0.36	0.45	2.04	0.00	0.00	0.00	0.00	1628.08
6277.00	4	31.23	0.00	28.75	0.54	0.16	0.30	2.88	0.00	0.00	50.73	91.89	43.56
6277.17	4	50.35	0.00	15.40	0.00	0.00	0.00	0.82	0.00	0.00	0.00	0.00	86.75
6277.33	4	18.47	0.00	22.91	1.57	0.23	0.36	2.17	0.00	0.00	0.00	0.00	46.25
6277.50	4	30.83	0.00	21.68	3.60	0.69	1.13	2.78	0.00	0.00	0.00	0.00	181.15
6277.67	5	51.46	0.00	5.78	0.25	0.00	0.00	0.32	0.00	0.00	0.00	0.00	71.52
6277.83	4	45.10	0.00	14.33	0.00	0.00	0.00	0.40	0.00	0.00	0.00	0.00	17.51

Appendix 69: Core 1036 geochemistry data with major (%) and minor (ppm) elements from 6272-6277.83 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
6280.00	5	53.25	0.00	3.24	0.00	0.00	0.00	0.43	0.00	0.00	0.00	0.00	15.65
6280.17	5	53.45	0.00	2.98	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00	24.53
6280.33	5	52.92	0.00	3.21	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.00	54.14
6280.50	5	51.58	0.00	4.22	0.00	0.03	0.00	0.48	0.00	0.00	0.00	0.00	73.98
6280.67	5	50.86	0.00	5.13	0.25	0.05	0.00	0.75	0.00	0.00	0.00	0.00	48.59
6280.83	4	52.10	1.84	3.62	0.40	0.03	0.00	0.58	0.00	3.89	0.00	0.00	40.05
6281.00	5	51.69	0.00	4.32	0.00	0.05	0.00	0.47	0.00	0.00	0.00	0.00	35.34
6281.17	5	51.48	0.00	5.13	0.34	0.05	0.00	0.57	0.00	0.00	0.00	0.00	33.91
6281.33	5	52.25	0.00	3.73	0.00	0.02	0.00	0.34	0.00	0.00	0.00	0.00	48.55
6281.50	5	51.89	0.00	4.09	0.24	0.05	0.00	0.41	0.00	0.00	0.00	76.72	35.04
6281.67	5	52.45	0.00	3.23	0.43	0.04	0.00	0.96	0.00	0.00	0.00	0.00	418.78
6281.83	5	53.35	0.00	2.38	0.00	0.00	0.00	0.35	0.00	0.00	0.00	0.00	19.00
6282.00	5	52.67	0.00	3.46	0.35	0.02	0.00	0.44	0.00	0.00	0.00	79.38	23.94
6282.17	5	51.73	0.00	4.79	0.00	0.02	0.00	0.31	0.00	0.00	9.77	0.00	40.30
6282.33	5	51.96	0.00	3.33	0.00	0.04	0.00	0.34	0.00	0.00	0.00	0.00	15.35
6282.50	5	52.72	0.00	2.95	0.31	0.03	0.00	0.35	0.00	0.00	0.00	0.00	22.39
6282.67	5	52.65	0.00	3.03	0.55	0.06	0.00	0.42	0.00	4.81	0.00	0.00	24.88
6282.83	5	56.34	0.00	2.38	0.29	0.02	0.00	0.34	0.00	0.00	0.00	0.00	94.44
6283.00	5	56.15	0.00	2.93	0.30	0.04	0.00	0.56	0.00	0.00	0.00	0.00	30.28
6283.17	5	57.74	0.00	1.43	0.42	0.00	0.00	1.76	0.00	0.00	0.00	0.00	16.75
6283.33	5	56.88	0.00	3.27	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.00	0.00
6283.50	5	56.92	0.00	2.90	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00
6283.67	4	55.95	1.40	3.19	0.00	0.00	0.00	0.74	0.26	0.00	0.00	0.00	15.09
6283.83	5	56.31	0.00	2.10	0.38	0.05	0.00	0.96	0.00	6.41	0.00	0.00	42.52
6284.00	4	56.47	1.64	2.54	0.36	0.04	0.00	0.70	0.00	4.44	0.00	0.00	0.00
6284.17	5	57.02	0.00	2.35	0.00	0.02	0.00	1.02	0.00	0.00	0.00	0.00	0.00
6284.33	5	55.62	0.00	3.24	0.00	0.05	0.00	0.95	0.00	0.00	0.00	0.00	0.00
6284.50	5	56.00	0.00	2.91	0.34	0.03	0.00	0.58	0.00	0.00	0.00	0.00	17.96
6284.67	5	54.74	0.00	3.83	0.28	0.04	0.00	0.77	0.00	0.00	0.00	0.00	0.00
6284.83	5	56.30	0.00	2.88	0.36	0.03	0.00	0.40	0.00	0.00	0.00	0.00	0.00
6285.00	5	56.02	0.00	2.76	0.00	0.02	0.00	0.28	0.00	0.00	0.00	0.00	28.20
6285.17	5	51.57	0.00	2.65	0.50	0.07	0.00	1.17	0.00	0.00	0.00	0.00	34.56
6285.33	5	57.22	0.00	2.03	0.34	0.03	0.00	0.46	0.00	0.00	0.00	0.00	0.00
6285.50	5	56.60	0.00	2.56	0.45	0.06	0.00	0.43	0.00	0.00	0.00	0.00	0.00
6285.67	5	57.37	0.00	1.70	0.00	0.00	0.00	0.39	0.00	0.00	0.00	0.00	16.62
6285.83	5	54.16	0.00	1.91	0.27	0.00	0.00	0.28	0.00	4.57	0.00	0.00	0.00
6286.00	5	53.38	0.00	2.06	0.00	0.03	0.00	0.59	0.00	0.00	0.00	0.00	0.00
6286.17	5	53.80	0.00	2.29	0.00	0.00	0.00	0.40	0.00	0.00	0.00	0.00	0.00
6286.33	5	54.07	0.00	1.71	0.00	0.03	0.00	0.47	0.00	0.00	0.00	0.00	13.78
6286.50	5	54.36	0.00	1.62	0.00	0.00	0.00	0.52	0.00	0.00	0.00	0.00	0.00
6286.67	4	54.44	1.46	1.12	0.28	0.03	0.00	0.60	0.00	4.11	0.00	0.00	0.00
6286.83	5	53.83	0.00	2.18	0.00	0.04	0.00	0.52	0.00	0.00	0.00	0.00	0.00
6287.00	5	48.72	0.00	2.34	0.40	0.09	0.00	0.77	0.00	0.00	0.00	117.37	24.54

Appendix 70: Core 1036 geochemistry data with major (%) and minor (ppm) elements from 6280-6287 feet. Depths 6278-6280 was not recovered.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
6287.00	5	48.72	0.00	2.34	0.40	0.09	0.00	0.77	0.00	0.00	0.00	117.37	24.54
6287.17	5	53.93	0.00	1.80	0.00	0.04	0.00	0.60	0.00	0.00	0.00	81.89	18.79
6287.33	5	53.68	0.00	1.46	0.00	0.00	0.00	0.83	0.00	0.00	0.00	0.00	15.17
6287.50	5	53.71	0.00	1.66	0.00	0.04	0.00	0.84	0.00	0.00	0.00	0.00	15.02
6287.67	5	53.53	0.00	2.05	0.00	0.06	0.00	0.57	0.00	0.00	0.00	73.42	15.52
6287.83	5	53.22	0.00	2.38	0.53	0.07	0.00	0.53	0.00	4.14	0.00	0.00	29.70
6288.00	5	53.79	0.00	1.86	0.00	0.03	0.00	0.35	0.00	3.85	0.00	0.00	20.24
6288.17	5	53.40	0.00	2.24	0.50	0.05	0.00	0.39	0.00	0.00	0.00	0.00	0.00
6288.33	5	53.62	0.00	2.55	0.35	0.04	0.00	0.65	0.00	3.98	0.00	0.00	0.00
6288.50	5	53.20	0.00	2.99	0.27	0.03	0.00	0.43	0.00	0.00	0.00	0.00	0.00
6288.67	5	57.63	0.00	2.44	0.32	0.04	0.00	0.91	0.00	0.00	0.00	0.00	20.95
6288.83	5	58.91	0.00	1.48	0.38	0.00	0.00	0.45	0.00	0.00	0.00	0.00	0.00
6289.00	5	58.04	0.00	2.16	0.00	0.00	0.00	0.37	0.00	0.00	0.00	94.52	0.00
6289.17	5	57.43	0.00	3.09	0.00	0.00	0.00	0.52	0.00	4.27	0.00	0.00	0.00
6289.33	4	56.80	1.53	3.74	0.34	0.00	0.00	0.48	0.00	0.00	0.00	0.00	0.00
6289.50	5	57.47	0.00	3.31	0.33	0.03	0.00	0.45	0.00	0.00	0.00	0.00	47.75
6289.67	4	57.85	1.47	2.00	0.00	0.00	0.00	0.39	0.00	0.00	0.00	0.00	0.00
6289.83	5	58.51	0.00	1.62	0.40	0.03	0.00	0.46	0.00	4.34	0.00	0.00	0.00
6290.00	2	36.78	0.00	10.50	2.77	0.95	3.04	3.52	0.00	35.10	47.05	325.52	466.79
6290.17	5	59.19	0.00	0.80	0.00	0.00	0.00	0.46	0.00	0.00	0.00	0.00	0.00
6290.33	5	58.67	0.00	1.41	0.27	0.00	0.00	0.58	0.27	0.00	0.00	0.00	16.81
6290.50	5	58.49	0.00	1.34	0.00	0.02	0.00	0.39	0.00	0.00	0.00	0.00	17.67
6290.67	5	58.71	0.00	1.34	0.34	0.06	0.00	0.49	0.00	0.00	0.00	0.00	17.15
6290.83	5	59.19	0.00	0.89	0.00	0.00	0.00	0.70	0.00	13.23	0.00	0.00	18.30
6291.00	5	59.40	0.00	1.08	0.00	0.00	0.00	0.48	0.00	0.00	0.00	0.00	0.00
6291.17	5	54.87	0.00	1.14	0.37	0.00	0.00	0.95	0.00	0.00	0.00	145.55	17.63
6291.33	5	58.90	0.00	1.04	0.29	0.00	0.00	0.72	0.00	0.00	0.00	0.00	0.00
6291.50	5	58.84	0.00	1.20	0.00	0.00	0.00	0.56	0.00	0.00	0.00	81.14	0.00
6291.67	4	20.06	0.00	45.16	0.00	0.03	0.00	0.33	0.00	0.00	0.00	0.00	0.00
6291.83	5	54.89	0.00	5.03	0.31	0.04	0.00	0.51	0.00	0.00	0.00	0.00	0.00
6292.00	5	56.63	0.00	4.07	0.00	0.00	0.00	0.62	0.00	0.00	0.00	0.00	0.00
6292.17	5	59.06	0.00	1.15	0.00	0.00	0.00	0.54	0.00	0.00	0.00	0.00	0.00
6292.33	2	20.29	0.00	22.56	6.69	2.13	4.31	5.63	0.67	17.60	34.26	195.98	115.45
6292.50	5	57.76	0.00	1.69	0.61	0.08	0.00	0.57	0.00	0.00	0.00	0.00	45.49
6292.67	2	0.70	1.16	39.55	9.82	3.97	4.60	6.30	0.52	9.41	0.00	168.26	111.69
6292.83	5	58.35	0.00	1.82	0.00	0.07	0.00	1.15	0.00	0.00	0.00	0.00	23.07
6293.00	4	44.97	0.00	21.75	0.30	0.06	0.00	0.72	0.00	3.88	0.00	0.00	0.00
6293.17	5	57.97	0.00	1.11	0.30	0.02	0.26	1.18	0.00	0.00	0.00	0.00	18.94
6293.33	2	24.61	0.00	19.01	6.69	2.45	3.37	5.07	0.00	7.80	29.30	216.80	2853.40
6293.50	4	38.84	0.00	13.69	3.34	0.00	1.69	2.77	0.00	3.90	14.65	108.40	1426.70
6293.67	5	53.06	0.00	8.37	0.00	0.00	0.00	0.48	0.00	0.00	0.00	0.00	0.00
6293.83	5	55.56	0.00	2.50	0.77	0.18	0.60	1.45	0.00	5.40	0.00	0.00	46.01
6294.00	5	58.85	0.00	1.20	0.00	0.02	0.00	1.15	0.00	0.00	0.00	0.00	0.00

Appendix 71: Core 1036 geochemistry data with major (%) and minor (ppm) elements from 6287-6294 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
6294.00	5	58.85	0.00	1.20	0.00	0.02	0.00	1.15	0.00	0.00	0.00	0.00	0.00
6294.17	5	56.15	0.00	4.10	0.00	0.00	0.00	0.63	0.00	0.00	0.00	96.72	0.00
6294.33	5	52.83	0.00	3.18	0.44	0.16	0.00	0.81	0.00	0.00	0.00	0.00	0.00
6294.50	5	56.66	0.00	3.05	0.34	0.10	0.00	0.45	0.28	0.00	0.00	0.00	1057.96
6294.67	5	58.58	0.00	1.54	0.26	0.03	0.00	0.87	0.00	0.00	0.00	0.00	0.00
6294.83	5	58.64	0.00	1.45	0.32	0.00	0.00	0.91	0.15	0.00	0.00	0.00	8.23
6295.00	5	58.69	0.00	1.37	0.38	0.02	0.00	0.94	0.29	0.00	0.00	0.00	16.46
6295.17	5	59.02	0.00	1.66	0.28	0.00	0.00	0.51	0.00	0.00	0.00	0.00	0.00
6295.33	5	58.70	0.00	1.33	0.32	0.00	0.00	0.44	0.00	0.00	0.00	0.00	0.00
6295.50	5	58.06	0.00	3.07	0.00	0.00	0.00	0.43	0.29	0.00	0.00	0.00	0.00
6295.67	5	58.51	0.00	1.58	0.26	0.03	0.00	0.74	0.00	0.00	0.00	0.00	0.00
6295.83	5	59.32	0.00	0.84	0.00	0.00	0.00	0.43	0.28	0.00	0.00	0.00	0.00
6296.00	4	16.99	0.00	46.80	0.00	0.02	0.00	0.30	0.00	0.00	0.00	0.00	0.00
6296.17	2	47.36	0.00	7.17	2.88	0.65	1.57	2.20	0.00	50.24	12.63	113.06	106.75
6296.33	5	57.68	0.00	0.34	0.00	0.00	0.00	1.12	0.00	0.00	0.00	108.93	57.03
6296.50	5	60.30	0.00	0.70	0.00	0.00	0.00	0.53	0.00	4.12	0.00	0.00	0.00
6296.67	5	59.76	0.00	0.94	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00
6296.83	5	59.91	0.00	0.33	0.00	0.00	0.00	0.35	0.00	0.00	0.00	0.00	0.00
6297.00	5	54.92	0.00	0.38	0.00	0.00	0.00	0.51	0.00	0.00	0.00	0.00	0.00
6297.17	5	54.97	0.00	0.37	0.00	0.00	0.00	0.34	0.00	0.00	0.00	0.00	0.00
6297.33	5	54.85	0.00	0.49	0.34	0.00	0.00	0.52	0.00	0.00	0.00	0.00	0.00
6297.50	5	54.07	0.00	0.87	0.37	0.03	0.00	0.68	0.00	4.47	0.00	91.11	0.00
6297.67	5	54.68	0.00	0.59	0.24	0.00	0.00	0.41	0.00	0.00	0.00	0.00	0.00
6297.83	5	55.45	0.00	0.43	0.00	0.00	0.00	0.43	0.00	0.00	0.00	0.00	0.00
6298.00	4	54.06	2.13	0.87	0.39	0.05	0.00	0.67	0.00	0.00	0.00	0.00	0.00
6298.17	5	55.05	0.00	0.45	0.00	0.00	0.00	0.54	0.00	0.00	0.00	0.00	0.00
6298.33	4	55.24	1.91	0.64	0.00	0.00	0.00	0.48	0.00	4.86	0.00	0.00	0.00
6298.50	5	54.38	0.00	0.72	0.33	0.03	0.00	1.08	0.00	0.00	0.00	0.00	0.00
6298.67	5	54.19	0.00	0.44	0.00	0.00	0.00	0.96	0.00	0.00	0.00	0.00	0.00
6298.83	5	54.67	0.00	0.56	0.36	0.00	0.00	0.80	0.00	0.00	0.00	0.00	0.00
6299.00	5	54.84	0.00	0.52	0.00	0.00	0.00	0.71	0.00	0.00	0.00	0.00	0.00
6299.17	5	54.47	0.00	0.60	0.25	0.02	0.00	0.57	0.00	0.00	0.00	0.00	0.00
6299.33	5	54.98	0.00	0.55	0.00	0.00	0.00	0.31	0.00	0.00	0.00	0.00	0.00
6299.50	5	54.40	0.00	0.65	0.37	0.00	0.00	0.64	0.00	0.00	0.00	0.00	0.00
6299.67	5	54.26	0.00	0.60	0.00	0.00	0.00	1.62	0.00	0.00	0.00	0.00	0.00
6299.83	5	54.04	0.00	0.85	0.00	0.04	0.00	0.67	0.00	0.00	0.00	0.00	0.00
6300.00	5	54.45	0.00	0.76	0.39	0.03	0.00	0.87	0.27	4.50	0.00	0.00	0.00
6300.17	5	53.81	0.00	0.54	0.00	0.00	0.00	0.59	0.26	0.00	0.00	0.00	0.00
6300.33	5	53.57	0.00	1.21	0.27	0.00	0.00	0.62	0.27	0.00	0.00	0.00	0.00
6300.50	5	54.38	0.00	0.57	0.00	0.00	0.00	0.74	0.00	0.00	0.00	0.00	0.00
6300.67	5	54.03	0.00	0.65	0.00	0.00	0.00	0.62	0.33	0.00	0.00	0.00	0.00
6300.83	5	53.88	0.00	0.68	0.00	0.00	0.00	0.81	0.28	0.00	0.00	0.00	0.00
6301.00	5	53.35	0.00	1.86	0.32	0.04	0.00	0.63	0.00	0.00	0.00	0.00	0.00

Appendix 72: Core 1036 geochemistry data with major (%) and minor (ppm) elements from 6294-6301 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
6301.00	5	53.35	0.00	1.86	0.32	0.04	0.00	0.63	0.00	0.00	0.00	0.00	0.00
6301.17	5	54.23	0.00	0.59	0.23	0.00	0.00	0.50	0.28	0.00	0.00	0.00	0.00
6301.33	5	54.05	0.00	0.54	0.35	0.00	0.21	0.87	0.30	0.00	0.00	0.00	0.00
6301.50	5	53.28	0.00	1.18	0.45	0.06	0.00	0.53	0.33	0.00	0.00	0.00	17.10
6301.67	5	54.29	0.00	0.67	0.34	0.00	0.00	0.45	0.29	0.00	8.84	0.00	0.00
6301.83	5	54.02	0.00	0.69	0.00	0.00	0.00	0.44	0.30	0.00	0.00	0.00	0.00
6302.00	5	53.32	0.00	0.97	0.39	0.03	0.00	0.65	0.35	0.00	0.00	0.00	0.00
6302.17	5	53.56	0.00	0.96	0.29	0.04	0.00	0.38	0.32	3.79	0.00	0.00	32.44
6302.33	5	52.48	0.00	1.33	0.58	0.09	0.00	0.63	0.34	3.97	11.15	0.00	20.84
6302.50	5	53.66	0.00	0.94	0.28	0.02	0.00	0.31	0.37	0.00	0.00	0.00	0.00
6302.67	5	54.43	0.00	0.50	0.00	0.00	0.00	0.29	0.37	0.00	0.00	0.00	0.00
6302.83	5	53.06	0.00	1.15	0.43	0.21	0.00	0.44	0.32	0.00	0.00	0.00	0.00
6303.00	5	55.14	0.00	0.40	0.00	0.00	0.00	0.42	0.35	0.00	0.00	0.00	543.77
6303.17	5	54.51	0.00	0.76	0.00	0.00	0.00	0.44	0.27	0.00	0.00	0.00	0.00
6303.33	5	53.42	0.00	1.24	0.58	0.06	0.00	1.35	0.32	0.00	8.76	0.00	0.00
6303.50	5	53.65	0.00	1.12	0.33	0.03	0.00	0.43	0.31	0.00	0.00	0.00	0.00
6303.67	5	53.85	0.00	0.95	0.34	0.05	0.00	1.09	0.31	4.69	0.00	0.00	0.00
6303.83	5	54.36	0.00	0.84	0.00	0.00	0.00	0.41	0.29	0.00	0.00	0.00	0.00
6304.00	5	54.61	0.00	0.89	0.00	0.02	0.00	0.35	0.34	0.00	0.00	0.00	0.00
6304.17	5	53.73	0.00	1.41	0.61	0.06	0.00	0.55	0.33	0.00	0.00	0.00	0.00
6304.33	5	54.56	0.00	0.67	0.00	0.00	0.00	0.30	0.36	0.00	0.00	0.00	0.00
6304.50	5	52.37	0.00	0.71	0.00	0.00	0.00	0.82	0.33	0.00	0.00	98.17	0.00
6304.67	5	54.26	0.00	0.83	0.00	0.03	0.00	0.60	0.33	0.00	0.00	0.00	0.00
6304.83	5	54.85	0.00	0.71	0.00	0.00	0.00	0.36	0.36	0.00	0.00	0.00	0.00
6305.00	5	54.16	0.00	0.91	0.33	0.04	0.00	0.72	0.28	4.12	0.00	0.00	0.00
6305.17	4	53.26	1.43	1.49	0.40	0.05	0.00	0.70	0.29	0.00	0.00	0.00	0.00
6305.33	4	54.15	1.95	1.08	0.27	0.00	0.00	0.39	0.35	0.00	0.00	0.00	0.00
6305.50	5	54.70	0.00	0.32	0.00	0.00	0.00	0.40	0.37	0.00	0.00	0.00	0.00
6305.67	5	53.55	0.00	1.15	0.24	0.03	0.00	1.32	0.32	0.00	0.00	0.00	0.00
6305.83	5	54.85	0.00	0.30	0.00	0.00	0.00	0.38	0.28	0.00	0.00	0.00	0.00
6306.00	5	55.14	0.00	0.33	0.00	0.00	0.00	0.49	0.32	0.00	0.00	79.82	0.00
6306.17	5	54.29	0.00	0.67	0.24	0.00	0.00	0.78	0.28	0.00	0.00	0.00	0.00
6306.33	5	54.60	0.00	0.80	0.00	0.00	0.00	0.77	0.35	0.00	0.00	0.00	0.00
6306.50	5	54.73	0.00	0.43	0.00	0.00	0.00	0.73	0.35	0.00	0.00	0.00	0.00
6306.67	5	53.94	0.00	1.01	0.00	0.03	0.00	0.97	0.30	0.00	0.00	0.00	0.00
6306.83	5	55.12	0.00	0.41	0.00	0.00	0.00	0.49	0.35	0.00	0.00	0.00	0.00
6307.00	5	50.29	0.00	0.60	0.00	0.00	0.00	0.54	0.00	0.00	0.00	0.00	0.00
6307.17	5	53.62	0.00	0.80	0.00	0.00	0.00	0.26	0.00	0.00	0.00	0.00	0.00
6307.33	5	53.66	0.00	0.64	0.00	0.00	0.00	0.86	0.00	0.00	0.00	0.00	0.00
6307.50	5	52.00	0.00	0.78	0.26	0.02	0.00	1.07	0.00	0.00	0.00	0.00	0.00
6307.67	4	53.56	1.30	0.79	0.26	0.00	0.00	0.77	0.00	0.00	0.00	0.00	0.00
6307.83	5	53.29	0.00	0.94	0.31	0.00	0.09	1.05	0.00	0.00	4.68	0.00	0.00
6308.00	5	53.01	0.00	1.08	0.35	0.08	0.18	1.33	0.00	0.00	9.36	0.00	0.00

Appendix 73: Core 1036 geochemistry data with major (%) and minor (ppm) elements from 6301-6308 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
6308.00	5	53.01	0.00	1.08	0.35	0.08	0.18	1.33	0.00	0.00	9.36	0.00	0.00
6308.17	5	54.14	0.00	0.33	0.00	0.00	0.00	0.38	0.00	0.00	0.00	0.00	0.00
6308.33	5	53.66	0.00	0.92	0.00	0.00	0.00	0.86	0.00	0.00	0.00	0.00	0.00
6308.50	5	53.76	0.00	0.78	0.00	0.00	0.00	1.15	0.00	0.00	0.00	0.00	0.00
6308.67	5	59.44	0.00	0.49	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.00	0.00
6308.83	5	54.35	0.00	0.52	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.00	0.00
6309.00	5	54.35	0.00	0.40	0.00	0.00	0.00	0.54	0.00	0.00	0.00	0.00	0.00
6309.17	5	54.33	0.00	0.49	0.00	0.00	0.00	0.65	0.00	3.92	0.00	0.00	0.00
6309.33	5	52.81	0.00	3.42	0.00	0.00	0.00	0.52	0.00	0.00	0.00	0.00	0.00
6309.50	5	52.68	0.00	1.68	0.37	0.07	0.00	1.40	0.00	0.00	0.00	0.00	21.70
6309.67	5	52.27	0.00	1.24	0.30	0.07	0.17	3.31	0.00	5.40	0.00	0.00	14.17
6309.83	5	54.23	0.00	0.46	0.00	0.00	0.00	1.50	0.00	0.00	0.00	0.00	0.00
6310.00	5	52.91	0.00	1.29	0.51	0.06	0.00	1.25	0.00	7.01	0.00	0.00	29.03
6310.17	5	53.88	0.00	0.70	0.30	0.00	0.00	0.53	0.00	0.00	0.00	0.00	0.00
6310.33	5	53.14	0.00	0.58	0.00	0.00	0.00	0.67	0.00	0.00	0.00	0.00	0.00
6310.50	5	58.31	0.00	1.01	0.25	0.00	0.14	1.17	0.00	3.55	0.00	0.00	0.00
6310.67	5	51.71	0.00	1.23	0.46	0.09	0.24	1.42	0.00	6.38	0.00	0.00	0.00
6310.83	5	58.29	0.00	1.03	0.43	0.00	0.14	1.28	0.00	3.55	0.00	0.00	11.31
6311.00	5	53.11	0.00	0.63	0.31	0.00	0.00	0.87	0.00	0.00	0.00	0.00	20.34
6311.17	5	51.93	0.00	3.73	1.72	0.00	0.74	1.74	0.00	4.06	9.70	61.61	11.31
6311.33	4	40.27	0.00	6.08	2.79	0.93	1.33	2.25	0.00	7.31	17.44	110.80	0.00
6311.50	5	51.85	0.00	3.81	1.55	0.00	0.74	1.93	0.00	4.06	9.70	61.61	0.00
6311.67	5	52.96	0.00	0.77	0.00	0.00	0.00	1.23	0.00	0.00	0.00	0.00	0.00
6311.83	5	58.58	0.00	0.81	0.14	0.00	0.00	1.93	0.00	2.85	0.00	0.00	0.00
6312.00	5	52.39	0.00	0.69	0.25	0.02	0.00	2.25	0.00	5.13	0.00	0.00	0.00
6312.17	5	58.80	0.00	0.64	0.14	0.00	0.00	1.89	0.00	2.85	0.00	0.00	0.00
6312.33	5	53.35	0.00	0.46	0.00	0.00	0.00	1.14	0.00	0.00	0.00	0.00	0.00
6312.50	5	55.64	0.00	1.01	0.20	0.00	0.05	1.22	0.00	0.00	3.53	23.24	0.00
6312.67	5	57.94	0.00	1.56	0.40	0.00	0.11	1.29	0.00	0.00	7.05	46.48	0.00
6312.83	5	50.85	0.00	2.34	0.72	0.14	0.19	1.19	0.00	0.00	12.68	83.58	0.00
6313.00	5	58.20	0.00	1.47	0.40	0.00	0.11	1.15	0.00	0.00	7.05	46.48	0.00
6313.17	5	53.81	0.00	0.30	0.00	0.00	0.00	0.87	0.00	0.00	0.00	0.00	0.00
6313.33	5	58.81	0.00	0.29	0.00	0.00	0.00	0.76	0.14	0.00	0.00	45.64	0.00
6313.50	5	51.93	0.00	0.22	0.00	0.00	0.00	0.49	0.26	0.00	0.00	82.07	0.00
6313.67	4	54.91	0.00	5.68	1.48	0.00	0.12	0.50	0.14	0.00	0.00	45.64	32.77
6313.83	4	46.80	0.00	9.99	2.67	0.10	0.22	0.40	0.00	0.00	0.00	0.00	58.94
6314.00	4	51.33	0.00	7.93	2.08	0.00	0.17	0.51	0.07	0.00	0.00	0.00	45.85
6314.17	4	55.86	0.00	5.87	1.48	0.00	0.12	0.62	0.14	0.00	0.00	0.00	32.77
6314.33	5	53.65	0.00	0.56	0.00	0.00	0.00	0.72	0.25	0.00	0.00	0.00	0.00
6314.50	5	59.69	0.00	0.69	0.00	0.00	0.00	0.70	0.28	0.00	0.00	0.00	0.00
6314.67	5	53.68	0.00	0.69	0.00	0.00	0.00	0.54	0.25	0.00	0.00	0.00	0.00
6314.83	5	59.48	0.00	0.60	0.00	0.00	0.00	0.82	0.29	0.00	0.00	0.00	0.00
6315.00	5	53.28	0.00	0.39	0.00	0.00	0.00	0.93	0.27	0.00	0.00	0.00	0.00

Appendix 74: Core 1036 geochemistry data with major (%) and minor (ppm) elements from 6308-6315 feet.

Depth (ft.)	Facies	Ca (%)	Mg (%)	Si (%)	Al (%)	K (%)	Fe (%)	S (%)	Ti (%)	Mo (ppm)	U (ppm)	Ni (ppm)	Zn (ppm)
6315.00	5	53.28	0.00	0.39	0.00	0.00	0.00	0.93	0.27	0.00	0.00	0.00	0.00
6315.17	5	59.59	0.00	0.41	0.00	0.00	0.00	0.90	0.31	0.00	0.00	0.00	0.00
6315.33	5	53.88	0.00	0.34	0.00	0.00	0.00	0.69	0.29	0.00	0.00	0.00	0.00
6315.50	5	58.49	0.00	1.40	0.24	0.00	0.00	0.76	0.16	0.00	5.00	0.00	0.00
6315.67	5	51.30	0.00	2.19	0.44	0.09	0.00	0.68	0.00	0.00	9.00	0.00	0.00
6315.83	5	57.26	0.00	2.40	0.24	0.00	0.00	0.94	0.00	0.00	5.00	0.00	0.00
6316.00	5	51.66	0.00	2.13	0.00	0.00	0.00	1.01	0.00	0.00	0.00	0.00	0.00

Appendix 75: Core 1036 geochemistry data with major (%) and minor (ppm) elements from 6315-6316 feet.

11. VITA

Alex P. Blizzard graduated from Plano East Senior High in Plano, TX in May 2014 and then enrolled at Texas Tech University in Lubbock, Texas. During his junior year, he completed a field engineer internship in Midland, TX with an oil and gas company called Saguaro Petroleum. His senior research project was on The Petrology of Comanche Peak Limestone in Fluvanna, TX. He graduated with his Bachelor of Science in Geosciences from Texas Tech University in August 2018. Upon completion of his undergraduate degree, he enrolled at the Graduate School of Stephen F. Austin State University in Nacogdoches, TX. Throughout his graduate academic career, he completed geology internships and cooperative programs with various oil and gas companies including Tanos Exploration, Inspiration Energy, Daylight Petroleum, and Chevron Corporation. He graduated with his Master of Science in Geology from Stephen F. Austin State University in August 2020. He went on to pursue a career in the oil and gas industry.

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