LOST CREEK ISR, LLC

Lost Creek Project

WDEQ-LQD Permit Application

VOLUME 7

KM Amendment

TABLE OF CONTENTS - General

MINE PERMIT VOLUME 1: Adjudication Files

MINE PERMIT VOLUME 2: Appendix D - Main Permit Area (D1 to D5)

MINE PERMIT VOLUME 3a: Appendix D - Main Permit Area (D6)

MINE PERMIT VOLUME 3b: Appendix D - Main Permit Area (D6)

TABLE OF CONTENTS – General (continued)

TABLE OF CONTENTS – General (continued)

TABLE OF CONTENTS – General (continued)

OVERVIEW OF APPLICATION

With this application, Lost Creek ISR, LLC proposes to add mine units and associated infrastructure and disturbance to the existing Permit to Mine. Specifically, this application adjusts the aerial extent of previously approved mine units based on the results of post permit drilling and proposes three additional mine units in the existing Lost Creek Permit boundary; Resource Area (RA)3 and RA12 in the KM Horizon and RA4 in the HJ Horizon.

Since each of the proposed mine units are within the existing Lost Creek boundary, the majority of environmental baseline work had already been completed and reviewed and approved by appropriate regulatory agencies. The following Sections of the existing Permit to Mine do not require amendment to incorporate the proposed mine units and the reader should refer back to the original Permit to Mine application for baseline information:

D1-Land Use
D2-Brief History
D3-Archeology
D4-Meteorology
D7-Soil
D8-Vegetation
D9-Wildlife
D10-Background Radiation (A new MILDOS run which models all production from the HJ and KM mine units is included in the LC East Application.)
D11-Wetlands
Operations Plan (Minor changes are incorporated into the LC East Application.)
Reclamation Plan (Minor changes are incorporated into the LC East Application.)

Appendices D5-Geology and D6-Hydrology have been included in this application since considerable new baseline information relevant to mining in the KM Horizon has been collected.

TABLE OF CONTENTS

FIGURES

PLATES

ATTACHMENT

D5 GEOLOGY

D5.1 Regional Geology

The Lost Creek Property (Property) is currently comprised of six individual and contiguous Projects: the Lost Creek, LC East, LC North, LC South, LC West and EN Projects. The Lost Creek Project is effectively contained within the Lost Creek Permit Area (Permit Area) and is situated in the northeastern part of the Great Divide Basin (GDB) which is underlain by up to 25,000 feet of Paleozoic to Quaternary sediments. The GDB is an oval-shaped structural depression, encompassing some 3,500 square miles in south-central Wyoming. It represents the northeastern portions of the greater Green River Basin, which occupies much of southwestern Wyoming. The GDB lies within a unique divergence of the Continental Divide and is bounded by structural uplifts or fault displaced Precambrian rocks, resulting in internal drainage and an independent hydrogeologic system. It is bounded on the north by the Wind River Range and Granite Mountains, on the east by the Rawlins Uplift, on the south by the Wamsutter Arch and on the west by the Rock Springs Uplift. Geologic development of the GDB began in the Late Cretaceous and continued through much of the Early Eocene.

Rock outcrops in the GDB are dominated by the Battle Spring Formation of Eocene age. Due to the soft nature of the formation, this occurs largely as sub-crop beneath the soil. Regional and local surficial geology is shown on **Figure D5-1**. Maximum thickness of the Battle Spring Formation sediments within the GDB is 6,200 feet. Uranium deposits in the GDB, including the Permit Area, are found principally in the Battle Spring Formation.

D5.1.1 Regional Stratigraphy

The earliest sedimentation in the GDB was the Paleocene (Early Tertiary) Fort Union Formation, which was unconformably deposited upon the Lance Formation of Late Cretaceous age. The Fort Union Formation consists mostly of lacustrine shales, siltstones, and thin sandstones, which locally contain lignite and coal beds. The thickness of the Fort Union Formation varies from place to place in the GDB, and it is approximately 4,650 feet thick in the Permit Area.

The Fort Union Formation is unconformably overlain by sediments of Eocene age, making up about 6,200 feet of basin fill. The northern and northeastern portions of the GDB are dominated by thick, medium to coarse-grained arkosic sandstones and conglomerates, separated by intermittent mudstone, claystone and siltstone of the Battle Spring Formation. The Battle Spring Formation represents a large alluvial fan complex relatively close to the sediment source in the ancestral Granite Mountains, approximately 20 to 30 miles to the north. In the southern and southwestern portions of the GDB the

Battle Spring Formation undergoes a facies transition into intertonguing units of the Wasatch and Green River Formations which represent distal fluvial and lacustrine depositional environments, respectively. Lithology of these units is predominately sandstone, claystone, siltstone, limestone, conglomerate and include thin lignite beds. Pliocene pediment deposits and recent alluvium cover large areas of the surface in the GDB.

The Lost Creek Permit Area is located near the north-central part of the Basin. Here the GDB fill consists of the Eocene Battle Spring and Wasatch Formations plus the Paleocene Fort Union Formation. The upper portions of the stratigraphic section consist of Battle Spring Formation underlain by a tongue of the Wasatch Formation. The combined thickness of the Battle Spring and Wasatch Formations is approximately 6,200 feet. The Battle Spring/Wasatch Formations are unconformably underlain by the Fort Union Formation which is approximately 4,650 feet thick. The Fort Union Formation, in turn, is unconformably underlain by numerous Cretaceous, Jurassic, Triassic, Paleozoic, and Precambrian basement lithologic units.

Approximately six miles southwest of the Permit Area, the Battle Spring Formation interfingers with the Wasatch and Green River Formations of equivalent age (Eocene) within a belt roughly 15 miles wide (as illustrated on **Figure D5-1**). The Wasatch and Green River collectively represent low-energy fluvial, lacustrine and paludal depositional environments which are time-equivalents of the alluvial fan deposits of the Battle Spring Formation. **Figure D5-1** schematically illustrates the stratigraphic relationships of Tertiary sediments within the GDB, and the specific Permit Area stratigraphy.

D5.1.2 Regional Structure

The present geomorphological features of the GDB were generated by the Laramide Orogeny. During the Late Cretaceous and Early Tertiary, the structures surrounding the GDB were either rejuvenated or were formed, transforming the area into a bowl-shaped geological structure, the Basin. During this upheaval, the Wind River Mountains and Granite Mountains were thrusted upward on the north side of the GDB. The Rawlins Uplift formed to the east; the Wamsutter Arch formed to the south; and the Rock Spring Uplift formed to the west.

The GDB is asymmetrical, with its major axis trending west-northwest. Several anticlines and synclines have been mapped within the GDB, and some of these features are oil-bearing (at much deeper levels than the uranium-bearing formations). Noteworthy among these structures is the Lost Soldier anticline in the northeastern part of the GDB, approximately 15 miles northeast of the Permit Area. The Battle Spring and Fort Union Formations, as well as older rocks crop out in the anticline; and the formations on the southwestern flank of the anticline dip 20 to 25 degrees to the southwest. The dip gradually becomes gentler and, at the Permit Area, it is merely three degrees westerly.

Deep-seated regional thrust faulting associated with the Wind River uplift occurred at depth in the north-central portions of the GDB. The horizontal component of displacement is possibly greater than nine miles. However, displacement along these faults did not extend to the surface, such that the upper portions of the Battle Spring Formation are largely undisturbed.

Shallow normal faulting is also common throughout the central GDB, having a preferential orientation that is generally east-west. These are relatively local and appear to be the result of late stage events in the structural history of the GDB. They are believed to be the result of a regional extension event and possibly also isostatic unloading within the GDB due to regional erosion. They are not considered to be currently active. Displacements are generally less than 100 feet and most commonly less than 50 feet. For example, the maximum displacement within the Lost Creek Fault System, which traverses the mineralized area from west-southwest to east-northeast, is about 80 feet. More details about the Lost Creek Fault are discussed in Section D5.2.2.

Strata within the GDB generally exhibit gentle dips of one to three degrees, increasing to as much as 20 degrees in some locations along the GDB margin. Gentle folding during late Eocene accompanied late-stage regional thrusting; therefore broad anticlinal and synclinal folds are present within the Battle Spring Formation. Similar to the shallow normal faulting discussed above, the fold axes generally are oriented east-west.

D5.2 Site Geology

Outcrop within the entire Permit Area is represented solely by the upper portions of the Battle Spring Formation, which is the host to uranium mineralization. The Battle Spring Formation in the vicinity of the Lost Creek Property is part of a major alluvial fan system, consisting of a multitude of thin to thick beds of sandstones separated by numerous thin to medium thick layers of mudstone, claystone and siltstone. The sandstone facies represent fluvial channel fill depositional environments. The shaly units represent channel margin and overbank depositional environments. The anastomosing nature of the fluvial channels has resulted in stratigraphy which tends to be erratic and lacking long range continuity. Various stratigraphic intervals, some dominated by sandstone and others by mudstone, have been correlated and named across the Property and Permit Area. These named "Horizons" are described in more depth in the following Section (Section D5.2.1).

Lithology of the Battle Spring Formation within the Permit Area consists of approximately 60% to 80% weakly consolidated, medium to coarse, commonly conglomeratic, clean arkosic sands in units from five to 50 feet thick; separated by 20% to 40% interbedded mudstone, claystone, siltstone, and fine sandstone, generally less than 25 feet thick (**Figure D5-1**). This lithological assemblage remains relatively consistent

throughout the entire vertical section of interest within the Battle Spring Formation, such that the lithology of the shallowest units is virtually identical to that of the deepest units of interest. Economic uranium mineralization is generally associated with medium to coarse-grained sand facies.

Uranium deposits within the Lost Creek Property occur as roll front type deposits. The most significant mineral resources in the Lost Creek Property and the Permit Area occur within two major stratigraphic Horizons within the Battle Spring Formation: the HJ and the KM Horizons (**Figure D5-1**). The HJ Horizon carries the majority of the currently defined mineral resource and is currently permitted and being developed. The KM Horizon, the subject of this application, underlies the HJ Horizon and contains additional economic mineralization, which is the focus of this document.

Depth to the top of any given unit can vary from one end of the mineral trend to the other by up to 220 feet due to the regional dip of one to three degrees, and to displacement by normal faulting. Within the Permit Area the depth to KM Horizon mineralization ranges from 425 to 685 feet, averaging 515 feet.

Mineralization also occurs above the HJ within the DE and FG Horizons. The DE hosts only minor occurrences which are virtually always above the water table. Consequently it is of little economic interest. Mineralization within the FG is secondary to that of the HJ and KM, but is none the less significant, and remains to be investigated for economic viability. Mineral discoveries have also been made in the L, M, and N sands which are collectively referred to as the Deep Horizons and underlie the KM. Economic assessment of these Horizons will require additional exploration activity.

The combined HJ and KM mineral trend within the Permit Area is referred to as the Main Mineral Trend (MMT) and extends in an east-northeast to west-southwest orientation for nearly three miles (**Plate D5-1a and 1b**). The composite width of the MMT varies from 500 to 2,000 feet. Individual roll fronts within the deposit are typically 25 to 75 feet wide and are very sinuous. Mineralization in both the HJ and KM Horizons are stacked vertically and commonly overlie each other in a complex, erratic, anastomosing pattern in plan-view. Both the HJ and KM mineralization are considered to be the product of the same regional mineralizing event and therefore virtually contemporaneous and similar in most respects. The location of currently identified KM mineralization is illustrated in **Plate D5-1a.**

The geometry of the uranium mineralization is dominated by the classic roll front "C" shape or crescent configuration at the alteration interface. Thickness of mineralization within each roll front may vary from 5 to 25 feet thick. Typical thickness is from 10 to 15 feet. Mineral intercepts of over 25 feet in total thickness are common where multiple roll fronts occur stacked on top of each other. To date, a total of nine individual roll fronts have been identified in the KM Horizon within a stratigraphic interval of approximately 100 feet. Average grade within the Lost Creek MMT is approximately

0.057% eU_3O_8. East-west oriented normal faulting is common in the Lost Creek Property. As discussed above, these appear to be the product of relatively late-stage structural adjustments. They appear to be genetically associated with the Chicken Springs Fault system identified on published geological maps approximately five to ten miles to the east. The latest displacement of these faults was post-mineralization and therefore has offset mineralization. They are no longer considered active. The fault planes are close to vertical, being less than 3 degrees from vertical in locations where dip of the fault plane can be determined. Faulting is discussed in greater detail in Section D5.2.2.

D5.2.1 Site Stratigraphy

The upper portion of the Battle Spring Formation is host to the uranium mineralization in the Permit Area. Being the product of an alluvial fan depositional environment, the Battle Spring Formation can be described as a very thick sequence composed of innumerable individual channel sands typically from five to 50 feet thick interfingered with shales typically two to 25 feet thick which represent channel margin and overbank environments. Lateral extent of both of these lithologies can range from 100 feet to miles. Where multiple sand channels are stacked on top of each other, the cumulative sand thickness and width can be considerable. The erratic nature of these narrow channels results in stratigraphy which can be highly variable. The outcome can be very complex, where interfingering or abrupt facies changes may result in drastic changes in shale or sand thickness over short distances. This is well illustrated in the thickness isopach maps of the SBS and K Shales (**Plates D5-3a** and **D5-3b**) where discernible patterns of deposition are virtually absent; and also in the Geologic Cross-Sections (**Plates D5-2a** to **D5-2h and the Well Completion Reports in Attachment D5-1**).

Sedimentary and depositional patterns throughout the entire Battle Spring interval of interest remained quite consistent and uniform. Consequently, from a lithological and stratigraphic perspective there is little difference between deeper units and those near the surface. Distinctive characteristics of given stratigraphic intervals are subtle and generally are not consistent regionally, consequently partitioning into meaningful stratigraphic units remains largely arbitrary. Vertical boundaries have been defined at shale units showing the greatest regional continuity, or lacking that, at pre-established thickness intervals.

In the Permit Area, the top 1,200 feet of the Battle Spring Formation represents the interval of interest. Within this interval the stratigraphy has been sub-divided into several thick stratigraphic "Horizons" (e.g. HJ or KM). Horizons are dominated by sands and separated from each other by **"Named Shales"** of regional extent. Each horizon, however, is in actuality the composite of numerous "sands" which are in turn separated by numerous **"Unnamed Shales"** within the horizon. Unnamed shales may be quite extensive, or may be only of local extent. Note also that the term "shale" is used herein

rather loosely, as it commonly may include considerable amounts of siltstone or fine grained sand as well as mudstone and claystone.

Horizons of primary interest are further subdivided into "Sub-Horizons" (e.g., LFG, UHJ, UKM). Criteria for establishing sub-horizons are based largely on a combination of continuity of sand packages and continuity of associated mineral horizons. Vertical boundaries between sub-horizons are established somewhat arbitrarily and may or may not coincide with the presence of an intervening shale.

The resulting system of stratigraphic nomenclature is illustrated in the Stratigraphic Column within **Figure D5-1**. This nomenclature is internal to Ur-Energy and is not recognized officially by the geological community. The foundation for this system has been carried over, with some modification, from that established by Conoco Minerals during its early exploration activities in the region and subsequently adopted by Texasgulf during its tenure with the property. Nomenclature terms from surface downward to the KM Horizon were inherited from previous operators; below that the terms were derived by Ur-Energy.

Note that in the last few years Ur-Energy has abandoned the use of the term "Sand" in favor of the term "Horizon" to describe the major stratigraphic units. It is believed that the term "Sand" can be misleading in recognition of the fact that any substantial stratigraphic interval consists not only of sand facies but also contains a considerable number of interbedded shales which yields hydrogeological characteristics significantly different than an interval consisting only of sand.

Also note that the boundaries between horizons (i.e. Named Shales) have been established on a relatively arbitrary basis and don't necessarily reflect patterns or breaks in sedimentary or depositional characteristics. As a result, the system of nomenclature as illustrated on **Figure D5-1** should be viewed essentially and simply as a cataloguing tool for stratigraphic organization.

Named Shales represent the shaly interval nearest the stratigraphic level established as the break between Horizons. Strictly defined, they represent the shaly interval between the lowest sand assigned to the overlying Horizon and the uppermost sand assigned to the underlying Horizon. The Battle Spring interval of interest contains many more shales (unnamed) than just the Named Shales (see Type Log #2, **Figure D5-2** and Geological Cross-Sections **Plates D5-2a to D5-2h**). As such, Named Shales may not be the dominant shale in any given area nor represent the only shale occurring between production sands. Named Shales may not be regionally continuous; or they may represent a series of shales which can be overlapping, en-echelon, or complexly interwoven with vertically adjacent sands. Because of this complexity, thickness values selected for shale isopach mapping (**Plates D5-3a** and **D5-3b**) may not represent all shales in such a series, but rather only the one that best correlates to the stratigraphic

nomenclature boundary. An example of shale complexity is well illustrated in the central portions of Cross-Section I-I' (**Plate D5-2h**).

The most notable exceptions to the above statements are the LCS and SBS Shales which locally may display considerable complexity but do exhibit a high degree of regional continuity and confinement.

Provided below is a brief description of each named stratigraphic unit within the Permit Area. The general lithologic character of the units remains relatively consistent throughout the entire Property, however depths below ground surface (bgs) may vary significantly locally due to regional stratigraphic dip and displacement due to normal faulting.

A Horizon –The A Horizon is poorly characterized largely because it is commonly not present, having been removed by erosion; except in the western down-dip portions of the property and where it has been down-thrown by faulting. When present, lithologic data is often missing in drill logs because it is dry and occurs above the fluid level in the drill hole while logging. Fluid in the hole is required to generate the single point resistance and spontaneous potential (SP) curves used for lithological characterization. The lower boundary of the A Horizon is arbitrary and poorly defined. Significant mineralization is rare.

BC Horizon – The BC Horizon is the horizon occurring at the surface within the majority of the Permit Area. Like the A Horizon, it is often completely or partially above the drilling fluid level while logging, consequently detailed characterization of the BC Horizon is sporadic. In general it appears to be similar in character to the adjacent underlying DE Horizon. The upper and lower boundaries are arbitrary and poorly defined. Thickness is approximately 80 to 100 feet. The BC Horizon is dry, except possibly for some local perched water tables. Significant mineralization is rare.

DE Horizon – This Horizon occurs at the surface in the eastern portions of the Project. It commonly consists of a sequence of relatively thick sands with thick intervening shaly units. In portions of the Permit Area, the lower shale boundary is absent such that the sands of the DE Horizon coalesce vertically with sands of the underlying FG Horizon. In the Lost Creek Project, the top of the unit ranges in depth from surface to 200 feet and is approximately 80 feet thick where the entire section is present. The DE Horizon is the shallowest horizon which carries groundwater (i.e., the shallowest aquifer). When present, standing water levels occur at the very basal portions of the DE Horizon. Significant mineralization is uncommon.

EF Shale (formerly the Upper No Name Shale) – The EF Shale represents the boundary between the overlying DE Horizon and the underlying FG Horizon. Hydrogeological confinement by the EF Shale is not complete. It is not everywhere present and commonly does not consist of one regionally continuous shale but rather multiple shales

which overlap in en-echelon manner (for example, see the east half of Cross-Section D-E, **Plate D5-2c**). Thickness varies considerably from two to 45 feet. Depths to the EF Shale vary from 125 feet in the eastern portions of the Project to 300 feet in the western portions.

FG Horizon – In the Permit Area the top of the FG Horizon occurs at depths of approximately 125 feet in the east to 300 feet in the western regions of the Project. The total thickness of the FG Horizon is typically about 160 feet, ranging between 140 to 175 feet. Stratigraphically, the FG Horizon is subdivided into three sub-horizons: the Upper FG (UFG), Middle FG (MFG) and the Lower FG (LFG), all roughly of equal thickness. The breaks between these are not rigidly defined. Generally they are selected based on significant shales (if present) which separate channel-fill sequences. The character of individual FG sand units tends to be thinner, more erratic and shaly than what is characteristic of lower horizons; and as a whole the FG has a lower Sandstone to Shale (SS/Sh) ratio. The FG contains significant mineralization in the Permit Area.

Lost Creek Shale (LCS) – The Lost Creek Shale separates the FG and HJ Horizons. It is a dominant shaly horizon which has been found to be continuous throughout the Lost Creek Permit area. For this reason it has been used as the datum for stratigraphic correlation. Thickness ranges from 5 to 45 feet, typically being from 10 to 25 feet. Depth ranges from approximately 280 feet in the east portions of the project to 475 feet in the west. Its lithology is dominated by silty mudstone and dense claystone. It commonly includes siltstone, and may locally be sandy or contain thin lenticular sands. Segments of the LCS commonly interfinger with and undergo rapid facies exchanges with lower sands of the FG Horizon and upper sands of the HJ Horizon. This can complicate correlation and often results in dramatic changes in the thickness of the LCS within short horizontal distances.

HJ Horizon – The HJ Horizon is the dominant host for mineralization in the MMT and is the host to current production development. The HJ Horizon has been subdivided into four sub-horizons: Upper HJ (UHJ), Middle HJ1 (MHJ1), Middle HJ2 (MHJ2) and the Lower HJ (LHJ). The boundaries between the sub-horizons are somewhat arbitrary but selection is guided by sand channel and roll front mineral horizon continuity. Boundaries may be accompanied by a shale break. The bulk of the uranium mineralization is present in the two MHJ sub-horizons. The HJ Horizon characteristically includes noticeably thicker sands and a high SS/Sh ratio compared to most of the other horizons. The total thickness of the HJ Horizon ranges from 120 to 160 feet, averaging approximately 130 feet. Depth to the top of the HJ Horizon within the Permit Area ranges from approximately 280 feet in the east to 475 feet in the west.

Sagebrush Shale (SBS) – The Sagebrush Shale forms the boundary between the HJ Horizon and the underlying KM Horizon. As such it represents the aquitard between the HJ production horizon and the proposed KM production horizon. The SBS is laterally extensive and virtually continuous throughout the Permit Area. Within the Permit Area

depth to this shale ranges from 425 feet in the eastern portions of the Project to approximately 625 feet in the west. Thickness varies from 2 to 50 feet. Similar to the LCS, segments of the SBS commonly interfinger with and undergo rapid facies exchanges with lower sands of the HJ Horizon and upper sands of the KM Horizon. This can complicate correlation and often results in dramatic changes in the thickness of the SBS within short horizontal distances, as is evident in the thickness isopach map for the SBS (**Plate D5-3a**)

KM Horizon – The KM Horizon is the secondary host to the mineralization in the MMT. Proposed production from the KM is the focus of this document. Nomenclature for the KM was modified in recent years. Initially, and at the time of the original Mine Permit, the KM Horizon was assigned three sub-horizons: the Upper KM (UKM), the Middle KM (MKM) and the Lower KM (LKM). As additional drilling results became available over time it became apparent that the KM is better described as having only two sub-horizons, underlain by the K Shale. Consequently the MKM designation was abandoned and replaced by the LKM such that the current nomenclature employs only the UKM and LKM.

In general the character and lithology of the KM is similar to that of the HJ Horizon. Both the UKM and the LKM sub-horizons host mineralization. A shale unit referred to as the No Name Shale (NNS) commonly divides the two sub-horizons of the KM, but it is not present everywhere within the Project. Depth to the top of the KM Horizon ranges from 430 feet in the eastern portions of the Project to 650 feet in the far western portions. Thickness ranges from 80 feet to 110 feet.

K Shale – The K-Shale represents the lower boundary of the proposed KM production horizon. It occurs throughout the Lost Creek area, but may be sporadically absent locally. Where present, continuity and confinement is not seamless as it may locally be represented by multiple overlapping shales. Average thickness is 10 feet, ranging from 2 feet to 40 feet. A thickness isopach map for the K Shale is presented as **Plate D5-3b**. Depth to the K Shale varies from 525 feet in the eastern margins of the Project to 750 feet in the west.

L, M, and N Horizons – These horizons are collectively referred to as the "Deep Horizons" and occur within a 300 to 350 feet interval below the K Shale. Currently they are the targets of exploration activities. Available drill data for these horizons is much sparser than for the shallower horizons. Individually, each horizon is approximately 100 feet thick. They consist of lithologies identical to that of shallower horizons. In general, like the remainder of the Battle Spring Formation, they are composed of multiple, stacked, coarse sands separated by numerous shale intervals. Stratigraphically, shales within these horizons are often relatively thick and more continuous than seen in the shallower horizons, contributing to an overall lower SS/Sh ratio. At the same time, individual sands tend to be thicker and show more regional continuity. This character becomes more dominant with depth.

L Horizon: Depth to the L Horizon varies from 525 feet in the east to approximately 750 feet in the west. Thickness of the L Horizon is locally diminished significantly due to substantial thickening of the underlying LM Shale.

M Horizon: Locally the M Horizon exhibits a much more shaly character with more shale interbeds, thinner sands and a much lower SS/Sh ratio than the vertically adjacent horizons. Depth to the top of the M Horizon ranges from 610 feet in the east to 825 feet in the western portions of the Project.

N Horizon: The character of the N Horizon is similar to that of the L and M, commonly exhibiting thick shales with well-developed sands. Depth to the top of the N Horizon ranges from 725 feet in the east to approximately 940 feet in the west.

LM, MN, and NP Shales – These shales represent the lower boundaries of the L, M and N Horizons respectively. Designation of these shales as horizon boundaries were arbitrarily established on roughly 100 foot intervals below the K Shale. As such they do not present unique characteristics compared to any other shales within this stratigraphic interval. Thickness of the shales varies considerably, reaching up to 50 feet with an average of approximately 13 feet. Although these shales have regional extent, continuity is unconfirmed. In many areas drill data spacing is insufficient to confirm correlation. Breaks in these shales have locally been identified.

D5.2.2 Site Structure

The dominant geologic structural features in the Permit Area are a series of normal faults. The locations of these faults are illustrated in the General Location Map (**Plate D5-1a and 1b**); in the Geological Cross-Sections (**Plates D5-2a** to **D5-2h**) and in the Isopach Maps; (**Plates D5-3a** to **D5-3b**). Bedding within the Battle Spring Formation in the Permit Area is nearly flat-lying, dipping gently to the northwest at roughly three degrees. This regional pattern of strike and dip is modified locally due to horst and graben features resulting from normal faulting in the Lost Creek area.

The MMT within the Permit Area is bisected by a normal fault system, which is collectively referred to as the Lost Creek Fault. This consists essentially of two faults, lying roughly parallel and en-echelon, trending from east-northeast to west-southwest (**Plate D5-1**).

The 'main' Lost Creek Fault trends east to west and dissects the eastern two-thirds of the Permit Area. Downward displacement occurs on the south block. Throw is approximately 70 to 80 feet in the eastern portion of the Permit Area, decreasing to the west, and eventually losing identity in the western one-third of the Permit Area. Easterly,

displacement on the 'main' fault disappears near the eastern boundary of Section 17. In addition, a minor 'splay' fault has been identified close to the 'main' fault in the west-central portion of the Main Mineral Trend. Maximum throw on this fault is roughly 20 feet in the opposite direction than the 'main' fault, creating a localized graben structure between.

A second or 'subsidiary' fault to the 'main' fault is positioned sub-parallel and approximately 800 to 1,000 feet south. Throw is opposite that of the 'main' fault with a maximum down to the north displacement of approximately 50 feet. The 'subsidiary' fault also has a minor splay fault associated with it which splits off to the north between the 'subsidiary' and 'main' faults. Drilling conducted in recent years shows that the primary branch of the 'subsidiary' fault continues easterly out of the Permit Area. Portions of it were previously referred to as the South fault. Westerly, the 'subsidiary' fault appears to diminish before reaching the western Permit boundary.

Drilling has identified additional faults elsewhere within the Permit Area. The 'north' Fault is located roughly 3,800 feet north of the MMT and has displacement ranging from approximately 20 feet to 80 feet. Also a significant fault has been discovered in Section 25 in the southernmost portions of the Permit Area. Displacement on this fault is approximately 120 to 160 feet. Both of these faults are distant from the MMT and are well outside of anticipated production areas. Several other minor faults have also been identified (**Plate D5-1a**). Most of these are of limited extent and exhibit throws no more than 10 to 20 feet.

Finally, drilling has revealed three faults within Section 16 in the eastern portions of the Permit Area. Orientation of these faults closely parallels that of the Main Fault. Displacement varies from 15 to 50 feet. They are east of the anticipated areas of KM production and therefore will have minimal, if any, effect on that production.

Pump-testing and monitoring on both sides of the 'main' fault in the Mine Unit 1 area have demonstrated that the fault plane acts as a substantial barrier to flow within the HJ and KM Horizons (see Section D6).

D5.2.3 Ore Mineralogy and Geochemistry

Mineralogy has been studied in thin section and by x-ray diffraction analysis. These analyses were conducted in 2007 by Hazen Research (Hazen, 2007) which included samples from the KM Horizon derived from core (core-hole LC64C). Results indicate that the uranium in the KM is virtually identical to that in the HJ Horizon, occurring primarily as the mineral coffinite (uranium silicate) in the form of micron- to submicron-size inclusions disseminated in and on interstitial clay, possibly absorbed by cation exchange; also intimately interspersed through some of the pyrite and as partial coatings on quartz and biotite. Minor amounts of uraninite (uranium oxide) and brannerite

(uranium-titanium oxide) have also been identified. Clay rich fractions are predominantly smectite (montmorillonite), with minor kaolinite.

The Hazen Research analysis concluded that uranium should be recoverable by an ISR operation because of the unconsolidated nature of the sandstone and expected diffusion of the lixiviant through the smectite minerals. Leach amenability tests as discussed in the original Permit Application included one set of core samples collected from the UKM Horizon (core-hole LC46C). Recoverability has been confirmed by these leach testing results, which revealed that the character of KM mineralization is virtually identical to that in the HJ Horizon.

Please refer to the Lost Creek Project, WDEQ-LQD Permit to Mine Application; December 2007 and subsequent revisions.

D5.2.4 Exploration and Production Activities

This section is unchanged from the original permit document. Please refer to the Lost Creek Project, WDEQ-LQD Permit to Mine Application; December 2007 and subsequent revisions.

D5.3 Seismology

This section is unchanged from the original permit document. Please refer to the Lost Creek Project, WDEQ-LQD Permit to Mine Application; December 2007 and subsequent revisions.

D5.3.1 Historic Seismicity

This section is unchanged from the original permit document. Please refer to the Lost Creek Project, WDEQ-LQD Permit to Mine Application; December 2007 and subsequent revisions.

D5.3.2 Uniform Building Code

This section is unchanged from the original permit document. Please refer to the Lost Creek Project, WDEQ-LQD Permit to Mine Application; December 2007 and subsequent revisions.

D5.3.3 Deterministic Analysis of Active Fault Systems

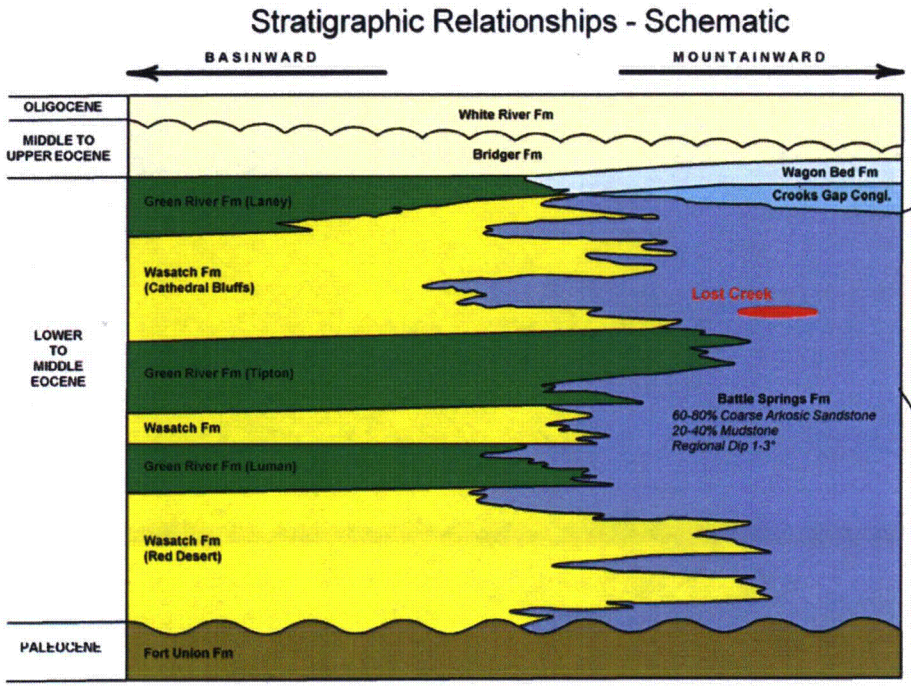
This section is unchanged from the original permit document. Please refer to the Lost Creek Project, WDEQ-LQD Permit to Mine Application; December 2007 and subsequent revisions.

D5.3.4 Maximum Tectonic Province Earthquake "Floating Earthquake" Seismogenic Source

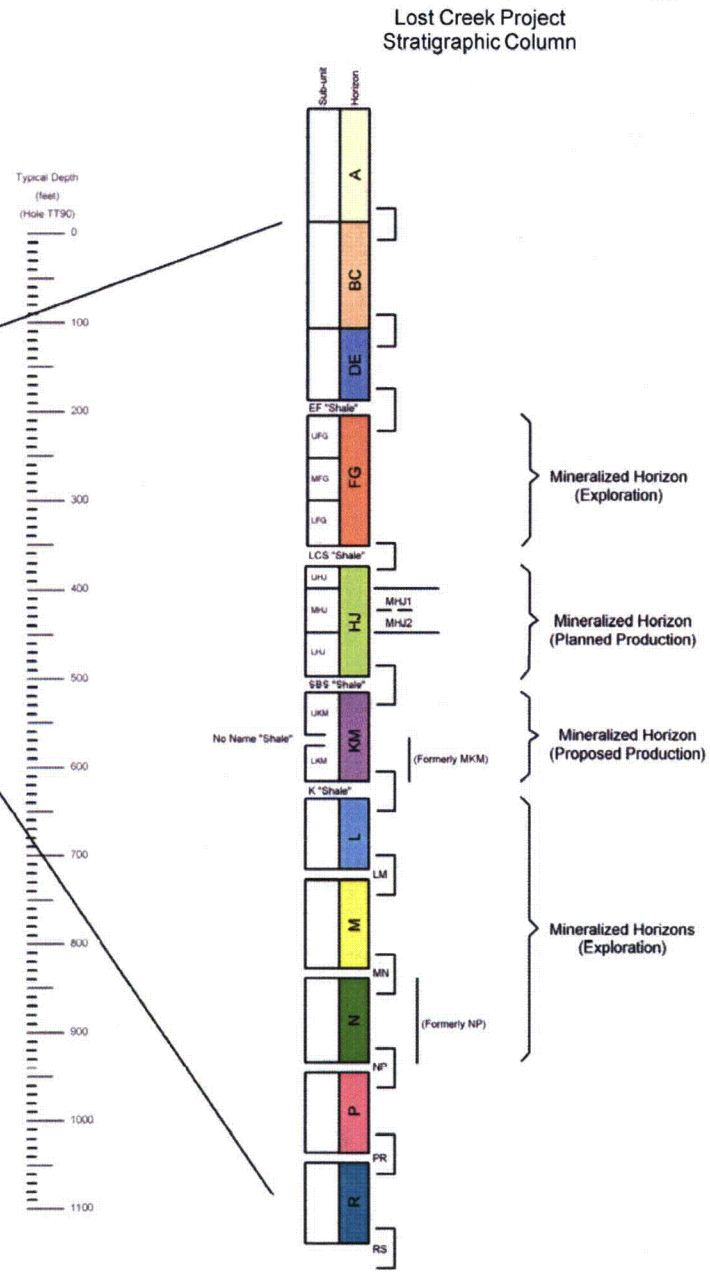
This section is unchanged from the original permit document. Please refer to the Lost Creek Project, WDEQ-LQD Permit to Mine Application; December 2007 and subsequent revisions.

D5.3.5 Short-Term Probabilistic Seismic Hazard Analysis

This section is unchanged from the original permit document. Please refer to the Lost Creek Project, WDEQ-LQD Permit to Mine Application; December 2007 and subsequent revisions.



Diagrammatic relationships of Tertiary sedimentary units in the Great Divide Basin, Wyoming (Modified from Pippiringos & Denson, 1970)



Lost Creek ISR, LLC
Casper, Wyoming, USA

Figure D5-1
Stratigraphic Relationships
Lost Creek Project

July 15, 2014 Drawn by: MML

Lost Creek ISR, LLC

FIGURE D5–2

Lost Creek ISR, LLC

TYPE LOG #2 – LOST CREEK PROJECT

HOLE # LC556

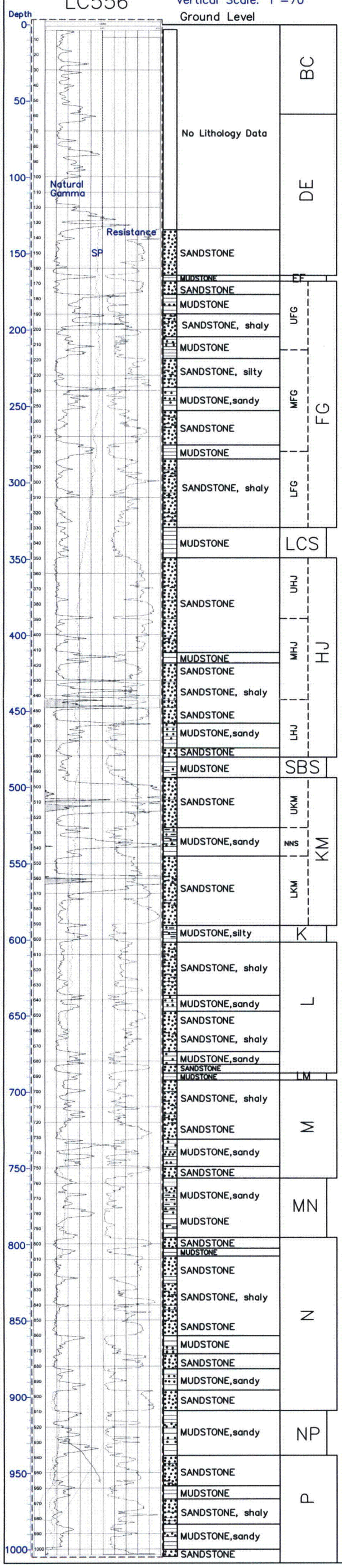
E 2,213,333/N 596,190 (NAD 83)

Elev. 6954'

LC556

Vertical Scale: 1"=70'

Ground Level



Battle Spring Formation –Typical Lithology

SANDSTONE: arkosic; medium to very coarse–grained, locally fine–grain; poorly–sorted; subangular to angular; weakly to moderately consolidated, moderately firm.

Represents bed–load to mixed–load, channel–fill fluvial environments within a distal alluvial fan system.

MUDSTONE, commonly very silty and/or sandy; soft to very firm; and CLAYSTONE, moderately firm to very firm, dense, blocky.
Secondary amounts of SILTSTONE, commonly very sandy, firm to very firm.
Collectively referred to as 'Shale'
Represents inter–channel and overbank fluvial environments.

Considerable lateral facies changes, inter–tonguing, and overlapping occurs between between the two dominant lithologies. This can be very dramatic within short distances.

DE Horizon: Multiple sandstone units interbedded with mudstones
Host to minor amounts of uranium mineralization.

EF Shale: (upper No–Name Shale): Mudstone and claystone commonly silty and/or sandy; locally with interbedded very fine–granied sands. Does not exhibit lateral continuity throughout project area. Represents a series of overlapping shaley units.

FG Horizon: Multiple sandstone units interbedded with mudstones
Host to significant uranium mineralization.

LCS (Lost Creek Shale): Mudstone and claystone, commonly silty and/or sandy; locally with interbedded very fine–grained sands. Exhibits lateral continuity throughout project area. Commonly intertongues with upper portions of the HJ and lower portions of the FG.

Overlying Horizon (KM Production)

HJ Horizon: Multiple sandstone units interbedded with mudstones
Host to economic uranium mineralization.

Current PRODUCTION HORIZON

Overlying Confining Unit (KM Production)

SBS (Sagebrush Shale): Mudstone and claystone, commonly silty and/or sandy; locally with interbedded very fine–grained sands. Exhibits lateral continuity throughout project area. Commonly intertongues with upper portions of the KM and lower portions of the HJ.

Production Horizon

KM Horizon: Multiple sandstone units interbedded with mudstones
Host to economic uranium mineralization.

Proposed PRODUCTION HORIZON

Includes NNS (No Name Shale) separating UKM from LKM.
Does not exhibit regional continuity.

(Note: LKM was previously named MKM).

Underlying Aquitard (KM Production)

K Shale: Mudstone and claystone, commonly silty and/or sandy. Regional continuity is unconfirmed. Locally may consist of multiple, intertonguing shales..

L Horizon: Multiple sandstone units interbedded with mudstones
Host to uranium mineralization discoveries.

LM Shale: Mudstone and claystone, commonly silty and/or sandy. Regional continuity is unconfirmed. Locally may consist of multiple, intertonguing shales..

M Horizon: Multiple sandstone units interbedded with mudstones
Host to uranium mineralization discoveries.

MN Shale: Mudstone and claystone, commonly silty and/or sandy. Regional continuity is unconfirmed. Locally may consist of multiple, intertonguing shales..

N Horizon: Multiple sandstone units interbedded with mudstones
Host to uranium mineralization discoveries.

NP Shale: Mudstone and claystone, commonly silty and/or sandy. Regional continuity is unconfirmed. Locally may consist of multiple, intertonguing shales..

P Horizon: Multiple sandstone units interbedded with mudstones

(TD 1003 ft.)

PROFESSIONAL GEOLOGIST
CALVIN E. VANHOLLAND
PG-2184
WYOMING

FIGURE D5–2

The 12 drawings specifically referenced in the table of contents have been processed into ADAMS.

These drawings can be accessed within the ADAMS package or by performing a search on the Document/Report Number.

D01 – D12

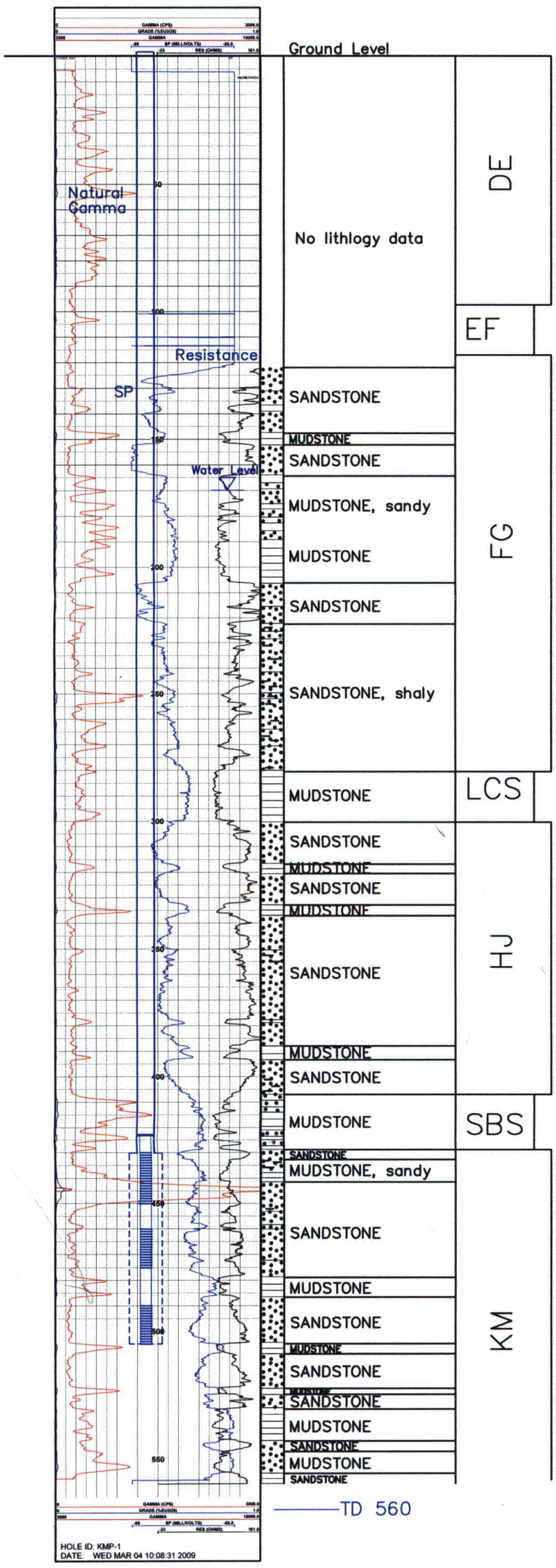
Attachment D5-1 Well Completion Reports

KMP-1 Well Completion Report
KMP-2 Well Completion Report
KMP-3A Well Completion Report
KMP-4 Well Completion Report
KMP-5 Well Completion Report
KMU-1 Well Completion Report
KMU-2 Well Completion Report
KMU-3 Well Completion Report
KMU-4 Well Completion Report
KPW-1A Well Completion Report
KPW-3 Well Completion Report
LC33W Well Completion Report
LC229W Well Completion Report
LC606W Well Completion Report
MB-11 Well Completion Report
MB-12A Well Completion Report
MB-13 Well Completion Report
MB-14 Well Completion Report
M-KM1 Well Completion Report
M-KM2 Well Completion Report
M-KM3A Well Completion Report
M-L1 Well Completion Report
M-L2 Well Completion Report
M-L3 Well Completion Report
M-L4 Well Completion Report
M-L5 Well Completion Report
M-M1 Well Completion Report
M-M2 Well Completion Report
M-M3 Well Completion Report
M-M4 Well Completion Report
M-M5 Well Completion Report
M-M6A Well Completion Report
M-M7 Well Completion Report
M-M8 Well Completion Report
M-N1 Well Completion Report
5S-HJ1 Well Completion Report
5S-KM1 Well Completion Report
5S-KM2 Well Completion Report
5S-KM3 Well Completion Report
5S-KM4 Well Completion Report
5S-N1 Well Completion Report

KMP–1

Vertical Scale: 1"=50'

KMP–1



Lost Creek ISR, LLC

WELL COMPLETION REPORT

WELL # KMP–1 SEO # 189583 Date Drilled: 3/4/09

Location: E 2,216,968 / N 594,503 (NAD 83)

Ground Elev: 6935 Measure Point Elev: 6936.3

TD: 560'. Hole Dia.: 7–7/8"

CASED to: 470' Casing: PVC SDR17 ID: 4.5" OD: 5"

GROUT: Portland Cement – Type I/II
Pumped thru casing, displaced to surface with water

COMPLETION Aquifer: KM Horizon

Static Water Level: Depth 170.4' Elev: 6764.3 (11/8/10.)

UNDERREAM: Blade Dia: 11"

Intervals: from 430' to 505' /length 75"

from _____ to _____ /length _____

SCREEN LINER ASSEMBLY

Description	Depth From	Depth To	Elev. From	Elev. To	Length
K–packer string	423'	430'	6512'	6505'	7'
Screen	430'	450'	6505'	6485'	20'
Screen	460'	475'	6475'	6460'	15'
Screen	490'	505'	6445'	6430'	15'

SCREEN SPECIFICATIONS:

Slot: 0.020" Composition 3" PVC screen (wrapped)

FILTER PACKING: N/A

Volume: _____ (bags)(ft^3) Sand Specs. _____

Method: _____

WELL STIMULATION: Method Airlift

Yield: (Good) / Moderate / Poor

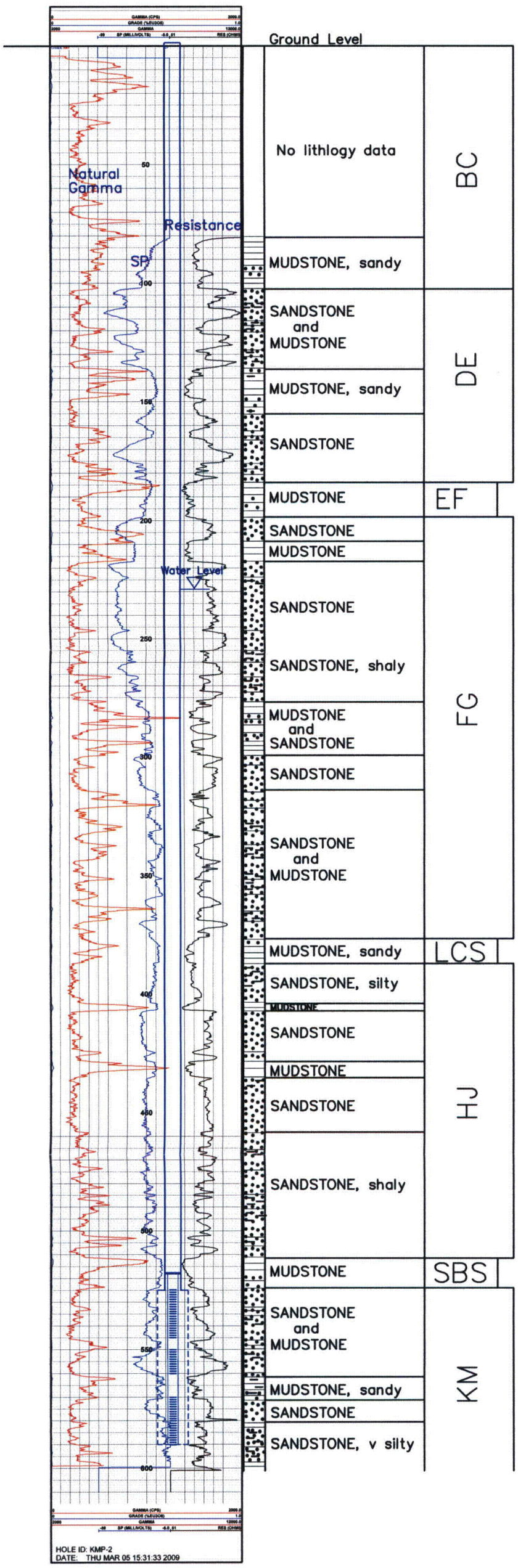
50 gpm

PROFESSIONAL GEOLOGIST
CALVIN E. VANHOLLAND
PG-2184
WYOMING

KMP–1

Vertical Scale: 1"=50'

KMP–2



KMP–2

Lost Creek ISR, LLC

WELL COMPLETION REPORT

WELL # KMP–2 SEO # 189584 Date Drilled: 3/5/09

Location: E 2,216,654 / N 599,180 (NAD 83)

Ground Elev: 7015' Measure Point Elev: 7016.5'

TD: 600' Hole Dia.: 7–7/8"

CASED to: 525' Casing: PVC SDR17 ID: 4.5" OD: 5"

GROUT: Portland Cement – Type I/II
Pumped thru casing, displaced to surface with water

COMPLETION Aquifer: KM Horizon

Static Water Level: Depth 229.0' Elev: 6786.7' (11/8/10)

UNDERREAM: Blade Dia: 10.5"

Intervals: from 525' to 590' /length 65'

from ____ to ____ /length ____

SCREEN LINER ASSEMBLY

Description	Depth From	Depth To	Elev. From	Elev. To	Length
K–packer string	518'	525'	6496'	6489'	7'
Screen	525'	545'	6489'	6469'	20'
Screen	550'	560'	6464'	6454'	10'
Screen	570'	590'	6444'	6424'	20'

SCREEN SPECIFICATIONS:

Slot: 0.020" Composition 3" PVC screen (wrapped)

FILTER PACKING: N/A

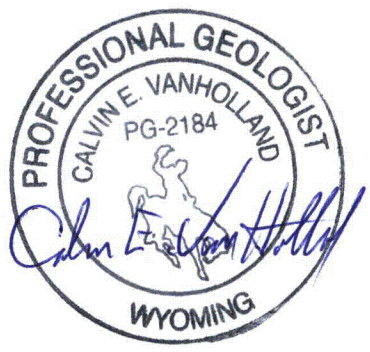
Volume: ____ (bags)(ft^3) Sand Specs. ____

Method: ____

WELL STIMULATION: Method Airlift

Yield (Good) / Moderate / Poor

50 gpm



KMP–2

KMP–3A

Lost Creek ISR, LLC

WELL COMPLETION REPORT

WELL # KMP–3A SEO # 189585 Date Drilled: 3/19/09

Location: E 2,214,149 / N 596,542 (NAD 83)

Ground Elev: 6965 Measure Point Elev: 6966.2

TD: 580'. Hole Dia.: 7–7/8"

CASED to: 500' Casing: PVC SDR17 ID: 4.5" OD: 5"

GROUT: Portland Cement – Type I/II
Pumped thru casing, displaced to surface with water

COMPLETION Aquifer: KM Horizon

Static Water Level: Depth 205.3' Elev: 6759.7' (avg.)

UNDERREAM: Blade Dia: 10.5"

Intervals: from 500' to 565' /length 65'

from _____ to _____ /length _____

SCREEN LINER ASSEMBLY

Description	Depth From	– To	Elev. / From	– To	Length
K–packer string	494'	500'	6472'	6465'	7'
Screen	500'	530'	6465'	6435'	30'
Screen	545'	565'	6420'	6400'	20'

SCREEN SPECIFICATIONS:

Slot: 0.020" Composition 3" PVC Screen (wrapped)

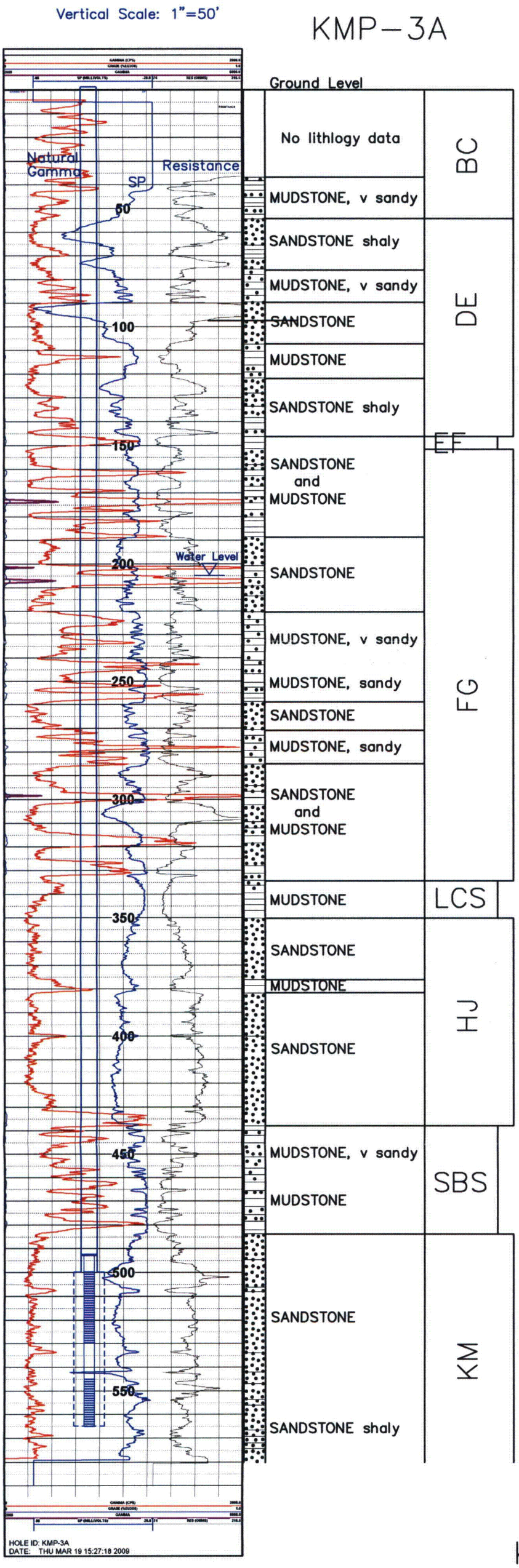
FILTER PACKING: N/A

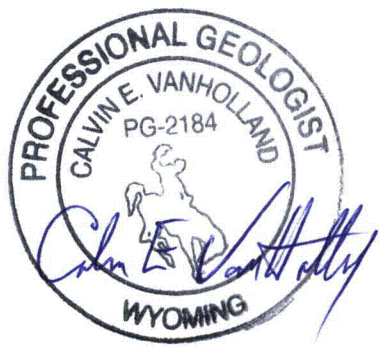
Volume: _____ (bags)(ft^3) Sand Specs. _____

Method: _____

WELL STIMULATION: Method Airlift

Yield: Not recorded

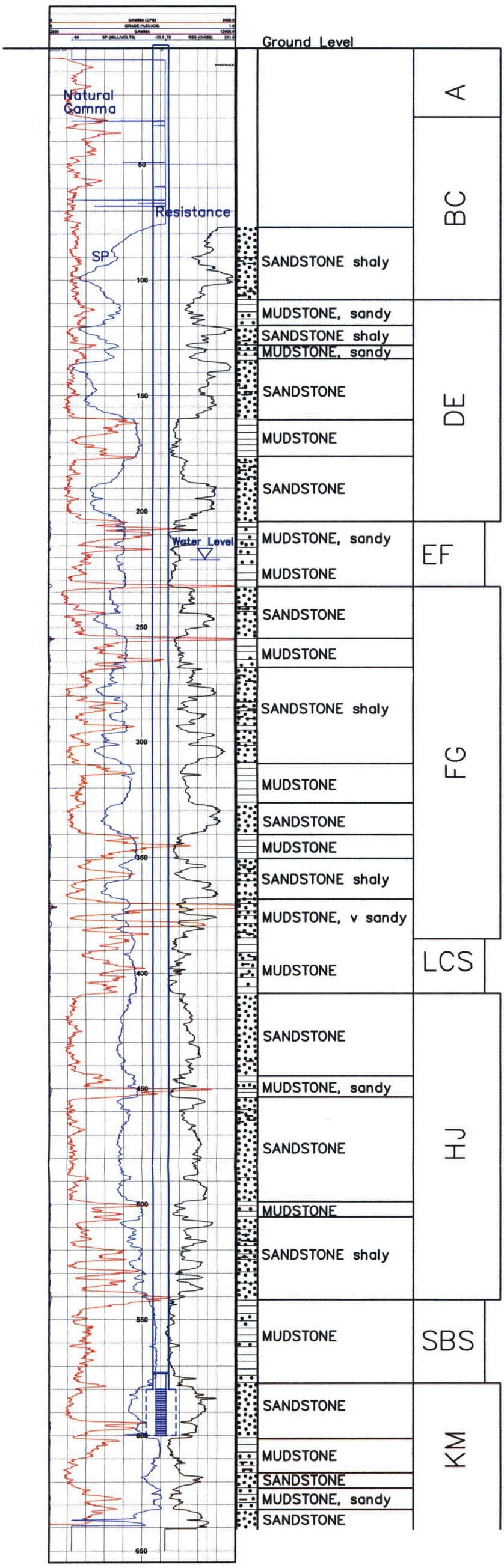




KMP–3A

Vertical Scale: 1"=50'

KMP–4



KMP–4

Lost Creek ISR, LLC

WELL COMPLETION REPORT

WELL # KMP–4 SEO # 189586 Date Drilled: 3/6/09

Location: E 2,211,256 / N 597,607 (NAD 83)

Ground Elev: 6969' Measure Point Elev: 6971.2'

TD: 640' Hole Dia.: 7–7/8"

CASED to: 580' Casing: PVC SDR17 ID: 4.5" OD: 5"

GROUT: Portland Cement – Type I/II
Pumped thru casing, displaced to surface with water

COMPLETION Aquifer: UKM Sub–Horizon

Static Water Level: Depth 221.1' Elev: 6748.4 (11/8/10)

UNDERREAM: Blade Dia: 10.5"
Intervals: from 580' to 600' /length 20'
from _____ to _____ /length _____

SCREEN LINER ASSEMBLY

Description	Depth From	Depth To	Elev. From	Elev. To	Length
K–packer string	573'	580'	6396'	6389'	7'
Screen	580'	600'	6389'	6369'	20'

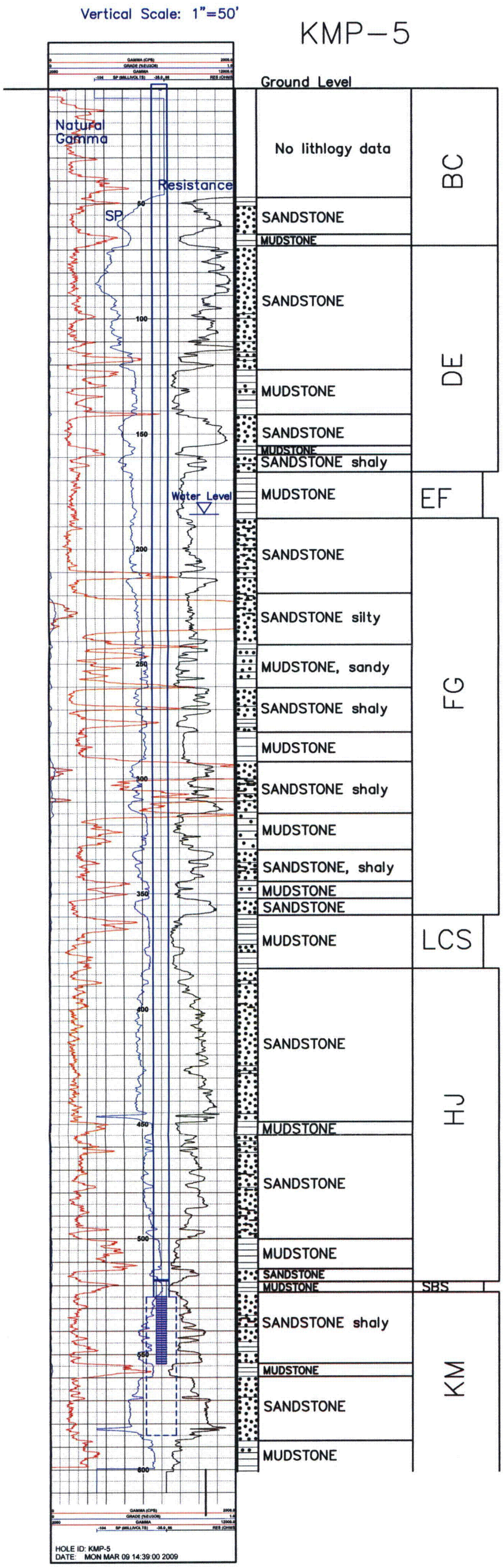
SCREEN SPECIFICATIONS:
Slot: 0.020" Composition 3" PVC Screen (wrapped)

FILTER PACKING: N/A
Volume: _____(bags)(ft^3) Sand Specs. _____
Method: _____

WELL STIMULATION: Method Airlift
Yield: Good / Moderate / Poor
50 gpm

PROFESSIONAL GEOLOGIST
CALVIN E. VANHOLLAND
PG-2184
WYOMING

KMP–4



Lost Creek ISR, LLC

WELL COMPLETION REPORT

WELL # KMP–5 SEO # 189587 Date Drilled: 3/9/09

Location: E 2,210,070 / N 594,057 (NAD 83)

Ground Elev: 6915 Measure Point Elev: 6916.2

TD: 600' Hole Dia.: 7–7/8"

CASED to: 525' Casing: PVC SDR17 ID: 4.5" OD: 5"

GROUT: Portland Cement – Type I/II
Pumped thru casing, displaced to surface with water

COMPLETION Aquifer: UKM Sub–Horizon

Static Water Level: Depth 185.2' Elev: 6730.5'
(11/8/10)

UNDERREAM: Blade Dia: 10.5"
Intervals: from 525' to 585' /length 60'
from _____ to _____ /length _____

SCREEN LINER ASSEMBLY

Description	Depth From	– To	/ Elev. From	– To	Length
K–packer string	518'	525'	6398'	6391'	7'
Screen	525'	554'	6391'	6362'	29'

SCREEN SPECIFICATIONS:
Slot: 0.020" Composition 3" PVC Screen (wrapped)

FILTER PACKING: N/A
Volume: _____(bags)(ft^3) Sand Specs. _____
Method: _____

WELL STIMULATION: Method Airlift
Yield: Not recorded

PROFESSIONAL GEOLOGIST
CALVIN E. VANHOLLAND
PG-2184
WYOMING

KMU–1

Lost Creek ISR, LLC

WELL COMPLETION REPORT

WELL # KMU–1 SEO # 189588 Date Drilled: 3/6/09

Location: E 2,214,011 / N 595,543 (NAD 83)

Ground Elev: 6945 Measure Point Elev: 6947.4

TD: 740' Hole Dia.: 7–7/8"

CASED to: 650' Casing: PVC SDR17 ID: 4.5" OD: 5"

GROUT: Portland Cement – Type I/II
Pumped thru casing, displaced to surface with water

COMPLETION Aquifer: L Horizon

Static Water Level: Depth 194.8' Elev: 6749.8'
(3/15/13)

UNDERREAM: Blade Dia: 10.5"
Intervals: from 650' to 675' /length 25'
from ____ to ____ /length ____

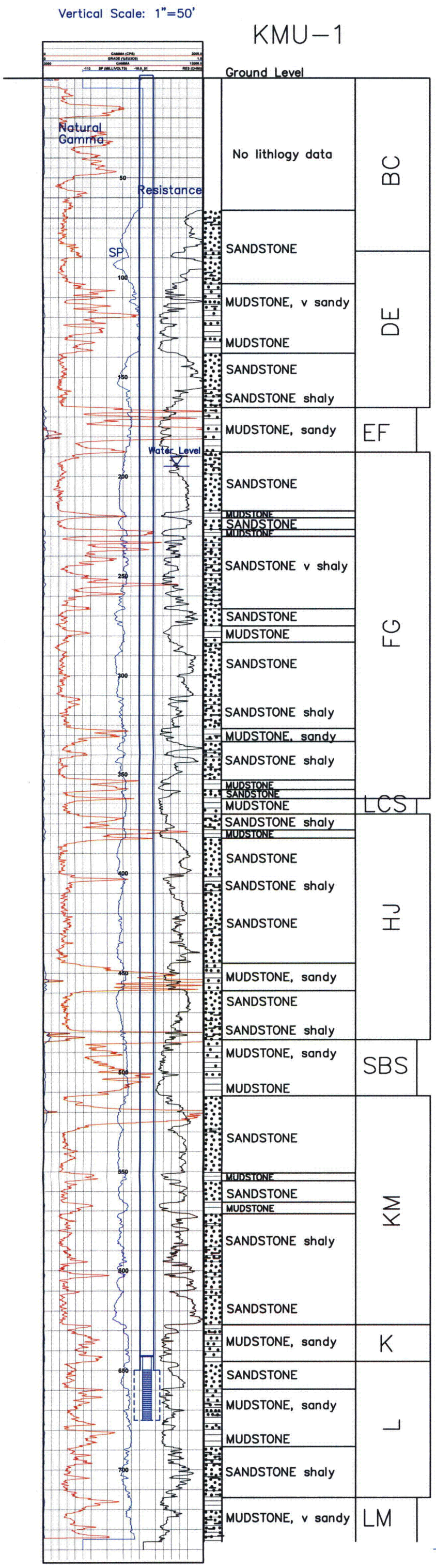
SCREEN LINER ASSEMBLY

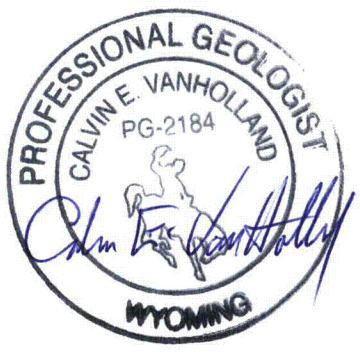
Description	Depth From	Depth To	Elev. From	Elev. To	Length
K–packer unit	643'	650'	6302'	6295'	7'
Screen	650'	675'	6295'	6270'	25'

SCREEN SPECIFICATIONS:
Slot: 0.020" Composition 3" PVC Screen (wrapped)

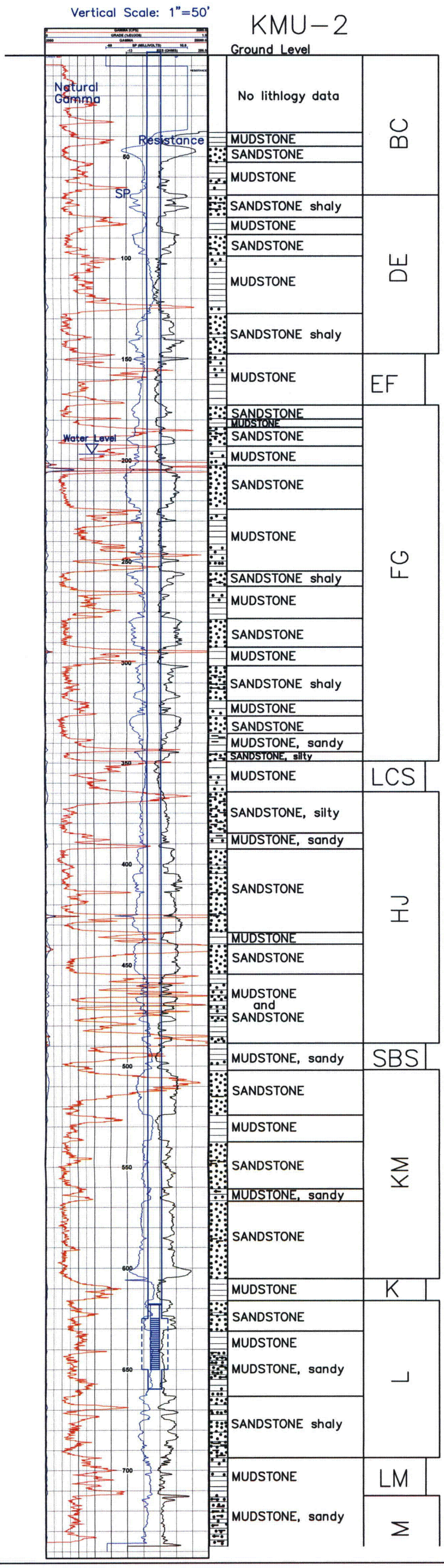
FILTER PACKING: N/A
Volume: ____ (bags)(ft^3) Sand Specs. ____
Method: ____

WELL STIMULATION: Method Airlift
Yield: Not recorded





KMU–1



KMU-2

Lost Creek ISR, LLC

WELL COMPLETION REPORT

WELL # KMU-2 SEO # 189,589 Date Drilled: 3/4/09

Location: E 2,215,179 / N 595,572 (NAD 83)

Ground Elev: 6952' Measure Point Elev: 6953.0

TD: 740' Hole Dia.: 7-7/8"

CASED to: 660' Casing: PVC SDR17 ID: 4.5" OD: 5"

GROUT: Portland Cement – Type I/II
Pumped thru casing, displaced to surface with water

COMPLETION Aquifer: L Horizon

Static Water Level: Depth 197.0 Elev: 6755.3 (3/15/13)

UNDERREAM: Blade Dia: 10.5"

Intervals: from 625' to 650' /length 25'

from _____ to _____ /length _____

SCREEN LINER ASSEMBLY

Description	Depth From	Depth To	Elev. From	Elev. To	Length
K-packer string	618'	625'	6334'	6327'	7'
Screen	625'	650'	6327'	6302'	25'

SCREEN SPECIFICATIONS:

Slot: 0.020" Composition 3" PVC Screen (wrapped)

FILTER PACKING: N/A

Volume: _____ (bags)(ft^3) Sand Specs. _____

Method: _____

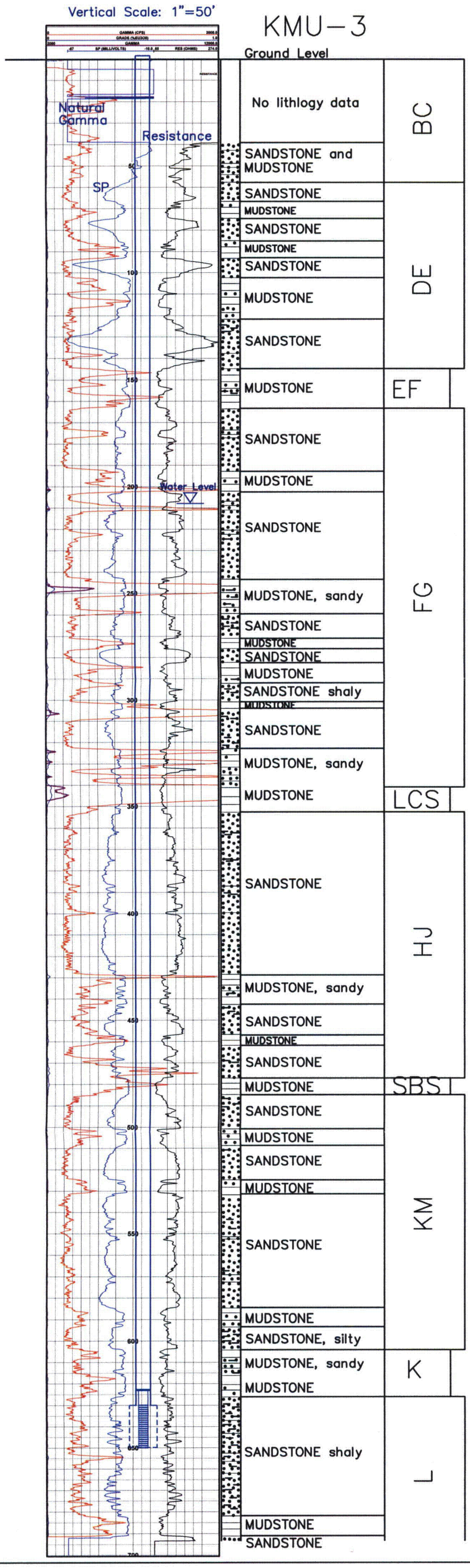
WELL STIMULATION: Method Airlift

Yield: Good / Moderate / Poor

50 gpm

PROFESSIONAL GEOLOGIST
CALVIN E. VANHOLLAND
PG-2184
WYOMING

KMU-2



KMU-3

Lost Creek ISR, LLC

WELL COMPLETION REPORT

WELL # KMU-3 SEO # 189590 Date Drilled: 3/6/09

Location: E 2,214,220 / N 596,505 (NAD 83)

Ground Elev: 6964' Measure Point Elev: 6965.4'

TD: 700' Hole Dia.: 7-7/8"

CASED to: 630' Casing: PVC SDR17 ID: 4.5" OD: 5"

GROUT: Portland Cement – Type I/II
Pumped thru casing, displaced to surface with water

COMPLETION Aquifer: L Horizon

Static Water Level: Depth 207.5' Elev: 6756.6' (3/15/13)

UNDERREAM: Blade Dia: 10.5"

Intervals: from 630' to 650' /length 20'

from _____ to _____ /length _____

SCREEN LINER ASSEMBLY

Description	Depth From	Depth To	Elev. From	Elev. To	Length
K-packe unit	623'	630'	6342'	6335'	7'
Screen	630'	650'	6335'	6315'	20'

SCREEN SPECIFICATIONS:

Slot: 0.020" Composition 3" PVC Screen (wrapped)

FILTER PACKING: N/A

Volume: _____(bags)(ft^3) Sand Specs. _____

Method: _____

WELL STIMULATION: Method Airlift

Yield: Nor recorded

PROFESSIONAL GEOLOGIST
CALVIN E. VANHOLLAND
PG-2184
WYOMING

KMU-3

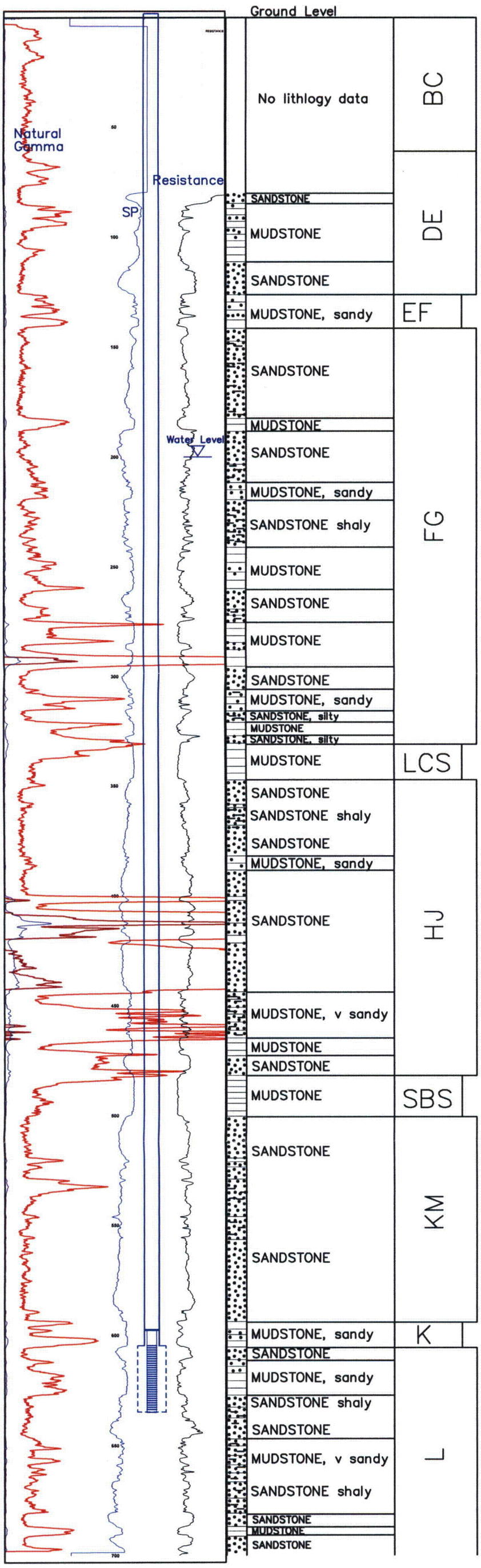
KMU–4

Lost Creek ISR, LLC

WELL COMPLETION REPORT

Vertical Scale: 1"–50'

KMU–4



KMU–4

WELL # KMU–4 SEO # 189591 Date Drilled: 3/7/09

Location: E 2,211,051 / N 595,488 (NAD 83)

Ground Elev: 6943' Measure Point Elev: 6943.2'

TD: 700' Hole Dia.: 7–7/8"

CASED to: 605' Casing: PVC SDR17 ID: 4.5" OD: 5"

GROUT: Portland Cement – Type I/II
Pumped thru casing, displaced to surface with water

COMPLETION Aquifer: L Horizon

Static Water Level: Depth 199.7' Elev: 6743.2' (3/15/13)

UNDERREAM: Blade Dia: 10.5"

Intervals: from 605' to 635' /length 30'

from _____ to _____ /length _____

SCREEN LINER ASSEMBLY

Description	Depth From	Depth To	Elev. From	Elev. To	Length
K–packer unit	598'	605'	6345'	6338'	7'
Screen	605'	635'	6338'	6308'	30'

SCREEN SPECIFICATIONS:

Slot: 0.020" Composition 3" PVC Screen (wrapped)

FILTER PACKING: N/A

Volume: _____(bags)(ft^3) Sand Specs. _____

Method: _____

WELL STIMULATION: Method Airlift

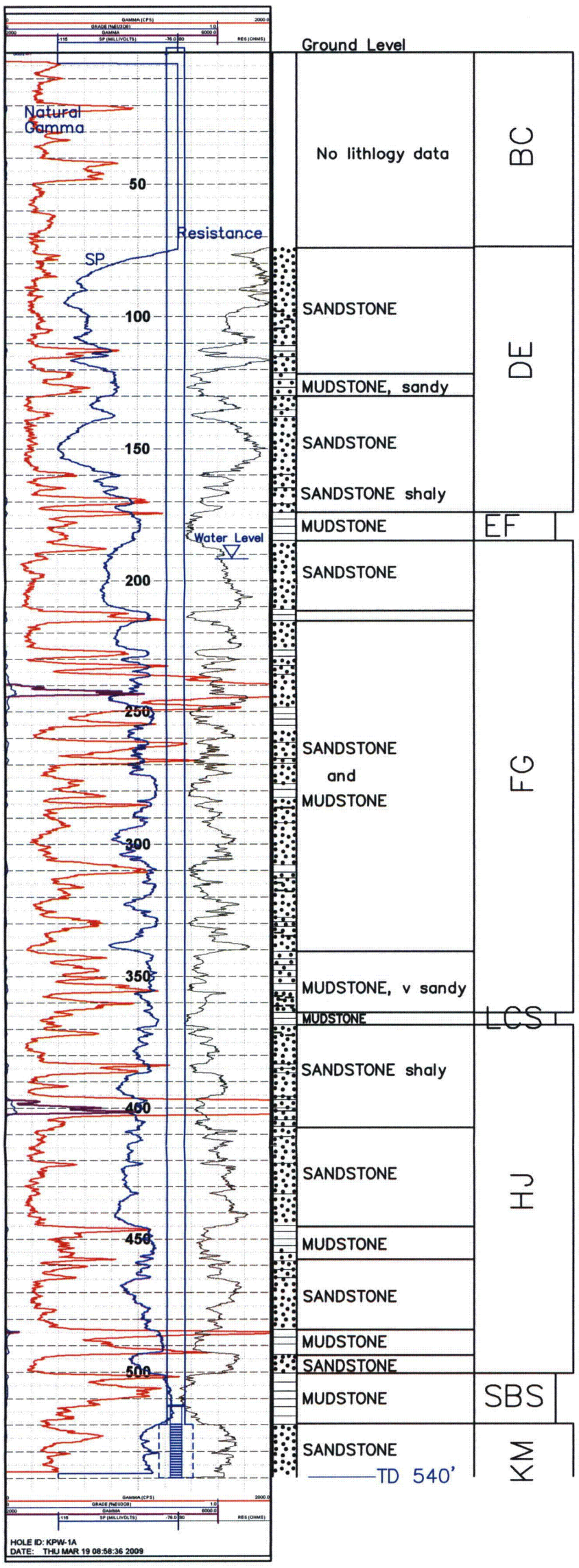
Yield: Not recorded

PROFESSIONAL GEOLOGIST
CALVIN E. VANHOLLAND
PG-2184
WYOMING

KMU–4

Vertical Scale: 1"=50'

KPW–1A



KPW–1A

Lost Creek ISR, LLC

WELL COMPLETION REPORT

WELL # KPW–1A SEO # 189592 Date Drilled: 3/19/09

Location: E 2,213,927 / N 595,550 (NAD 83)

Ground Elev: 6945 Measure Point Elev: 6947.6

TD: 540' Hole Dia.: 7–7/8"

CASED to: 520' Casing: PVC SDR17 ID: 4.5" OD: 5"

GROUT: Portland Cement – Type I/II
Pumped thru casing, displaced to surface with water

COMPLETION Aquifer: UKM Sub–Horizon

Static Water Level: Depth 191.8' Elev: 6755.8'
(11/15/10)

UNDERREAM: Blade Dia: 10.5"

Intervals: from 520' to 540' /length 20'

from _____ to _____ /length _____

SCREEN LINER ASSEMBLY

Description	Depth From	– To	Elev. / From	– To	Length
K–packer string	513'	520'	6432'	6425'	7'
Screen	520'	540'	6425'	6405'	20'

SCREEN SPECIFICATIONS:

Slot: 0.020" Composition 3" PVC Screen (wrapped)

FILTER PACKING: N/A

Volume: _____ (bags)(ft^3) Sand Specs. _____

Method: _____

WELL STIMULATION: Method Airlift

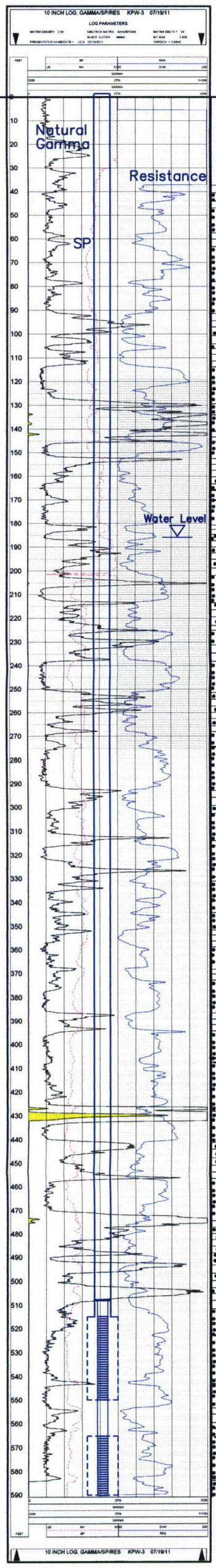
Yield: Good / Moderate / Poor

100 gpm

PROFESSIONAL GEOLOGIST
CALVIN E. VANHOLLAND
PG-2184
WYOMING

KPW–1A

Vertical Scale: 1"=50'



KPW–3

Ground Level

No lithlogy data	BC
SANDSTONE shaly	
MUDSTONE, sandy	
SANDSTONE	DE
MUDSTONE, sandy	
SANDSTONE	
SANDSTONE shaly	
MUDSTONE	EF
SANDSTONE	FG
MUDSTONE, v. sandy	
SANDSTONE	
MUDSTONE, sandy	
SANDSTONE	
MUDSTONE	
SANDSTONE	
MUDSTONE, sandy	
SANDSTONE	
MUDSTONE	
SANDSTONE and MUDSTONE	
MUDSTONE	LCS
SANDSTONE	HJ
MUDSTONE	
SANDSTONE	
MUDSTONE	
SANDSTONE	
MUDSTONE	
SANDSTONE	
MUDSTONE, with SANDSTONE	SBS
SANDSTONE	KM
MUDSTONE	
SANDSTONE	

TD 590

KPW–3

Lost Creek ISR, LLC

WELL COMPLETION REPORT

WELL # KPW–3 SEO # 194696 Date Drilled: 7/19/11

Location: E 2,213,891 / N 595,227 (NAD 83)

Ground Elev: 6939 Measure Point Elev: 6940.2

TD: 590' Hole Dia.: 7–7/8"

CASED to: 515' Casing: PVC SDR17 ID: 4.5" OD: 5"

GROUT: Portland Cement – Type I/II
Pumped thru casing, displaced to surface with water

COMPLETION Aquifer: UKM and LKM Sub–Horizons

Static Water Level: Depth 185.5' Elev: 6754.7' (8/16/11)

UNDERREAM: Blade Dia: 10.5"
Intervals: from 515' to 550' /length 35'
from 565' to 590' /length 25'

SCREEN LINER ASSEMBLY

Description	Depth From	Depth To	Elev. From	Elev. To	Length
K–packer string	508'	515'	6431'	6424'	7'
Screen	515'	550'	6424'	6389'	35'
Screen	565'	590'	6374'	6349'	25'

SCREEN SPECIFICATIONS:
Slot: 0.030" Composition 3" PVC Screen (wrapped)

FILTER PACKING: N/A
Volume: _____(bags)(ft^3) Sand Specs. _____
Method: _____

WELL STIMULATION: Method Airlift
Yield: Good / Moderate / Poor
100 gpm

PROFESSIONAL GEOLOGIST
CALVIN E. VANHOLLAND
PG-2184
WYOMING

KPW–3

LC33W

Lost Creek ISR, LLC

WELL COMPLETION REPORT

WATER WELL

WELL # LC33W SEO # 179827 Date Drilled: 4/17/07

Location: E 2,216,308 / N 595,008 (NAD 83)

Ground Elev: 6941 Measure Point Elev: 6941.5

TD: 1000' Hole Dia.: 7-7/8"

CASED to: 800' Casing: PVC SDR17 ID: 4.5" OD: 5"

GROUT: Portland Cement – Type I/II
Pumped thru casing, displaced to surface with water

COMPLETION Aquifer: N and P Horizons

Static Water Level: Depth 203.2' Elev: 6738.3
(2/9/12)

UNDERREAM: Blade Dia: 10.0"

Intervals: from 800' to 895' /length 95'

from _____ to _____ /length _____

(Underreamer broke at 895')

SCREEN LINER ASSEMBLY

Description	Depth From	Depth To	Elev. From	Elev. To	Length
K-packer string	775'	800'	6166'	6141'	25'
Screen	800'	970'	6141'	5971'	170'

SCREEN SPECIFICATIONS:

Slot: 0.030" Composition 3" PVC

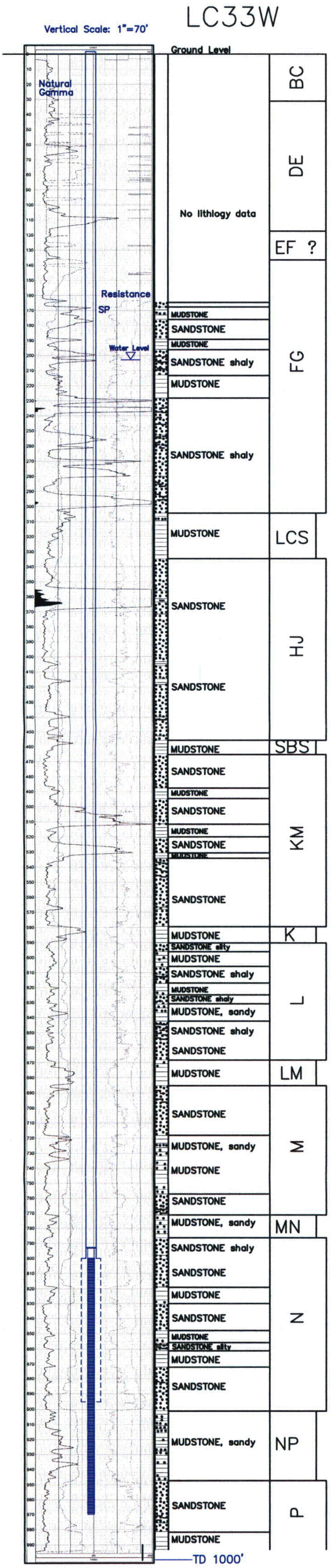
FILTER PACKING: N/A

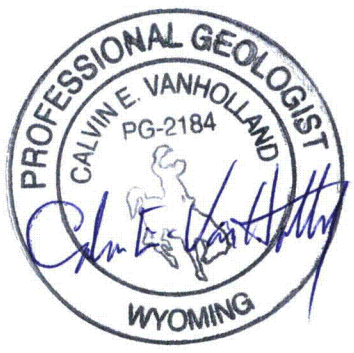
Volume: _____(bags)(ft^3) Sand Specs. _____

Method: _____

WELL STIMULATION: Method Airlift

Yield: No record



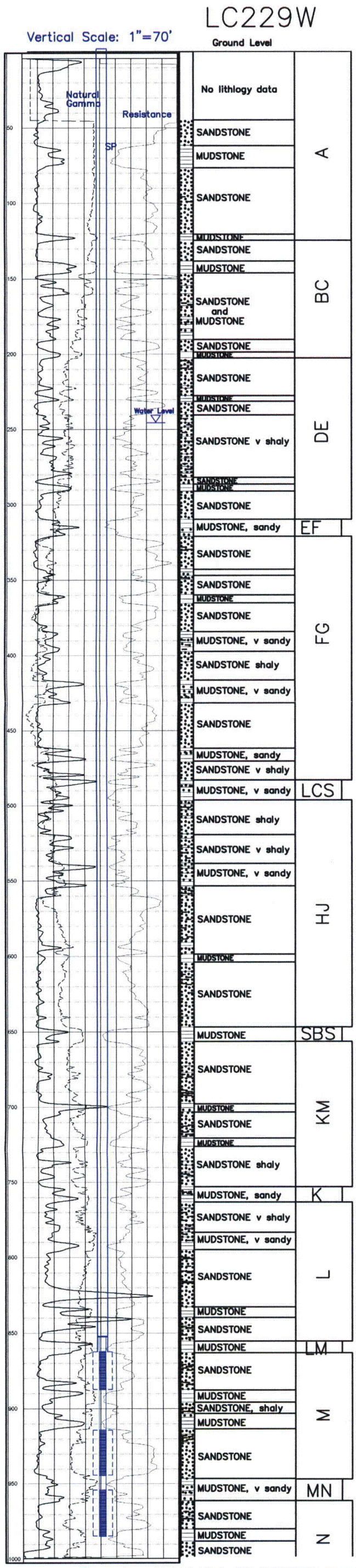


LC229W

Lost Creek ISR, LLC

WELL COMPLETION REPORT

WATER WELL



WELL # LC229W SEO # 186494 Date Drilled: 6/3/08

Location: E 2,209,390 / N 598,285 (NAD 83)

Ground Elev: 6980' Measure Point Elev: 6977.82'

TD: 1000' Hole Dia.: 7-7/8"

CASED to: 863' Casing: PVC SDR17 ID: 4.5" OD: 5"

GROUT: Portland Cement – Type I/II
Pumped thru casing, displaced to surface with water

COMPLETION Aquifer: M and N Horizons

Static Water Level: Depth 247.0" Elev: 6730.8' (3/15/13)

UNDERREAM: Blade Dia: 10.5"

Intervals: from 863' to 888' /length 25'
from 915' to 945' /length 30'
from 955' to 985' /length 30'

SCREEN LINER ASSEMBLY

Description	Depth From	Depth To	Elev. From	Elev. To	Length
K-packer string	853'	863'	6127'	6117'	10'
Slotted PVC	863'	888'	6117'	6092'	25'
Slotted PVC	915'	945'	6065'	6035'	30'
Slotted PVC	955'	985'	6025'	5995'	30'

SCREEN SPECIFICATIONS:

Slot: 0.030" Composition 3" Slotted PVC

FILTER PACKING: N/A

Volume: _____ (bags)(ft^3) Sand Specs. _____

Method: _____

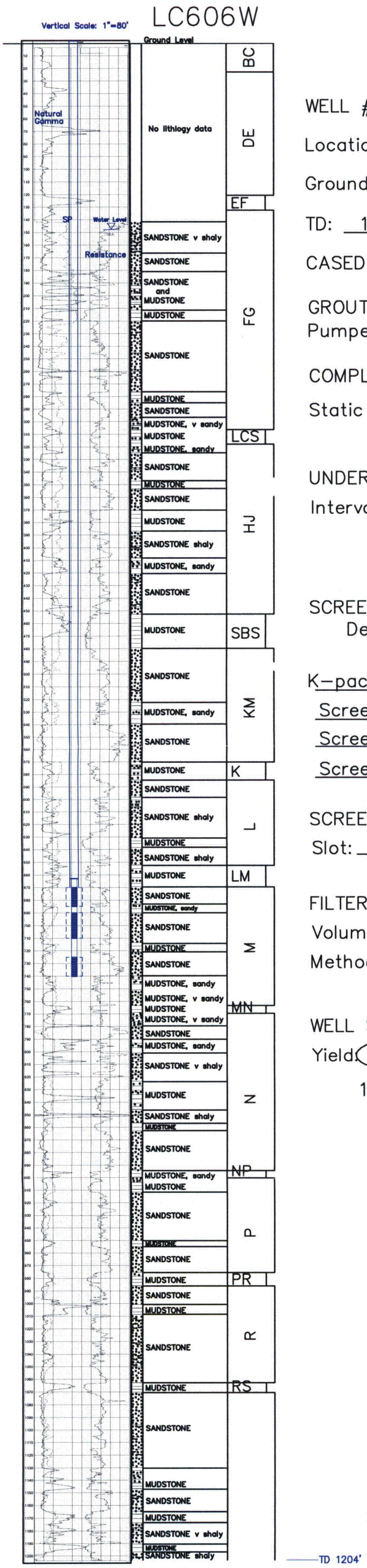
WELL STIMULATION: Method Airlift

Yield: (Good) / Moderate / Poor

150 gpm

PROFESSIONAL GEOLOGIST
CALVIN E. VANHOLLAND
PG-2184
WYOMING

LC229W



LC606W

Lost Creek ISR, LLC

WELL COMPLETION REPORT

WATER WELL

WELL # LC606W SEO # 190300 Date Drilled: 10/9/08

Location: E 2,202,741 / N 586,360 (NAD 83)

Ground Elev: 6808.6' Measure Point Elev: 6808.6'

TD: 1204' Hole Dia.: 7-7/8"

CASED to: 670' Casing: PVC SDR17 ID: 4.5" OD: 5"

GROUT: Portland Cement – Type I/II
Pumped thru casing, displaced to surface with water

COMPLETION Aquifer: M Horizon

Static Water Level: Depth 148.4' Elev: 6660.2' (3/15/13)

UNDERREAM: Blade Dia: 10.0"

Intervals: from 670' to 685' /length 15'
from 690' to 710' /length 20'
from 725' to 740' /length 15'

SCREEN LINER ASSEMBLY

Description	Depth From	Depth To	Elev. From	Elev. To	Length
K-packer string	663'	670'	6146'	6139'	7'
Screen	670'	685'	6139'	6124'	15'
Screen	690'	710'	6119'	6099'	20'
Screen	725'	740'	6084'	6069'	15'

SCREEN SPECIFICATIONS:
Slot: 0.020" Composition 3" PVC Screen (wrapped)

FILTER PACKING: N/A
Volume: _____(bags)(ft^3) Sand Specs. _____
Method: _____

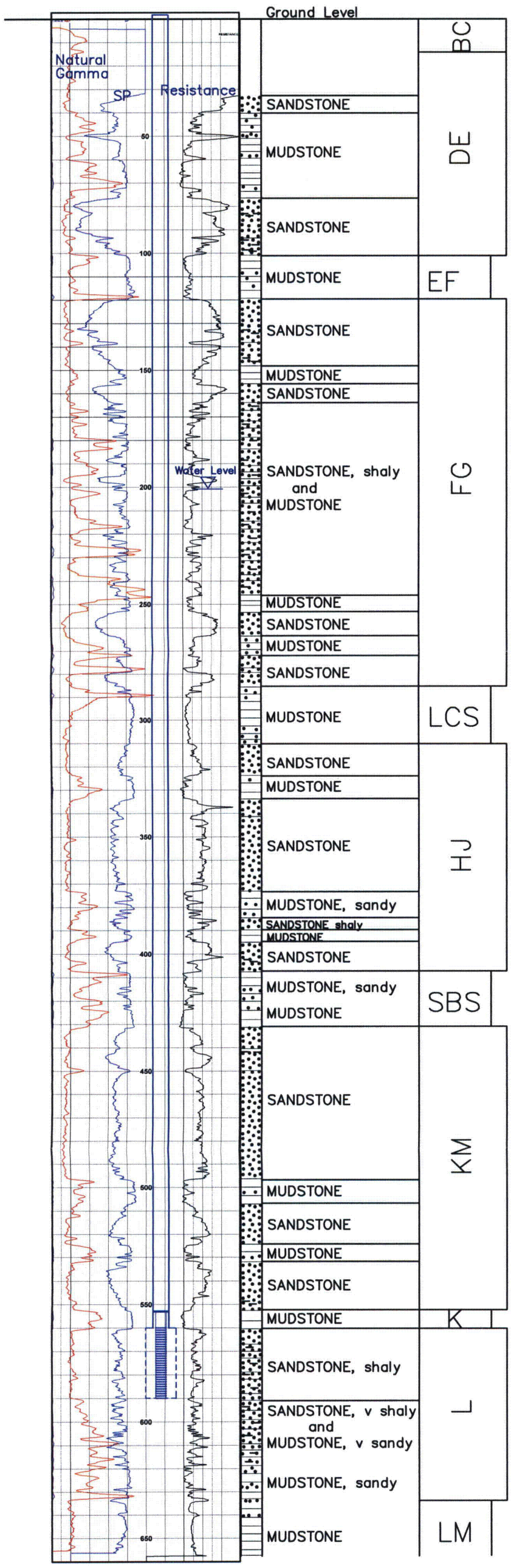
WELL STIMULATION: Method Airlift
Yield: (Good) / Moderate / Poor
100 gpm

PROFESSIONAL GEOLOGIST
CALVIN E. VANHOLLAND
PG-2184
WYOMING

LC606W

MB–11

Vertical Scale: 1"–50'



MB–11

Lost Creek ISR, LLC

WELL COMPLETION REPORT

WELL # MB–11 SEO # 189582 Date Drilled: 3/3/09

Location: E 2,221,627 / N 599,739 (NAD 83)

Ground Elev: 7011' Measure Point Elev: 7012.1'

TD: 660' Hole Dia.: 7–7/8"

CASED to: 560' Casing: PVC SDR17 ID: 4.5" OD: 5"

GROUT: Portland Cement – Type I/II
Pumped thru casing, displaced to surface with water

COMPLETION Aquifer: L Horizon

Static Water Level: Depth 200.7' Elev: 6810.5 (3/15/13)

UNDERREAM: Blade Dia: 10.0"

Intervals: from 560' to 590' /length 30'

from _____ to _____ /length _____

SCREEN LINER ASSEMBLY

Description	Depth From	Depth To	Elev. From	Elev. To	Length
K–packer unit	553'	560'	6458'	6451'	7'
Screen	560'	590'	6451'	6421'	30'

SCREEN SPECIFICATIONS:

Slot: 0.020" Composition 3" PVC Screen (wrapped)

FILTER PACKING: N/A

Volume: _____(bags)(ft^3) Sand Specs. _____

Method: _____

WELL STIMULATION: Method Airlift

Yield: Good / Moderate / Poor

10 gpm

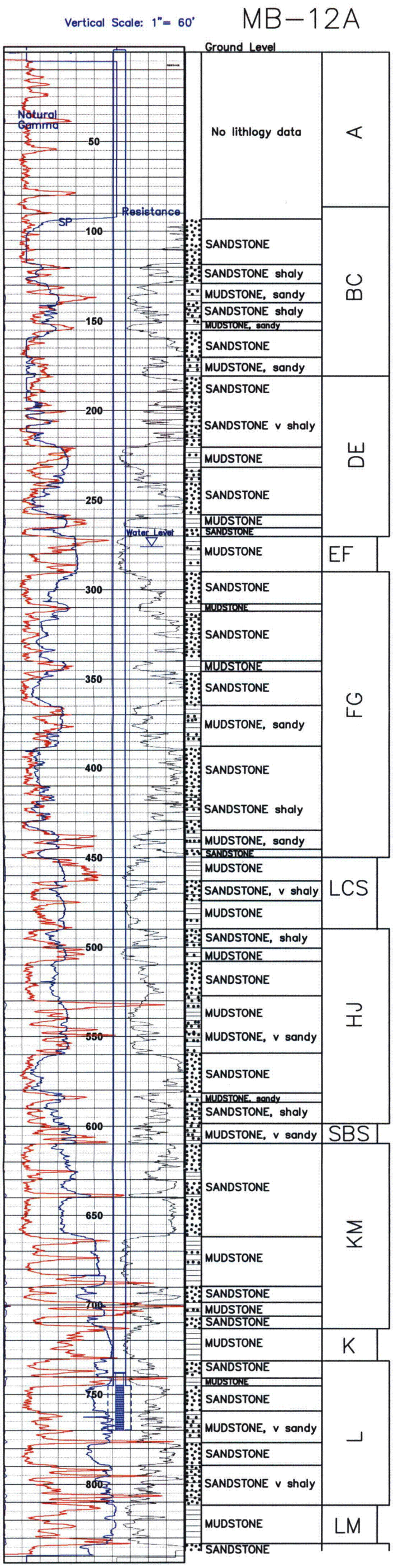
PROFESSIONAL GEOLOGIST
CALVIN E. VANHOLLAND
PG-2184
WYOMING

MB–11

MB–12A

Lost Creek ISR, LLC

WELL COMPLETION REPORT



WELL # MB–12A SEO # 189581 Date Drilled: 2/27/09

Location: E 2,204,569 / N 596,488 (NAD 83)

Ground Elev: 6987' Measure Point Elev: 6987.2'

TD: 840' Hole Dia.: 7–7/8"

CASED to: 745' Casing: PVC SDR17 ID: 4.5" OD: 5"

GROUT: Portland Cement – Type I/II
Pumped thru casing, displaced to surface with water

COMPLETION Aquifer: L Horizon

Static Water Level: Depth 276.4' Elev: 6710.8' (3/15/13)

UNDERREAM: Blade Dia: 10.0"

Intervals: from 745' to 770' /length 25'

from _____ to _____ /length _____

SCREEN LINER ASSEMBLY

Description	Depth From	Depth To	Elev. From	Elev. To	Length
K–packer unit	738'	745'	6249'	6242'	7'
Screen	745'	770'	6242'	6217'	25'

SCREEN SPECIFICATIONS:

Slot: 0.020" Composition 3" PVC Screen (wrapped)

FILTER PACKING: N/A

Volume: _____(bags)(ft^3) Sand Specs. _____

Method: _____

WELL STIMULATION: Method Airlift

Yield: Not Recorded

PROFESSIONAL GEOLOGIST
CALVIN E. VANHOLLAND
PG-2184
WYOMING

MB–13

Lost Creek ISR, LLC

WELL COMPLETION REPORT

WELL # MB–13 SEO # 189580 Date Drilled: 2/25/09

Location: E 2,201,670 / N 585,189 (NAD 83)

Ground Elev: 6806 Measure Point Elev: 6805.7'

TD: 700' Hole Dia.: 7–7/8"

CASED to: 655' Casing: PVC SDR17 ID: 4.5" OD: 5"

GROUT: Portland Cement – Type I/II
Pumped thru casing, displaced to surface with water

COMPLETION Aquifer: UKM Horizon

Static Water Level: Depth 157.8' Elev: 6647.9'
(3/15/13)

UNDERREAM: Blade Dia: 10.5"

Intervals: from 655 to 680' /length 25'

from _____ to _____ /length _____

SCREEN LINER ASSEMBLY

Description	Depth From	– To	Elev. / From	– To	Length
K–packer unit	648'	655'	6158'	6151'	7'
Screen	655'	680'	6151'	6126'	25'

SCREEN SPECIFICATIONS:

Slot: 0.030" Composition 3" PVC Screen (wrapped)

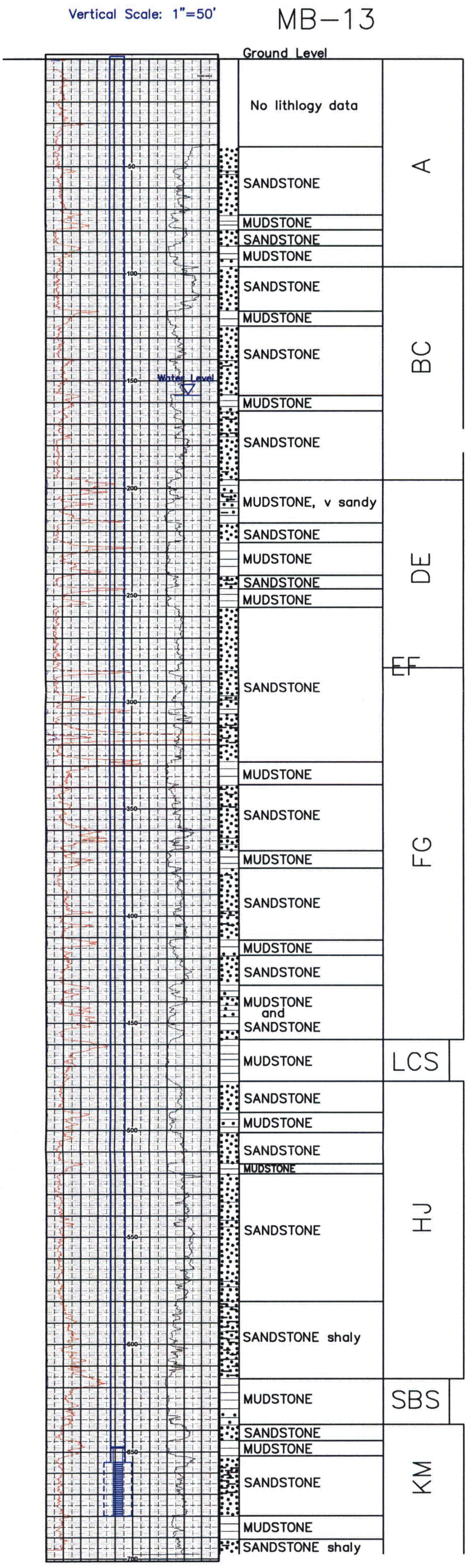
FILTER PACKING: N/A

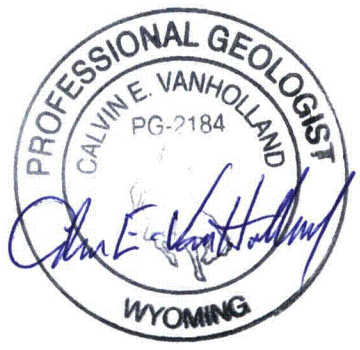
Volume: _____(bags)(ft^3) Sand Specs. _____

Method: _____

WELL STIMULATION: Method Airlift

Yield: Not recorded

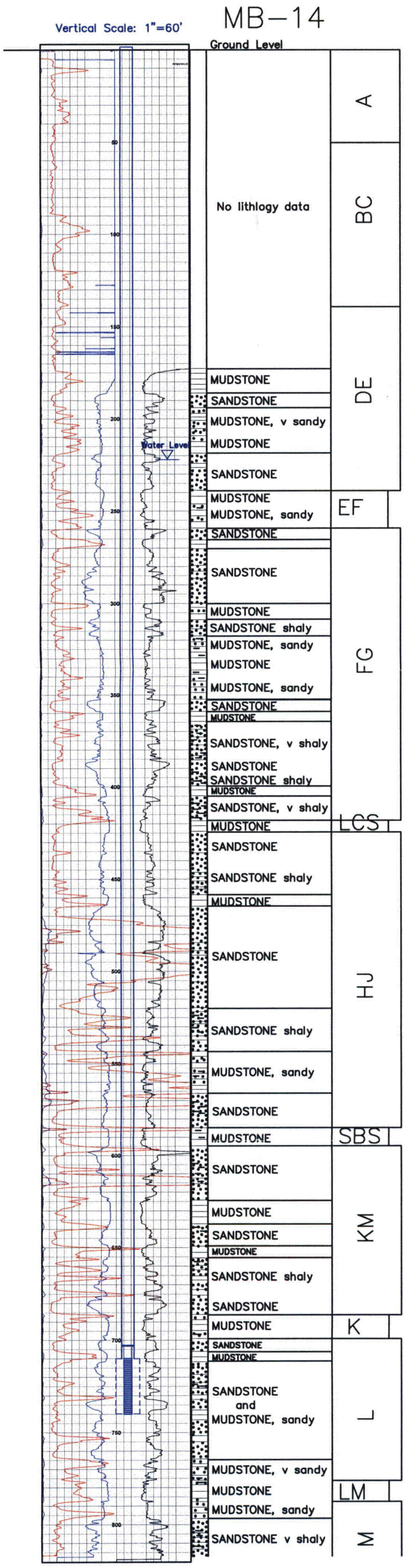




MB–14

Lost Creek ISR, LLC

WELL COMPLETION REPORT



WELL # MB–14 SEO # 189618 Date Drilled: 3/3/09

Location: E 2,204,577 / N 593,511 (NAD 83)

Ground Elev: 6924' Measure Point Elev: 6924.1'

TD: 820' ft. Hole Dia.: 7–7/8"

CASED to: 710' Casing: PVC SDR17 ID: 4.5" OD: 5"

GROUT: Portland Cement – Type I/II
Pumped thru casing, displaced to surface with water

COMPLETION Aquifer: L Horizon

Static Water Level: Depth 221.9' Elev: 6702.3' (3/15/13)

UNDERREAM: Blade Dia: 10.5"

Intervals: from 710' to 740' /length 30'

from _____ to _____ /length _____

SCREEN LINER ASSEMBLY

Description	Depth From	– To	/ Elev. From	– To	Length
K–packer unit	703'	710'	6221'	6214'	7'
Screen	710'	740'	6214'	6184'	30'

SCREEN SPECIFICATIONS:

Slot: 0.020" Composition 3" PVC Screen (wrapped)

FILTER PACKING: N/A

Volume: _____ (bags)(ft^3) Sand Specs. _____

Method: _____

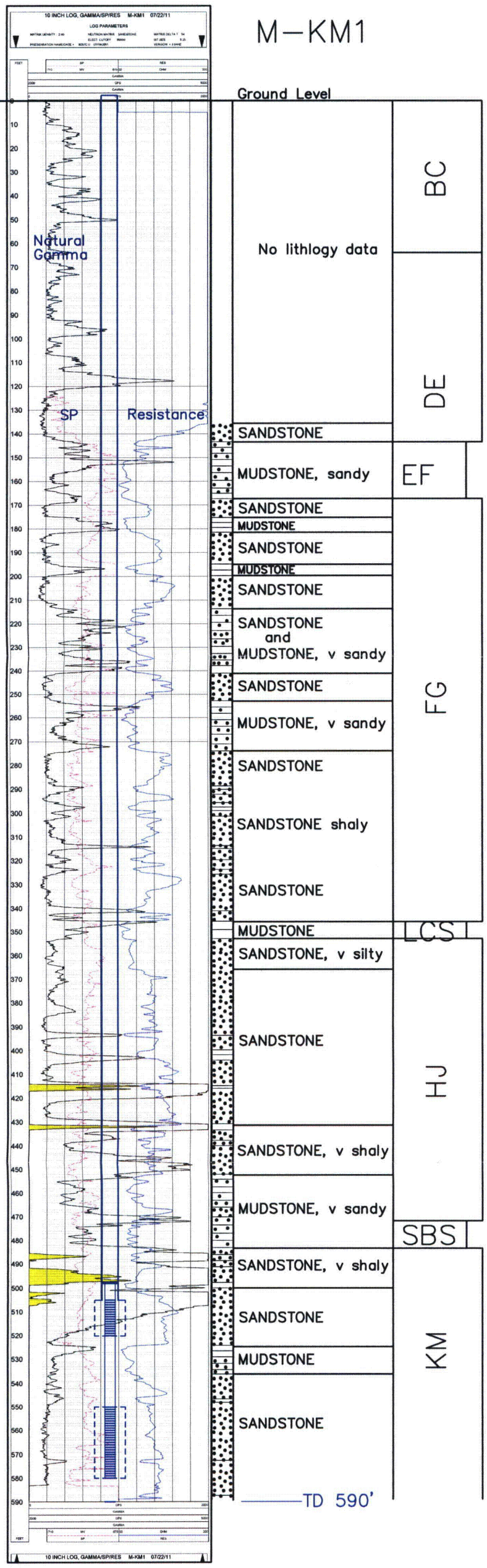
WELL STIMULATION: Method Airlift

Yield: Not recorded

PROFESSIONAL GEOLOGIST
CALVIN E. VANHOLLAND
PG-2184
WYOMING

MB–14

Vertical Scale: 1"–50'



M–KM1

Lost Creek ISR, LLC

WELL COMPLETION REPORT

WELL # M–KM1 SEO # 194695 Date Drilled: 7/22/11

Location: E 2,215,130 / N 595,555 (NAD 83)

Ground Elev: 6951' Measure Point Elev: 6951.6'

TD: 590' Hole Dia.: 7–7/8"

CASED to: 505' Casing: PVC SDR17 ID: 4.5" OD: 5"

GROUT: Portland Cement – Type I/II
Pumped thru casing, displaced to surface with water

COMPLETION Aquifer: UKM and LKM Sub–Horizons

Static Water Level: Depth 194.3' Elev: 6756.4'
(10/23/11)

UNDERREAM: Blade Dia: 10.5"
Intervals: from 505' to 520' /length 15'
from 550' to 580' /length 30'

SCREEN LINER ASSEMBLY

Description	Depth From	– To	Elev. / From	– To	Length
K–packer unit	498'	505'	6453'	6446'	7'
Screen	505'	520'	6446'	6431'	15'
Screen	550'	580'	6401'	6371'	30'

SCREEN SPECIFICATIONS:
Slot: 0.030" Composition 3" PVC Screen (wrapped)

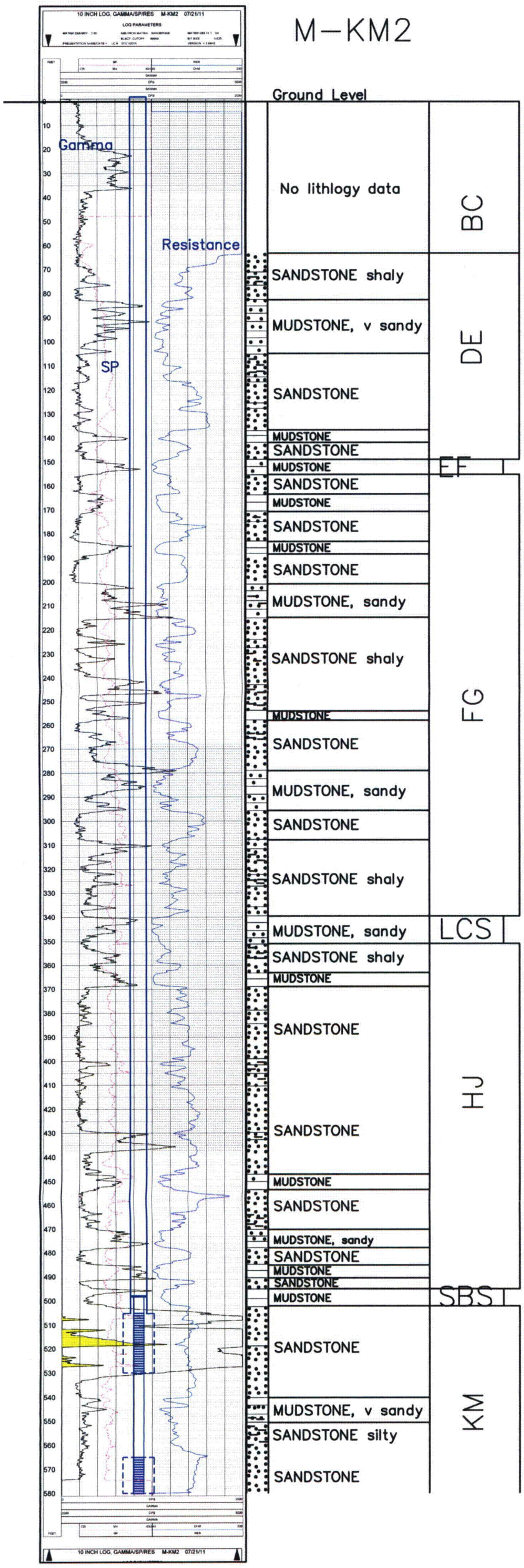
FILTER PACKING: N/A
Volume: _____(bags)(ft^3) Sand Specs. _____
Method: _____

WELL STIMULATION: Method Airlift
Yield: Good / Moderate / Poor
35 gpm

PROFESSIONAL GEOLOGIST
CALVIN E. VANHOLLAND
PG-2184
WYOMING

M–KM1

Vertical Scale: 1"=50'



Lost Creek ISR, LLC

WELL COMPLETION REPORT

WELL # M-KM2 SEO # 194694 Date Drilled: 7/21/11

Location: E 2,213,993 / N 594,513 (NAD 83)

Ground Elev: 6945 Measure Point Elev: 6946.9

TD: 580' Hole Dia.: 7-7/8"

CASED to: 505' Casing: PVC SDR17 ID: 4.5" OD: 5"

GROUT: Portland Cement – Type I/II
Pumped thru casing, displaced to surface with water

COMPLETION Aquifer: UKM and LKM Sub-Horizons

Static Water Level: Depth 193.4' Elev: 6751.3'
(10/23/11)

UNDERREAM: Blade Dia: 10.5"

Intervals: from 505' to 530' /length 25'
from 565' to 580' /length 15'

SCREEN LINER ASSEMBLY

Description	Depth From	– To	Elev. / From	– To	Length
K-packer unit	498'	505'	6447'	6440'	7'
Screen	505'	530	6440'	6415'	25'
Screen	565'	580'	6380'	6365'	15'

SCREEN SPECIFICATIONS:

Slot: 0.030" Composition 3" PVC Screen (wrapped)

FILTER PACKING: N/A

Volume: _____(bags)(ft^3) Sand Specs. _____

Method: _____

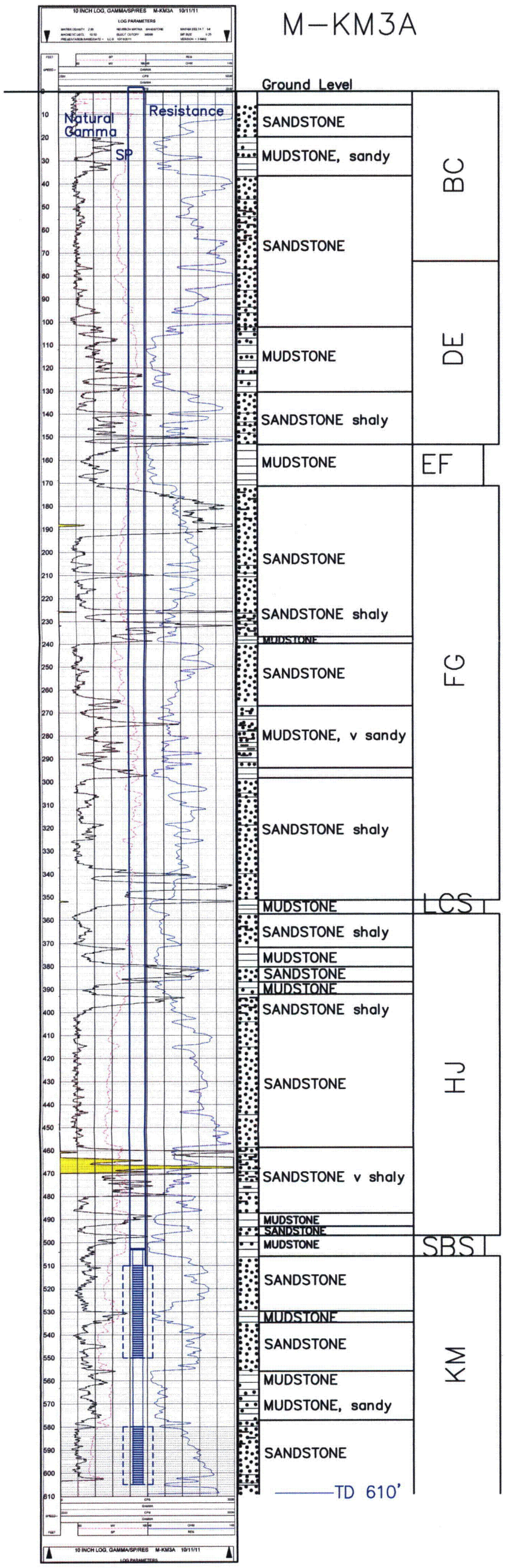
WELL STIMULATION: Method Airlift

Yield: Good / Moderate / Poor

50 gpm

PROFESSIONAL GEOLOGIST
CALVIN E. VANHOLLAND
PG-2184
WYOMING

Vertical Scale: 1"=50'



M-KM3A

Lost Creek ISR, LLC

WELL COMPLETION REPORT

WELL # M-KM3A SEO # 194708 Date Drilled: 10/11/11

Location: E 2,214,543 / N 595,505 (NAD 83)

Ground Elev: 6945' Measure Point Elev: 6945.7'

TD: 610' Hole Dia.: 7-7/8"

CASED to: 510' Casing: PVC SDR17 ID: 4.5" OD: 5"

GROUT: Portland Cement – Type I/II
Pumped thru casing, displaced to surface with water

COMPLETION Aquifer: UKM and LKM Sub-Horizons

Static Water Level: Depth 189.8' Elev: 6755.3'
(10/23/11)

UNDERREAM: Blade Dia: 10.5"
Intervals: from 510' to 550' /length 40'
from 580' to 605' /length 25'

SCREEN LINER ASSEMBLY

Description	Depth From	Depth To	Elev. From	Elev. To	Length
K-packer string	503'	510'	6442'	6435'	7'
Slotted PVC	510'	550'	6435'	6395'	40'
Slotted PVC	580'	605'	6365'	6340'	25'

SCREEN SPECIFICATIONS:
Slot: 0.030" Composition 3" Slotted PVC

FILTER PACKING: N/A
Volume: _____(bags)(ft^3) Sand Specs. _____
Method: _____

WELL STIMULATION: Method Airlift
Yield: Good / Moderate / Poor
40 gpm

PROFESSIONAL GEOLOGIST
CALVIN E. VANHOLLAND
PG-2184
WYOMING

M-KM3A

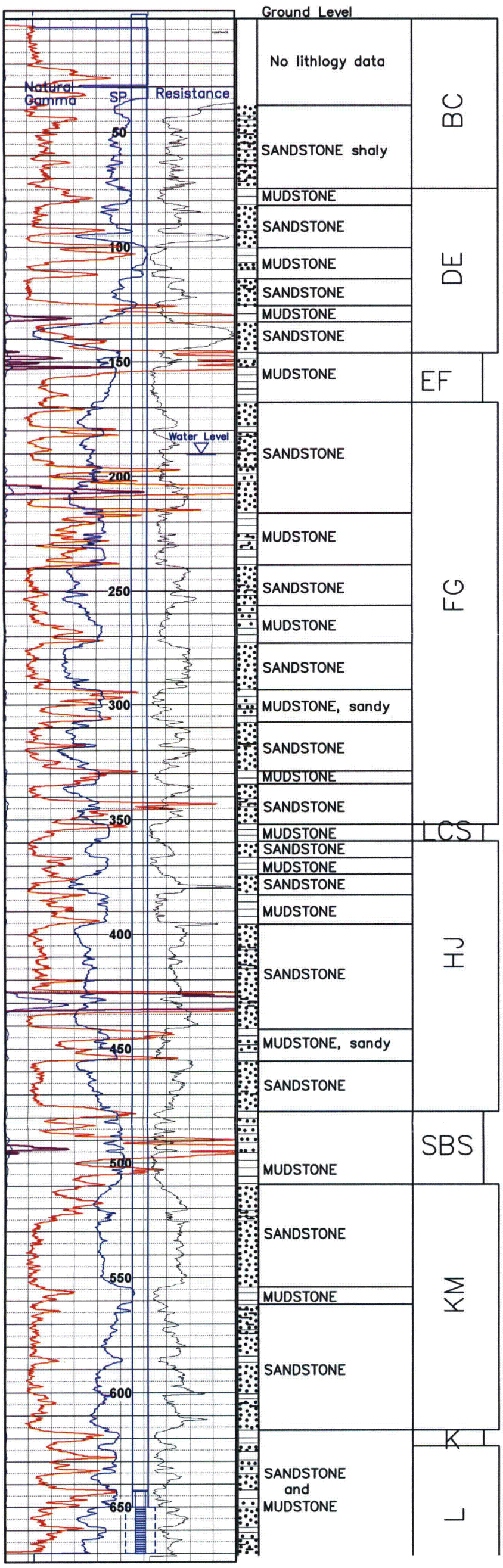
M–L1

Lost Creek ISR, LLC

WELL COMPLETION REPORT

Vertical Scale: 1"–50'

M–L1



WELL # M–L1 SEO # 192104 Date Drilled: 2/16/10

Location: E 2,213,856 / N 595,210 (NAD 83)

Ground Elev: 6939' Measure Point Elev: 6941.5'

TD: 670' Hole Dia.: 7–7/8"

CASED to: 650" Casing: PVC SDR17 ID: 4.5" OD: 5"

GROUT: Portland Cement – Type I/II
Pumped thru casing, displaced to surface with water

COMPLETION Aquifer: L Horizon

Static Water Level: Depth 190.8' Elev: 6750.7' (3/15/13)

UNDERREAM: Blade Dia: 10.5"
Intervals: from 650' to 670' /length 20'
from ____ to ____ /length ____

SCREEN LINER ASSEMBLY

Description	Depth From	– To	Elev. / From	– To	Length
K–packer unit	643'	650'	6296'	6289'	7'
Screen	650'	670'	6289'	6269'	20'

SCREEN SPECIFICATIONS:
Slot: 0.030" Composition 3" PVC Screen (wrapped)

FILTER PACKING: N/A
Volume: ____ (bags)(ft^3) Sand Specs. ____
Method: ____

WELL STIMULATION: Method Airlift
Yield: Good / Moderate / Poor
10 gpm

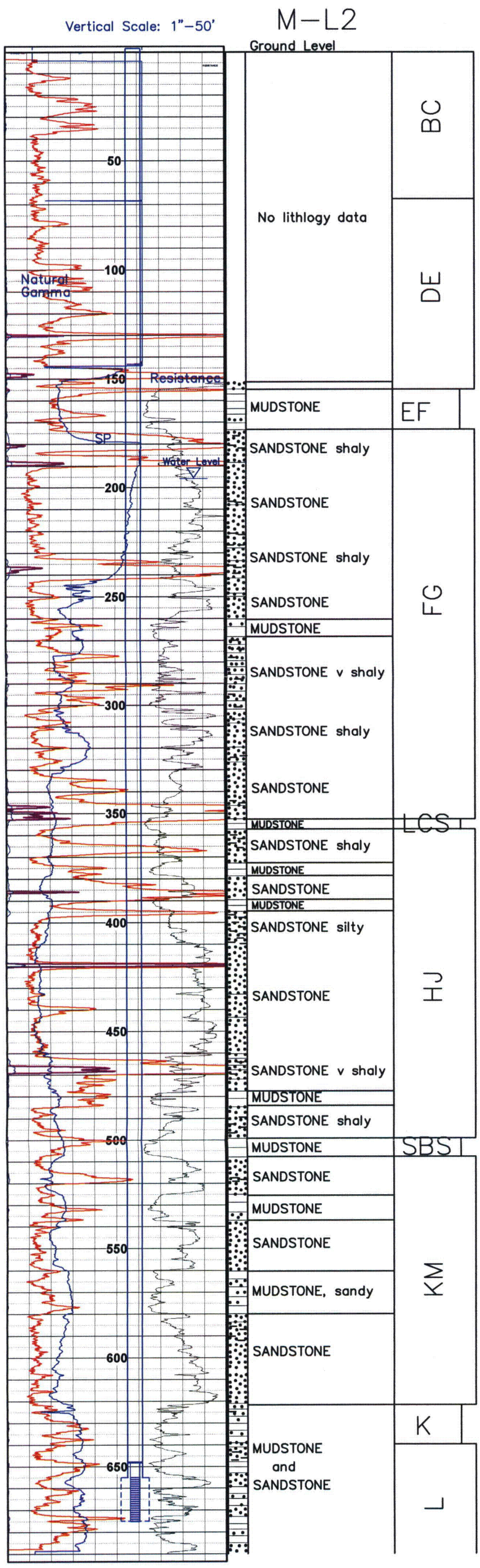
PROFESSIONAL GEOLOGIST
CALVIN E. VANHOLLAND
PG-2184
WYOMING

M–L1

M–L2

Lost Creek ISR, LLC

WELL COMPLETION REPORT



WELL # M–L2 SEO # 192105 Date Drilled: 2/10/10

Location: E 2,214,551 / N 595,530 (NAD 83)

Ground Elev: 6945' Measure Point Elev: 6946.6'

TD: 690' Hole Dia.: 7–7/8"

CASED to: 655' Casing: PVC SDR17 ID: 4.5" OD: 5"

GROUT: Portland Cement – Type I/II
Pumped thru casing, displaced to surface with water

COMPLETION Aquifer: L Horizon

Static Water Level: Depth 196.5' Elev: 6750.1'
(3/15/13)

UNDERREAM: Blade Dia: 10.5"

Intervals: from 655' to 675' /length 20'

from _____ to _____ /length _____

SCREEN LINER ASSEMBLY

Description	Depth From	– To	/ Elev. From	– To	Length
K–packer unit	648'	655'	6297'	6290'	7'
Screen	655'	675'	6290'	6270'	20'

SCREEN SPECIFICATIONS:

Slot: 0.030" Composition 3" PVC Screen (wrapped)

FILTER PACKING:

Volume: _____(bags)(ft^3) Sand Specs. _____

Method: _____

WELL STIMULATION: Method Airlift

Yield: Good / Moderate / Poor

10 gpm

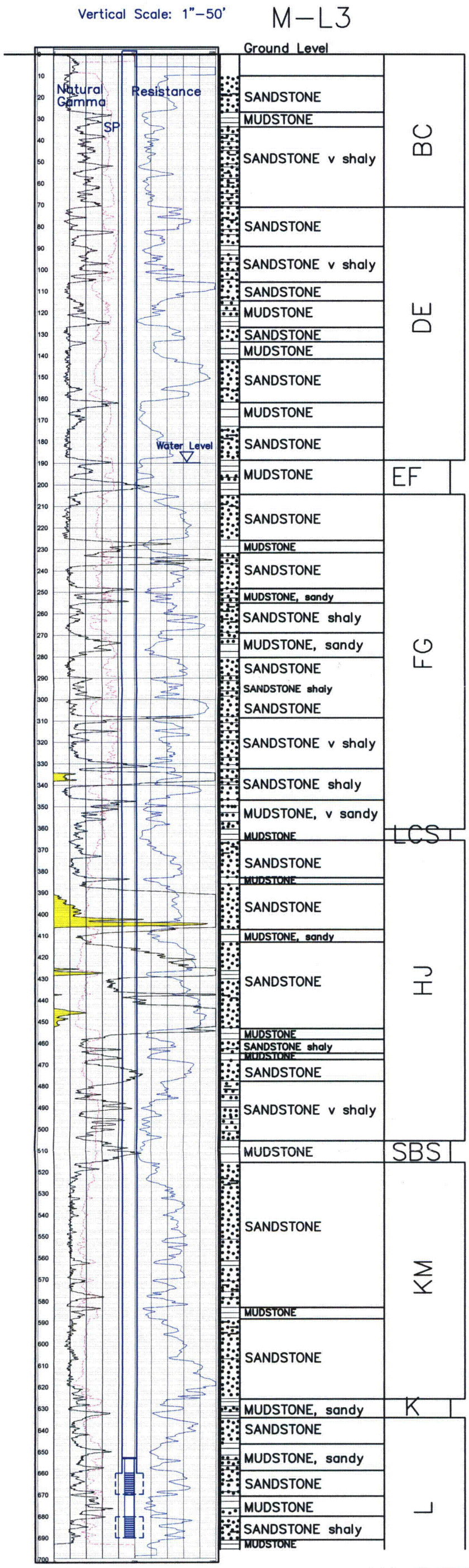
PROFESSIONAL GEOLOGIST
CALVIN E. VANHOLLAND
PG-2184
WYOMING

M–L2

M–L3

Lost Creek ISR, LLC

WELL COMPLETION REPORT



WELL # M–L3 SEO # 194693 Date Drilled: 8/2/11

Location: E 2,212,651 / N 595,362 (NAD 83)

Ground Elev: 6934 Measure Point Elev: 6934.9

TD: 700' Hole Dia.: 7–7/8"

CASED to: 660' Casing: PVC SDR17 ID: 4.5" OD: 5"

GROUT: Portland Cement – Type I/II
Pumped thru casing, displaced to surface with water

COMPLETION Aquifer: L Horizon

Static Water Level: Depth 189.6' Elev: 6745.3' (3/15/13)

UNDERREAM: Blade Dia: 10.5"

Intervals: from 660' to 670' /length 10'
from 680' to 690' /length 10'

SCREEN LINER ASSEMBLY

Description	Depth From	Depth To	Elev. From	Elev. To	Length
K–packer unit	653'	660'	6281'	6274'	7'
Screen	660'	670'	6274'	6264'	10'
Screen	680'	690'	6254'	6244'	10'

SCREEN SPECIFICATIONS:

Slot: 0.030" Composition 3" PVC Screen (wrapped)

FILTER PACKING: N/A

Volume: _____ (bags)(ft^3) Sand Specs. _____

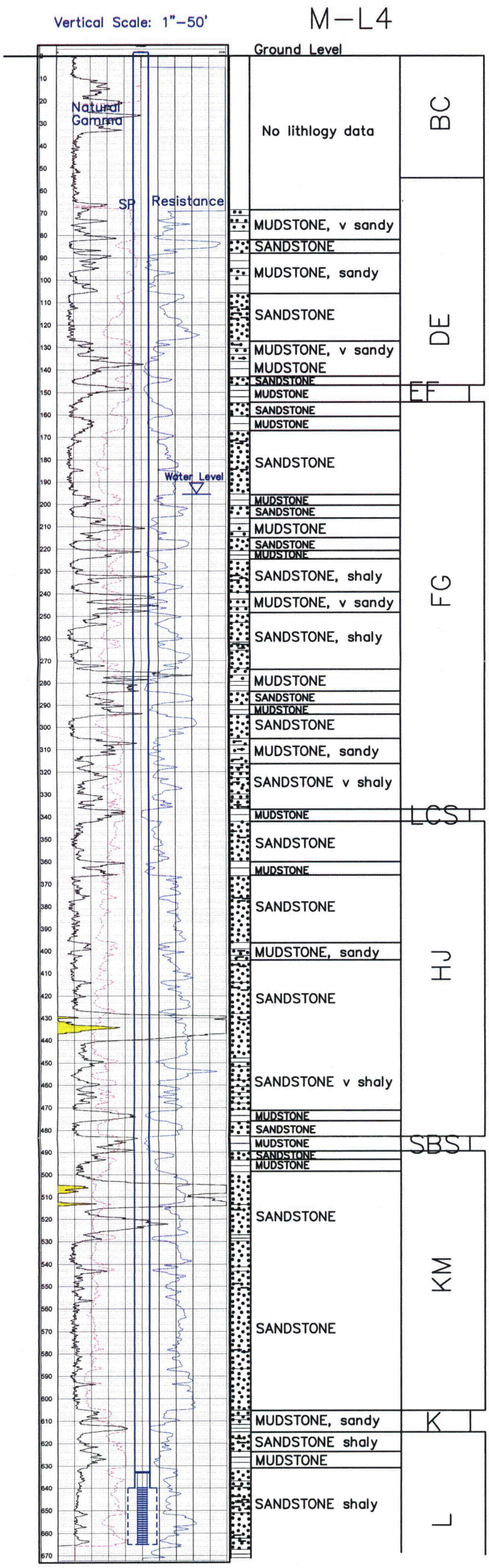
Method: _____

WELL STIMULATION: Method Airlift

Yield: Good / Moderate / Poor
25 gpm

PROFESSIONAL GEOLOGIST
CALVIN E. VANHOLLAND
PG-2184
WYOMING

M–L3



M–L4

Lost Creek ISR, LLC

WELL COMPLETION REPORT

WELL # M–L4 SEO # 194692 Date Drilled: 7/27/11

Location: E 2,213,937 / N 594,454 (NAD 83)

Ground Elev: 6943 Measure Point Elev: 6944.9

TD: 670' Hole Dia.: 7–7/8"

CASED to: 640' Casing: PVC SDR17 ID: 4.5" OD: 5"

GROUT: Portland Cement – Type I/II
Pumped thru casing, displaced to surface with water

COMPLETION Aquifer: L Horizon

Static Water Level: Depth 195.8' Elev: 6749.1'
(3/15/13)

UNDERREAM: Blade Dia: 10.5"
Intervals: from 640' to 665' /length 25'
from _____ to _____ /length _____

SCREEN LINER ASSEMBLY

Description	Depth From	Depth To	Elev. From	Elev. To	Length
K–packer unit	633'	640'	6310'	6303'	7'
Screen	640'	665'	6303'	6278'	25'

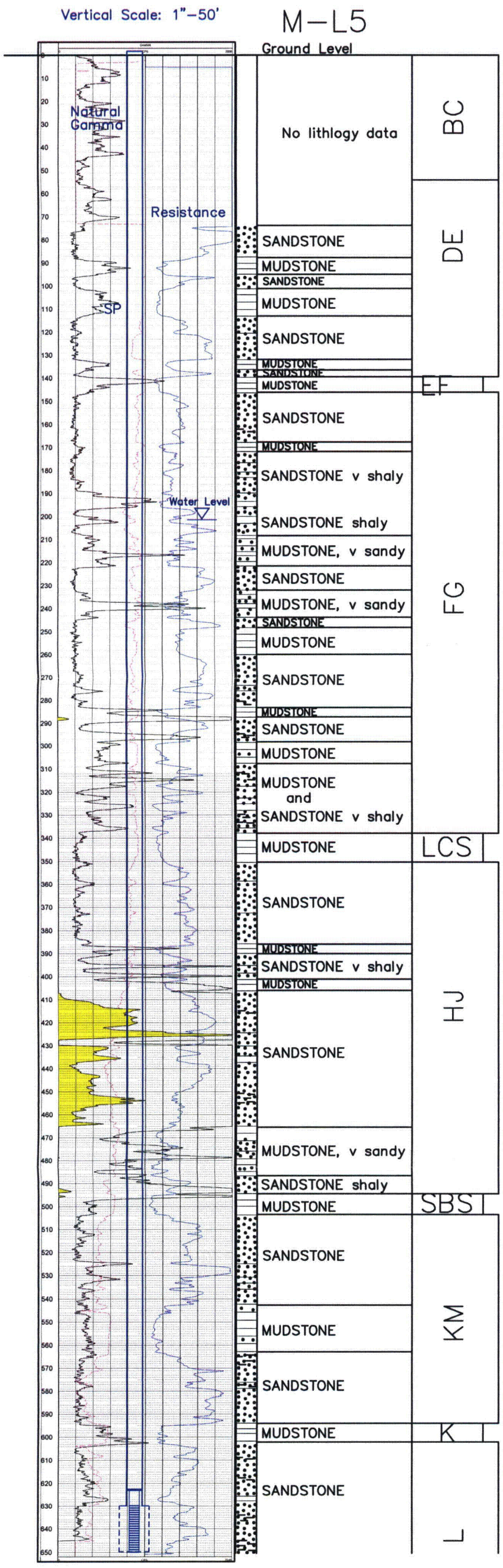
SCREEN SPECIFICATIONS:
Slot: 0.030" Composition 3" PVC Screen (wrapped)

FILTER PACKING: N/A
Volume: _____(bags)(ft^3) Sand Specs. _____
Method: _____

WELL STIMULATION: Method Airlift
Yield: Good / Moderate / Poor
30 gpm

PROFESSIONAL GEOLOGIST
CALVIN E. VANHOLLAND
PG-2184
WYOMING

M–L4



M–L5

Lost Creek ISR, LLC

WELL COMPLETION REPORT

WELL # M–L5 SEO # 194699 Date Drilled: 8/2/11

Location: E 2,211,589 / N 595,995 (NAD 83)

Ground Elev: 6945 Measure Point Elev: 6945.3

TD: 650' Hole Dia.: 7–7/8"

CASED to: 630' Casing: PVC SDR17 ID: 4.5" OD: 5"

GROUT: Portland Cement – Type I/II
Pumped thru casing, displaced to surface with water

COMPLETION Aquifer: L Horizon

Static Water Level: Depth 201.6' Elev: 6743.7 (3/15/13)

UNDERREAM: Blade Dia: 10.5"

Intervals: from 630' to 650' /length 20'

from _____ to _____ /length _____

SCREEN LINER ASSEMBLY

Description	Depth From	– To	Elev. / From	– To	Length
K–packer string	623'	630'	6322'	6315'	7
Screen	630'	650'	6315'	6295'	20'

SCREEN SPECIFICATIONS:

Slot: 0.030" Composition 3" PVC Screen (wrapped)

FILTER PACKING: N/A

Volume: _____ (bags)(ft^3) Sand Specs. _____

Method: _____

WELL STIMULATION: Method Airlift

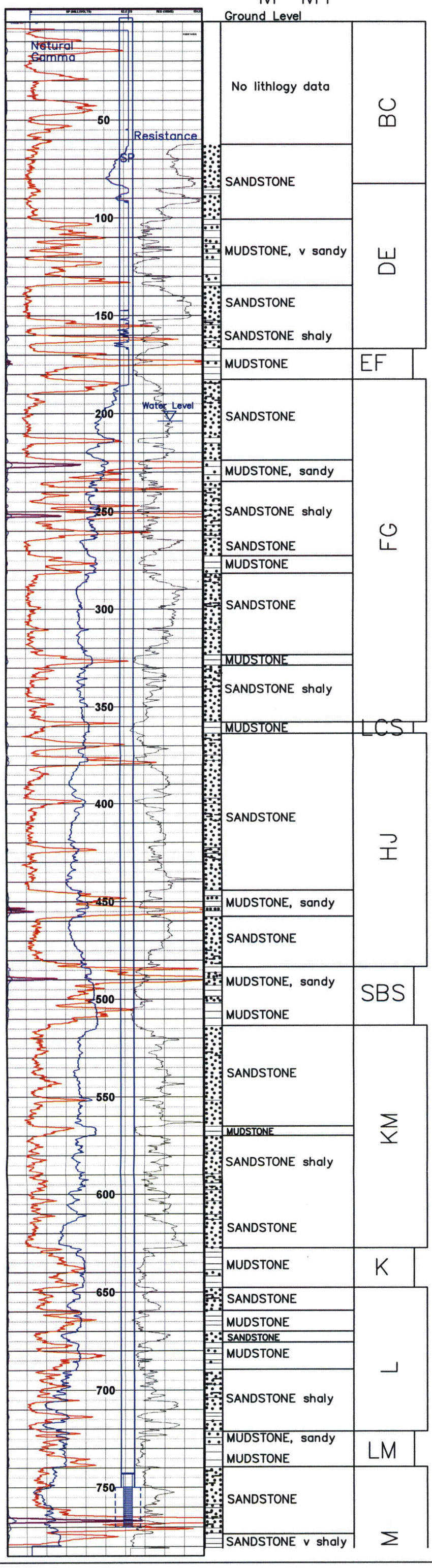
Yield: (Good) / Moderate / Poor

50 gpm

PROFESSIONAL GEOLOGIST
CALVIN E. VANHOLLAND
PG-2184
WYOMING

Vertical Scale: 1"–50'

M–M1



M–M1

Lost Creek ISR, LLC

WELL COMPLETION REPORT

WELL # M–M1 SEO # 192106 Date Drilled: 2/10/10

Location: E 2,213,989 / N 595,525 (NAD 83)

Ground Elev: 6944 Measure Point Elev: 6947.3

TD: 780' Hole Dia.: 7–7/8"

CASED to: 750' Casing: PVC SDR17 ID: 4.5" OD: 5"

GROUT: Portland Cement – Type I/II
Pumped thru casing, displaced to surface with water

COMPLETION Aquifer: M Horizon

Static Water Level: Depth 203.7' Elev: 6743.7 (3/15/13)

UNDERREAM: Blade Dia: 10.0"

Intervals: from 750' to 770' /length 20'

from _____ to _____ /length _____

SCREEN LINER ASSEMBLY

Description	Depth From	– To	/ Elev. From	– To	Length
K–packer string	743'	750'	6201'	6194'	7'
Screen	750'	770'	6194'	6174'	20'

SCREEN SPECIFICATIONS:

Slot: 0.030" Composition 3" PVC Screen (wrapped)

FILTER PACKING: N/A

Volume: _____ (bags)(ft^3) Sand Specs. _____

Method: _____

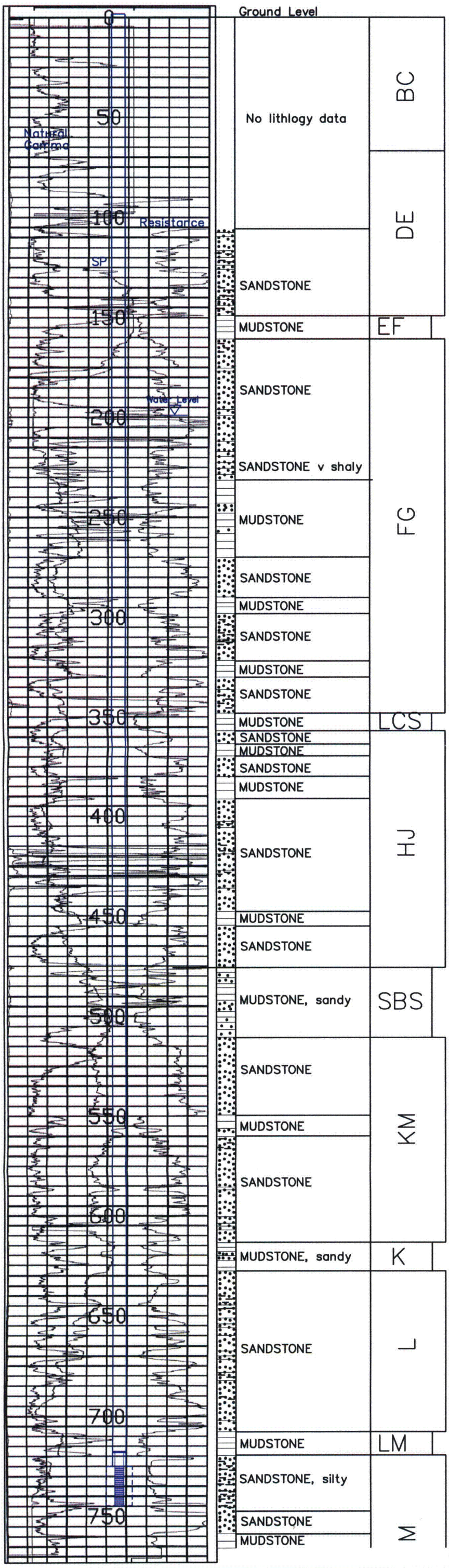
WELL STIMULATION: Method Airlift

Yield: Good / Moderate / Poor

35 gpm

PROFESSIONAL GEOLOGIST
CALVIN E. VANHOLLAND
PG-2184
WYOMING

M–M1



M–M2

Lost Creek ISR, LLC

WELL COMPLETION REPORT

WELL # M–M2 SEO # 192102 Date Drilled: 2/11/10

Location: E 2,213,830 / N 595,194 (NAD 83)

Ground Elev: 6940 Measure Point Elev: 6942.0

TD: 770' Hole Dia.: 7–7/8"

CASED to: 725' Casing: PVC SDR17 ID: 4.5" OD: 5"

GROUT: Portland Cement – Type I/II
Pumped thru casing, displaced to surface with water

COMPLETION Aquifer: M Horizon

Static Water Level: Depth 199.4 Elev: 6742.6
(3/15/13)

UNDERREAM: Blade Dia: 10.0"

Intervals: from 725' to 745' /length 20'

from _____ to _____ /length _____

SCREEN LINER ASSEMBLY

Description	Depth From	– To	/ Elev. From	– To	Length
K–packer string	718'	725'	6222'	6215'	7'
Screen	725'	745'	6215'	6195'	20'

SCREEN SPECIFICATIONS:

Slot: 0.030" Composition 3" PVC Screen (wrapped)

FILTER PACKING: N/A

Volume: _____(bags)(ft^3) Sand Specs. _____

Method: _____

WELL STIMULATION: Method Airlift

Yield: Good / Moderate / Poor

20 gpm

PROFESSIONAL GEOLOGIST
CALVIN E. VANHOLLAND
PG-2184
WYOMING

M–M2

M–M3

Lost Creek ISR, LLC

WELL COMPLETION REPORT

WELL # M–M3 SEO # 192101 Date Drilled: 2/10/10

Location: E 2,214,552 / N 595,550 (NAD 83)

Ground Elev: 6945' Measure Point Elev: 6947.8'

TD: 770' Hole Dia.: 7–7/8"

CASED to: 750' Casing: PVC SDR17 ID: 4.5" OD: 5"

GROUT: Portland Cement – Type I/II
Pumped thru casing, displaced to surface with water

COMPLETION Aquifer: M Horizon

Static Water Level: Depth 198.7' Elev: 6749.1'
(3/15/13)

UNDERREAM: Blade Dia: 10.0"
Intervals: from 750' to 770' /length 20'
from ____ to ____ /length ____

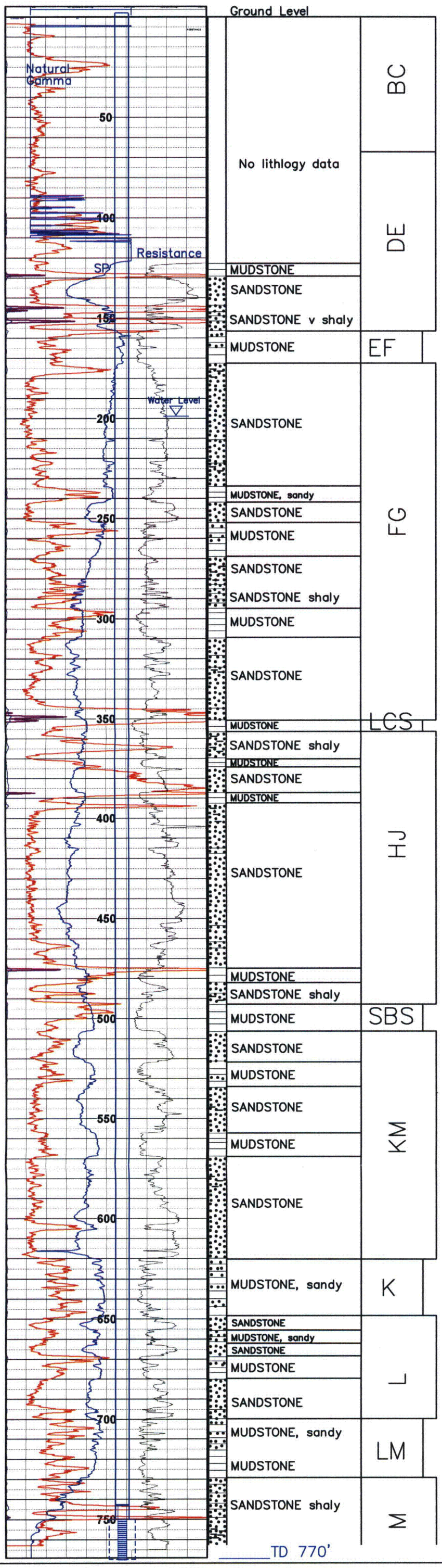
SCREEN LINER ASSEMBLY

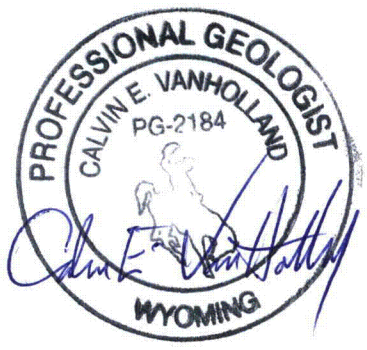
Description	Depth From	Depth To	Elev. From	Elev. To	Length
K–packer string	743'	750'	6202'	6195'	7'
Screen	750'	770'	6195'	6175'	20'

SCREEN SPECIFICATIONS:
Slot: 0.030" Composition 3" PVC Screen (wrapped)

FILTER PACKING:
Volume: ____ (bags)(ft^3) Sand Specs. ____
Method: ____

WELL STIMULATION: Method Airlift
Yield: Good / Moderate / Poor
10 gpm



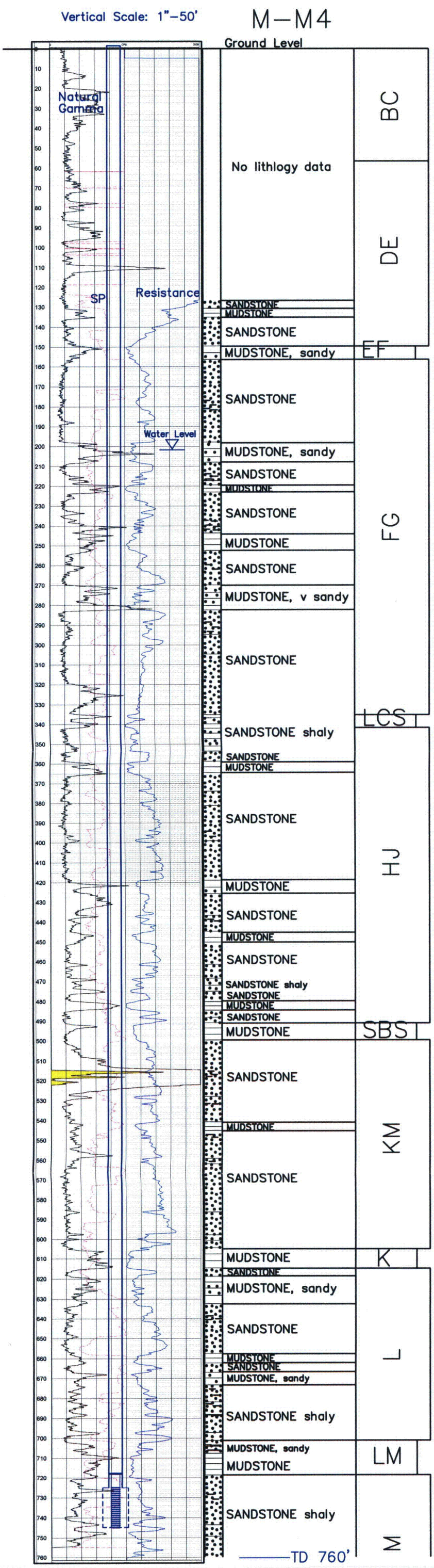


M–M3

M–M4

Lost Creek ISR, LLC

WELL COMPLETION REPORT



WELL # M–M4 SEO # 194688 Date Drilled: 7/25/11

Location: E 2,214,044 / N 594,453 (NAD 83)

Ground Elev: 6944' Measure Point Elev: 6945.8'

TD: 760' Hole Dia.: 7–7/8"

CASED to: 725' Casing: PVC SDR17 ID: 4.5" OD: 5"

GROUT: Portland Cement – Type I/II
Pumped thru casing, displaced to surface with water

COMPLETION Aquifer: M Horizon

Static Water Level: Depth 202.0' Elev: 6743.8' (3/15/13)

UNDERREAM: Blade Dia: 10.5"
Intervals: from 725' to 745' /length 20'
from ____ to ____ /length ____

SCREEN LINER ASSEMBLY

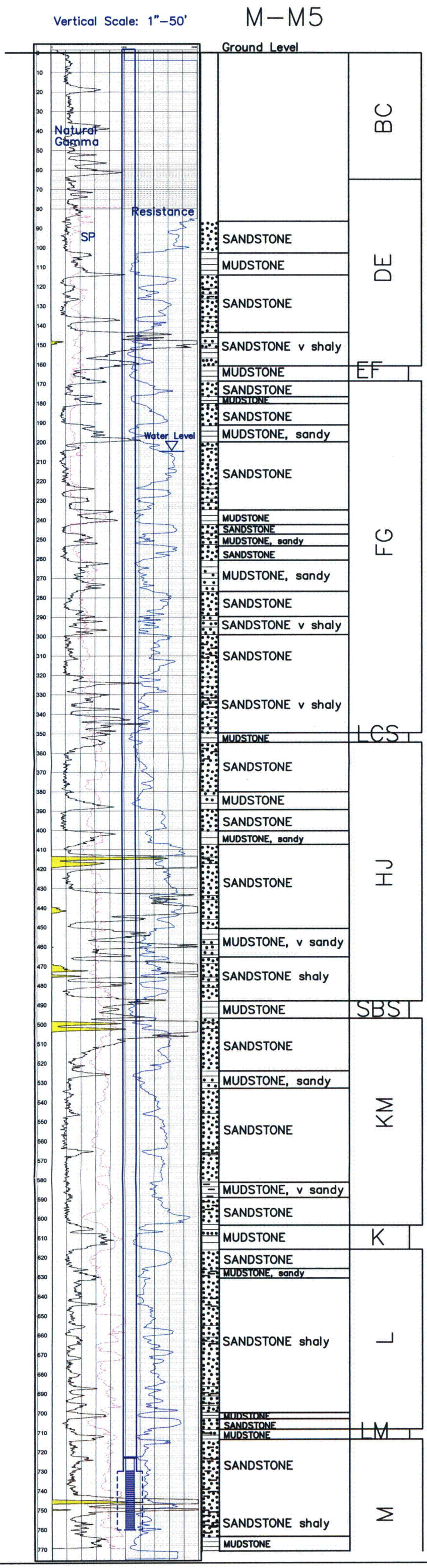
Description	Depth From	– To	/ Elev. From	– To	Length
K–packer string	718'	725'	6226'	6219'	7'
Screen	725'	745'	6219'	6199'	20'

SCREEN SPECIFICATIONS:
Slot: 0.030" Composition 3" PVC Screen (wrapped)

FILTER PACKING: N/A
Volume: ____ (bags)(ft^3) Sand Specs. ____
Method: ____

WELL STIMULATION: Method Airlift
Yield: Good / Moderate / Poor
15 gpm

PROFESSIONAL GEOLOGIST
CALVIN E. VANHOLLAND
PG-2184
WYOMING



M–M5

Lost Creek ISR, LLC

WELL COMPLETION REPORT

WELL # M–M5 SEO # 194689 Date Drilled: 7/20/11

Location: E 2,215,196 / N 595,340 (NAD 83)

Ground Elev: 775' Measure Point Elev: 6953.0'

TD: 775' Hole Dia.: 7–7/8"

CASED to: 730' Casing: PVC SDR17 ID: 4.5" OD: 5"

GROUT: Portland Cement – Type I/II
Pumped thru casing, displaced to surface with water

COMPLETION Aquifer: M Horizon

Static Water Level: Depth 204.9' Elev: 6748.1'
(3/15/13)

UNDERREAM: Blade Dia: 10.5"

Intervals: from 730' to 760' /length 30'

from _____ to _____ /length _____

SCREEN LINER ASSEMBLY

Description	Depth From	Depth To	Elev. From	Elev. To	Length
K–packer string	723'	730'	6229'	6222'	7'
Screen	730'	760'	6222'	6192'	30'

SCREEN SPECIFICATIONS:

Slot: 0.030" Composition 3" PVC Screen (wrapped)

FILTER PACKING: N/A

Volume: _____ (bags)(ft^3) Sand Specs. _____

Method: _____

WELL STIMULATION: Method Airlift

Yield: (Good) / Moderate / Poor

25 gpm

PROFESSIONAL GEOLOGIST
CALVIN E. VANHOLLAND
PG-2184
WYOMING

M–M5

M–M6A

Lost Creek ISR, LLC

WELL COMPLETION REPORT

WELL # M–M6A SEO # 194690 Date Drilled: 7/27/11

Location: E 2,214,200 / N 596,525 (NAD 83)

Ground Elev: 6964' Measure Point Elev: 6964.5'

TD: 750' Hole Dia.: 7–7/8"

CASED to: 715' Casing: PVC SDR17 ID: 4.5" OD: 5"

GROUT: Portland Cement – Type I/II
Pumped thru casing, displaced to surface with water

COMPLETION Aquifer: M Horizon

Static Water Level: Depth 209.4' Elev: 6755.1'
(3/15/13)

UNDERREAM: Blade Dia: 10.5"

Intervals: from 715' to 730' /length 15'

from _____ to _____ /length _____

SCREEN LINER ASSEMBLY

Description	Depth From	– To	/ Elev. From	– To	Length
K–packer string	708'	715'	6256'	6249'	7'
Screen	715'	730'	6249'	6234'	15'

SCREEN SPECIFICATIONS:

Slot: 0.030" Composition 3" PVC Screen (wrapped)

FILTER PACKING: N/A

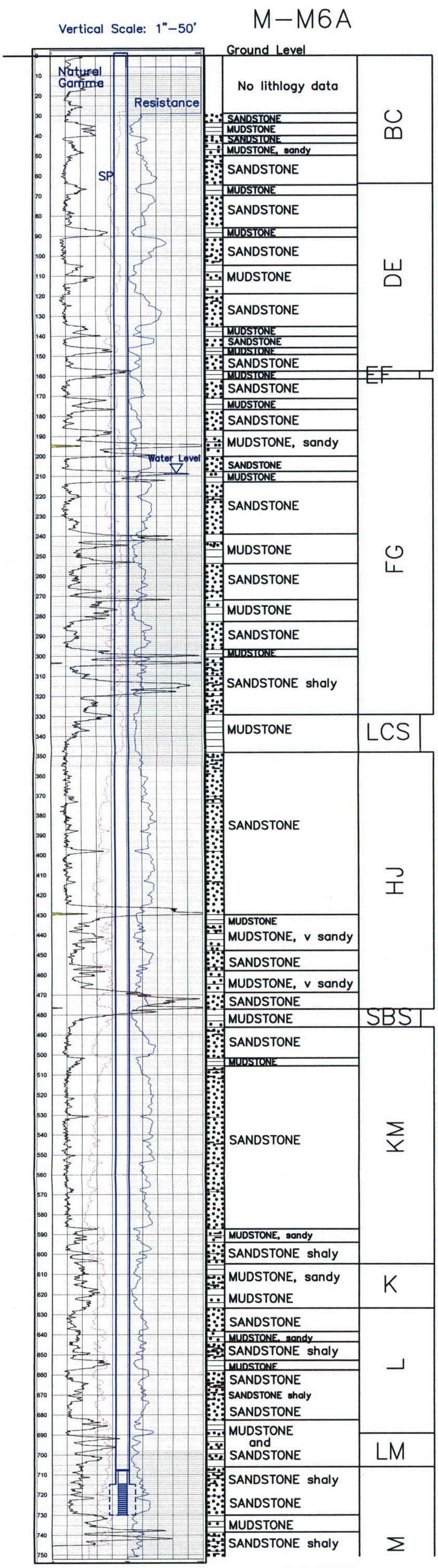
Volume: _____(bags)(ft^3) Sand Specs. _____

Method: _____

WELL STIMULATION: Method Airlift

Yield: Good / Moderate / Poor

25 gpm



PROFESSIONAL GEOLOGIST
CALVIN E. VANHOLLAND
PG-2184
WYOMING

M–M6A