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The depositional environment of the kisbey sandstone from the madison group (Mississippian), North-Central North Dakota

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THE DEPOSITIONAL ENVIRONMENT OF THE KISBEY SANDSTONE FROM THE MADISON GROUP (MISSISSIPPIAN), NORTH-CENTRAL NORTH DAKOTA

by

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This thesis, submitted by Gregory D. Waltz in partial fulfillment of the requirements for the Degree of Master of Science from the University of North Dakota, has been read by the Faculty Advisory Committee under whom the work has been done and is hereby approved.

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This thesis meets the standards for appearance, conforms to the style and format requirements of the Graduate School of the University of North Dakota, and is hereby approved.

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Date November 25, 1996

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ABSTRACT

The Kisbey Sandstone, also known as the K-2 marker, was studied to understand its depositional environment. It occurs within the Madison Group (Mississippian) of North Dakota. The Madison Group is a regressive, near-shore sequence. In descending order, this Group comprises the Charles, Mission Canyon, and Lodgepole Formations. The K-2 marker appears as well-log defined unit between the Charles and Mission Canyon Formations. Seven counties comprise the 7100 square mile study area. They include Rolette, Bottineau, Renville, McHenry, Ward, Burke, Mountrail Counties, and the southern-most adjacent townships in Canada.

For this study, 1677 well-logs were examined. These data were analyzed through stratigraphic cross-sections, structure contour maps, and isopach maps. Two lateral, one longitudinal, and a diagonal cross-section were made. Structure contour maps and isopach maps were made of marker beds within the Madison Group. The cross-sections and maps were examined for paleogeomorphic features that would indicate a particular depositional environment. In addition, 667 feet of drill core were examined for sediment characteristics, sediment structures, fossils, and stratigraphic variability.

These data were used to construct a depositional model for the Kisbey Sandstone. Both well-logs and drill core are kept in the Wilson M. Laird Core Library in Grand Forks, North Dakota.

Possible paleogeomorphic features were found on the isopach maps, structure contour maps, and stratigraphic cross-sections. Unfortunately, these features are not in areas where core is available, and cannot be tied to core data.

The core reveals that the K-2 marker also contains anhydrite, sandy anhydrite, silty anhydrite, clayey anhydrite, and packstone. Generally, the sandstone is very fine- to fined grained, angular, and predominantly quartz. Sandstone characteristics can be distinguished in three geographic areas. The first area lies between R. 80 W. to R. 82 W. in the north-central North Dakota. Here, the sandstone is primarily cemented by anhydrite. The second area is an extension of the first area into Saskatchewan. Sandstone in the second area is cemented by both anhydrite and calcite. The third locality is the Sohio-Walsh well in T. 162 N., R. It is an unusually thick sandstone that is cemented by calcite. Two localities reveal some faint horizontal bedding, otherwise the sandstone is massive. Macrofossils were also sparse. Solitary corals, algae, brachiopods were found in isolated cases. Evidence of burrowing is also present in core. The K-2 marker is overlain by anhydrite, packstones of the Mohall beds, and underlain by packstones of the Glenburn beds.

The linear profile of the cross-section indicate that the Kisbey Sandstone was deposited on a broad flat plain. The high percentage of quartz grains, the burrowing, the presence of anhydrite, all indicate that the Kisbey Sandstone was deposited in a swash zone. The sand could have been either transported by eolian processes or by tidal processes resulting from storms. In addition, the name Kisbey Sandstone should be used only when core is present. The "K-2 marker" is a better term for this unit when data comes from well-logs.

INTRODUCTION

General Setting

The study area of seven counties in north-central North Dakota includes the western part of Rolette County, all of Bottineau and Renville Counties, the northern portions of McHenry and Ward Counties, and the eastern portions of Burke and Mountrail Counties. This area is bounded by R. 73 W. in the east, R. 91 W. to the west, T. 155 N. in the south, and extends northward to two townships north in southern Saskatchewan. The total area of the study is 7100 square miles with 5800 square miles located in North Dakota (Figure 1). This area has been selected because of the abundance of available data.

Geologic Setting

All sedimentary deposits examined were deposited in the Williston Basin, an intracratonic basin that covers an area of 51,600 square miles. It is located in western North Dakota, northwestern South Dakota, eastern Montana, a small part of southeastern Alberta, southern Saskatchewan, and a small area of southwestern Manitoba (Figure 1). The maximum

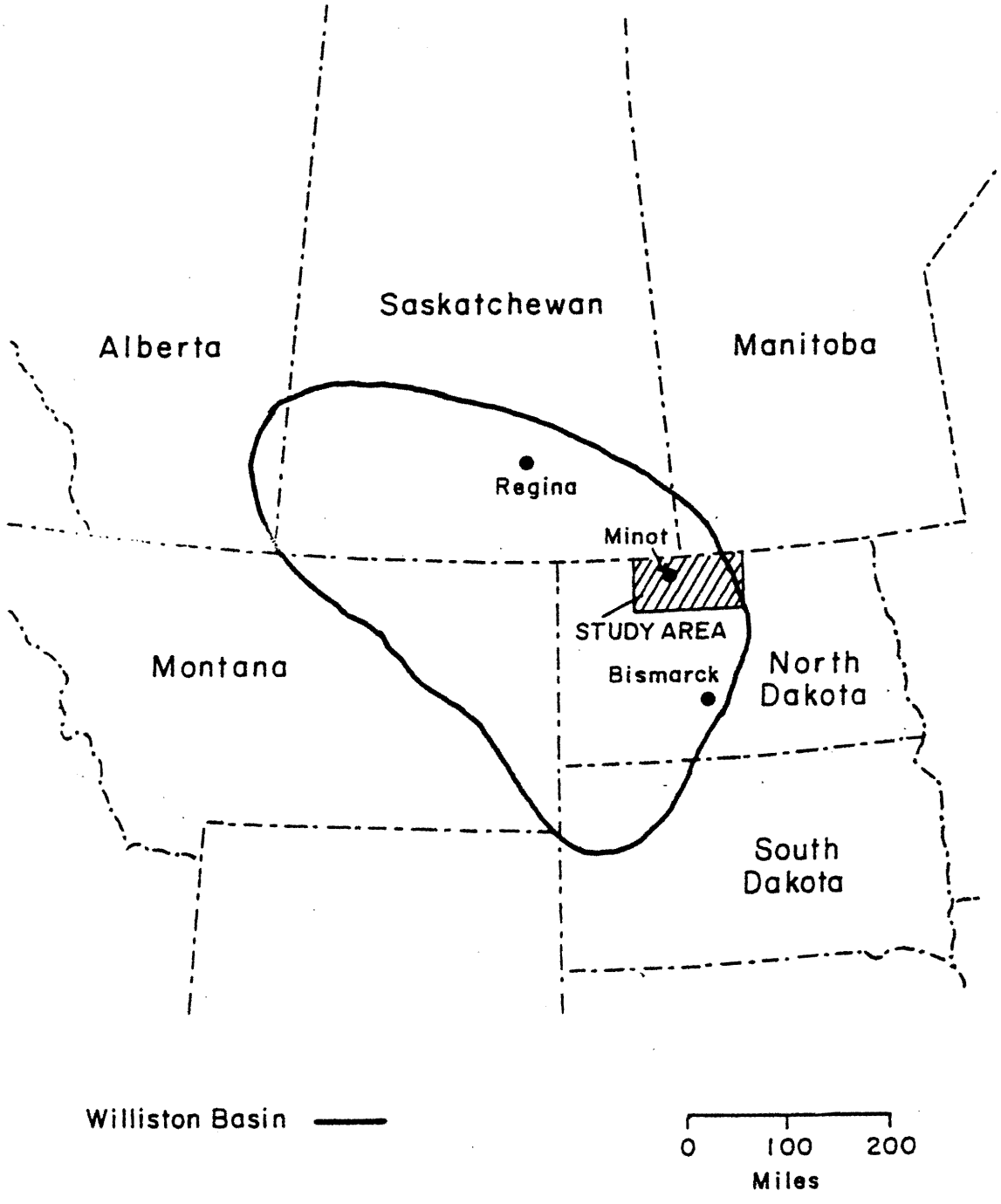

Figure 1 - Map of study area showing the outline of the Williston Basin.

rock thickness of the Williston Basin is 15,128 feet and occurs in McKenzie County (Carlson and Anderson, 1965). Precambrian rocks form the basement of the Williston Basin. Rocks from all geologic time periods are represented in the Williston Basin with major unconformities occurring between the Precambrian and Cambrian, at the base of the Ordovician, between the Silurian and Devonian, Mississippian and Pennsylvanian, Triassic and Jurassic, and the Cretaceous and Tertiary (Carlson & Anderson, 1965; Peterson and MacCary, 1987).

The greatest rate of subsidence and accumulation of sediment occurred during the Mississippian Period (Carlson and Anderson, 1965; Gerhard et al., 1982). This increase in activity is thought to be related to active thrusting in the Cordillera (Gerhard et al., 1982). The Mission Canyon Formation is included in the Mississippian of the Williston Basin (Bluemle et al., 1982). In general, the Mission Canyon was deposited on an open marine shelf. The western portion of the Mission Canyon was deposited as a restricted lagoon which was separated from the shelf by a series of ooid bars. On the eastern edge of the Williston Basin, the lagoon regressed to tidal flats and supratidal sabkhas where evaporites were deposited (Malek-Aslani, 1971).

Purpose

The Kisbey Sandstone is a clastic unit of the hydrocarbon-rich Madison Group in the Williston Basin. It is a potential petroleum reservoir. Studying the depositional environment will help us determine its economic potential. This unit has also been overlooked in previous studies of the Madison Group.

The Kisbey Sandstone can be considered a shelf sandstone. Shelf sandstones are interbedded with carbonates and evaporites, with little or no shale. They are interpreted as being deposited in shallow marine and sea-marginal environments, and are controlled by sea-level changes (Mazzullo, Malicse, and Siegel, 1991).

Stratigraphy

Stratigraphy of the Madison Group has been described in detail by several authors. The following description is based on the works by Porter (1955), Carlson and Anderson (1965), Gerhard et al. (1982), Obelenus (1985), Peterson (1987), and Luther (1988). The name Madison made its first appearance in a report by Peale (1893). He described the Madison as a Mississippian limestone formation exposed in the Madison Range, Montana.

In subsequent work, the Madison has been designated Group

status. Generally, there are four facies recognized in the Madison Group. These facies intertongue and tend to occur in cycles throughout the Madison. The lower facies (Unit 1) is dark, argillaceous or fine-grained limestone. Also occurring in this unit is carbonate shale that contains pyrite, silt, and chert (Porter, 1955: Peterson, 1987). Unit 1 is interpreted as being offshore deep water deposits (Peterson, 1987). The overlying facies, Unit 2, is a crinoidal bioclastic limestone with occasional beds of crinoidal-oolitic limestone (Porter, 1955; Peterson, 1987). Peterson (1987) interpreted the environment of Unit 2 as a transition from an open basin to a shallow marine shelf. Above it, Unit 3 is a facies containing oolitic-pisolithic limestone, anhydrite, halite, and algal limestone (Porter, 1955; Peterson, 1987). Unit 3 represents a shallow marine, high energy environment (Peterson, 1987). Finally, there is the Unit 4 facies containing anhydrite, halite, silty and argillaceous limestone, and a minor amount of terrigenous clastic deposits (Porter, 1955; and Peterson, 1987). Unit 4 represents intertidal-supratidal shelf deposits, and nearshore lagoons (Peterson, 1987).

The Madison Group has been divided into three different formations. From the bottom to top, they are the Lodgepole Formation, the Mission Canyon Formation, and the Charles Formation (Porter, 1955; Peterson, 1987; Luther, 1988). The Lodgepole is characterized by the lithologies of Unit 1, while

the Mission Canyon is characterized by Unit 2 lithologies. Unit 3 and unit 4 represent the lithologies that are commonly found in the Charles Formation (Porter, 1955; Malek-Aslani, 1971; and Peterson, 1987). The name Charles was first proposed by Seager (1942) for 800 feet of evaporites and carbonates that underlie the Kibbey sandstone in southeastern Montana. Later, the Charles was found to be extensive and placed in the upper part of the Madison Group (Perry and Sloss, 1943; Moritz, 1951; Porter, 1955). The Charles Formation is best developed in the center of the Williston Basin (Peterson, 1987).

The Mission Canyon Formation was named by Collier and Cathcart (1922) for 330 feet of massive limestone that appears on the north flank of the Little Rocky Mountains (Porter, 1955). The Mission Canyon is best developed along the margins of the Williston Basin, where it is the dominant formation of the Madison Group. The Mission Canyon is also present in the center of the Basin, but is not as dominant (Peterson, 1987).

Finally, the Lodgepole Formation was also named by Collier and Cathcart (1922) for 550 feet of thin-bedded limestone that appears on the north flank of the Little Rocky Mountains of Montana (Porter, 1955). At that locality, the base of the Lodgepole is not observed. Sloss and Hamblin (1942) were the first to describe the base of the Lodgepole. They described it as a black fissile shale (Porter, 1955). Like the Charles, the Lodgepole is thickest in the center of

the Williston Basin (Peterson, 1987).

The Madison Group can also be divided on the basis of well-log interpretation (Fuzesy, 1960; Luther, 1988). In North Dakota, the Madison Group is divided into four intervals (Table I) (Figure 2). In ascending order, they are the Bottineau Interval, the Tilston Interval, The Frobisher-Alida Interval, and the Ratcliffe Interval (Luther, 1988). The Ratcliffe Interval is further divided into three sub-intervals. From the top, they are the Midale, the Rival, and the State "A" Marker (Luther, 1988). The Frobisher Alida Interval is divided into five carbonate beds. In descending order, they are the Bluell, the Sherwood, the Mohall, the Glenburn, and the Wayne beds. Each of these beds is separated by marker beds. These marker beds appear as peaks in the gamma ray logs, and are more clastic than the carbonate beds. In descending order, they are the Sherwood Argillaceous Marker between the Bluell and Sherwood, the K-1 between the Sherwood and Mohall, the K-2 between the Mohall and Glenburn, and the K-3 between the Glenburn and Wayne (Malek-Aslani, 1971; Peterson, 1987; and Luther, 1988).

The K-2 marker is also known as the Kisbey Sandstone (Fuzesy, 1960; Luther, 1988; Perras, 1990). Luther (1988) showed that the top of the K-2 represents the boundary between the Charles and Mission Canyon Formations at Wiley Field.

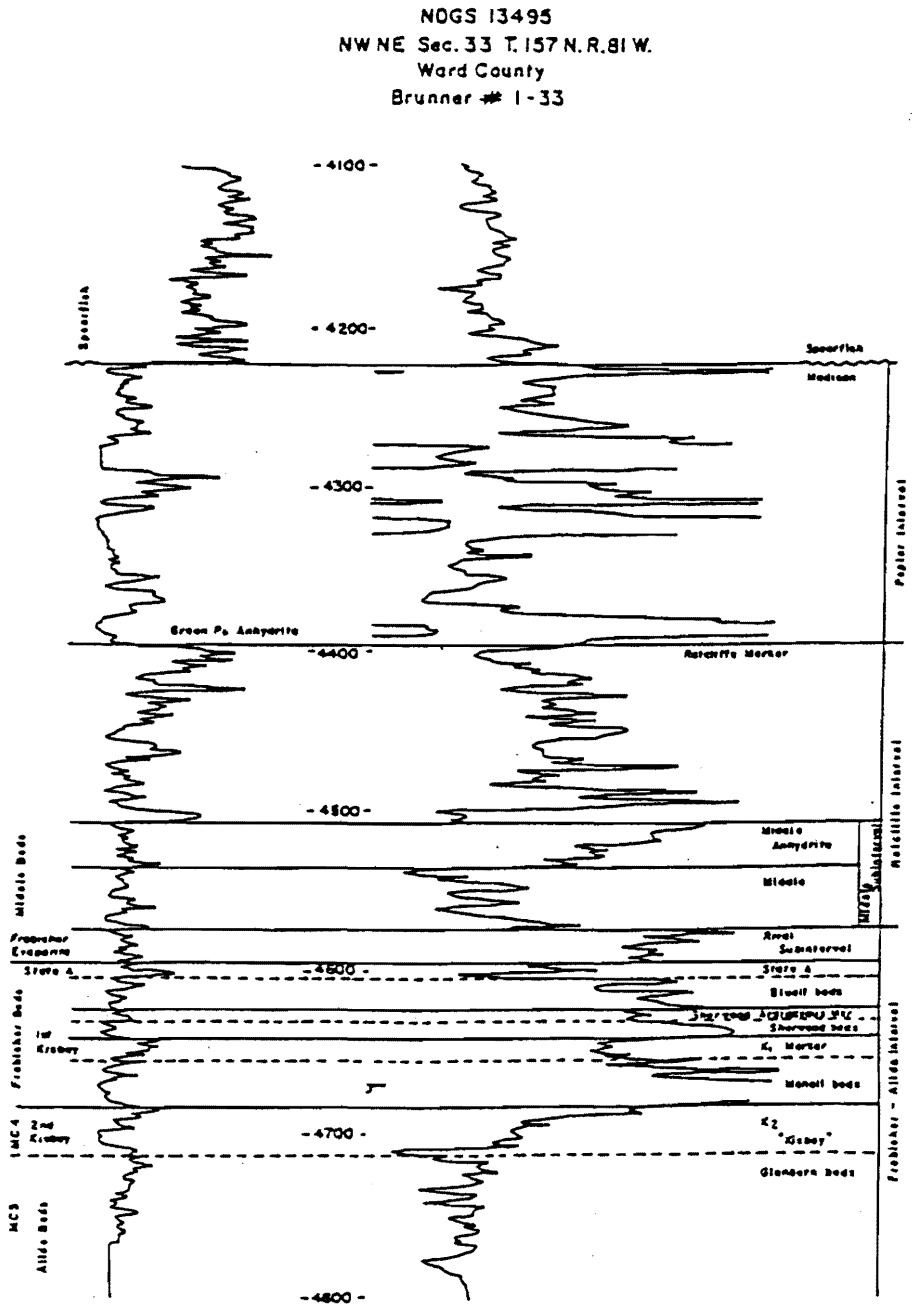

Figure 2 - Type well-log, NDGS 13495, located at NW NE sec. 33, T. 157 N., R. 81 W. Gamma ray is vertical line on the left side of log. Electrical resistivity is vertical line on the right side of log.

TABLE I

Saskatchewan Geological Society 1956		Harris, Land and McKeever 1956		Luther 1988		This Study	
Madison Group	Poplar beds	Charles Fm		Ratcliffe interval		Ratcliffe interval	NOT STUDIED
	Ratcliffe beds		Midale ls		Midale sub-int.		
	Midale beds		Rival ls		Rival sub-int.		
					State "A" marker		
	Frobisher-Alida beds	Mission Canyon Fm	Bluell beds	Frobisher-Alida interval	Bluell beds	Frobisher-Alida interval	
			State "A" / S.A.M.		S.A.M.		
			Sherwood beds		Sherwood beds		Mohall beds
			S.A.M. / K-1		K-1		
			Mohall beds		Mohall beds		
			K-1 / K-2		K-2		K-2
			Glenburn beds		Glenburn beds		Glenburn beds
			K-2				NOT STUDIED

Charles Fm

Mission Cyn Fm

Previous Work

In the past, much work has been published on the Madison Group and the Charles and Mission Canyon Formations. Little work has been done on the Kisbey Sandstone itself. Fuzesy (1960) gave a detailed description in a report of the Mississippian stratigraphy in Saskatchewan. The Kisbey Sandstone was described as a gray siltstone to fine-grained sandstone, which is calcareous and partly argillaceous. It interfingers with argillaceous limestone and dolomite. Harris, Land, and McKeever (1966) mentioned the Kisbey Sandstone in a study of the Mission Canyon stratigraphy. Luther (1988) gave a detailed description of the Kisbey Sandstone in his thesis on the Frobisher-Alida interval. Perras (1990) gave the most detailed description in his thesis on depositional environments of the Frobisher-Alida interval. He recognized two units of the Kisbey Sandstone, a lower sandy dolomite, and an upper carbonate-rich quartz sandstone. In addition, he described three different sub-facies of the upper quartz sandstone unit (Perras, 1990).

Methods

For this thesis, 1677 well-logs were examined. The study area includes the counties of Bottineau, Rolette, McHenry, Ward, Renville, Burke, and Mountrail. Wells south of T. 155

N., east of R. 73 W., and west of R. 91 W. were not examined. In addition, data were collected from well-logs from two townships north of the Canadian border in Saskatchewan. Only 577 well-logs were used for this thesis. Logs were rejected if they did not contain the study interval, or were illegible.

A series of isopach and structure contour maps were produced from the well-log data. Isopach maps were produced of the K-2, K-1, and the Sherwood Argillaceous Member marker beds. Structure contour maps were produced of the Madison and State "A" tops. The isopach maps were examined for the change in thickness of each interval throughout the study area. The structure contour maps were examined for structural highs and lows, which might indicate faulting, folding, or an erosional surface.

Along with the maps, four cross-sections were produced from the well-log data (Figure 3). Two east-west cross-sections were made at T. 162 N. and T. 156 N. One north-south cross-section was made at R. 80 W. A northeast-southwest diagonal cross-section was made. The cross-sections examine the lateral change of thickness of individual intervals. The well-logs that were used in this thesis are located at the Wilson M. Laird Core Library, Grand Forks, North Dakota.

Along with well-log data, 667 feet of drill core were examined from 29 different wells (Appendix C) . Twenty-four of the wells are located in North Dakota, while the other five

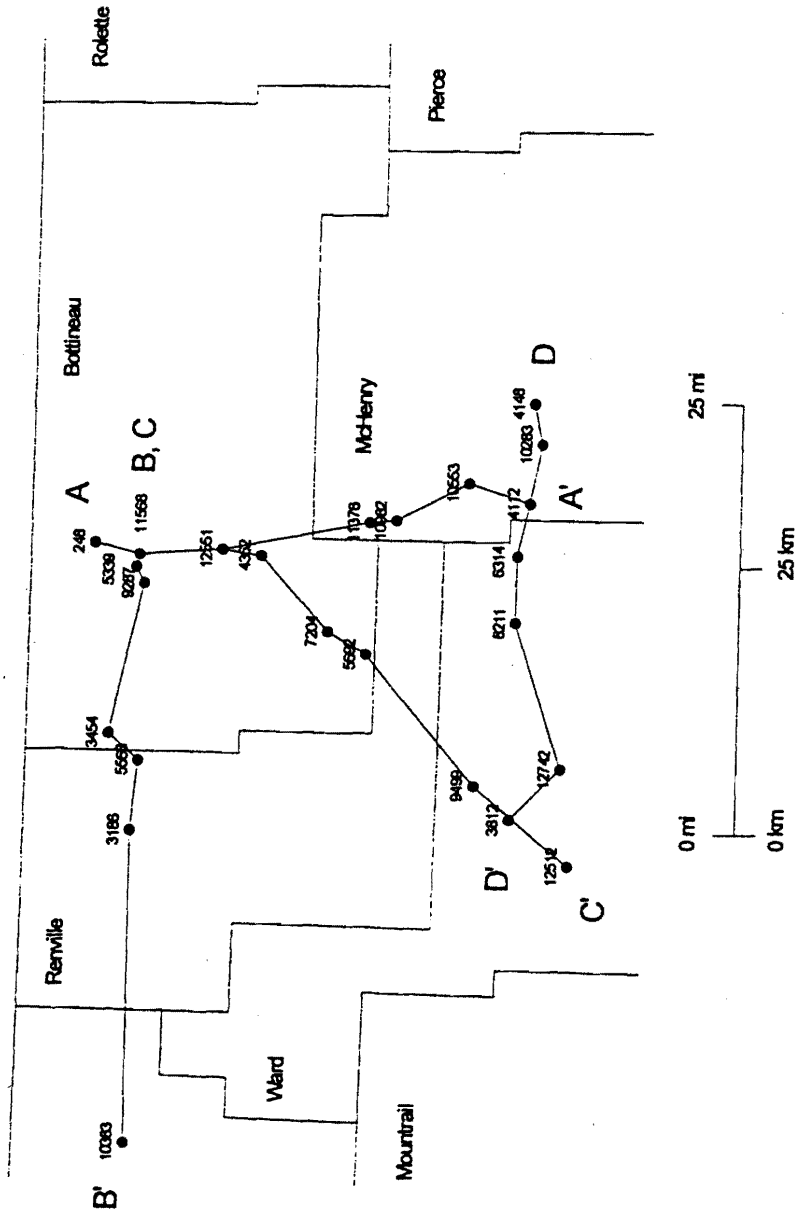

Figure 3 - Well-log localities for cross-sections, wells are indicated by black dot, well-log numbers are posted above the well locality. Line A-A′ is R. 80 W. B-B′ is T. 162 N. C-C′ is diagonal cross-section. D-D′ is T. 156 N.

wells are located in Saskatchewan (Figure 4). Drill core was selected if it was located in the K-2 marker; drill core that was in chips or fragments was not used.

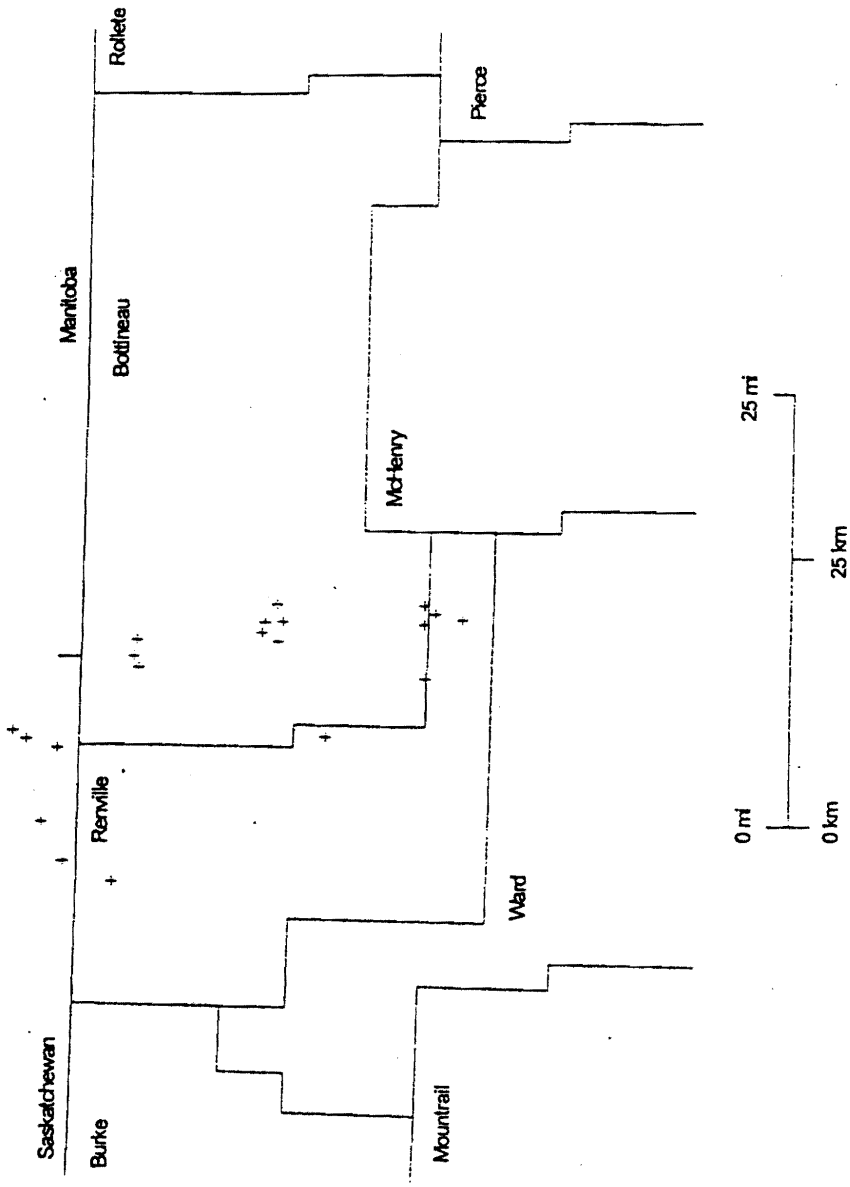

Figure 4 - Localities for drill core used in thesis (crosses). Appendix C provides a detailed description of these localities.

CORE DESCRIPTIONS

Introduction

A common problem with drill core is that it is only available in areas of economic interest (Cant, 1984); in this study, between R. 80 W. and R. 82 W. Therefore, the cores were grouped into three different areas (Figure 5). The first area is between R. 80 W. and R. 82 W. in North Dakota. The second area lies north of the first in Saskatchewan. The third location is well NDGS 1059 located in T. 162 N., R. 86 W. The characteristics of the Kisbey Sandstone vary in each location, especially between the first area and third location. This is not unusual; previous studies have identified different facies of the Kisbey Sandstone (Perras, 1990).

Mohall

Core descriptions of the Mohall interval are fairly constant throughout the study area. In the eastern study area, the Mohall is exclusively massive anhydrite. One notable exception is NDGS 13495 (T. 157 N., R. 81 W.). Here,

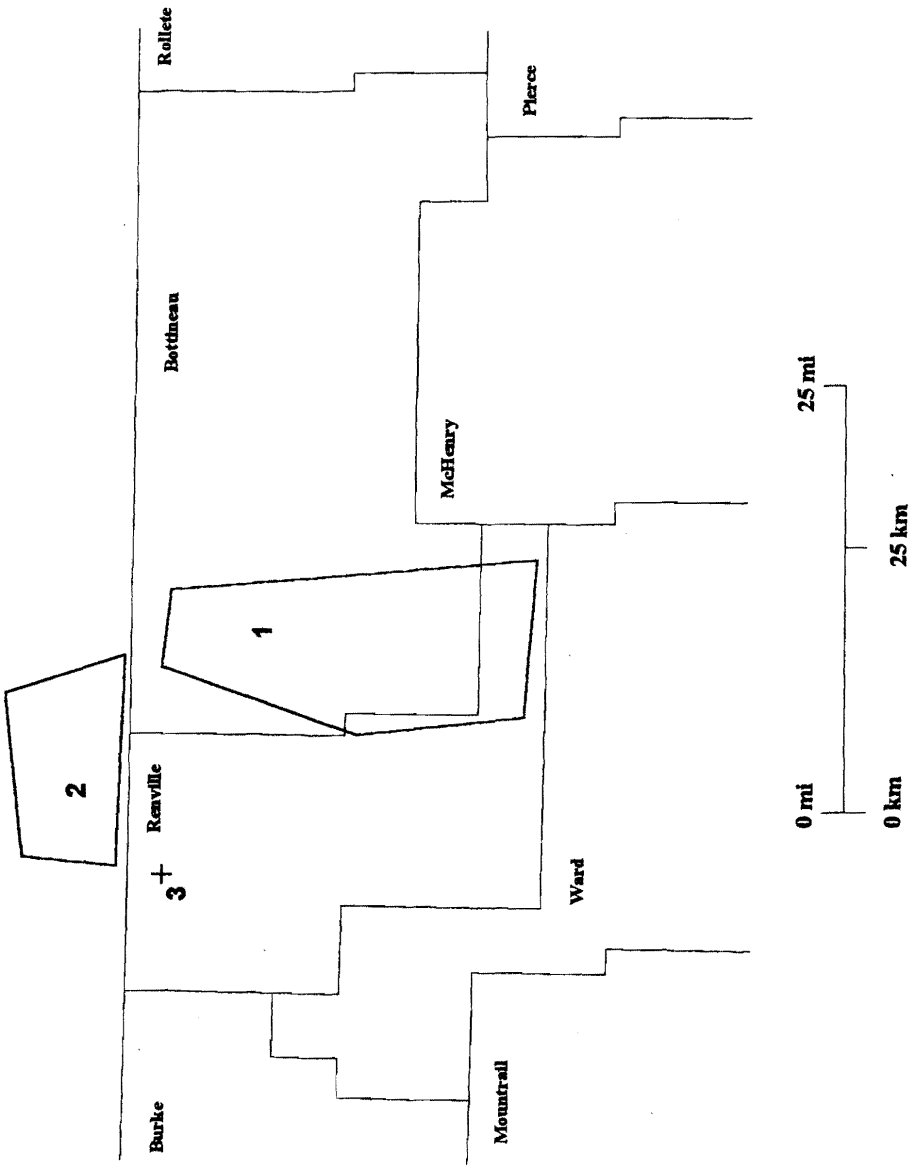

Figure 5 - The three areas for the K-2 marker. Area 1 is located between R. 80 W. and R. 82 W. Area 2 is located in Canada. Area 3 is NDGS 1059 in NE NE sec. 12 T. 163 N., R. 86 W.

the Mohall is ooidal packstone and wackestone. The top layer of packstone also contains a laminated anhydrite horizon and horizontal laminations (Appendix C). For NDGS 1059, the Mohall packstone contains blue-green algae, laminations, and vuggy and channel porosity (Appendix C).

K-2

A point should be made about the Kisbey Sandstone and the K-2 marker. Sand is not present in all wells that contain the K-2 marker (Figure 4). Wherever present, sand occurs only in the first peak of K-2 marker; lower peaks are silty, clayey, or massive anhydrite. In addition, the composition of the K-2 marker changes significantly in each of the three areas.

Area One

1. Sandstone: Between R. 80 W. and R. 82 W., the K-2 marker consists of sandstone, sandy anhydrite, silty anhydrite, clayey anhydrite, and anhydrite. Sandstone occurs in nine wells in this area (NDGS 3194, 2464, 6333, 3944, 9676, 13495, 672, 4092, 3988; Appendix C). Grain size ranges from silt to fine-grained sand. The sandstone is well-sorted in four wells (NDGS 3194, 2464, 6333, 3944), moderately well-sorted in two wells (NDGS 9676, 13495), and poorly sorted in three wells (NDGS 672, 4092, 3988). The sandstone is massive

except in NDGS 13495, which has some horizontal lamination in a few sections of core. Quartz is the predominant mineral; it often comprises more than 90%, classifying the rocks as quartzarenite (McBride, 1963). Biotite is also present in some cores. The sandstone is cemented by anhydrite for most of the area, although in North Haas Field (T. 163 N., R. 82 W.), some is cemented with quartz, and the sandstone in NDGS 13495 has calcite cement (Figure 6). Most cores of the sandstone appear to lack porosity. Inter-granular porosity occurs in wells NDGS 2669, 3944 (less than 10% of core volume); NDGS 2384, 6333, 672 (10-20% of core volume); and NDGS 3988 (greater than 20% of core volume. Anhydrite can be as much as 50% of core volume. A coral was found in well NDGS 13495 (Figure 7).

2. Sandy Anhydrite: Sandy anhydrite often represents the first gamma ray peak when sandstone is not present. The sand is very-fine grained, well-sorted, and massive. Quartz is the dominant mineral with a minor amount of ferromagnesian minerals also present. Anhydrite comprises 50% to 60% of the core volume. Neither porosity nor fossils were observed in the sandy anhydrite (Figure 8).

3. Silty anhydrite/Clayey anhydrite: Three intervals of silty anhydrite occur between R. 80 W. and R. 82 W.

Figure 6 - Laminated sandstone at 4707.5', NDGS 13495, NW NE sec. 33 T. 157 N., R. 81 W. Laminations consist of dark ferromagnesium minerals. Laminations are disturbed by burrowing.

Figure 7 - Unidentified coral located at the bottom of the core, 4712.8', NDGS 13495, NW NE sec. 33 T. 157 N., R. 82 W.

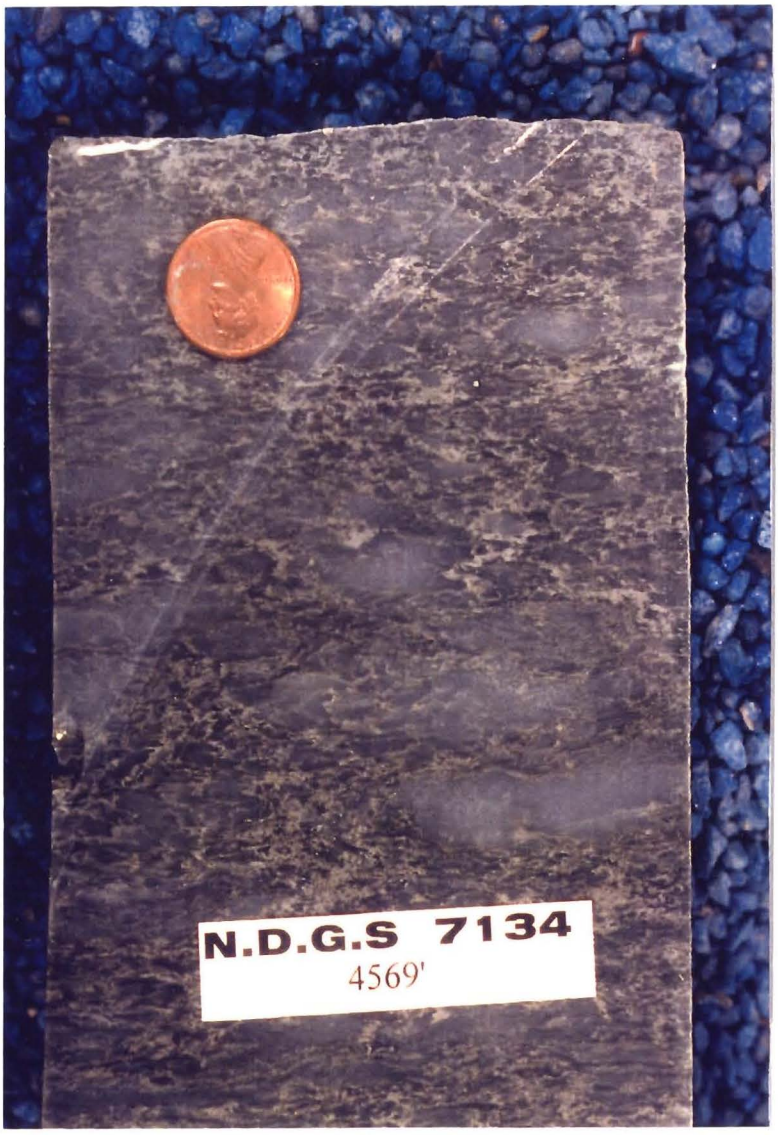

Figure 8 - Sandy anhydrite displaying mosaic texture, 4569', NDGS 7134, NE SW sec. 2 T. 158 N., R. 82 W.

A massive silty anhydrite appears as the first gamma ray peak in NDGS 3759 and NDGS 6825. In well NDGS 10345, laminated silty anhydrite occurs below the first gamma ray peak. Silt grains are well-sorted. Neither porosity nor fossils are found in the silty anhydrite (Figure 9).

Clayey anhydrite is common between R. 80 W. and R.82 W. In most cases, clayey anhydrite is below the first gamma ray peak; exceptions are NDGS 3759 and NDGS 3887 in which it appears at the first gamma ray peak. Structures vary throughout the area and in each core. Clayey anhydrite is either massive, laminated, or nodular. There is no recognizable trend for the variation of structure. Laminations also appear in some cores. No porosity was observed in the clayey anhydrite.

4. Anhydrite: Anhydrite is also present throughout the area. It appears below the first gamma ray peak when sand or silt occurs. It represents the first gamma ray peak for NDGS 3194, NDGS 7882, NDGS 4231, NDGS 10897, and NDGS 3249. Anhydrite is massive, except for a nodular texture when a small amount of clay is present. Horizontal laminations appear in some sections of NDGS 2669 and NDGS 3249. Neither porosity nor fossils are present in anhydrite (Figure 10).

5. Packstone: Packstone occurs in the K-2 marker, below the first gamma ray peak in NDGS 7868, NDGS 7134, NDGS 13495.

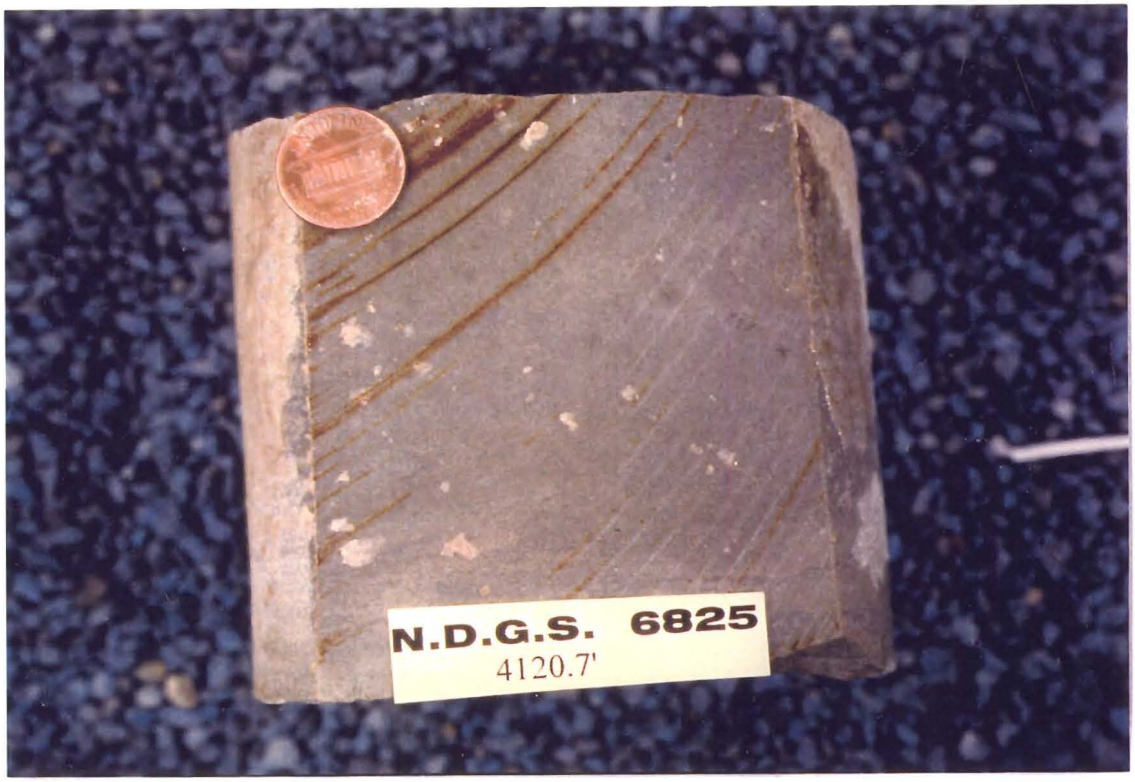

Figure 9 - Silty anhydrite, massive texture, 4120.7′, NDGS 6825, NW NE sec. 25 T. 161 N., R. 82 W.

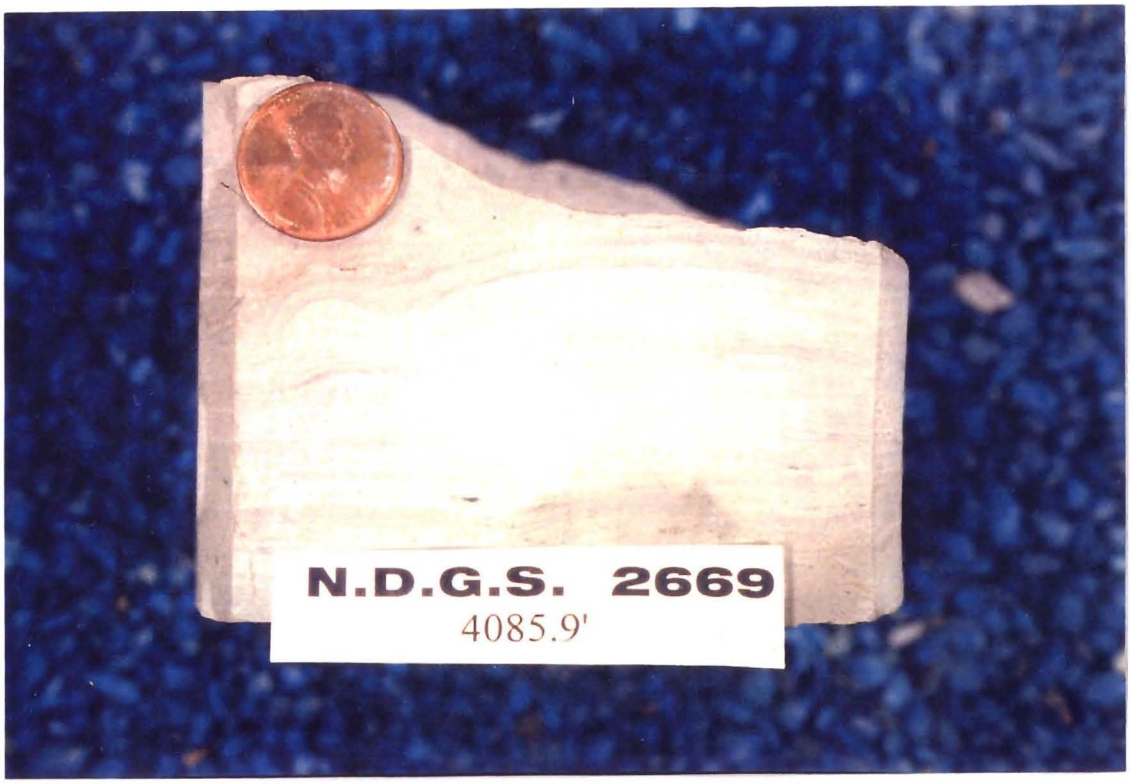

Figure 10 - Laminated anhydrite, 4085.9', NDGS 2669, NE SE sec. 23, T. 161 N., R. 82 W.

Laminations occur in wells NDGS 7134 and NDGS 13495. Anhydrite fills the pore spaces of NDGS 13495. The packstone of NDGS 13495 contains quartz sand grains. Neither the packstone in NDGS 7134 nor 13495 contain porosity. The packstone in NDGS 7868 contains vuggy porosity (10-20% of core volume). Both ooids and laminations occur in the packstone of wells NDGS 7134 and NDGS 13495. A specimen of *Ortonelli* occurs in the packstone of NDGS 13496 (Figure 11).

Area Two

The second area is an extension of R. 80 W. to R. 82 W. into Saskatchewan. Drill cores from five different wells were examined. Rocks similar to the North Dakota K-2 marker occur in Saskatchewan; the rock types include sandstone, sandy anhydrite, siltstone, clayey anhydrite, anhydrite, and packstone.

1. Sandstone: Sandstone occurs in two cores in Saskatchewan, 11-30-1-30W1 and 13-32-1-30W1. As with the wells in North Dakota, intervals of silt to very fine-grained sand were observed in wells 11-30-1-30W1, 3736.7′-3737.5′. The sandstone is well-sorted or moderately well-sorted. Unlike the wells in the first area, the sandstone in the Saskatchewan wells is cemented by calcite. There is no porosity in well 13-32-1-30W1. In well 11-30-1-30W1,

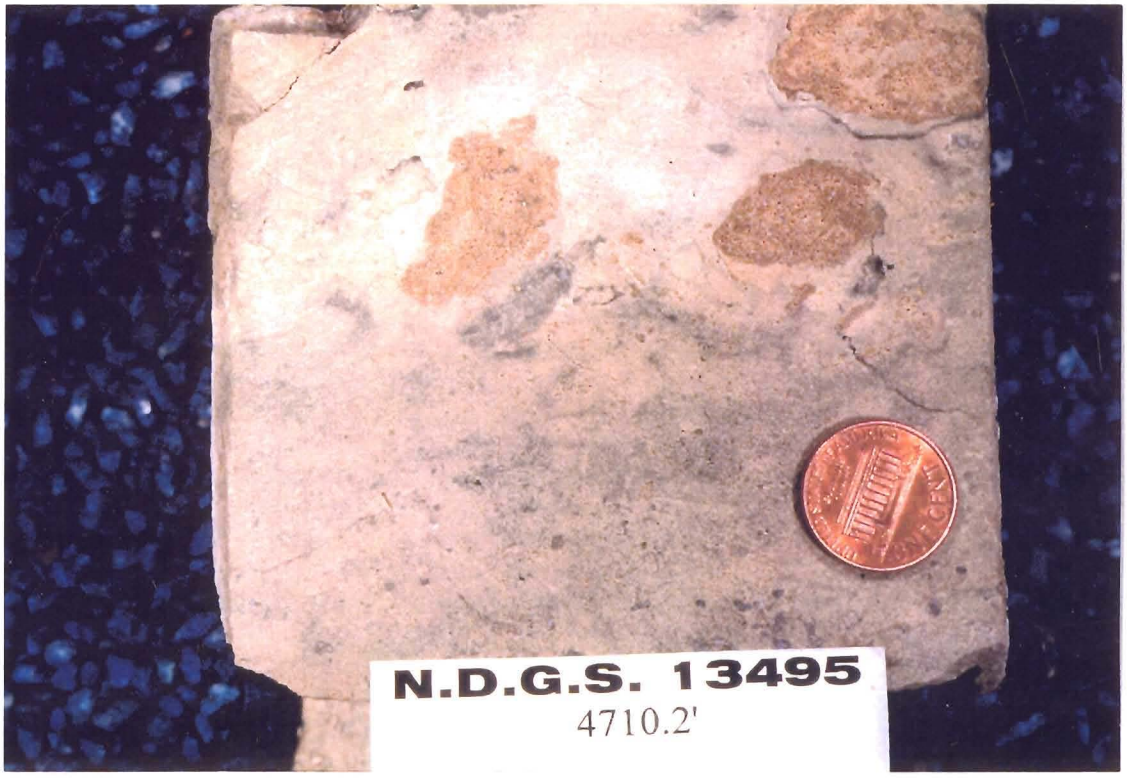

Figure 11 - *Ortonelli* in packstone, 4710.2′, NDGS 13495, NW NE sec. 33 T. 157 N., R. 81 W.

no apparent porosity was observed towards the top of the section (3731.4′-3734.6′), while inter-granular porosity of 10-15% of core volume was observed towards the bottom of the section (3737.5′-3740.5′). No fossils occur in the sandstone.

2. Sandy anhydrite/ Silty anhydrite/Clayey anhydrite/Anhydrite: Sandy anhydrite occurs in only one core, 3-8-1-32W1 interval 4269.5′-4270.4′. It is very fine-grained, well-sorted and massive. Grains are all quartz imbedded in anhydrite. No porosity or fossils were observed in the sandy anhydrite.

Siltstone also occurs at one locality, in well 15-12-11-31W1, (3879-3888.6′). Siltstone is moderately well-sorted and massive. Grains are nearly all quartz, embedded in anhydrite. No porosity or fossils were found in the siltstone.

Clayey anhydrite occurs more often than either sandy anhydrite or siltstone. It appears in three wells, 13-32-1-30W1 (3658.5′-3663.4′), 3-8-1-32W1 (4270.4′-4275′), and 1-23-1-32W1 (4037.3′-4043′). Clayey anhydrite is massive in wells 13-32-1-30W1 and 3-8-1-32W1. Horizontal laminations are found in well 1-23-1-30W1.

Anhydrite occurs in two cores in Saskatchewan, well 11-30-1-30W,1 (3734.6′-3736.7′), and well 13-32-1-30W1 (3666′-3666.7′). The anhydrite is massive. No porosity or fossils were found in the anhydrite.

3. Packstone: Packstone is observed in the K-2 marker of Saskatchewan in two wells. 11-30-1-30W1 (3736.7′-3737.5′), and 13-32-1-30W1 (3663.4′-3666′). The packstone is massive; stylolites occur in well 11-30-1-30W1 (3737.5′). Both wells contain vuggy porosity. In well 11-30-1-30W1, the porosity is 15-20% of core volume, while in well 13-32-1-30W1, porosity is 5-10% of core volume. No fossils are found in the packstone.

Area Three

The third area is one well location, well NDGS 1059, located in T. 162 N., R. 86 W. The well log for this well is poor and could not be used for isopach and structure contour maps. This well has the thickest Kisbey Sandstone available in core. The K-2 marker is over 124′ thick in this well. Only three different rock types occur in the K-2 marker of Well NDGS 1059: sandstone, siltstone, and packstone.

1. Sandstone: Sandstone occurs in sixteen different intervals between 4514′-4638′. The thickness of sand varies from three tenths of a foot to nine feet. In ten different intervals, the sandstone is silt to very-fine grained sand and sub-angular to sub-rounded. Very fine-grained, sub-rounded grains occur in three intervals. In three other intervals, the sandstone is very fine- to fine-grained, sub-angular to sub-rounded. There are no trends in grain size throughout the

section. The sandstone in nearly all intervals is either well-sorted or moderately well-sorted, although in one interval the sandstone is poorly sorted. Faint horizontal bedding occurs in six intervals. No horizontal bedding occurs below 4562.8'. Massive sandstone occurs throughout the K-2 marker (Figure 12). Burrow trails occur in two intervals in the middle of the core (Figure 13). Quartz is the predominant mineral in the sandstone. It is roughly 90-95% of the grains, making the rock a quartzarenite (McBride, 1963). Black ferromagnesian minerals make up 5-10% of the sandstone, while pyrite makes 5-10% of the grains, and calcite cements the sandstone. Intergranular porosity is common in the sandstone. Porosity is 10-25% of core volume. Solitary corals occur at 4556.1'-4566.2'.

2. Siltstone: Siltstone occurs in eleven different intervals in the Sohio-Walsh well. Siltstone is well-sorted throughout the section. Grains are all quartz. Horizontal bedding occurs at four different intervals between 4535' and 4554.4'. In seven other occurrences between 4559.5' and 4611', the sandstone is massive. Calcite cements the siltstone. There is no porosity in six intervals between 4535' and 4611'. Intergranular porosity up to 20% of core volume is present in three intervals between 4559.9' and 4591'. No fossils occur in the siltstone.

Figure 12 - Massive sandstone, 4630.0', NDGS 1059, NE NE sec. 12, T. 163 N., R. 86 W.

Figure 13 - Burrow trails in massive sandstone, 4600.5', NDGS 1059, NE NE sec. 12 T. 163 N., R. 86 W.

3. Packstone: Packstone occurs in eight intervals of the K-2 marker. The packstone is massive, except for three intervals of laminations. Stylolites occur three times between 4563.5′ and 4606′. Some anhydrite occurs as the pore filling cement at 4515′. Pyrite is present in a zone between 4523′ and 4525.6′. Sand grains are present in two intervals (4613.8′-4623′, and 4626.9′-4629′). Vuggy porosity is present in the following intervals: 4511.5′-4516.5′; 4613.8′-4623′; and 4629.6′-4629′. There are a few fossils in the packstone. Solitary corals exist at 4523.5′ and 4608.2′ (Figure 14). Ooids occur between 4605′-4606.5′, and 4608′-4609.8′ (Figure 15). Brachiopod fragments occur between 4605′ and 4606.5′, and 4608′-4609.8′ (Figure 16).

Glenburn

The Glenburn beds are packstone in all areas. A sharp contact with the overlying K-2 marker occurs in almost every core. The Glenburn contains ooids, blue-green algae, and laminations (Figure 17). In North Dakota, the Glenburn usually contains petroleum. This is because it is more porous than the overlying anhydrite rich K-2 marker that serves as a cap rock.

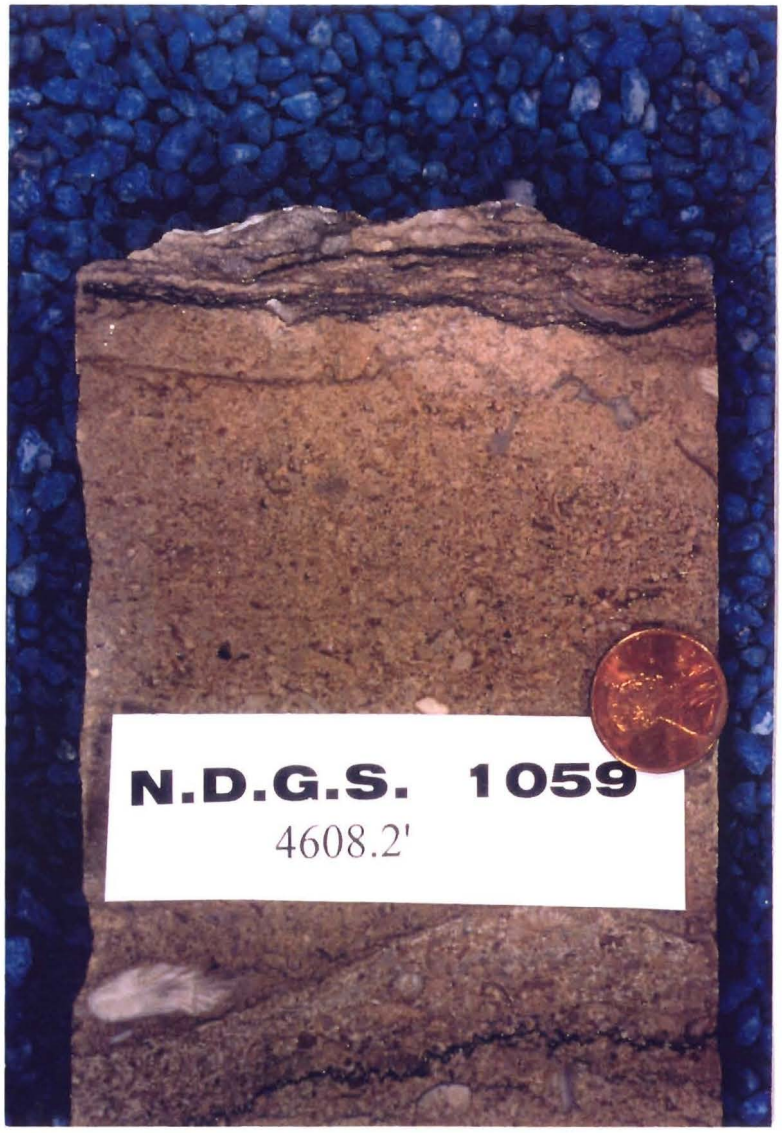

Figure 14 - Coral found within K-2 packstone, 4608.2', NDGS 1059, NE NE sec. 12 T. 163 N., R. 86 W.

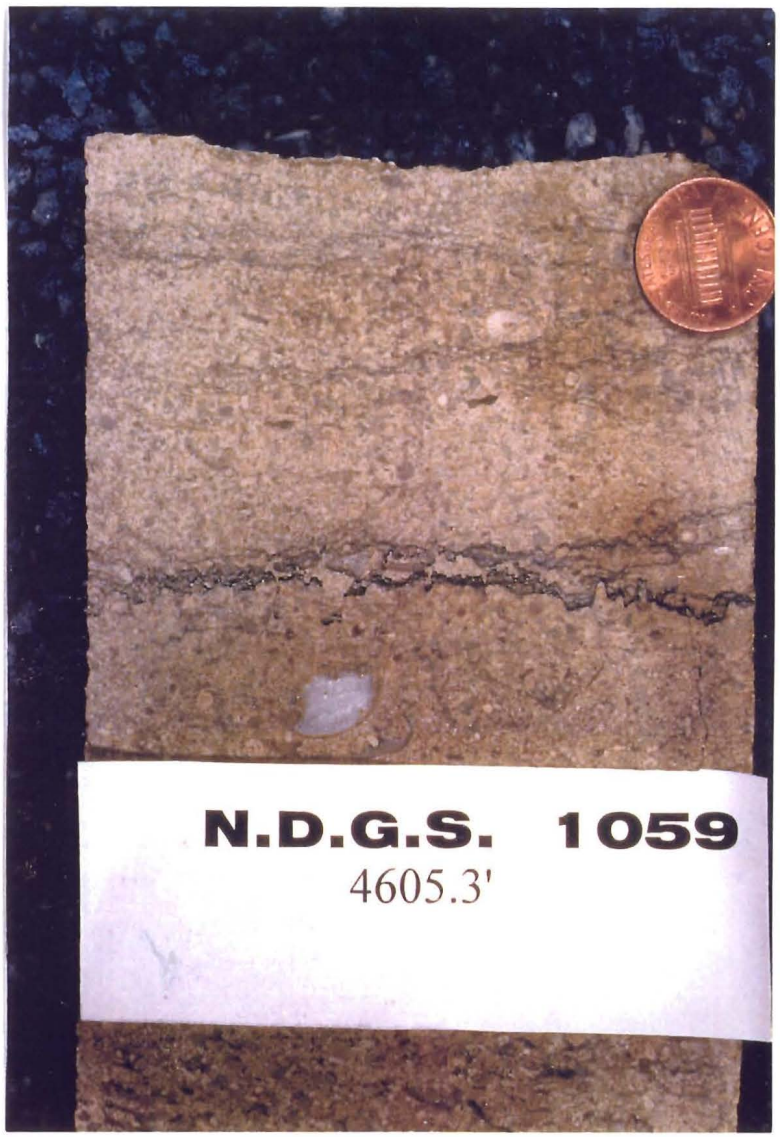

Figure 15 - Ooids found within K-2 packstone, 4605.3′, NDGS 1059, NE NE sec. 12 T. 162 N., R. 86 W.

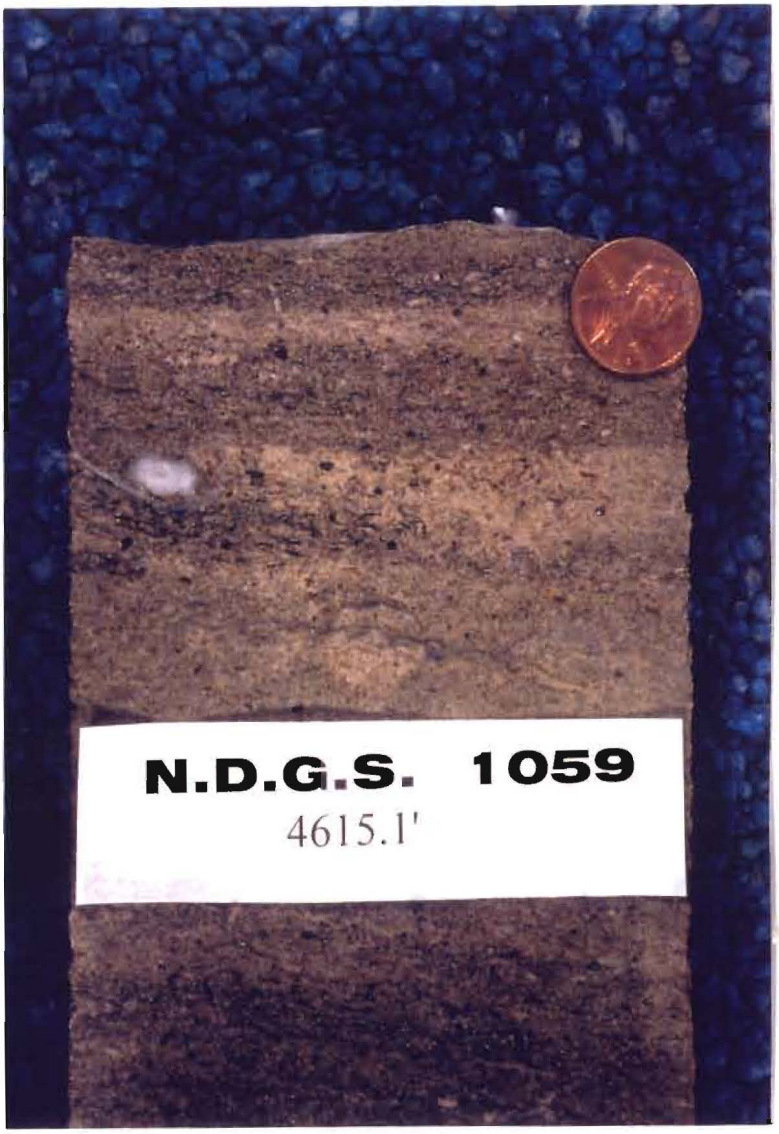

Figure 16 - Brachiopod fragment in K-2 packstone, 4615.1', NDGS 1059, NE NE sec. 12 T.163 N., R. 86 W.

Figure 17 - Packstone of Glenburn beds with ooids and vuggy porosity filled with anhydrite, 4562.5', NDGS 7868, SE NE sec. 1 T. 158 N., R. 82 W.

STRUCTURE CONTOUR AND ISOPACH MAPS

Introduction

In this study, 1677 well-logs were examined for the K-2 marker. Only logs from 572 wells contained the gamma-ray signature that identifies the K-2 marker. Data were recorded and entered into Quattro Pro. Thickness and elevations of selected intervals were calculated and entered into SURFER. A series of structure contour and isopach maps were produced.

Only five units were selected for making structure contour and isopach maps. Structure contour maps were made of the top of the Madison and State "A" marker. Isopach maps were made of the Sherwood Argillaceous Marker, the K-1, and the K-2. Units above the State "A" are omitted because they are not present throughout the study area.

Madison Structure Contour Map

Figure 18 is a structure contour map of the top of the Madison Group (Figure 18). Comparing the Madison with structure contour maps of lower units would locate any buried faults or other structural features. The top of the Madison

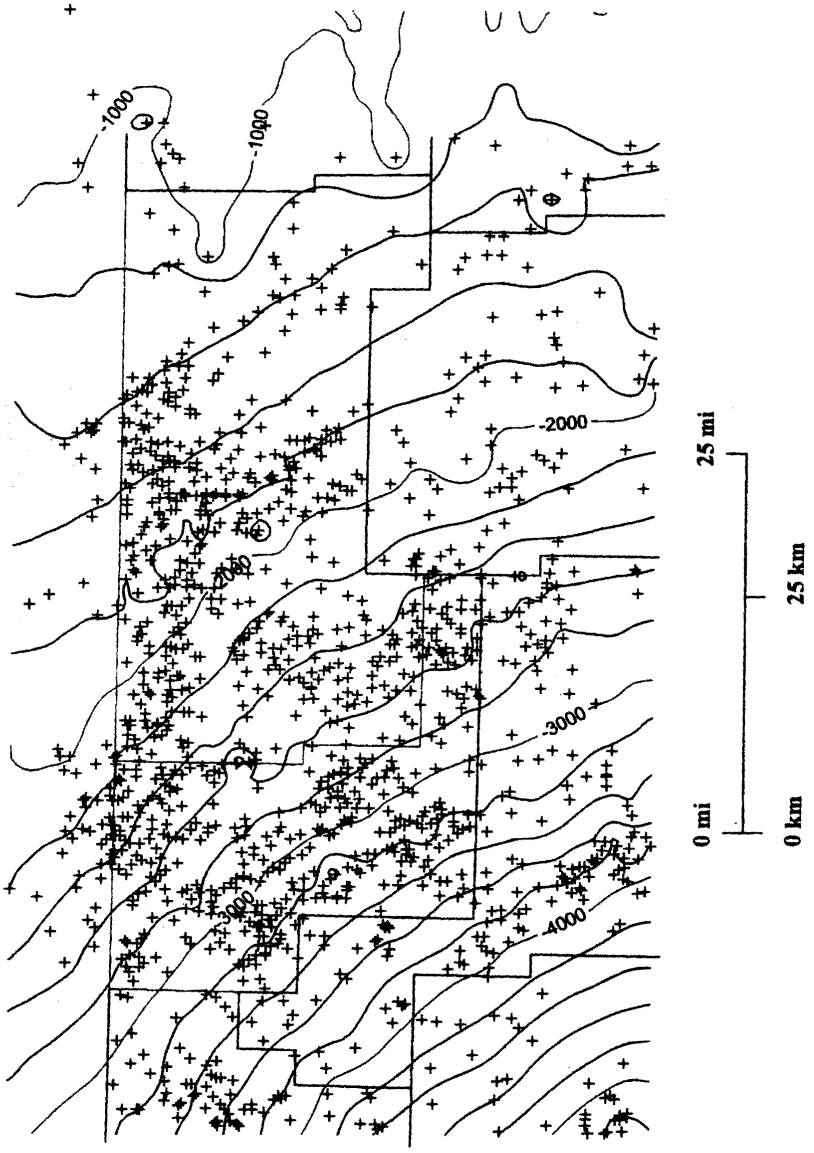

Figure 18 - Madison Structure Contour Map. Contour Interval is 200'. Crosses represent wells used for data points.

is an unconformity (LeFever and Carlson, 1986).

Over one thousand data points were used in producing the Madison structure contour map. The contour lines match the general trend of the Williston Basin. A series of northeast-southwest trending structural highs and lows are evident on the structure contour map. Most structural features range from ten to twenty miles long. Some of these structures may exist due to the way SURFER contoured the data points, and have no tectonic significance. The longest of the structures is in McHenry County and is approximately forty to fifty miles long. These structures have opposite orientations to most structural features observed in the Williston Basin (Gerhard et al., 1982), and are probably the result of either faulting or erosion.

State "A" Marker

The State "A" marker is an important stratigraphic unit in the Williston Basin (Figure 19). It is the base unit on which the cross-sections in this thesis are set. The well density is not as good as for the Madison top. Only a small number of wells penetrate this interval in eastern Bottineau and Ward Counties (Figure 19). As with the Madison, the State "A" structure contour lines match the outline of the Williston Basin. The structurally high and low areas are in the same area, and roughly the same length, as those associated with

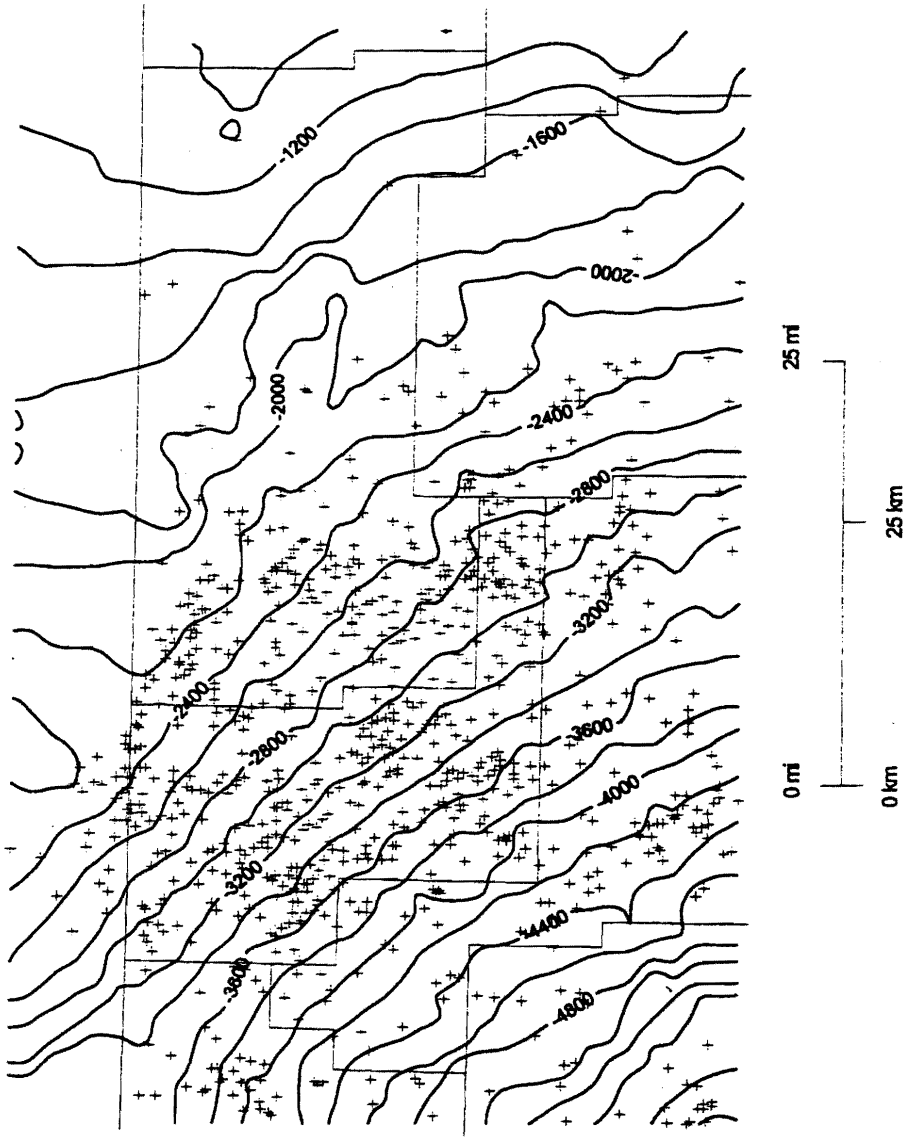

Figure 19 - State "A" Structure Contour Map. Contour Interval is 200'. Crosses represent wells used for data points.

the Madison structure contour map (Figure 18). It can be concluded that both features were formed from the same tectonic activity. One hypothesis is that they are created by the same tectonic activity. An alternative hypothesis is that they were created when SURFER made the grid file, and do not have any structural significance.

Sherwood Argillaceous Marker Isopach

The S.A.M. isopach map has well densities in eastern Bottineau and Ward Counties (Figure 20). Over most of the map area, the thickness is 15′ to 20′. In north-central Renville County, the Sherwood Argillaceous Member exceeds 45′ in two areas. These anomalous thick areas might have been connected at one time, and have since been eroded and might represent a channel or barrier island chain.

K-1 Isopach Map

As with the S.A.M. Isopach Map, there is low well density in eastern Bottineau and Ward Counties, and the average thickness is approximately 15 feet. There is very little thickness variability in K-1. The K-1 disappears in central Bottineau County, and reappears in northern Burke County. The K-1 occurs in one well in southwestern Pierce County (Figure 21). This feature has a significant impact on the isopach

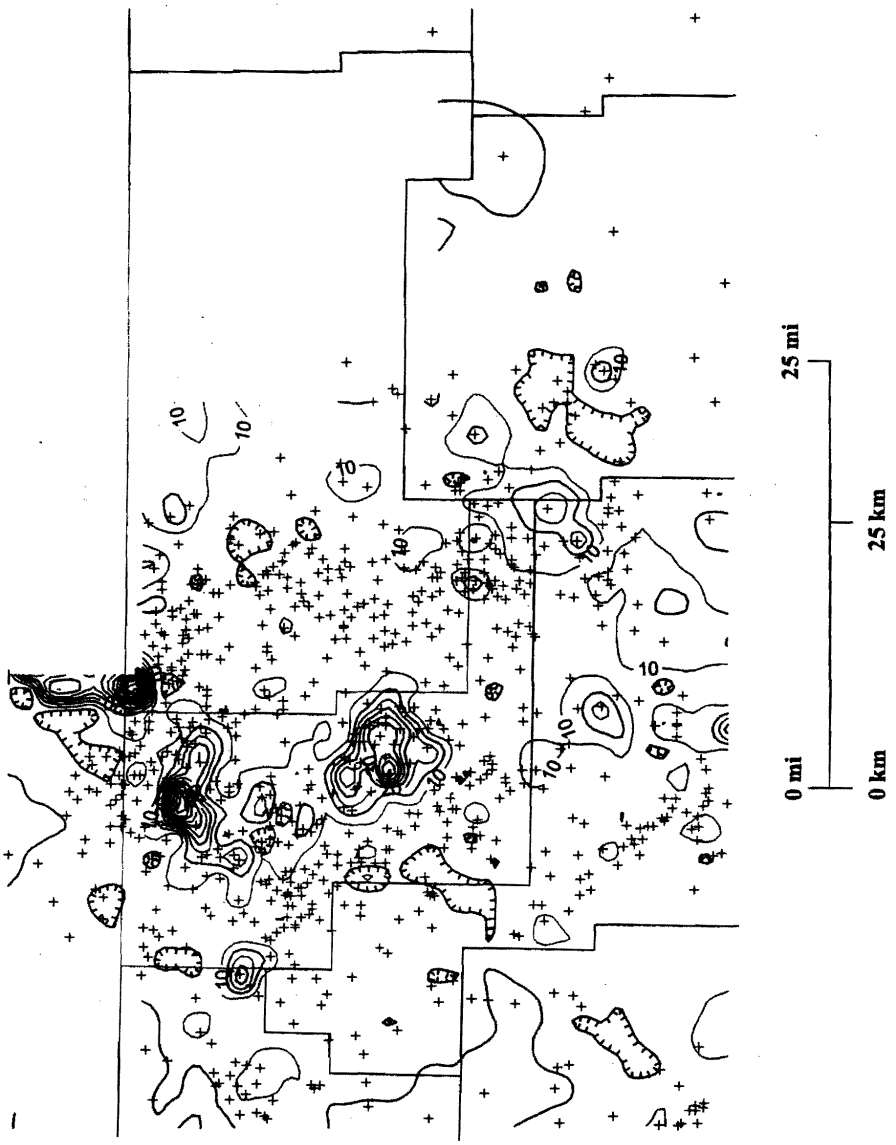

Figure 20 - Sherwood Argillaceous Member Isopach Map. Contour Interval is 5'. Crosses represent wells used as data points.

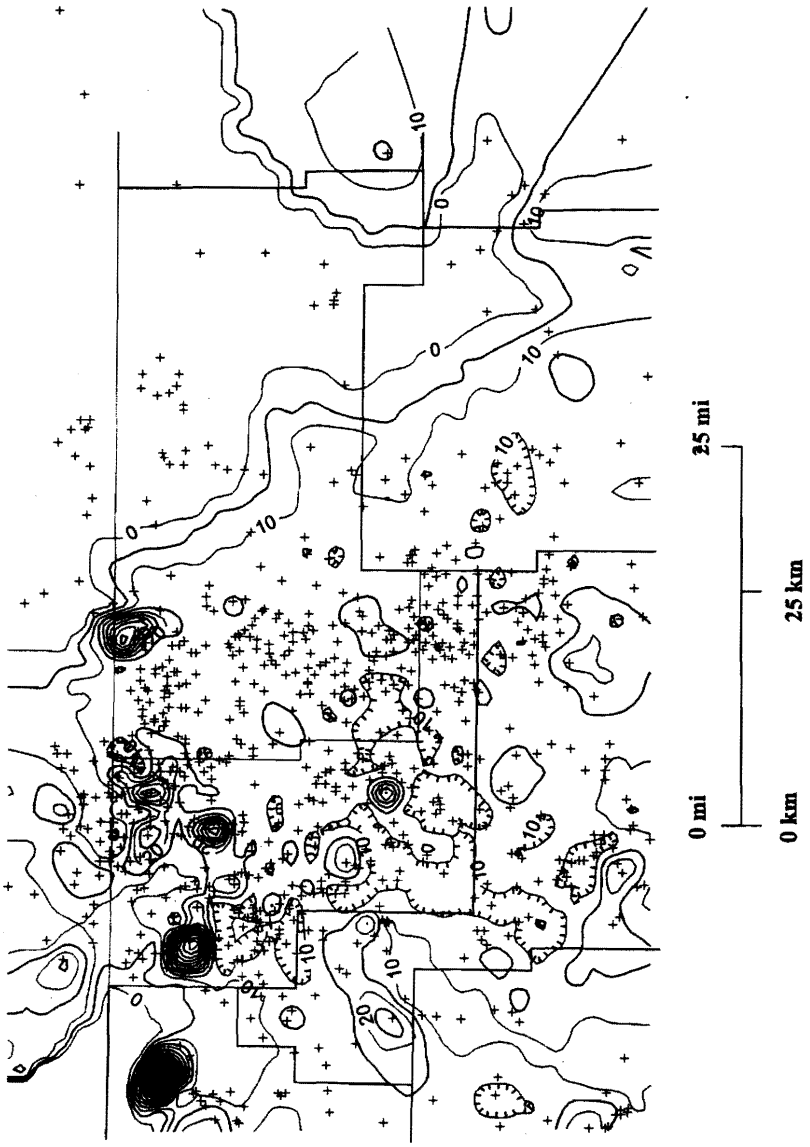

Figure 21 - K-1 Isopach Map. Contour Interval is 5'. Crosses represent wells used for data points.

map. It gives the impression that the K-1 is present in eastern Bottineau and western Pierce Counties.

The most variation in thickness occurs in northwestern Bottineau, northern Renville, and northern Burke Counties. The K-1 reaches a thickness of approximately 80' in Burke County, due to the presence of a thick section in one well. The next anomalous thickness is about 20 miles to the east in Renville County; a single 50 foot-thick K-1 occurrence. Another anomaly is 15 to 20 miles to the northeast in northeastern Renville County and is 35' thick. The final anomaly is 40 to 50 miles due east of the previous anomaly, and is roughly 35' thick (Figure 21). Because the anomalies are not connected, the patterns they form are difficult to interpret. One hypothesis is that the patterns are remnants of a channel eroded into the underlying units (Figure 21). The features are not elongate which would eliminate this hypothesis (Busch, 1974). Another hypothesis would be that these patterns were deposited in structural low spots. The State "A" and Madison Structure Contour maps show no correlation with these thick deposits.

K-2 Isopach Map

As with the K-1 Isopach Map, there is poor well control in eastern Bottineau and eastern Ward Counties (Figure 22). The average thickness is 10' to 15' thick. There are two

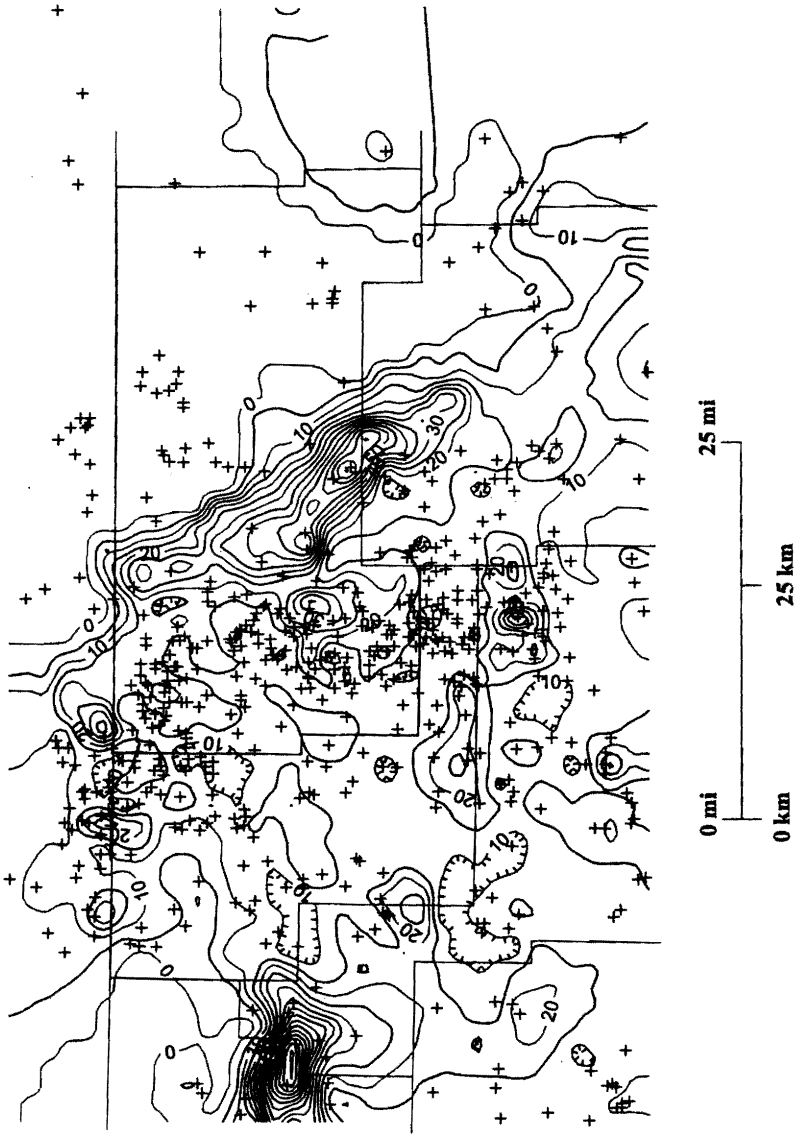

**Figure 22 - K-2 Isopach Map. Contour Interval is 5'
Crosses represent wells used for data points.**

areas of anomalous thickness. The first area is in south-central Bottineau County. It is an elliptical feature roughly 60 miles long and 20 miles wide. The anomaly trends northwest to southeast and is parallel to the K-2 boundary. The thickest part is located in south-central Bottineau County (Figure 22); here the K-2 is 60′ thick. The second thick area is located in northwestern McHenry and eastern Burke Counties (Figure 22). It is an ellipsoid shape with an east-west trend. The anomaly is over 30 miles wide and over 70 miles long; the thickest part is defined by two wells, with K-2 thickness over 80′ thick. The ellipsoid shapes would support the hypothesis that these are channel deposits (Busch, 1974). Unfortunately there is a lack of drill core to support this hypothesis.

No sandstones were cored in the thickest K-2 deposits, and there is a lack of cores available in these areas. Most cores are located between R. 81 W. and R. 82 W. in western Bottineau County and southeastern Renville County (Figure 22). The deposits do not thicken where sand is found. The presence of sand does not control the features on the isopach map.

STRATIGRAPHIC CROSS SECTIONS

Introduction

A series of four stratigraphic cross-sections were made from the well-log data. Two stratigraphic cross-sections were made in the east to west direction, across T. 156 N., and across T. 162 N. One stratigraphic cross-section, R. 80 W., was made in the north to south direction, and one was made in the diagonal northeast-southwest direction (Figure 3). The State "A" is used to correlate each cross-section, because it occurs throughout the Basin, and it is not an erosional surface (LeFever and Anderson, 1986) (Figure 2).

Township 156 North

Six well-logs are used in the production of this cross-section. The wells occur from R. 79 W. to R. 85 W., and are spaced one or two townships apart; significant change in thickness of intervals controls the spacing.

For the intervals in T. 156 N., thickness increases basinward (Figure 23). This is primarily true for the intervals below the State "A." One exception is the Sherwood

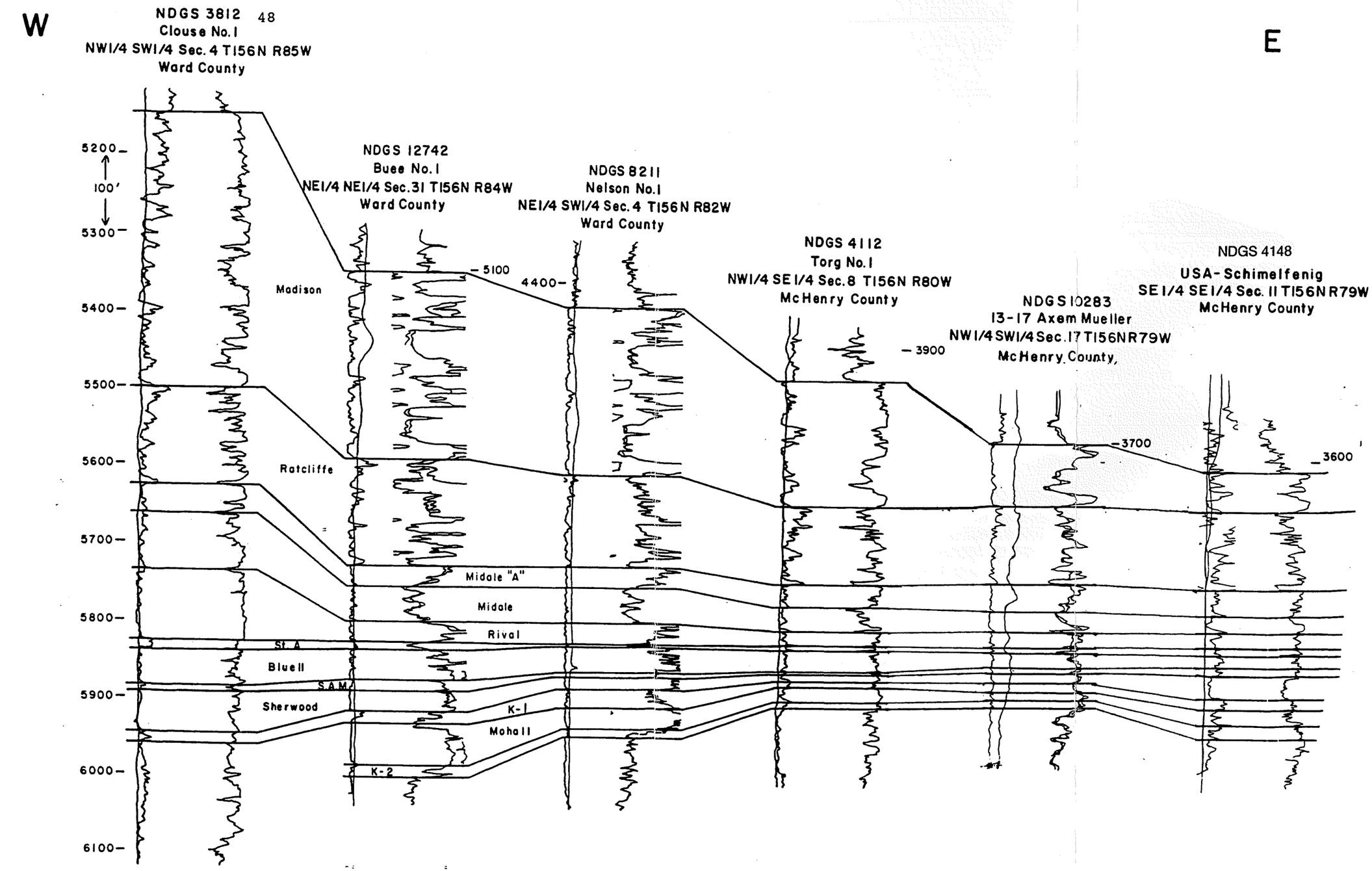

Figure 23 - Stratigraphic Cross-section for T. 156 N.

Argillaceous Marker. The S.A.M. retains a constant thickness of 5′ to 10′ through most of the cross-section. No other anomalies appear in the cross-section. The apparent lack of abrupt thickness change suggests deposition on a flat plain.

Township 162 North

Data for the stratigraphic cross-section of T. 162 N. came from seven well-logs. Like the preceding cross-section, the wells are not evenly spaced. The first three wells are one and two sections apart. The next three wells are at least one range apart. Finally, the last well, NDGS 10383, is five miles from the well east of it, NDGS 3186. Again, the lateral distances between wells is a factor of vertical variation of thickness . There is apparently more variation of thickness in the basin's margin than on the center.

Several observations can be made from the data. First, the intervals get deeper and thicken from the margin to the center of the basin (Figure 24). The rate of change is not uniform. From R. 81 W. to R. 83 W., the Sherwood increases from 8′ to 32′ in thickness (Figure 24). None of the other intervals exhibit this rate of change. Second, the K-1 marker stays the same thickness throughout the cross-section (Figure 24). Third, the K-2 marker decreases in thickness as it is traced to the center of the basin (Figure 24). In the eastern margin the K-2 marker is 12′ thick at R. 80 W.; it increases

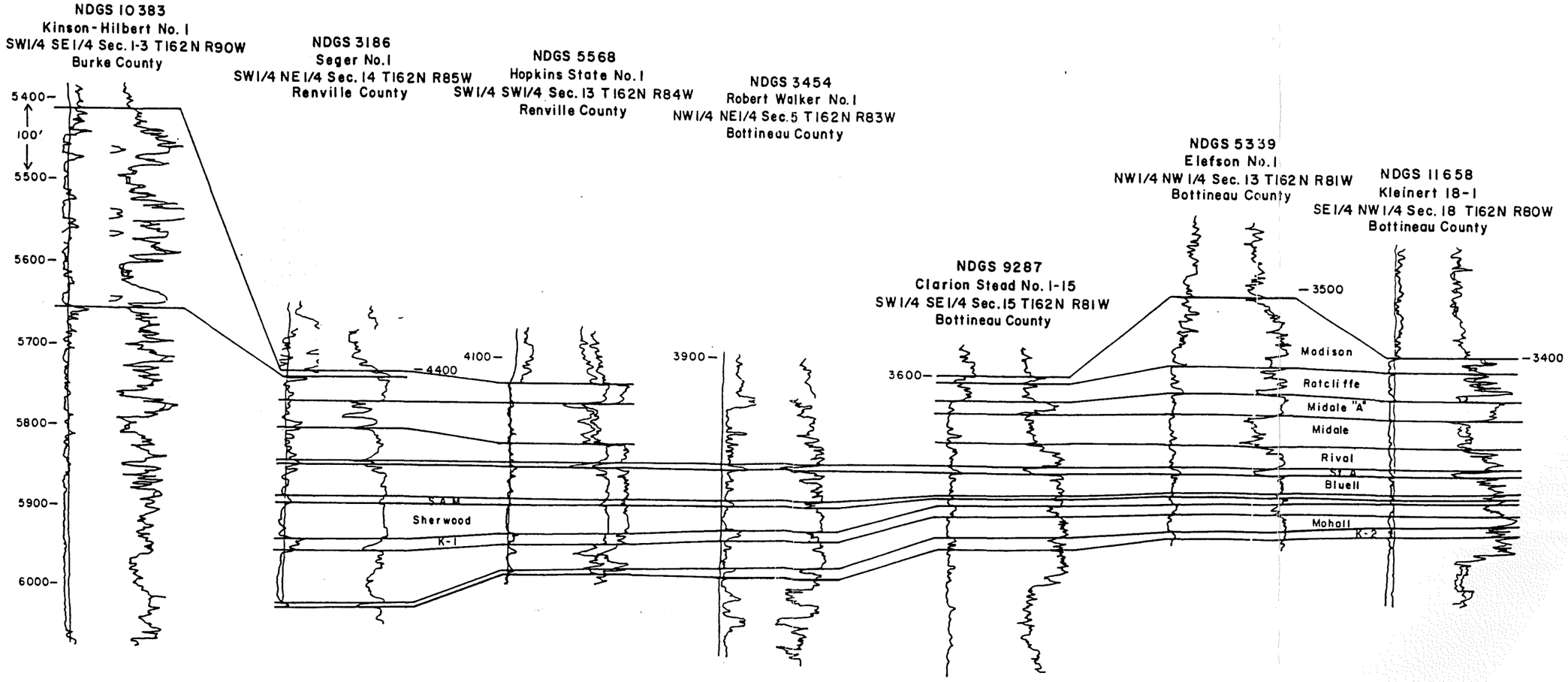

Figure 24- Stratigraphic cross-section for T. 162 N.

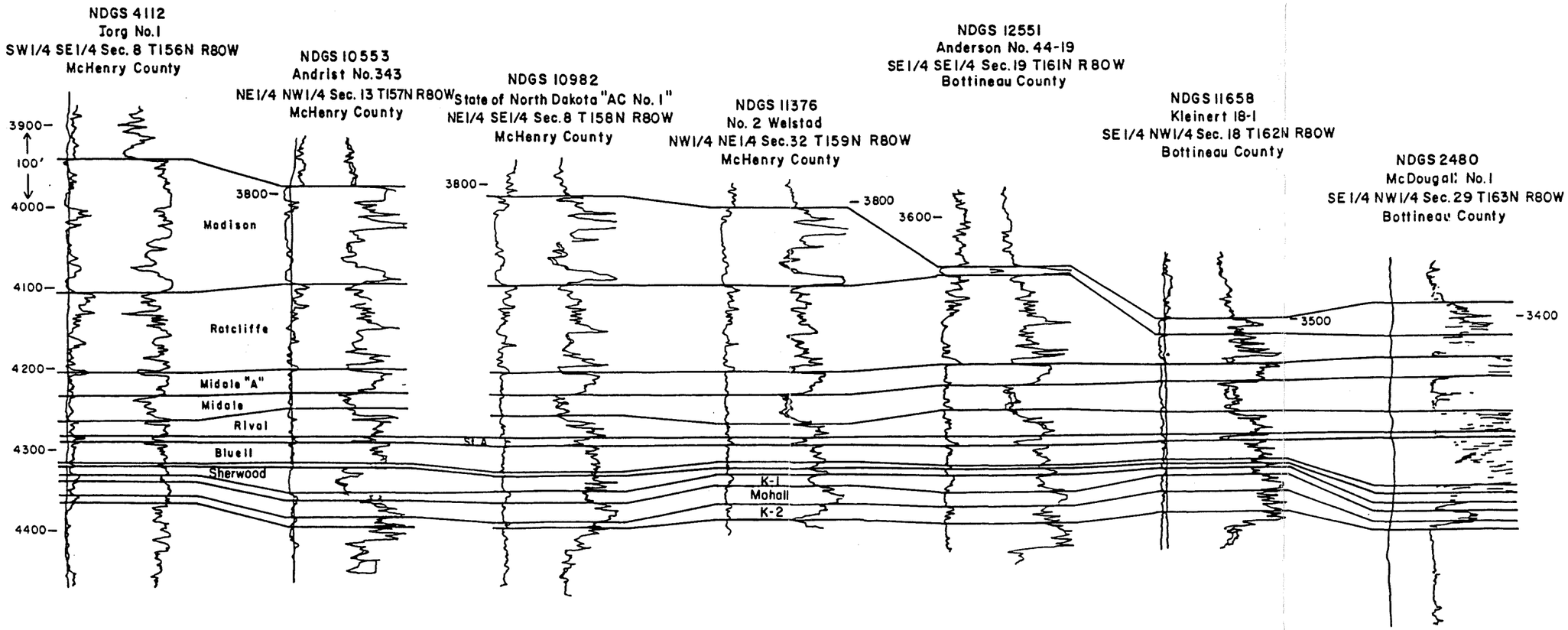

Figure 25- Stratigraphic cross-section for R. 80 W.

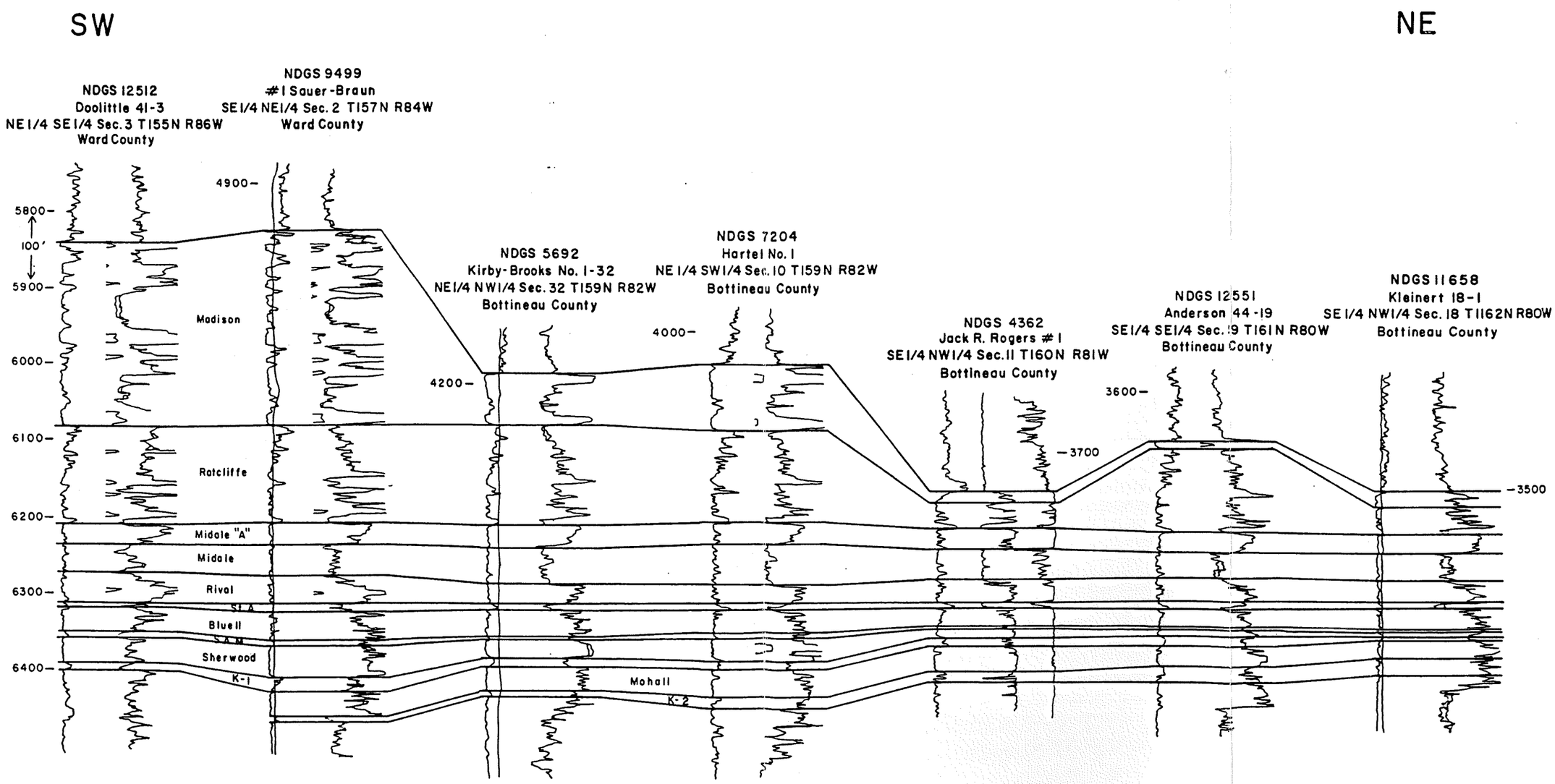

Figure 26 - Stratigraphic cross-section from T. 162 N., R. 80 W. to T. 155 N., R. 86 W.

setting. Anhydrite occurs only in selected environments. Evaporites form in low energy environments where there is low influx of water (Irwin, 1965). Clastic deposits in evaporites are usually terrigenous in origin (Sonnenfeld, 1984). Kendall (1984) limited the geographical distribution of anhydrite to three environments. The first area is intertidal and supratidal environments along coasts. Second, anhydrite can indicate the presence of coastal lagoons. Finally, anhydrite forms in large marine basins (Kendall, 1984). Therefore, the Kisbey Sandstone in the eastern part of the study area was probably associated with one of these three environments. The large amount of anhydrite suggests a high rate of evaporation. The highest rate of evaporation is in shallow marine water (Schreiber, 1976). In addition, evaporites form close to the edge of land (Irwin, 1965). This narrows the possible depositional environment to intertidal and supratidal coastal environments and lagoonal environments.

The lithology of the sandstone aids in determining the depositional environment of the Kisbey Sandstone. Sandstone is considered mature when there is homogeneity in mineral composition, a lack of clay, good rounding and good sorting (Blatt, Middleton, Murray, 1980; Pettijohn, Potter, and Siever, 1987). For the most part this description fits the sandstone found in the drill core. In shallow marine environments, clastic sedimentation signifies either shallow, high energy environments such as intertidal and supratidal

coastlines, lagoonal environments, or is the result of eolian or tidal process (Kendall, 1984). The predominance of quartz, along with grain-size, sorting, and roundness suggests an eolian environment (Brookfield, 1992).

Packstone occurs in the K-2 marker throughout the study area. The lithology of the packstone is an important indicator of depositional environment and the subsequent Kisbey Sandstone. Pyrite occurs within the K-2 packstone in the Sohio-Walsh well. Pyrite forms diagenetically in limestone; its presence suggests reducing conditions and deoxygenated environments (Pettijohn, Potter, and Siever, 1992).

Sedimentary Structures

The sedimentary structures found within the various lithologies are another important indicator of depositional environment. This information was gathered from the anhydrite, sandstone, and packstone of the K-2 and surrounding intervals.

Though most of the anhydrite in the K-2 marker is massive, some laminations appear in it. These laminations appear in two wells in the eastern study area (NDGS 2669, NDGS 3249) Anhydrite forms originally as gypsum. Gypsum often forms laminations; these laminations are often considered to be the result of storm deposition. The gypsum is stirred up

during storms and deposited on blue-green algae mats. These algae mats are then preserved (Hardie and Eugster, 1971; Kendall, 1984). The presence of algal mats suggests an intertidal marine environment. For the most part, the anhydrite in the K-2 interval is massive. This is due to the alteration of gypsum into anhydrite (Kendall, 1984). As a result, massive anhydrite is not indicative of any particular environment. Past studies associate massive anhydrite with hypersaline sabkhas (Alsharan, 1991). In several sections the K-2 anhydrite has a nodular texture, which is a product of shallow marine and subaerial conditions (Hardie and Eugster, 1971).

The Kisbey Sandstone itself is primarily massive with some horizontal bedding sporadically present. Like the anhydrite, massive sandstone does not indicate any particular environment (Pettijohn, Potter, and Siever, 1987). Horizontal bedding occurs in three different wells, NDGS 13495 and NDGS 10345 in the eastern study area, and NDGS 1059 (Sohio-Walsh). Unlike massive bedding, horizontal bedding is fairly common in the rock record. This implies that horizontal bedding is not indicative of any particular environment either (Pettijohn, Potter, and Siever, 1987). Horizontal bedding is indicative of supratidal and upper intertidal environments in tidal flat environments (Shinn, 1983; Fraser, 1989). Also present in the Sohio-Walsh well are burrows. Because the sandstone is in drill core, the exact

type of burrow trail is indistinguishable.

Finally, the packstone in the K-2 and surrounding intervals contains some structures that help identify the depositional environment. First, packstone throughout the study area contains ooids. Ooids suggest subtidal, high energy environments such as shoals or shorelines (Blatt, Middleton, and Murray, 1980; Prothero, 1990, Alsharan, 1993). In addition, some packstone displays algal lamination. Algal laminations were produced by algal mats and indicate environments of high salinity (Hardie and Eugster, 1971). Algal laminations may indicate more than one environment. Hardie and Eugster (1971) placed such deposits in the bottom of hyper-saline lagoons. Others place algal mats in the intertidal zone of tidal flats (Alsharan, 1993). It is hard to decide exactly which interpretation is most fitting. The lack of ripples suggests the more quiet water deposition of a lagoon. The ooids suggest a more high energy environment such as a shoal (Alsharan, 1993).

Fossil Evidence

Fossils in the Kisbey Sandstone are rare. A coral was found in NDGS 13495 and NDGS 1095. The presence of a coral suggests the environment was marine subtidal, although it is possible it could have been transported into the swash zone. In a previous study, corals found within the Kisbey Sandstone

were eroded and transported from the Alida beds (Perras, 1990). The lack of sedimentary structures, rip up clasts, or abundant fossils suggest in situ deposition.

The K-2 packstone contained more fossil evidence than the Kisbey Sandstone. The fossil evidence only appears in a couple of wells, NDGS 13495 and NDGS 1095. Lack of fossils in the Kisbey Sandstone could be due to either environmental conditions or sampling. NDGS 13495 contains fossil algae. There are a couple of specimens of *Ortonelli*, which is not specific to any depositional environment (Obelenus, 1985). Brachiopod fragments occur in NDGS 1059. Due to their poor preservation, the brachiopods are unidentifiable. They indicate a subtidal environment (Prothero, 1990).

Stratigraphic Evidence

According to Walther's Law, the Kisbey Sandstone environment should be comparable to the surrounding intervals (Walker, 1992). In addition, the thickness and contact with the surrounding intervals are important to determine depositional environment.

The first significant information to be determined from the stratigraphic information comes from the isopach map (Figure 11). No recognizable paleogeomorphologic features are observed. The only exception is the elongate mound in the northwestern third of the map. It is possible that this

feature is a channel deposit. The thick deposits in south-central Bottineau County could be a geomorphic feature but no core exists to confirm that it is sandstone. Profiles provided by the stratigraphic cross-sections do not reveal any conclusive evidence that indicates depositional environment. There is a thickening in the T. 156 N. cross-section that could suggest a channel deposit. Otherwise the stratigraphic cross-sections show no major anomalies. The K-2 marker disappears in the deeper part of the basin. This suggests that deposition was located near the shoreline. In the eastern study area, the large amount of anhydrite suggests either a lagoon or tidal flat.

Perras (1990) recognized three different depositional environments in the Kisbey Sandstone. Two are shallow marine shelf environments. There is a basal sandy dolomite facies containing corals and crinoid fragments which were transported from the Alida beds. This unit is interpreted as a tidal flat environment. Another facies is an unstratified quartz sandstone, which contains a small amount of carbonate grains and lime mud matrix. It is interpreted as a near shore shelf marine environment. Finally there is a red bedded sandstone which is interpreted as being continental (Perras, 1990).

Finally, the presence of ooid packstone that lies below and within the K-2 marker suggests that the Kisbey Sandstone was deposited near a shoal or intertidal zone (Obelenus, 1984; Prothero, 1990). The change from anhydrite to packstone is

related to fluctuations in sea level (Walker, 1992). Some contacts are gradual, suggesting that deposition was continuous. Some contacts are sharp, suggesting that at other times deposition was interrupted. No erosional surface was observed within the K-2 marker. Some sharp contacts with the Glenburn Interval suggest that erosion took place. They occur randomly in the study area.

DISCUSSION

Evidence suggests that the Kisbey Sandstone was deposited in a shallow marine environment. The anhydrite, clastic, and packstone lithologies indicate that the K-2 is part of the Unit 4 of the Madison Group as described by Porter (1955) and Peterson (1987). This would make the K-2 Marker part of the Charles Formation.

Several problems arise when trying to identify the depositional environment of the Kisbey Sandstone. First, there is the lack of sedimentary structures. Lack of stratification is not indicative of any particular environment (Perras, 1990). Second, only a small number of fossils were found within the Kisbey Sandstone and K-2 marker. A few isolated corals indicate that the depositional environment was subaqueous, although it is not certain if they were transported or buried in place. Brachiopod fragments and blue-green algae usually indicate a shallow lagoon environment (Obelenus, 1985). Third, the textural characteristics of the sandstone may indicate an eolian environment, but the only structures preserved were faint horizontal laminations at several localities. Finally, the unusual thickness in NDGS 1059 is difficult to explain with the data available.

Previous studies have tried to identify the depositional environment of the Kisbey Sandstone. Luther (1988) examined the Kisbey Sandstone in Wiley Field, North Dakota. He interpreted the Kisbey Sandstone to have been deposited in the upper part of a sabkha which was predominantly subaerial. There are a couple of problems with this interpretation. First, no sedimentary structures are present that are normally associated with this environment. Second, the presence of corals in some wells suggest a subaqueous environment. The maturity of the sandstone and the mosaic pattern in the sandstone would support this interpretation. This interpretation does not explain the presence of massive anhydrite.

With the available data and an understanding of shelf sandstones, a depositional model can be formed (Figure 27). The presence of anhydrite would indicate a sabkha environment (Alsharan, 1993). The environment was probably subaqueous, but was a low-energy environment with little tidal or wave influence (Irwin, 1965). Because the environment was above tidal influence the clastic material was terrigenous in origin (Sonnenfeld, 1984). It could possibly be eolian or washed in from a storm. Not enough data are available to effectively test either hypothesis. The other lithologies found in the K-2 marker were deposited as the result of sea level fluctuations. Packstone containing ooids could come from an intertidal environment or shoals, while packstones containing

blue-green algae and brachiopod fragments most likely represent lagoonal environments (Obelenus, 1985; Alsharan, 1993). The lack of erosional surfaces between lithologies suggests gradual fluctuation of sea-level.

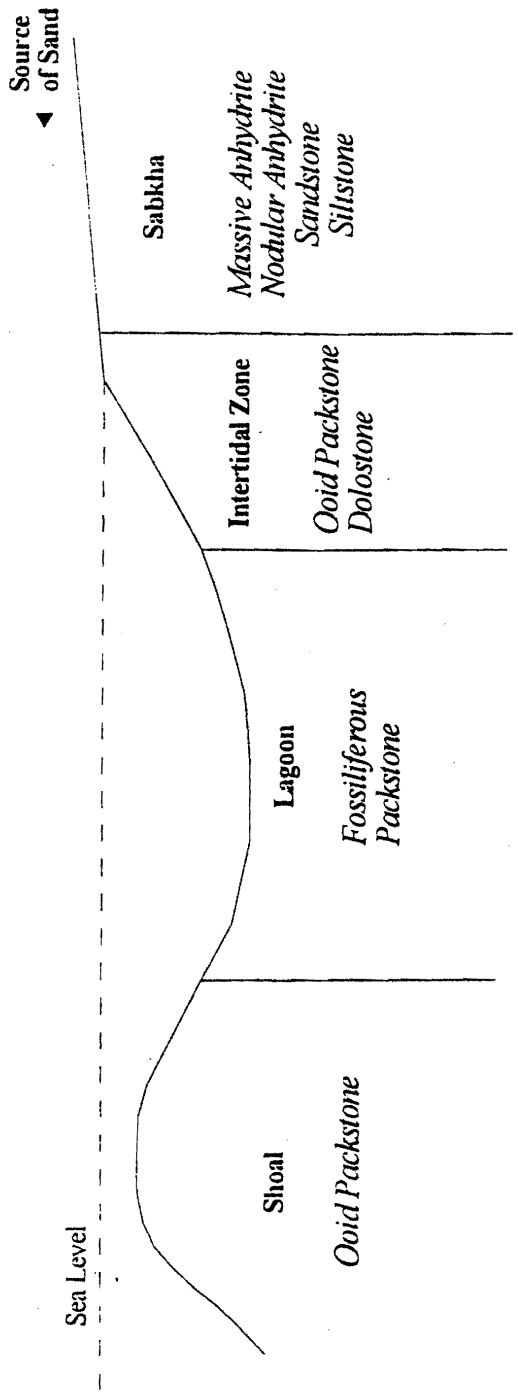

Figure 27 - K-2 marker depositional model for north-central North Dakota.

SUMMARY

1. In the past, authors have used the terms "K-2 marker" and "Kisbey Sandstone" for the same unit. The K-2 marker is an assemblage of different lithologies. Sandstone, siltstone, anhydrite, and packstone can be found within this well-log interval. "Kisbey Sandstone" should be used where there is core data available.

2. The Kisbey Sandstone is problematic. It contains few and poorly defined sedimentary structures. In addition, fossils occur sporadically in core, making it hard to assign an particular depositional environment.

3. Data from isopach maps, structure contour maps, and stratigraphic cross-sections do not show any paleogeomorphic features which can be confirmed through core data.

4. In previous studies, the Kisbey Sandstone has been assigned to the Mission Canyon formation. This study suggests that the Kisbey Sandstone is part of the Charles Formation. This interpretation is based on the fact that the Charles Formation is composed of near-shore sediments (Porter, 1955; Peterson, 1987).

5. Most likely the Kisbey sandstone was deposited in a sabkha environment. Other authors have reached this conclusion. Luther (1988) suggested that the Kisbey was deposited subaerially. This study suggests that the Kisbey was deposited in a swash zone. The presence of other lithologies in the K-2 marker indicates that the sea-level was fluctuating during its deposition.

Appendix A - Locations of well-logs used in this thesis.

WELL	TO.	RA.	SEC.	QRT.	FIELD	COUNTY
2530	155	73	17	SENW	WILDCAT	Pierce
5978	155	74	13	NWNW	WILDCAT	Pierce
5765	155	74	25	NWSW	WILDCAT	Pierce
2504	155	76	31	NWNW	WILDCAT	McHenry
1631	155	77	19	NESE	WILDCAT	McHenry
2489	155	77	27	NENW	WILDCAT	McHenry
8307	155	77	31	NENW	WILDCAT	McHenry
1668	155	78	8	SWNE	WILDCAT	McHenry
6711	155	79	13	SENW	WILDCAT	McHenry
10741	155	79	29	SWNW	WILDCAT	McHenry
5531	155	81	21	SWSW	WILDCAT	Ward
8323	155	81	23	NWSE	WILDCAT	Ward
47	155	81	23	SESW	WILDCAT	Ward
2929	155	82	6	SENW	WILDCAT	Ward
656	155	82	13	NWNE	WILDCAT	Ward
6100	155	82	25	SWSW	WILDCAT	Ward
5304	155	84	7	NENE	WILDCAT	Ward
6725	155	84	8	NWNW	WILDCAT	Ward
5723	155	84	9	NWNW	WILDCAT	Ward
4155	155	84	10	NWSE	WILDCAT	Ward
3824	155	85	6	NWNW	LONE TREE EXT.	Ward
4799	155	85	7	NWNW	LONE TREE EXT.	Ward
3039	155	85	11	NWNW	WILDCAT	Ward
8412	155	85	12	NENE	WILDCAT	Ward
6008	155	85	18	SWSW	SOUTH LONE TREE	Ward
6006	155	85	19	SWSE	LONE TREE	Ward
5077	155	85	20	NWSE	WILDCAT	Ward
8547	155	85	21	SESE	WILDCAT	Ward
4159	155	85	22	SENE	WILDCAT	Ward
4658	155	85	29	NWNW	SOUTH LONE TREE EXT.	Ward
8939	155	85	30	NWNE	SOUTH LONE TREE	Ward
11076	155	85	31	SWNE	SOUTH LONE TREE EXT.	Ward
6610	155	85	32	NWNW	SOUTH LONE TREE EXT.	Ward
5860	155	86	1	SWSW	LONE TREE	Ward
10601	155	86	2	SENW	LONE TREE	Ward
12512	155	86	3	NENE	LONE TREE	Ward
6934	155	86	4	SESE	LONE TREE EXT.	Ward
5962	155	86	9	NWNW	LONE TREE	Ward
3963	155	86	10	SWSW	LONE TREE	Ward
5223	155	86	11	NESW	LONE TREE	Ward
5444	155	86	12	NWSW	LONE TREE	Ward
5075	155	86	13	SWNE	SOUTH LONE TREE	Ward
5180	155	86	14	NENE	SOUTH LONE TREE	Ward
11308	155	86	15	NWSW	MANDAN EXT.	Ward
5468	155	86	16	NWNE	LONE TREE EXT.	Ward
10505	155	86	20	NESE	MANDAN	Ward
11808	155	86	21	NWNW	MANDAN	Ward
6459	155	86	22	NENW	SOUTH LONE TREE EXT.	Ward
4768	155	86	23	NENW	SOUTH LONE TREE EXT.	Ward
5058	155	86	24	NESW	SOUTH LONE TREE	Ward
5095	155	86	25	NENE	SOUTH LONE TREE	Ward

WELL	TO.	RA.	SEC.	QUART.	FIELD	COUNTY
10491	155	86	26	NESW	SOUTH LONE TREE EXT.	Ward
11669	155	86	30	NWSE	MANDAN EXT.	Ward
7711	155	86	31	SENE	WILDCAT	Ward
5795	155	86	36	SWSE	WILDCAT	Ward
7612	155	87	15	SESW	WILDCAT	Ward
8749	155	87	16	NWNE	WILDCAT	Ward
7368	155	89	19	NWSE	WILDCAT	Mountrail
6764	155	90	2	NENW	WILDCAT	Mountrail
12032	155	90	9	SESE	STANLEY EXT.	Mountrail
12472	155	90	15	SWNW	WILDCAT	Mountrail
8949	155	90	16	SESE	STANLEY EXT.	Mountrail
11900	155	90	18	SWSE	STANLEY	Mountrail
7369	155	90	19	SWNE	STANLEY	Mountrail
10810	155	90	20	SWNW	STANLEY	Mountrail
7220	155	90	21	NESE	STANLEY EXT.	Mountrail
474	155	90	24	NWNW	WILDCAT	Mountrail
8157	155	90	29	NENW	STANLEY	Mountrail
6885	155	90	30	NENE	STANLEY	Mountrail
9243	155	91	1	NWNW	STANLEY	Mountrail
7674	155	91	12	SWSW	STANLEY	Mountrail
12230	155	91	13	NENW	STANLEY	Mountrail
12231	155	91	24	NESW	STANLEY	Mountrail
560	156	73	18	SWNW	WILDCAT	Pierce
2827	156	74	5	SWNE	WILDCAT	Pierce
6357	156	74	11	SESW	WILDCAT	Pierce
5802	156	74	21	SWSE	WILDCAT	Pierce
5206	156	74	27	NENE	WILDCAT	Pierce
387	156	75	11	SENE	WILDCAT	McHenry
5022	156	76	1	NWNE	WILDCAT	McHenry
10513	156	76	8	NENE	WILDCAT	McHenry
358	156	76	34	SENE	WILDCAT	McHenry
5185	156	77	1	SWSW	WILDCAT	McHenry
4536	156	77	9	SWSE	WILDCAT	McHenry
2479	156	77	11	NENW	WILDCAT	McHenry
3270	156	77	19	SWSW	WILDCAT	McHenry
1354	156	77	26	NWNW	WILDCAT	McHenry
3175	156	78	12	NENE	WILDCAT	McHenry
5059	156	79	2	NWNW	WILDCAT	McHenry
3670	156	79	6	NWSW	WILDCAT	McHenry
6439	156	79	10	NENW	WILDCAT	McHenry
4148	156	79	11	SESE	WILDCAT	McHenry
10283	156	79	17	NWSW	WILDCAT	McHenry
4112	156	80	8	NWSE	WILDCAT	McHenry
10819	156	81	2	SWSW	UNNAMED	Ward
3124	156	81	3	NWSW	WILDCAT	Ward
6314	156	81	4	NWSE	WILDCAT	Ward
4923	156	81	5	NWNE	WILDCAT	Ward
5563	156	81	8	SESW	WILDCAT	Ward
5923	156	81	9	NESE	WILDCAT	Ward
2946	156	81	12	NWNE	WILDCAT	Ward
11055	156	81	19	NENW	WILDCAT	Ward

WELL	TO.	RA.	SEC.	QUART.	FIELD	COUNTY
3501	156	81	23	SENW	WILDCAT	Ward
12412	156	82	1	NWSW	WILDCAT	Ward
5139	156	82	2	NENE	WILDCAT	Ward
4343	156	82	3	NWSW	WILDCAT	Ward
8211	156	82	4	NESW	WILDCAT	Ward
5300	156	82	5	SESE	WILDCAT	Ward
4117	156	82	14	NENE	WILDCAT	Ward
5149	156	82	15	SENW	WILDCAT	Ward
1138	156	82	19	SWNW	WILDCAT	Ward
4145	156	83	2	NWNW	WILDCAT	Ward
4805	156	83	22	NWNE	WILDCAT	Ward
126	156	83	33	SWSE	WILDCAT	Ward
8541	156	84	4	NWNE	WILDCAT	Ward
4400	156	84	10	NWSE	WILDCAT	Ward
4990	156	84	22	NWSW	WILDCAT	Ward
12742	156	84	31	NENE	WILDCAT	Ward
3812	156	85	4	NWSW	WILDCAT	Ward
3984	156	85	19	SWSW	WILDCAT	Ward
11701	156	85	23	SENW	WILDCAT	Ward
52	156	85	24	NENE	WILDCAT	Ward
6073	156	86	5	SWNW	WILDCAT	Ward
1438	156	86	6	NWSW	WILDCAT	Ward
3125	156	86	11	SWNE	WILDCAT	Ward
6223	156	86	15	NESW	WILDCAT	Ward
8109	156	86	16	SESW	WILDCAT	Ward
5368	156	86	17	SENW	WILDCAT	Ward
8056	156	86	19	SWSE	BERTHOLD	Ward
6932	156	86	20	SWNE	BERTHOLD EXT.	Ward
6440	156	86	21	NWNW	WILDCAT	Ward
6012	156	86	22	SWSW	WILDCAT	Ward
6043	156	86	27	NESW	LONE TREE EXT.	Ward
5520	156	86	28	NWNW	BERTHOLD EXT.	Ward
7696	156	86	29	NWSW	BERTHOLD	Ward
8376	156	86	30	SESE	BERTHOLD	Ward
9094	156	86	33	NESW	LONE TREE EXT.	Ward
4835	156	86	34	NENW	LONE TREE	Ward
4639	156	86	35	SWSW	LONE TREE	Ward
7042	156	87	12	SWSE		Ward
4216	156	87	36	NENE	WILDCAT	Ward
3581	156	88	5	NWNW	WILDCAT	Mountrail
9983	156	88	8	NENE	WILDCAT	Mountrail
10044	156	88	27	SWSE	WILDCAT	Mountrail
9758	156	89	4	NENE	WILDCAT	Mountrail
7847	156	90	31	SWSE	STANLEY EXT.	Mountrail
7626	156	90	32	SWSW	STANLEY	Mountrail
9757	156	91	12	SESE	WILDCAT	Mountrail
6635	156	91	36	SESE	STANLEY EXT.	Mountrail
780	157	73	3	NWSW	WILDCAT	Pierce
2728	157	74	22	NENW	WILDCAT	Pierce
1457	157	74	26	SENW	WILDCAT	Pierce
5081	157	74	30	SENW	WILDCAT	Pierce

WELL	TO.	RA.	SEC.	QUART.	FIELD	COUNTY
2567	157	75	1	NWNE	WILDCAT	McHenry
2610	157	75	10	SWNE	WILDCAT	McHenry
2629	157	75	12	NWSE	WILDCAT	McHenry
1471	157	75	28	NENW	WILDCAT	McHenry
2312	157	76	3	NWSW	WILDCAT	McHenry
5279	157	76	34	NESW	WILDCAT	McHenry
2642	157	77	21	NENE	WILDCAT	McHenry
1674	157	77	34	NWSW	WILDCAT	McHenry
39	157	78	3	NESW	WILDCAT	McHenry
2011	157	78	5	NWSE	WILDCAT	McHenry
1986	157	78	23	SESW	WILDCAT	McHenry
3229	157	78	29	SENE	WILDCAT	McHenry
5240	157	78	31	SWNE	WILDCAT	McHenry
9045	157	79	4	NWSE	WILDCAT	McHenry
2402	157	79	10	NWSW	WILDCAT	McHenry
5136	157	79	12	SWSW	WILDCAT	McHenry
10917	157	79	14	SWSW	WILDCAT	McHenry
5983	157	79	15	SWSW	WILDCAT	McHenry
7568	157	79	20	NESE	WILDCAT	McHenry
3201	157	79	22	SESE	WILDCAT	McHenry
3759	157	79	23	SESE	WILDCAT	McHenry
3453	157	79	24	SWNE	WILDCAT	McHenry
2956	157	79	33	NENW	WILDCAT	McHenry
3107	157	79	35	SENE	WILDCAT	McHenry
5982	157	80	2	SWNE	WILDCAT	McHenry
5066	157	80	9	SWSE	WILDCAT	McHenry
3071	157	80	12	NENE	WILDCAT	McHenry
10553	157	80	13	NENW	WILDCAT	McHenry
883	157	80	21	NESW	WILDCAT	McHenry
1632	157	80	24	SWNE	WILDCAT	McHenry
3189	157	80	31	NWNW	WILDCAT	McHenry
4021	157	81	5	SWSE	WILDCAT	Ward
10403	157	81	6	NENE	WILDCAT	Ward
3485	157	81	12	NWNW	WILDCAT	Ward
4372	157	81	14	SWSE	WILDCAT	Ward
11213	157	81	16	NWSW	WILDCAT	Ward
11868	157	81	21	SWSW	WILDCAT	Ward
4409	157	81	24	SENE	WILDCAT	Ward
5275	157	81	26	SWSE	WILDCAT	Ward
4209	157	81	27	SWSW	WILDCAT	Ward
6023	157	81	29	NWSE	WILDCAT	Ward
3952	157	81	30	NWNE	WILDCAT	Ward
5498	157	82	1	NWSE	WILDCAT	Ward
2017	157	82	2	NWNW	WILDCAT	Ward
6404	157	82	15	SWNW	WILDCAT	Ward
6005	157	82	21	NESE	WILDCAT	Ward
5079	157	82	26	NWSE	WILDCAT	Ward
5236	157	82	33	SWSW	WILDCAT	Ward
5542	157	82	34	NWSW	WILDCAT	Ward
6871	157	82	35	SESE	WILDCAT	Ward
6486	157	82	36	NENE	WILDCAT	Ward

WELL	TO.	RA.	SEC.	QUART.	FIELD	COUNTY
5539	157	83	1	NWNW	WILDCAT	Ward
7055	157	83	20	SENW	WILDCAT	Ward
6502	157	84	2	SWNW	WILDCAT	Ward
9293	157	84	18	NESE	HARTLAND EXT.	Ward
12690	157	84	19	SWSW	HARTLAND	Ward
9499	157	84	20	SENW	HARTLAND EXT.	Ward
7910	157	84	26	NWNE	WILDCAT	Ward
6201	157	85	2	SENE	WILDCAT	Ward
11095	157	85	10	NWNW	WILDCAT	Ward
4251	157	85	19	SESW	WILDCAT	Ward
392	157	85	21	SWSW	WILDCAT	Ward
6032	157	85	24	NWSW	WILDCAT	Ward
5809	157	86	3	SENE	WILDCAT	Ward
4630	157	86	5	NWNE	WILDCAT	Ward
3837	157	86	7	SESE	WILDCAT	Ward
10551	157	86	10	SWNW	WILDCAT	Ward
12710	157	86	11	NENE	WILDCAT	Ward
12694	157	86	18	SESE	WILDCAT	Ward
9077	157	86	19	SWNW	WILDCAT	Ward
8170	157	86	21	SENE	WILDCAT	Ward
3552	157	86	23	SENE	WILDCAT	Ward
4956	157	86	25	SESE	WILDCAT	Ward
9550	157	86	26	SENW	WILDCAT	Ward
7710	157	86	28	SENE	WILDCAT	Ward
8057	157	86	30	NWSE	WILDCAT	Ward
7043	157	86	32	SWNW	WILDCAT	Ward
6978	157	87	1	NWSW	WILDCAT	Ward
11666	157	87	2	SWNW	WILDCAT	Ward
11829	157	87	3	SWSW	SOUTHWEST AURELIA EX	Ward
3256	157	87	6	SWSE	SOUTHWEST AURELIA EX	Ward
10309	157	87	7	NESE	SOUTHWEST AURELIA	Ward
11486	157	87	8	SESE	SOUTHWEST AURELIA	Ward
9150	157	87	9	SWNE	SOUTHWEST AURELIA EX	Ward
12721	157	87	11	NWNW	WILDCAT	Ward
5707	157	87	12	SWNE	WILDCAT	Ward
7960	157	87	13	SESE	WILDCAT	Ward
4569	157	87	16	NENW	SOUTHWEST AURELIA EX	Ward
1503	157	87	17	SWNW	SOUTHWEST AURELIA	Ward
4794	157	87	22	NWSE	WILDCAT	Ward
3995	157	87	25	NWSW	WILDCAT	Ward
6295	157	87	35	NENE	WILDCAT	Ward
7646	157	87	36	NWSE	WILDCAT	Ward
3673	157	88	12	NESE	SOUTHWEST AURELIA	Mountrail
1813	157	88	16	NENE	WILDCAT	Mountrail
11554	157	88	17	SENE	WILDCAT	Mountrail
11872	157	88	29	NWNE	WILDCAT	Mountrail
12274	157	88	30	SWSE	WILDCAT	Mountrail
3575	157	89	3	NWNE	WILDCAT	Mountrail
9478	157	89	18	SESE	WILDCAT	Mountrail
4194	157	89	20	SWSW	WILDCAT	Mountrail
528	157	89	25	NWNE	WILDCAT	Mountrail

WELL	TO.	RA.	SEC.	QUART.	FIELD	COUNTY
6677	157	90	14	NESE	WILDCAT	Mountrail
11016	157	90	20	NWNE	WILDCAT	Mountrail
8880	158	73	15	SENE	WILDCAT	Pierce
274	158	74	19	NWSE	WILDCAT	Pierce
1462	158	75	5	SWSE	WILDCAT	McHenry
5281	158	75	16	SWSW	WILDCAT	McHenry
5391	158	75	22	NESW	WILDCAT	McHenry
6406	158	75	34	SWSE	WILDCAT	McHenry
1973	158	77	13	SESE	WILDCAT	McHenry
2076	158	77	15	NWNW	WILDCAT	McHenry
2765	158	77	19	NWNE	WILDCAT	McHenry
3994	158	77	23	SESE	WILDCAT	McHenry
2762	158	77	33	SESW	WILDCAT	McHenry
5283	158	77	34	NENE	WILDCAT	McHenry
2546	158	77	36	SWSW	WILDCAT	McHenry
1463	158	78	12	SENE	WILDCAT	McHenry
2652	158	78	13	SWNW	WILDCAT	McHenry
1635	158	78	30	NWNW	WILDCAT	McHenry
4000	158	79	3	SENE	WILDCAT	McHenry
10282	158	79	6	SWNW	WILDCAT	McHenry
5076	158	79	7	NENE	WILDCAT	McHenry
11435	158	79	9	NENE	WILDCAT	McHenry
2867	158	80	4	NENE	PRATT	McHenry
12449	158	80	5	SESW	PRATT	McHenry
12553	158	80	6	SESW	PRATT	McHenry
12461	158	80	7	NENW	PRATT	McHenry
10982	158	80	8	NESE	PRATT	McHenry
3428	158	80	9	SWNW	PRATT	McHenry
3214	158	80	10	NESW	PRATT EXT.	McHenry
7831	158	80	16	NWSE	PRATT	McHenry
5232	158	80	20	NWSW	PRATT EXT.	McHenry
1622	158	80	24	SWSW	WILDCAT	McHenry
3376	158	80	31	SWSW	WILDCAT	McHenry
3210	158	80	33	NESE	WILDCAT	McHenry
5596	158	81	1	SWNE	WILDCAT	Renville
2747	158	81	2	SESW	WILDCAT	Renville
5611	158	81	4	NESW	GLENBURN EXT.	Renville
10166	158	81	6	NESW	GLENBURN	Renville
8735	158	81	7	SENW	GLENBURN	Renville
4666	158	81	8	SESE	GLENBURN	Renville
6380	158	81	12	NESW	WILDCAT	Renville
4127	158	81	13	NWSE	WILDCAT	Renville
4146	158	81	16	SWNE	GLENBURN EXT.	Renville
8884	158	81	17	SENW	GLENBURN	Renville
10344	158	81	18	SESE	GLENBURN	Renville
9205	158	81	19	SESW	GLENBURN	Renville
4779	158	81	21	SESW	WILDCAT	Renville
3660	158	81	22	SESW	WILDCAT	Renville
2643	158	81	28	SWSW	WILDCAT	Renville
8383	158	81	30	SENW	GLENBURN	Renville
5939	158	81	32	NESW	WILDCAT	Renville

WELL	TO.	RA.	SEC.	QUART.	FIELD	COUNTY
5183	158	81	33	SENW	WILDCAT	Renville
10042	158	81	34	SESW	WILDCAT	Renville
9119	158	81	36	SWSE	WILDCAT	Renville
8786	158	82	1	SESE	GLENBURN	Renville
7134	158	82	2	NESW	GLENBURN	Renville
9976	158	82	3	SWNE	GLENBURN EXT.	Renville
3025	158	82	4	NESE	WILDCAT	Renville
5043	158	82	9	SWNE	WILDCAT	Renville
8920	158	82	10	SESE	GLENBURN	Renville
10204	158	82	11	NWSW	GLENBURN	Renville
3898	158	82	12	SWNW	GLENBURN	Renville
3297	158	82	13	NESE	GLENBURN	Renville
10155	158	82	14	SENW	GLENBURN	Renville
10101	158	82	15	NWNE	GLENBURN	Renville
10733	158	82	16	NESE	GLENBURN EXT.	Renville
4002	158	82	21	SWNE	WILDCAT	Renville
7882	158	82	22	NENE	GLENBURN	Renville
8384	158	82	23	NENE	GLENBURN EXT.	Renville
9204	158	82	24	SESE	GLENBURN	Renville
7617	158	82	25	NWNE	GLENBURN	Renville
6411	158	82	26	NESW	WILDCAT	Renville
12561	158	82	27	SWNE	WILDCAT	Renville
5052	158	82	30	NESW	WILDCAT	Renville
7706	158	82	31	NWSW	WILDCAT	Renville
12422	158	82	34	NWNW	WILDCAT	Renville
6269	158	82	35	NWSW	WILDCAT	Renville
4661	158	82	36	NESW	GLENBURN EXT.	Renville
4585	158	83	8	NWNW	WILDCAT	Renville
7056	158	83	10	SWSW	WILDCAT	Renville
8263	158	83	13	NESE	WILDCAT	Renville
12301	158	83	16	SENW	WILDCAT	Renville
7637	158	83	18	NENW	WILDCAT	Renville
5932	158	83	24	NWSE	WILDCAT	Renville
5390	158	83	25	SWNW	WILDCAT	Renville
5276	158	83	26	NWNW	WILDCAT	Renville
7709	158	83	28	SWSW	WILDCAT	Renville
11082	158	83	36	SESW	WILDCAT	Renville
7916	158	84	10	NWSE	WILDCAT	Renville
3783	158	84	12	SWSW	WILDCAT	Renville
6409	158	84	18	NWNW	LAKE DARLING EXT.	Renville
8716	158	84	34	NENW	WILDCAT	Renville
4007	158	84	35	NWNE	WILDCAT	Renville
5843	158	85	1	NWSW	LAKE DARLING	Renville
11851	158	85	2	SWNE	LAKE DARLING	Renville
6007	158	85	3	SENW	LAKE DARLING EXT.	Renville
12193	158	85	5	SWSE	MACKOBEE COULEE	Renville
12464	158	85	7	NWNW	WILDCAT	Renville
5902	158	85	8	SENE	MACKOBEE COULEE	Renville
5872	158	85	9	SWSE	MACKOBEE COULEE	Renville
12326	158	85	10	SENE	LAKE DARLING	Renville
12210	158	85	11	SESW	WILDCAT	Renville

WELL	TO.	RA.	SEC.	QUART.	FIELD	COUNTY
1538	159	79	3	NWNW	WILDCAT	McHenry
10284	159	79	6	NWNE	WILDCAT	McHenry
1919	159	79	11	SENE	WILDCAT	McHenry
11922	159	79	15	SENW	WILDCAT	McHenry
1651	159	79	17	SESE	WILDCAT	McHenry
1947	159	79	22	NESE	WILDCAT	McHenry
3967	159	79	25	SWNE	WILDCAT	McHenry
6700	159	79	29	SENE	WILDCAT	McHenry
2675	159	79	34	NWNW	WILDCAT	McHenry
10608	159	80	8	SESW	WILDCAT	McHenry
3111	159	80	20	SWSW	WILDCAT	McHenry
1187	159	80	28	NWNE	WILDCAT	McHenry
11699	159	80	29	SWSE	WAKE	McHenry
4351	159	80	30	NESE	WILDCAT	McHenry
7990	159	80	31	NENE	PRATT EXT.	McHenry
11376	159	80	32	NWNE	WAKE	McHenry
11415	159	80	33	SWNW	WAKE	McHenry
9932	159	81	5	NWNW	WILDCAT	Bottineau
12794	159	81	7	SWSW	WILDCAT	Bottineau
4790	159	81	20	SESE	WILDCAT	Bottineau
1388	159	81	22	SWSW	WILDCAT	Bottineau
3218	159	81	24	NESE	WILDCAT	Bottineau
9952	159	81	25	NWSW	WILDCAT	Bottineau
4363	159	81	26	SWNE	WILDCAT	Bottineau
4125	159	81	28	SWSW	GLENBURN EXT.	Bottineau
3009	159	81	30	NESW	GLENBURN	Bottineau
12080	159	81	31	SESW	GLENBURN	Bottineau
5807	159	81	32	SWNW	GLENBURN	Bottineau
6379	159	81	33	NENE	GLENBURN EXT.	Bottineau
10943	159	81	36	NENE	WILDCAT	Bottineau
9306	159	82	1	NWNE	WILDCAT	Bottineau
3539	159	82	4	SESE	WILDCAT	Bottineau
3742	159	82	5	SESW	WILDCAT	Bottineau
3195	159	82	6	SWSW	WILDCAT	Bottineau
10420	159	82	9	SENW	WILDCAT	Bottineau
7204	159	82	10	NESW	WILDCAT	Bottineau
3960	159	82	12	NENW	WILDCAT	Bottineau
12298	159	82	13	SWSE	ELMS	Bottineau
12426	159	82	14	NWSE	ELMS	Bottineau
949	159	82	15	NENE	WILDCAT	Bottineau
9989	159	82	16	NESE	WILDCAT	Bottineau
5705	159	82	18	NENW	WILDCAT	Bottineau
3981	159	82	22	SENW	WILDCAT	Bottineau
12405	159	82	23	NWNE	ELMS	Bottineau
12443	159	82	24	SWNW	ELMS	Bottineau
8418	159	82	25	SESE	GLENBURN	Bottineau
12285	159	82	26	SESW	WILDCAT	Bottineau
5024	159	82	29	NWNE	WILDCAT	Bottineau
5692	159	82	32	NENW	WILDCAT	Bottineau
4231	159	82	34	NESW	GLENBURN EXT.	Bottineau
12612	159	82	35	SWNE	GLENBURN	Bottineau

WELL	TO.	RA.	SEC.	QUART.	FIELD	COUNTY
10345	159	82	36	NWSW	GLENBURN	Bottineau
5938	159	83	2	SWNE	WILDCAT	Bottineau
3409	159	83	4	NENW	WILDCAT	Bottineau
1709	159	83	10	NWNW	WILDCAT	Bottineau
3078	159	83	12	NWNW	WILDCAT	Bottineau
10084	159	83	13	NWSW	WILDCAT	Bottineau
3802	159	83	18	NENE	WILDCAT	Bottineau
8058	159	83	19	SWSE	WILDCAT	Bottineau
3962	159	83	22	SESE	WILDCAT	Bottineau
3887	159	83	24	SENE	WILDCAT	Bottineau
5521	159	83	25	SESE	WILDCAT	Bottineau
10952	159	83	27	SWNW	WILDCAT	Bottineau
1206	159	83	31	SENE	WILDCAT	Bottineau
8032	159	83	33	NENW	WILDCAT	Bottineau
10897	159	83	35	SESW	WILDCAT	Bottineau
3427	159	84	2	SWNW	WILDCAT	Renville
11163	159	84	3	NWNE	CHOLA EXT.	Renville
4106	159	84	4	SWSW	CHOLA	Renville
6329	159	84	5	NESE	CHOLA	Renville
4040	159	84	6	SWNE	CHOLA EXT.	Renville
6328	159	84	8	NENE	CHOLA	Renville
4183	159	84	9	NWSE	CHOLA	Renville
4613	159	84	11	NWNE	WILDCAT	Renville
7492	159	84	15	NESW	LOCKWOOD	Renville
8212	159	84	16	SWNE	LOCKWOOD EXT.	Renville
8818	159	84	18	SENE	CHOLA EXT.	Renville
8783	159	84	21	SWSE	LOCKWOOD EXT.	Renville
7694	159	84	22	SWNE	LOCKWOOD	Renville
3902	159	84	23	NENW	WILDCAT	Renville
8424	159	84	29	SWNE	WILDCAT	Renville
5087	159	84	32	SWNW	WILDCAT	Renville
8810	159	84	34	NWSW	WILDCAT	Renville
11115	159	85	1	SESW	GREENE EXT.	Renville
5916	159	85	6	SWSE	WILDCAT	Renville
6641	159	85	7	NWSE	WILDCAT	Renville
6344	159	85	13	SWSW	WILDCAT	Renville
8264	159	85	16	NENE	LAKE DARLING EXT.	Renville
6079	159	85	17	SWSW	LAKE DARLING EXT.	Renville
4933	159	85	19	NESE	WILDCAT	Renville
5309	159	85	20	SENW	LAKE DARLING EXT.	Renville
11677	159	85	21	NENE	LAKE DARLING	Renville
6089	159	85	22	NESW	LAKE DARLING	Renville
7534	159	85	23	NWSW	LAKE DARLING	Renville
4943	159	85	26	NENW	LAKE DARLING	Renville
6416	159	85	27	NWSE	LAKE DARLING	Renville
12373	159	85	28	NWSW	LAKE DARLING	Renville
10775	159	85	29	SWSW	LAKE DARLING EXT.	Renville
5949	159	85	30	SWSE	LAKE DARLING EXT.	Renville
5952	159	85	31	NESW	LAKE DARLING	Renville
9093	159	85	32	NWNW	LAKE DARLING	Renville
5718	159	85	34	SESE	LAKE DARLING	Renville

WELL	TO.	RA.	SEC.	QUART.	FIELD	COUNTY
8260	159	85	35	NWNW	LAKE DARLING	Renville
5828	159	85	36	SWSW	LAKE DARLING	Renville
12039	159	86	2	NWNE	WILDCAT	Renville
5589	159	86	12	SENW	WILDCAT	Renville
12003	159	86	15	NESW	WILDCAT	Renville
12720	159	86	18	SWNE	GREENBUSH	Renville
8261	159	86	25	SENE	LAKE DARLING EXT.	Renville
5851	159	86	26	SENW	WILDCAT	Renville
7771	159	86	27	NENW	WILDCAT	Renville
12334	159	86	32	SENE	WILDCAT	Renville
6157	159	86	36	SENE	LAKE DARLING EXT.	Renville
2134	159	87	3	NENW	WILDCAT	Ward
11834	159	87	4	NWNE	WILDCAT	Ward
12711	159	87	10	SESW	GREENBUSH	Ward
12529	159	87	13	NWSW	GREENBUSH	Ward
12333	159	87	14	SESE	GREENBUSH	Ward
12277	159	87	15	NWNE	GREENBUSH	Ward
9149	159	87	20	NENE	WILDCAT	Ward
1801	159	87	21	SWNE	WILDCAT	Ward
12219	159	87	23	SENE	GREENBUSH	Ward
12127	159	87	24	NWNW	GREENBUSH	Ward
12009	159	88	19	SESE	WILDCAT	Ward
10326	159	88	21	NENW	BADEN	Ward
9953	159	88	27	SWNW	BADEN	Ward
9752	159	88	28	SWSE	BADEN	Ward
1843	159	88	32	NWNW	WILDCAT	Ward
8697	159	88	33	NENE	BADEN	Ward
10273	159	89	2	NWNW	WILDCAT	Ward
3446	159	90	4	SWSW	WILDCAT	Burke
10667	159	90	11	SESE	NIOBE	Burke
10914	159	90	12	SENW	NIOBE	Burke
10639	159	90	16	SWNW	VANVILLE	Burke
3604	159	90	17	NWSE	WILDCAT	Burke
10592	159	90	20	NENE	VANVILLE	Burke
582	160	73	8	SENE	WILDCAT	Rolette
11397	160	73	17	NESE	WILDCAT	Rolette
12064	160	73	23	SENW	WILDCAT	Rolette
4863	160	75	6	SWSW	WILDCAT	Bottineau
4645	160	75	9	SWSW	WILDCAT	Bottineau
1577	160	75	23	SWNW	WILDCAT	Bottineau
1053	160	75	28	SWNE	WILDCAT	Bottineau
12700	160	76	3	SESE	WILDCAT	Bottineau
12468	160	76	14	SESW	WILDCAT	Bottineau
4864	160	76	15	SESE	WILDCAT	Bottineau
4644	160	76	24	NWNW	WILDCAT	Bottineau
1481	160	77	1	SESE	WILDCAT	Bottineau
3057	160	77	6	SWNW	WILDCAT	Bottineau
362	160	77	29	NENW	WILDCAT	Bottineau
12540	160	78	1	NWNW	WILDCAT	Bottineau
7676	160	78	4	SWNW	SOUTH STARBUCK	Bottineau
11149	160	78	5	SWNW	SOUTHWEST STARBUCK	Bottineau

WELL	TO.	RA.	SEC.	QUART.	FIELD	COUNTY
8308	160	78	6	NESE	SOUTHWEST STARBUCK	Bottineau
1828	160	78	7	NENW	WILDCAT	Bottineau
11347	160	78	8	NWNE	SOUTHWEST STARBUCK	Bottineau
12154	160	78	9	NWNW	SOUTH STARBUCK	Bottineau
8066	160	78	10	NWSW	SOUTH STARBUCK EXT.	Bottineau
11075	160	78	15	SESW	WILDCAT	Bottineau
5694	160	78	16	NESE	WILDCAT	Bottineau
2054	160	78	17	NENE	WILDCAT	Bottineau
2639	160	78	21	NWNW	WILDCAT	Bottineau
11810	160	78	25	SWNW	WILDCAT	Bottineau
1759	160	78	28	NWNE	WILDCAT	Bottineau
5659	160	78	36	SESE	WILDCAT	Bottineau
8508	160	79	1	NENW	SOUTHWEST STARBUCK	Bottineau
4384	160	79	2	NWSE	SOUTHWEST STARBUCK X	Bottineau
4316	160	79	3	SWSW	RUSSELL	Bottineau
5671	160	79	4	SENW	RUSSELL EXT.	Bottineau
10454	160	79	5	SESE	RUSSELL	Bottineau
5385	160	79	6	NWNW	WILDCAT	Bottineau
10453	160	79	7	SENW	WILDCAT	Bottineau
10456	160	79	8	SESE	RUSSELL	Bottineau
6133	160	79	9	NWNW	RUSSELL	Bottineau
4107	160	79	10	SESW	RUSSELL	Bottineau
8843	160	79	11	NESW	SOUTHWEST STARBUCK X	Bottineau
1957	160	79	14	SWNW	WILDCAT	Bottineau
11232	160	79	15	SENW	RUSSELL	Bottineau
4915	160	79	16	SESW	RUSSELL	Bottineau
10455	160	79	17	NWSE	RUSSELL	Bottineau
3791	160	79	18	SENE	RUSSELL EXT.	Bottineau
3602	160	79	19	SESE	WILDCAT	Bottineau
3688	160	79	20	SESW	RUSSELL EXT.	Bottineau
7430	160	79	21	SWSE	RUSSELL EXT.	Bottineau
3519	160	79	22	NWNW	RUSSELL EXT.	Bottineau
2912	160	79	24	NENE	WILDCAT	Bottineau
3830	160	79	26	SESW	WILDCAT	Bottineau
4836	160	79	28	SWNE	WILDCAT	Bottineau
5296	160	79	29	SESE	WILDCAT	Bottineau
10351	160	79	34	SENE	WILDCAT	Bottineau
10781	160	80	3	NENW	WILDCAT	Bottineau
962	160	80	5	SWNE	WILDCAT	Bottineau
10924	160	80	17	NWSW	UNNAMED	Bottineau
2596	160	80	19	SENW	WILDCAT	Bottineau
1183	160	80	23	NESE	WILDCAT	Bottineau
4192	160	81	5	NESW	WILDCAT	Bottineau
12166	160	81	6	NWSW	WILDCAT	Bottineau
4362	160	81	11	SENW	WILDCAT	Bottineau
2975	160	81	17	SENE	WILDCAT	Bottineau
12586	160	81	19	NWNW	WILDCAT	Bottineau
3404	160	81	27	NWNE	WILDCAT	Bottineau
3484	160	81	30	SENW	WILDCAT	Bottineau
38	160	81	31	SWSE	WILDCAT	Bottineau
10360	160	81	32	SWSE	WILDCAT	Bottineau

WELL	TO.	RA.	SEC.	QUART.	FIELD	COUNTY
5071	160	81	34	NWSW	WILDCAT	Bottineau
5100	160	82	1	NENW	WILDCAT	Bottineau
12121	160	82	2	SWNE	WILDCAT	Bottineau
12278	160	82	3	SWSW	WILDCAT	Bottineau
8895	160	82	5	NWSE	WILDCAT	Bottineau
10919	160	82	6	NWSW	MOUNTROSE	Bottineau
10631	160	82	7	SENE	MOUNTROSE EXT.	Bottineau
11369	160	82	8	SESE	WILDCAT	Bottineau
1916	160	82	9	SWSE	WILDCAT	Bottineau
12006	160	82	12	NWNE	WILDCAT	Bottineau
12308	160	82	16	SWNW	WILDCAT	Bottineau
1728	160	82	19	SENE	WILDCAT	Bottineau
4781	160	82	21	SWNE	WILDCAT	Bottineau
3810	160	82	23	NESW	WILDCAT	Bottineau
9960	160	82	28	NWSW	WILDCAT	Bottineau
11714	160	82	29	SWNW	WILDCAT	Bottineau
10831	160	83	1	NESE	MOUNTROSE	Bottineau
3598	160	83	2	SESE	WILDCAT	Bottineau
3067	160	83	8	SESE	LANSFORD EXT.	Bottineau
2770	160	83	14	SESE	WILDCAT	Bottineau
4205	160	83	15	NWNE	WILDCAT	Bottineau
5314	160	83	16	NESW	LANSFORD EXT.	Bottineau
12205	160	83	17	NESE	LANSFORD	Bottineau
5228	160	83	20	NWNE	LANSFORD	Bottineau
3886	160	83	21	SWNE	LANSFORD EXT.	Bottineau
2899	160	83	22	SWNE	WILDCAT	Bottineau
4214	160	83	23	SENE	BLAINE EXT.	Bottineau
3543	160	83	25	SWNE	WILDCAT	Bottineau
11443	160	83	26	SWNW	BLAINE	Bottineau
5439	160	83	27	SENE	BLAINE	Bottineau
5253	160	83	29	NESE	LANSFORD EXT.	Bottineau
2995	160	83	30	SWNW	WILDCAT	Bottineau
5645	160	83	34	NESW	BLAINE	Bottineau
3281	160	83	35	NENW	WILDCAT	Bottineau
6480	160	83	36	SENW	WILDCAT	Bottineau
4657	160	84	1	SESE	WILDCAT	Renville
3659	160	84	3	NWSW	WILDCAT	Renville
11053	160	84	8	NESW	DRY CREEK	Renville
5064	160	84	9	SWSW	WILDCAT	Renville
11905	160	84	14	SESE	WILDCAT	Renville
8616	160	84	16	NWSE	TRURO EXT.	Renville
8891	160	84	17	NESW	DRY CREEK	Renville
4203	160	84	18	SESW	NORTH GRANO EXT.	Renville
4604	160	84	19	NWSE	NORTH GRANO	Renville
4270	160	84	20	NWSW	NORTH GRANO	Renville
9818	160	84	21	NENE	TRURO	Renville
9817	160	84	22	SWSW	TRURO	Renville
3572	160	84	26	NENW	TRURO EXT.	Renville
10534	160	84	27	NWSE	TRURO	Renville
9280	160	84	28	NESE	TRURO	Renville
12267	160	84	29	NENE	WILDCAT	Renville

WELL	TO.	RA.	SEC.	QUART.	FIELD	COUNTY
6233	160	84	30	SENW	NORTH GRANO	Renville
4043	160	84	31	SESW	NORTH GRANO EXT.	Renville
7227	160	84	32	SWNW	NORTH GRANO	Renville
10167	160	84	33	SWSE	CHOLA EXT.	Renville
5640	160	84	34	SENE	CLAY EXT.	Renville
9046	160	84	35	SWSE	CLAY	Renville
2697	160	84	36	SWSW	WILDCAT	Renville
4298	160	85	1	SESE	WILDCAT	Renville
3667	160	85	3	SWNE	WILDCAT	Renville
11556	160	85	5	SWSW	WILDCAT	Renville
4140	160	85	6	NENW	WILDCAT	Renville
12406	160	85	7	NESE	WILDCAT	Renville
11129	160	85	9	SESE	GRASSLAND EXT.	Renville
5746	160	85	10	NWSW	GRASSLAND	Renville
11361	160	85	11	SESE	UNNAMED	Renville
11792	160	85	12	SWNE	WILDCAT	Renville
3836	160	85	13	SENW	NORTH GRANO EXT.	Renville
7299	160	85	14	SWSE	GREENE EXT.	Renville
10760	160	85	15	NWNW	GRASSLAND EXT.	Renville
3526	160	85	16	SESW	WILDCAT	Renville
6933	160	85	21	SWNE	GREENE	Renville
6044	160	85	24	SESW	NORTH GRANO EXT.	Renville
3713	160	85	25	NESE	WILDCAT	Renville
5465	160	85	26	SWNW	WILDCAT	Renville
6446	160	85	27	NWNE	GREENE	Renville
3335	160	85	31	NESW	WILDCAT	Renville
6099	160	85	34	NENE	GREENE	Renville
9092	160	85	35	NENW	GREENE	Renville
8477	160	85	36	NESW	GREENE EXT.	Renville
10628	160	86	3	SENE	WILDCAT	Renville
7716	160	86	4	SWNE	WILDCAT	Renville
11809	160	86	5	SWNE	WILDCAT	Renville
12012	160	86	8	NESE	WILDCAT	Renville
8041	160	86	11	SWNE	WEST GREENE EXT.	Renville
7577	160	86	15	SWNW	WILDCAT	Renville
12008	160	86	16	SENW	WEST GREENE EXT.	Renville
12771	160	86	17	NESE	CULVER	Renville
12759	160	86	20	SESE	SMITH	Renville
12587	160	86	21	SWSW	SMITH	Renville
12041	160	86	22	NENE	WEST GREENE	Renville
8851	160	86	23	NESW	WEST GREENE	Renville
11038	160	86	25	SWSW	WILDCAT	Renville
12758	160	86	27	SWSW	SMITH	Renville
12704	160	86	28	S2SE	SMITH	Renville
12524	160	86	29	SESE	SMITH EXT.	Renville
11951	160	86	34	NWNW	SMITH	Renville
12647	160	86	35	SESE	WILDCAT	Renville
6819	160	87	1	SWNE	WILDCAT	Ward
1628	160	87	3	SWSW	WILDCAT	Ward
2979	160	87	9	SESE	WILDCAT	Ward
3884	160	87	10	NENE	WILDCAT	Ward

WELL	TO.	RA.	SEC.	QUART.	FIELD	COUNTY
1128	160	87	13	SWNW	WILDCAT	Ward
11849	160	87	15	NESE	NORMA EXT.	Ward
6482	160	87	16	NESE	NORMA	Ward
1885	160	87	18	SWNW	WILDCAT	Ward
1698	160	87	22	NWNE	WILDCAT	Ward
9910	160	87	33	NESW	WILDCAT	Ward
1410	160	88	5	SESE	WILDCAT	Ward
12220	160	88	10	SWSW	WILDCAT	Ward
12191	160	88	25	SENE	WILDCAT	Ward
4097	160	88	36	NENW	WILDCAT	Ward
1808	160	89	11	NWNE	WILDCAT	Ward
10272	160	89	15	SWNE	WILDCAT	Ward
1005	160	89	19	NENW	WILDCAT	Ward
8699	160	89	20	NENE	WILDCAT	Ward
995	160	89	23	SWSE	WILDCAT	Ward
11642	160	90	21	NESE	WILDCAT	Burke
10508	160	90	24	SWNW	WILDCAT	Burke
9938	161	72	6	SESE	WILDCAT	Rolette
3083	161	72	8	NWSE	WILDCAT	Rolette
1630	161	72	19	NWSE	WILDCAT	Rolette
1666	161	73	2	SWNE	WILDCAT	Rolette
2862	161	73	21	NWSE	WILDCAT	Rolette
83	161	73	23	SENW	WILDCAT	Rolette
571	161	73	27	SWNW	WILDCAT	Rolette
1102	161	74	2	SWNE	WILDCAT	Bottineau
1579	161	74	21	SWSW	WILDCAT	Bottineau
8878	161	74	23	SESE	WILDCAT	Bottineau
969	161	75	8	SWSW	WILDCAT	Bottineau
348	161	75	12	SWSW	WILDCAT	Bottineau
9559	161	75	14	NENW	WILDCAT	Bottineau
6358	161	75	18	NESE	WILDCAT	Bottineau
3905	161	75	21	NENE	WILDCAT	Bottineau
1523	161	75	29	NWNW	WILDCAT	Bottineau
9745	161	75	32	SENW	WILDCAT	Bottineau
6356	161	75	33	SESE	WILDCAT	Bottineau
5507	161	76	1	SENW	WILDCAT	Bottineau
4646	161	76	8	NWNW	WILDCAT	Bottineau
544	161	76	22	NENW	WILDCAT	Bottineau
5280	161	76	24	SWSW	WILDCAT	Bottineau
9522	161	77	21	SWNW	WILDCAT	Bottineau
327	161	77	22	NESE	WILDCAT	Bottineau
1527	161	77	24	NENE	WILDCAT	Bottineau
11286	161	78	1	SESW	WILDCAT	Bottineau
8051	161	78	4	SWSW	WILDCAT	Bottineau
9719	161	78	5	SESE	WILDCAT	Bottineau
2908	161	78	7	NENE	STARBUCK EXT.	Bottineau
3779	161	78	9	SENW	WILDCAT	Bottineau
2157	161	78	11	SWNW	WILDCAT	Bottineau
2921	161	78	15	SWNE	WILDCAT	Bottineau
3991	161	78	16	SENW	STARBUCK EXT.	Bottineau
5977	161	78	17	SWSE	STARBUCK	Bottineau

WELL	TO.	RA.	SEC.	QUART.	FIELD	COUNTY
12778	161	78	18	NWNW	KANU	Bottineau
11574	161	78	19	SWSE	STARBUCK	Bottineau
8450	161	78	20	SWSW	STARBUCK	Bottineau
8029	161	78	21	SWNW	STARBUCK	Bottineau
11287	161	78	22	SESE	WILDCAT	Bottineau
1667	161	78	26	SENE	WILDCAT	Bottineau
9028	161	78	27	NESE	WILDCAT	Bottineau
10045	161	78	28	SWNW	STARBUCK EXT.	Bottineau
9302	161	78	29	SWNE	STARBUCK	Bottineau
3855	161	78	30	NESE	STARBUCK	Bottineau
10092	161	78	32	SWSE	SOUTHWEST STARBUCK	Bottineau
8030	161	78	33	SWNE	SOUTH STARBUCK EXT.	Bottineau
11863	161	78	34	SENE	SOUTH STARBUCK EXT.	Bottineau
4273	161	78	35	SWSW	SOUTH STARBUCK	Bottineau
8995	161	79	1	SENW	KANE	Bottineau
12689	161	79	2	NENE	KANE	Bottineau
2094	161	79	3	NWSW	NEWBURG	Bottineau
1984	161	79	4	NWSW	NEWBURG	Bottineau
2064	161	79	5	NWNE	NEWBURG	Bottineau
2219	161	79	6	SESW	NEWBURG	Bottineau
2359	161	79	7	NWNW	NEWBURG	Bottineau
4721	161	79	8	NWSW	NEWBURG	Bottineau
7730	161	79	9	SWSE	NEWBURG	Bottineau
2073	161	79	10	SESE	NEWBURG	Bottineau
1838	161	79	11	NWNE	NEWBURG EXT.	Bottineau
11916	161	79	12	SESE	KANU	Bottineau
10163	161	79	13	NWNE	WILDCAT	Bottineau
3945	161	79	14	NWNW	NEWBURG	Bottineau
1943	161	79	15	SESW	NEWBURG	Bottineau
7729	161	79	16	NENW	NEWBURG	Bottineau
3203	161	79	17	SESW	NEWBURG	Bottineau
5174	161	79	18	SESE	NEWBURG	Bottineau
6315	161	79	19	SENE	NEWBURG EXT.	Bottineau
5213	161	79	20	SENW	NEWBURG	Bottineau
4004	161	79	21	NWSW	NEWBURG	Bottineau
2137	161	79	22	SESE	NEWBURG	Bottineau
2140	161	79	23	NWSE	NEWBURG	Bottineau
12389	161	79	25	NWNE	WILDCAT	Bottineau
5175	161	79	26	NENW	NEWBURG	Bottineau
1932	161	79	27	SENW	NEWBURG	Bottineau
5172	161	79	28	NWNE	NEWBURG	Bottineau
3504	161	79	29	SENW	NEWBURG EXT.	Bottineau
5239	161	79	32	SENE	NEWBURG EXT.	Bottineau
8248	161	79	33	NESW	NEWBURG EXT.	Bottineau
7513	161	79	34	SENW	NEWBURG EXT.	Bottineau
6640	161	79	35	SWNW	NEWBURG EXT.	Bottineau
3711	161	79	36	SESE	WILDCAT	Bottineau
4670	161	80	1	NESE	NEWBURG	Bottineau
5943	161	80	9	NESW	WILDCAT	Bottineau
2202	161	80	10	NENE	WILDCAT	Bottineau
2248	161	80	12	SENE	NEWBURG	Bottineau

WELL	TO.	RA.	SEC.	QUART.	FIELD	COUNTY
1155	161	80	17	SWNW	WILDCAT	Bottineau
12551	161	80	19	SESE	WILDCAT	Bottineau
3258	161	80	26	SWNW	WILDCAT	Bottineau
4924	161	81	2	NENE	NORTH MAXBASS EXT.	Bottineau
11587	161	81	4	SWSW	WAYNE EXT.	Bottineau
10172	161	81	5	NWNE	WAYNE	Bottineau
8772	161	81	6	NESE	WAYNE EXT.	Bottineau
3544	161	81	7	SWNE	WILDCAT	Bottineau
7052	161	81	9	NENE	NORTH MAXBASS EXT.	Bottineau
11743	161	81	10	SWSE	NORTH MAXBASS	Bottineau
2500	161	81	11	NWNW	WILDCAT	Bottineau
8608	161	81	15	NENE	NORTH MAXBASS EXT.	Bottineau
2369	161	81	16	SWSW	WILDCAT	Bottineau
910	161	81	18	NWSW	WILDCAT	Bottineau
11156	161	81	19	SWNW	WILEY	Bottineau
3653	161	81	20	NWNE	WILEY EXT.	Bottineau
11400	161	81	21	SENE	MAD MAX	Bottineau
9136	161	81	22	NESW	WILDCAT	Bottineau
3766	161	81	28	NESW	WILEY EXT.	Bottineau
7258	161	81	29	NWNW	WILEY	Bottineau
8517	161	81	30	NENE	WILEY	Bottineau
7261	161	81	31	NENW	WILEY	Bottineau
10804	161	81	32	NENW	WILEY	Bottineau
2540	161	81	33	SWSE	WILDCAT	Bottineau
5991	161	82	8	NENE	WILDCAT	Bottineau
2877	161	82	9	NESE	WILDCAT	Bottineau
2542	161	82	11	NESW	WILDCAT	Bottineau
9491	161	82	12	SWNE	WILDCAT	Bottineau
6391	161	82	13	NWSW	WILEY	Bottineau
6692	161	82	14	SESW	WILEY	Bottineau
3771	161	82	15	NENE	WILEY EXT.	Bottineau
11592	161	82	17	NWNW	WILDCAT	Bottineau
2743	161	82	18	SWNE	WILDCAT	Bottineau
3207	161	82	20	NESE	WILDCAT	Bottineau
7259	161	82	22	SENE	WILEY	Bottineau
8522	161	82	23	SWNE	WILEY	Bottineau
8521	161	82	24	NENW	WILEY	Bottineau
11236	161	82	25	SESW	WILEY	Bottineau
7260	161	82	26	SENE	WILEY	Bottineau
11138	161	82	27	SWNE	WILEY	Bottineau
11271	161	82	28	SENE	WILEY EXT.	Bottineau
9181	161	82	31	SESE	WILEY EXT.	Bottineau
10920	161	82	33	SWSE	MOUNTROSE	Bottineau
6257	161	82	34	SWNW	WILEY EXT.	Bottineau
6535	161	83	2	NENE	WILDCAT	Bottineau
6206	161	83	5	NENW	MOHALL	Bottineau
9823	161	83	6	SWNW	MOHALL	Bottineau
4206	161	83	7	NENW	MOHALL EXT.	Bottineau
11673	161	83	8	NWNW	MOHALL EXT.	Bottineau
1962	161	83	10	SENW	WILDCAT	Bottineau
3017	161	83	13	SESE	WILDCAT	Bottineau

WELL	TO.	RA.	SEC.	QUART.	FIELD	COUNTY
5538	161	83	17	NWNW	WILDCAT	Bottineau
6487	161	83	20	NWNE	WILDCAT	Bottineau
3705	161	83	21	SESE	WILDCAT	Bottineau
3910	161	83	32	SWSW	WILDCAT	Bottineau
3334	161	83	36	NWNW	WILDCAT	Bottineau
11054	161	84	1	NESE	MOHALL	Renville
10665	161	84	6	NWNW	WILDCAT	Renville
3987	161	84	10	SENW	WILDCAT	Renville
5626	161	84	19	NESE	WILDCAT	Renville
1136	161	84	23	SENW	WILDCAT	Renville
1727	161	84	32	SESW	WILDCAT	Renville
6624	161	85	1	SENW	WILDCAT	Renville
6684	161	85	2	NENW	WILDCAT	Renville
5644	161	85	3	NWSW	LITTLE DEEP CREEK	Renville
11707	161	85	4	NWNE	LITTLE DEEP CREEK	Renville
3851	161	85	5	NENW	MOUSE RIVER PARK	Renville
3368	161	85	6	NWNW	MOUSE RIVER PARK	Renville
11325	161	85	9	NENW	LITTLE DEEP CREEK	Renville
5518	161	85	10	NWNW	LITTLE DEEP CREEK	Renville
815	161	85	13	SWNW	WILDCAT	Renville
6384	161	85	14	SENW	WILDCAT	Renville
3703	161	85	15	SESW	WILDCAT	Renville
4576	161	85	17	NENE	WILDCAT	Renville
3350	161	85	18	NWSE	WILDCAT	Renville
9538	161	85	19	SESE	WILDCAT	Renville
5852	161	85	20	NWNW	WILDCAT	Renville
9881	161	85	23	NESE	DES LACS	Renville
5331	161	85	24	SESW	DES LACS	Renville
4930	161	85	26	SWSW	WILDCAT	Renville
11342	161	85	28	SWSW	WILDCAT	Renville
3563	161	85	29	SWNE	WILDCAT	Renville
6875	161	85	35	SWSE	WILDCAT	Renville
5510	161	86	1	SESE	WILDCAT	Renville
12128	161	86	4	NENW	WILDCAT	Renville
3852	161	86	5	SESW	TOLLEY EXT.	Renville
12237	161	86	6	SENW	WILDCAT	Renville
11196	161	86	7	NESE	MC KINNEY	Renville
10955	161	86	8	SWSW	MC KINNEY	Renville
7450	161	86	9	SENW	TOLLEY	Renville
8084	161	86	10	NWSW	TOLLEY	Renville
5898	161	86	12	SWSE	WILDCAT	Renville
3789	161	86	15	NWNW	TOLLEY	Renville
3838	161	86	16	NWNW	TOLLEY	Renville
11274	161	86	17	SWSE	MC KINNEY	Renville
10956	161	86	18	NENE	MC KINNEY	Renville
8659	161	86	19	NENE	WILDCAT	Renville
10826	161	86	20	NWNE	MC KINNEY	Renville
12567	161	86	21	NWSW	WILDCAT	Renville
6507	161	86	22	SENW	WILDCAT	Renville
11043	161	86	27	NESE	WILDCAT	Renville
10614	161	86	28	NENE	WILDCAT	Renville

WELL	TO.	RA.	SEC.	QUART.	FIELD	COUNTY
10986	161	86	30	NWNW	WILDCAT	Renville
3760	161	86	32	NWSW	WILDCAT	Renville
7751	161	86	33	NENW	WILDCAT	Renville
12075	161	86	34	SENE	WILDCAT	Renville
3608	161	86	35	SENE	WILDCAT	Renville
5757	161	86	36	NWNE	WILDCAT	Renville
5928	161	87	3	SESW	WILDCAT	Renville
11936	161	87	4	SWNE	WILDCAT	Renville
4147	161	87	5	SWNW	WILDCAT	Renville
4533	161	87	9	NESE	WILDCAT	Renville
3968	161	87	10	NESE	WILDCAT	Renville
3205	161	87	11	SESE	WILDCAT	Renville
10786	161	87	12	SESE	MC KINNEY	Renville
6146	161	87	13	SENE	WILDCAT	Renville
12609	161	87	14	NWSW	WILDCAT	Renville
11737	161	87	15	NESE	WILDCAT	Renville
12084	161	87	17	NENW	WILDCAT	Renville
12543	161	87	18	NESW	WILDCAT	Renville
3618	161	87	23	NENE	WILDCAT	Renville
10978	161	87	24	SWSW	WILDCAT	Renville
12467	161	87	25	NWNE	WILDCAT	Renville
11600	161	87	26	SWSE	WILDCAT	Renville
7976	161	87	34	SWSE	WILDCAT	Renville
12530	161	88	9	SENE	WILDCAT	Ward
10270	161	88	13	SWNW	WILDCAT	Ward
11042	161	88	18	NESE	WILDCAT	Ward
10271	161	88	25	NWSW	WILDCAT	Ward
11555	161	88	33	NWNE	WILDCAT	Ward
12190	161	88	34	NWSE	WILDCAT	Ward
12520	161	89	7	NWSW	WILDCAT	Burke
1258	161	89	11	NENE	WILDCAT	Burke
11741	161	89	19	SWSE	SHOCKLEY EXT.	Burke
11572	161	89	20	SWSE	SHOCKLEY EXT.	Burke
1807	161	89	21	NENW	WILDCAT	Burke
11424	161	89	29	SWNW	SHOCKLEY EXT.	Burke
11161	161	89	30	NESE	SHOCKLEY	Burke
1842	161	89	32	NWNW	WILDCAT	Burke
11050	161	89	36	SESW	WILDCAT	Burke
10604	161	90	1	SWSE	WARD EXT.	Burke
11203	161	90	2	NWNW	BOWBELLS	Burke
11695	161	90	3	SENE	BOWBELLS	Burke
9822	161	90	11	SWNE	LOSTWOOD EXT.	Burke
10392	161	90	12	NWSE	WARD	Burke
10387	161	90	13	SESW	LOSTWOOD EXT.	Burke
9484	161	90	14	NENE	LOSTWOOD	Burke
1169	161	90	25	NWSW	WILDCAT	Burke
11428	161	90	35	NWSE	WILDCAT	Burke
12135	161	90	36	SENW	WILDCAT	Burke
328	162	74	28	NWNW	WILDCAT	Bottineau
11739	162	75	5	SESW	WILDCAT	Bottineau
5764	162	75	12	NWNW	WILDCAT	Bottineau

WELL	TO.	RA.	SEC.	QUART.	FIELD	COUNTY
8326	162	75	27	NWNE	WILDCAT	Bottineau
1585	162	75	28	NENW	WILDCAT	Bottineau
1525	162	76	9	NWNE	WILDCAT	Bottineau
12053	162	76	10	SWSE	WILDCAT	Bottineau
895	162	76	14	NWNW	WILDCAT	Bottineau
9009	162	76	19	SWNE	WILDCAT	Bottineau
12565	162	76	26	SESW	WILDCAT	Bottineau
1583	162	76	35	SWSW	WILDCAT	Bottineau
8628	162	77	6	NWNE	WILDCAT	Bottineau
1584	162	77	9	SENW	WILDCAT	Bottineau
5277	162	77	11	SWSW	WILDCAT	Bottineau
2056	162	77	12	NWSW	WILDCAT	Bottineau
5184	162	77	14	SENE	WILDCAT	Bottineau
12518	162	77	30	NWSE	WILDCAT	Bottineau
3822	162	77	33	SWSW	WILDCAT	Bottineau
1529	162	78	1	SWNW	WILDCAT	Bottineau
1642	162	78	3	NWSE	WILDCAT	Bottineau
1586	162	78	4	SWNE	WILDCAT	Bottineau
6385	162	78	5	SENW	WILDCAT	Bottineau
10767	162	78	6	SWNE	ROTH EXT.	Bottineau
1964	162	78	7	NENE	WILDCAT	Bottineau
2638	162	78	12	SWSE	WILDCAT	Bottineau
3961	162	78	14	NWSE	WILDCAT	Bottineau
3654	162	78	15	SENW	WILDCAT	Bottineau
10648	162	78	16	NENE	WILDCAT	Bottineau
2506	162	78	17	NWNE	WILDCAT	Bottineau
11601	162	78	18	SESE	WILDCAT	Bottineau
1850	162	78	19	SWSE	WILDCAT	Bottineau
3827	162	78	20	SESE	WILDCAT	Bottineau
2058	162	78	25	SENW	WILDCAT	Bottineau
11028	162	78	26	SWSE	WILDCAT	Bottineau
3776	162	78	28	NESE	WILDCAT	Bottineau
11434	162	78	30	NENW	EAST NEWBURG EXT.	Bottineau
4655	162	78	31	SESW	EAST NEWBURG	Bottineau
2544	162	78	34	SWNW	WILDCAT	Bottineau
7376	162	79	1	NENW	WEST ROTH EXT.	Bottineau
6286	162	79	2	SESE	SOUTH LANDA EXT.	Bottineau
8018	162	79	3	SENE	SOUTH LANDA	Bottineau
7827	162	79	4	SESW	SOUTHWEST LANDA	Bottineau
4828	162	79	5	SESE	SOUTHWEST LANDA	Bottineau
9299	162	79	6	NWSW	SERGIS	Bottineau
5660	162	79	7	NENW	WILDCAT	Bottineau
3004	162	79	8	NESE	WILDCAT	Bottineau
5065	162	79	9	SENW	SOUTHWEST LANDA	Bottineau
9156	162	79	10	SWNW	EIDSVOLD EXT.	Bottineau
5559	162	79	11	SWNW	SOUTH LANDA EXT.	Bottineau
4676	162	79	12	SENE	WILDCAT	Bottineau
6232	162	79	14	SWNW	EIDSVOLD	Bottineau
6417	162	79	15	NENE	EIDSVOLD	Bottineau
3845	162	79	17	SWSW	SOUTH WESTHOPE	Bottineau
11837	162	79	18	SWNW	SOUTH WESTHOPE EXT.	Bottineau

WELL	TO.	RA.	SEC.	QUART.	FIELD	COUNTY
5364	162	79	19	SENE	SOUTH WESTHOPE	Bottineau
12532	162	79	20	SENW	SOUTH WESTHOPE	Bottineau
11278	162	79	22	SENE	REFUGE	Bottineau
9012	162	79	23	SWNW	EIDSVOLD EXT.	Bottineau
9277	162	79	24	SWNE	WILDCAT	Bottineau
8815	162	79	26	NWSW	KANE	Bottineau
10738	162	79	27	SESE	KANE EXT.	Bottineau
2872	162	79	29	SWSW	NEWBURG EXT.	Bottineau
4651	162	79	30	NESW	SOUTH WESTHOPE	Bottineau
3088	162	79	31	NWSW	NEWBURG	Bottineau
2387	162	79	32	NWSE	NEWBURG	Bottineau
2994	162	79	33	NWNW	NEWBURG EXT.	Bottineau
7888	162	79	35	NWNW	KANE	Bottineau
3642	162	79	36	NESE	EAST NEWBURG	Bottineau
10160	162	80	1	SESE	SERGIS	Bottineau
10219	162	80	2	SWSE	SOUTH WESTHOPE	Bottineau
11306	162	80	3	SENE	SOUTH WESTHOPE EXT.	Bottineau
3325	162	80	4	SESE	SOUTH WESTHOPE	Bottineau
1909	162	80	5	NENE	WILDCAT	Bottineau
1670	162	80	6	SWNE	WILDCAT	Bottineau
11444	162	80	7	NENW	WILDCAT	Bottineau
3326	162	80	9	SESE	SOUTH WESTHOPE	Bottineau
3047	162	80	10	SENW	SOUTH WESTHOPE	Bottineau
5038	162	80	11	NENE	SOUTH WESTHOPE	Bottineau
2732	162	80	12	NESE	SOUTH WESTHOPE EXT.	Bottineau
8526	162	80	13	SENE	SOUTH WESTHOPE	Bottineau
4589	162	80	14	SWSW	SOUTH WESTHOPE	Bottineau
5480	162	80	15	NWSW	SOUTH WESTHOPE	Bottineau
2595	162	80	16	NESE	SOUTH WESTHOPE EXT.	Bottineau
1588	162	80	17	NESE	WILDCAT	Bottineau
11658	162	80	18	SENW	WILDCAT	Bottineau
12014	162	80	21	NWNE	SOUTH WESTHOPE EXT.	Bottineau
5998	162	80	22	SWSE	SOUTH WESTHOPE	Bottineau
10124	162	80	23	NENW	SOUTH WESTHOPE	Bottineau
8506	162	80	24	SWNW	SOUTH WESTHOPE	Bottineau
3234	162	80	25	SESW	SOUTH WESTHOPE	Bottineau
2002	162	80	26	NENE	SOUTH WESTHOPE EXT.	Bottineau
6039	162	80	27	NENW	SOUTH WESTHOPE	Bottineau
3377	162	80	28	NESW	SOUTH WESTHOPE EXT.	Bottineau
2622	162	80	32	SESE	WILDCAT	Bottineau
3101	162	80	36	NESW	SOUTH WESTHOPE	Bottineau
10938	162	81	11	SENE	WILDCAT	Bottineau
5339	162	81	13	NWNW	WILDCAT	Bottineau
12741	162	81	14	NWNW	STINSON	Bottineau
9287	162	81	15	SWSE	WILDCAT	Bottineau
1629	162	81	23	NWNW	WILDCAT	Bottineau
12686	162	81	24	NWNW	STINSON	Bottineau
916	162	81	26	SWSE	WILDCAT	Bottineau
7817	162	81	29	SWSW	WAYNE	Bottineau
11244	162	81	30	SWNW	WAYNE	Bottineau
9834	162	81	31	NESE	WAYNE	Bottineau

WELL	TO.	RA.	SEC.	QUART.	FIELD	COUNTY
1431	162	81	31	NENE	WAYNE	Bottineau
11243	162	81	32	SWNW	WAYNE	Bottineau
2699	162	81	33	SWNW	WAYNE EXT.	Bottineau
7765	162	82	1	NWSW	WILDCAT	Bottineau
3197	162	82	2	SWNE	WILDCAT	Bottineau
10591	162	82	5	NENE	WILDCAT	Bottineau
1448	162	82	6	NWNW	WILDCAT	Bottineau
8292	162	82	9	NENE	WILDCAT	Bottineau
10361	162	82	12	NWNW	WILDCAT	Bottineau
3425	162	82	13	NENE	WILDCAT	Bottineau
1465	162	82	15	SESW	WILDCAT	Bottineau
2676	162	82	17	NENW	WILDCAT	Bottineau
3161	162	82	18	NWNW	WILDCAT	Bottineau
1725	162	82	19	SESW	WILDCAT	Bottineau
11246	162	82	24	SWNW	WAYNE EXT.	Bottineau
11483	162	82	25	NWSE	WAYNE	Bottineau
8800	162	82	26	SESE	SHERMAN	Bottineau
1427	162	82	31	NWSW	WILDCAT	Bottineau
3508	162	82	33	NWNW	WILDCAT	Bottineau
12781	162	82	34	SWSE	WILDCAT	Bottineau
9275	162	82	35	NWNE	SHERMAN	Bottineau
11312	162	82	36	NESW	SHERMAN	Bottineau
9059	162	83	1	NENW	HAAS	Bottineau
2012	162	83	2	SESE	SOUTH HAAS EXT.	Bottineau
3465	162	83	4	NWNW	SOUTHWEST HAAS EXT.	Bottineau
3454	162	83	5	NWNE	SOUTHWEST HAAS EXT.	Bottineau
4319	162	83	6	NWNE	SOUTHWEST HAAS EXT.	Bottineau
7895	162	83	11	SENE	SOUTH HAAS	Bottineau
6649	162	83	12	NWNW	SOUTH HAAS	Bottineau
2945	162	83	18	NWNW	WILDCAT	Bottineau
1439	162	83	22	NWNW	WILDCAT	Bottineau
3293	162	83	26	NWSW	WILDCAT	Bottineau
6363	162	83	30	NESW	MOHALL	Bottineau
5378	162	83	31	NENW	MOHALL	Bottineau
8231	162	83	32	SWSE	MOHALL	Bottineau
1399	162	83	33	SWNW	WILDCAT	Bottineau
5859	162	83	36	NWSE	WILDCAT	Bottineau
3727	162	84	1	SENW	WILDCAT	Renville
3516	162	84	2	NWNW	WILDCAT	Renville
1450	162	84	9	SENW	WILDCAT	Renville
10477	162	84	12	NWSE	WILDCAT	Renville
5568	162	84	13	SWSW	LORAINE EXT.	Renville
10000	162	84	14	NWNE	LORAINE	Renville
3280	162	84	15	SESE	WILDCAT	Renville
3992	162	84	17	SWSE	WILDCAT	Renville
5784	162	84	23	SENE	LORAINE	Renville
8655	162	84	24	NESE	CUTBANK CREEK	Renville
5818	162	84	25	SWNE	CUTBANK CREEK	Renville
1201	162	84	27	NWSW	WILDCAT	Renville
5186	162	84	36	NENE	MOHALL	Renville
3426	162	85	2	NESE	COLQUHOUN EXT.	Renville

WELL	TO.	RA.	SEC.	QUART.	FIELD	COUNTY
8362	162	85	3	NENE	COLQUHOUN	Renville
2059	162	85	5	NWSE	WILDCAT	Renville
3799	162	85	10	NESE	WILDCAT	Renville
12228	162	85	12	NWNE	WILDCAT	Renville
3956	162	85	13	SWNW	WILDCAT	Renville
3186	162	85	14	SWNE	WILDCAT	Renville
4800	162	85	15	SENE	WILDCAT	Renville
5624	162	85	18	SWNE	MOUSE RIVER PARK	Renville
7144	162	85	19	NESE	MOUSE RIVER PARK	Renville
5900	162	85	20	SWNW	MOUSE RIVER PARK	Renville
2729	162	85	22	SWNW	WILDCAT	Renville
3600	162	85	24	NENW	WILDCAT	Renville
5953	162	85	29	SWSW	MOUSE RIVER PARK	Renville
12673	162	85	30	NESW	MOUSE RIVER PARK	Renville
12695	162	85	31	SENW	MOUSE RIVER PARK	Renville
12130	162	85	32	NENW	MOUSE RIVER PARK	Renville
11066	162	85	33	SWSE	MOUSE RIVER PARK	Renville
3974	162	85	35	SWNW	WILDCAT	Renville
8278	162	85	36	NWNW	WILDCAT	Renville
11491	162	86	2	SWNE	SEVENMILE COULEE EXT	Renville
5231	162	86	3	SWSE	SEVEN MILE COULEE	Renville
3953	162	86	4	SWNE	WILDCAT	Renville
3188	162	86	9	NESW	SEVENMILE COULEE EXT	Renville
5654	162	86	10	SWNE	SEVENMILE COULEE	Renville
6330	162	86	11	NESW	MOUSE RIVER PARK	Renville
5901	162	86	12	SWNW	MOUSE RIVER PARK	Renville
9031	162	86	13	NESE	MOUSE RIVER PARK	Renville
5536	162	86	14	SWSE	MOUSE RIVER PARK	Renville
12756	162	86	15	SESW	WILDCAT	Renville
3127	162	86	16	SWSW	WILDCAT	Renville
4167	162	86	19	SENW	WILDCAT	Renville
3725	162	86	21	NENE	WILDCAT	Renville
3403	162	86	23	SWNW	WILDCAT	Renville
4563	162	86	24	SWSE	MOUSE RIVER PARK	Renville
12661	162	86	25	SESW	MOUSE RIVER PARK	Renville
5965	162	86	26	NENE	MOUSE RIVER PARK EXT	Renville
867	162	86	29	NESW	WILDCAT	Renville
6442	162	86	30	SWNW	WILDCAT	Renville
11774	162	86	32	SESE	WILDCAT	Renville
11883	162	86	33	SWNW	WILDCAT	Renville
10885	162	86	35	SENE	MOUSE RIVER PARK EXT	Renville
12769	162	86	36	SENE	MOUSE RIVER PARK	Renville
6504	162	87	1	SWNE	WILDCAT	Renville
5927	162	87	2	SESE	WILDCAT	Renville
11763	162	87	14	SESW	WILDCAT	Renville
1815	162	87	21	NWNW	WILDCAT	Renville
3923	162	87	24	SWSW	WILDCAT	Renville
1234	162	87	26	SESW	WILDCAT	Renville
9832	162	87	33	SESE	WILDCAT	Renville
12371	162	88	13	NWSE	MADISON	Burke
10268	162	88	24	NESW	WILDCAT	Burke

WELL	TO.	RA.	SEC.	QUART.	FIELD	COUNTY
12552	162	88	26	NESW	WILDCAT	Burke
1081	162	88	30	NENW	WILDCAT	Burke
10269	162	88	34	SENW	WILDCAT	Burke
1006	162	88	36	NENW	WILDCAT	Burke
12221	162	89	1	NENE	WILDCAT	Burke
9335	162	89	4	SWSW	SPIRAL	Burke
1251	162	89	6	SWNW	WILDCAT	Burke
9940	162	89	7	NESE	SPIRAL EXT.	Burke
8893	162	89	8	SWSW	WILDCAT	Burke
9073	162	89	9	SWNW	SPIRAL	Burke
12007	162	89	11	NENE	WILDCAT	Burke
3473	162	89	13	SWSW	WILDCAT	Burke
3365	162	89	14	SWSW	WILDCAT	Burke
12579	162	89	17	SESE	MINNESOTA	Burke
10509	162	89	18	SWNW	CARTER	Burke
9713	162	89	19	NESE	WILDCAT	Burke
9511	162	89	21	SESE	MINNESOTA	Burke
12250	162	89	22	SWNW	MINNESOTA	Burke
3847	162	89	23	SWSE	WILDCAT	Burke
9109	162	89	28	SENE	MINNESOTA	Burke
9926	162	89	30	SWNW	BOWBELLS	Burke
8819	162	89	32	SWNW	WILDCAT	Burke
9048	162	89	33	NWSE	MINNESOTA EXT.	Burke
5781	162	90	1	NENE	WOBURN EXT.	Burke
6156	162	90	2	NWNE	WOBURN	Burke
10383	162	90	13	SWSE	CARTER	Burke
11709	162	90	23	SWSW	PICKETT	Burke
10253	162	90	25	SWSE	BOWBELLS	Burke
11690	162	90	26	NENW	PICKETT	Burke
11790	162	90	27	NENE	PICKETT	Burke
1582	162	90	34	NENE	WILDCAT	Burke
10753	162	90	35	SENW	BOWBELLS EXT.	Burke
10968	162	90	36	SWNW	BOWBELLS	Burke
659	163	72	5	NWSW	WILDCAT	Rolette
11018	163	72	17	SWNW	WILDCAT	Rolette
6374	163	73	4	SWSW	WILDCAT	Rolette
806	163	73	14	NESE	WILDCAT	Rolette
6052	163	73	16	NENE	WILDCAT	Rolette
7377	163	73	22	SENE	WILDCAT	Rolette
6016	163	73	27	NENW	WILDCAT	Rolette
8352	163	73	30	NESW	WILDCAT	Rolette
685	163	73	32	SWSW	WILDCAT	Rolette
927	163	73	36	NESW	WILDCAT	Rolette
1184	163	74	7	NENE	WILDCAT	Bottineau
12061	163	74	10	NWNE	WILDCAT	Bottineau
11046	163	74	20	NESE	WILDCAT	Bottineau
1673	163	74	23	NESW	WILDCAT	Bottineau
4643	163	75	10	NESW	WILDCAT	Bottineau
5913	163	75	15	SWNW	WILDCAT	Bottineau
110	163	75	23	NWNW	WILDCAT	Bottineau
10762	163	75	26	NENW	WILDCAT	Bottineau

WELL	TO.	RA.	SEC.	QUART.	FIELD	COUNTY
503	163	75	27	NESW	WILDCAT	Bottineau
4894	163	75	28	SWSE	WILDCAT	Bottineau
1302	163	76	18	SESE	WILDCAT	Bottineau
11128	163	76	19	NWNW	UNNAMED	Bottineau
1524	163	76	21	SENW	WILDCAT	Bottineau
11060	163	76	30	NESE	WILDCAT	Bottineau
6359	163	76	32	SENW	WILDCAT	Bottineau
11127	163	76	33	SWNW	WILDCAT	Bottineau
2386	163	76	34	NESW	WILDCAT	Bottineau
170	163	77	2	SESW	WILDCAT	Bottineau
12496	163	77	3	NWSW	NORTH SOURIS	Bottineau
11317	163	77	4	NENE	NORTH SOURIS	Bottineau
10321	163	77	5	NENW	NORTH SOURIS EXT.	Bottineau
1528	163	77	7	NWNE	WILDCAT	Bottineau
12528	163	77	9	NENE	UNNAMED	Bottineau
4671	163	77	10	NWSE	WILDCAT	Bottineau
10649	163	77	11	SENW	RED ROCK	Bottineau
1480	163	77	12	SESW	WILDCAT	Bottineau
11446	163	77	13	SWSW	RED ROCK EXT.	Bottineau
12465	163	77	16	SWSW	HARAM	Bottineau
64	163	77	18	SWNW	WILDCAT	Bottineau
12575	163	77	20	SENE	HARAM	Bottineau
12382	163	77	21	SENE	HARAM	Bottineau
504	163	77	22	NENE	WILDCAT	Bottineau
1426	163	77	25	SWNE	WILDCAT	Bottineau
11531	163	77	27	SWSW	HARAM	Bottineau
12466	163	77	28	NENW	HARAM	Bottineau
10452	163	77	29	NENW	WILDCAT	Bottineau
10236	163	77	31	NWSE	WILDCAT	Bottineau
9521	163	77	32	NWSW	WILDCAT	Bottineau
2014	163	77	35	NENW	WILDCAT	Bottineau
9747	163	77	36	SWNE	WILDCAT	Bottineau
4272	163	78	1	NESW	WILDCAT	Bottineau
3238	163	78	2	SESE	WILDCAT	Bottineau
12471	163	78	3	NENE	SOURIS	Bottineau
12783	163	78	4	NESE	LANDA NORTHWEST	Bottineau
12611	163	78	5	SWNW	NORTHEAST LANDA	Bottineau
3320	163	78	6	SESW	NORTHEAST LANDA	Bottineau
10246	163	78	7	SWSE	WILDCAT	Bottineau
1695	163	78	8	SWSE	SCANDIA EXT.	Bottineau
9058	163	78	9	NWSE	SCANDIA	Bottineau
10580	163	78	10	NWSE	SCANDIA	Bottineau
3985	163	78	11	SWNW	SCANDIA EXT.	Bottineau
10416	163	78	12	SWNW	SOURIS EXT.	Bottineau
12582	163	78	15	SENW	LESJE	Bottineau
3478	163	78	16	NWNW	SCANDIA EXT.	Bottineau
11940	163	78	17	SWSE	NORTH ROTH EXT.	Bottineau
11373	163	78	18	SESE	NORTH ROTH	Bottineau
3482	163	78	19	NESE	ROTH EXT.	Bottineau
12280	163	78	20	NWSE	CIMBEL	Bottineau
12408	163	78	21	SWNW	CIMBEL	Bottineau

WELL	TO.	RA.	SEC.	QUART.	FIELD	COUNTY
8142	163	78	22	SWNE	BOUNDARY CREEK	Bottineau
3375	163	78	23	NWNW	BOUNDARY CREEK EXT.	Bottineau
1702	163	78	26	NWSE	WILDCAT	Bottineau
12513	163	78	27	NWSW	WILDCAT	Bottineau
3934	163	78	28	SENW	WILDCAT	Bottineau
12677	163	78	29	NWNE	CIMBEL	Bottineau
12402	163	78	30	NENE	ROTH	Bottineau
12203	163	78	31	NESE	ROTH	Bottineau
1896	163	78	32	NWNW	ROTH EXT.	Bottineau
12281	163	78	33	SESW	WILDCAT	Bottineau
834	163	78	34	NWNW	WILDCAT	Bottineau
5602	163	79	1	NENE	NORTHEAST LANDA	Bottineau
3774	163	79	2	NESW	NORTHEAST LANDA	Bottineau
3808	163	79	5	SWSW	SCOTIA EXT.	Bottineau
4399	163	79	7	NWNE	SCOTIA	Bottineau
9614	163	79	8	SWNW	SCOTIA EXT.	Bottineau
5288	163	79	10	SWSW	WILDCAT	Bottineau
240	163	79	11	NWSE	WILDCAT	Bottineau
4175	163	79	12	SWSW	WILDCAT	Bottineau
3182	163	79	13	SWNE	NORTH ROTH EXT.	Bottineau
11372	163	79	14	SESE	LANDA EXT.	Bottineau
2776	163	79	15	NWSE	LANDA	Bottineau
8693	163	79	16	NWSW	SCOTIA	Bottineau
8097	163	79	17	NESE	SCOTIA	Bottineau
8919	163	79	18	SWSE	SCOTIA EXT.	Bottineau
5637	163	79	19	NENE	SCOTIA EXT.	Bottineau
9988	163	79	20	NENW	SCOTIA	Bottineau
7793	163	79	21	SESW	LANDA EXT.	Bottineau
8334	163	79	22	NWSE	LANDA	Bottineau
5815	163	79	23	NWSW	LANDA	Bottineau
12300	163	79	24	NESW	LEONARD	Bottineau
8463	163	79	26	SWSW	LANDA EXT.	Bottineau
12723	163	79	27	SENW	LANDA	Bottineau
9099	163	79	28	SENW	LANDA EXT.	Bottineau
921	163	79	29	NENE	WILDCAT	Bottineau
3026	163	79	32	SWSW	WILDCAT	Bottineau
12578	163	79	33	SWSW	SW LANDA EXT.	Bottineau
11623	163	79	34	SENE	LANDA	Bottineau
4623	163	79	35	NWNW	LANDA	Bottineau
6151	163	79	36	NESW	WEST ROTH	Bottineau
8241	163	80	1	SESE	NORTH WESTHOPE	Bottineau
925	163	80	2	NENE	NORTH WESTHOPE	Bottineau
10595	163	80	3	NWNE	RICHBURG	Bottineau
4157	163	80	4	NWNW	WILDCAT	Bottineau
3889	163	80	5	SENE	WILDCAT	Bottineau
9701	163	80	6	NWSW	KUROKI EXT.	Bottineau
2879	163	80	10	SWSW	WILDCAT	Bottineau
8152	163	80	11	SWNW	WILDCAT	Bottineau
564	163	80	13	SWNW	WILDCAT	Bottineau
11011	163	80	14	SWNE	WILDCAT	Bottineau

WELL	TO.	RA.	SEC.	QRT.	FIELD	COUNTY
2557	163	80	17	NESW	WESTHOPE EXT.	Bottineau
2672	163	80	18	NESW	WILDCAT	Bottineau
10726	163	80	19	SESW	WILDCAT	Bottineau
3744	163	80	20	SWNW	WESTHOPE EXT.	Bottineau
10347	163	80	21	NESW	WESTHOPE	Bottineau
3208	163	80	23	SESE	WILDCAT	Bottineau
1956	163	80	24	SESW	WILDCAT	Bottineau
3623	163	80	27	SWSW	WESTHOPE	Bottineau
5550	163	80	28	SWSW	WESTHOPE	Bottineau
248	163	80	29	SENW	WESTHOPE EXT.	Bottineau
2192	163	80	30	SWNE	WESTHOPE EXT.	Bottineau
3595	163	80	31	NESW	WILDCAT	Bottineau
3765	163	80	32	NWSW	WESTHOPE EXT.	Bottineau
10958	163	80	33	NESE	SOUTH WESTHOPE EXT.	Bottineau
3499	163	80	34	SWSE	SOUTH WESTHOPE EXT.	Bottineau
1383	163	80	35	SWNE	WILDCAT	Bottineau
10352	163	80	36	NWSW	SERGIS EXT.	Bottineau
9638	163	81	1	NWSE	KUROKI	Bottineau
1225	163	81	2	SESE	KUROKI	Bottineau
9639	163	81	4	SWSW	WILDCAT	Bottineau
11251	163	81	5	NWSW	WILDCAT	Bottineau
11010	163	81	6	NWSE	UNNAMED	Bottineau
8698	163	81	7	SWSW	WILDCAT	Bottineau
4846	163	81	8	NENW	UNNAMED	Bottineau
5251	163	81	9	NWSE	WILDCAT	Bottineau
3554	163	81	10	NESE	KUROKI EXT.	Bottineau
5638	163	81	11	SESE	KUROKI	Bottineau
8502	163	81	12	NENW	KUROKI	Bottineau
5768	163	81	13	NWNW	KUROKI EXT.	Bottineau
1839	163	81	14	SENW	KUROKI EXT.	Bottineau
8045	163	81	19	NWSW	BAUMANN DRAIN	Bottineau
2006	163	81	20	SESE	WILDCAT	Bottineau
5250	163	81	22	SWNE	WILDCAT	Bottineau
12483	163	81	23	NESW	HULSE COULEE	Bottineau
1510	163	81	24	NWSE	WILDCAT	Bottineau
11398	163	81	26	NENW	HULSE COULEE	Bottineau
8635	163	81	27	NESW	WILDCAT	Bottineau
5238	163	81	28	SWSW	WILDCAT	Bottineau
10768	163	81	29	SWNE	WILDCAT	Bottineau
5193	163	81	30	NWNW	BAUMANN DRAIN	Bottineau
3250	163	81	31	SESW	WILDCAT	Bottineau
3876	163	81	32	NENW	WILDCAT	Bottineau
11924	163	81	33	NWSE	WILDCAT	Bottineau
1920	163	81	35	NENW	WILDCAT	Bottineau
11864	163	81	36	SWSW	WILDCAT	Bottineau
1353	163	82	4	NENE	WILDCAT	Bottineau
3726	163	82	5	SWNW	WILDCAT	Bottineau
4114	163	82	7	NWNW	NORTH HAAS EXT.	Bottineau
4378	163	82	8	SESW	NORTH HAAS EXT.	Bottineau
5324	163	82	9	SWNW	NORTH HAAS EXT.	Bottineau
3764	163	82	10	SENW	WILDCAT	Bottineau

WELL	TO.	RA.	SEC.	QUART.	FIELD	COUNTY
11445	163	82	12	SESW	WILDCAT	Bottineau
338	163	82	14	NWSW	WILDCAT	Bottineau
4219	163	82	15	SESW	NORTH HAAS EXT.	Bottineau
4186	163	82	16	SESE	NORTH HAAS	Bottineau
11646	163	82	17	NWNW	NORTH HAAS	Bottineau
11120	163	82	19	SESW	NORTH HAAS	Bottineau
11121	163	82	20	SWSW	NORTH HAAS	Bottineau
12136	163	82	21	SWNW	NORTH HAAS	Bottineau
8249	163	82	22	NWSE	NORTH HAAS	Bottineau
8320	163	82	23	NWSE	BAUMANN DRAIN	Bottineau
8319	163	82	24	NWSW	BAUMANN DRAIN	Bottineau
4753	163	82	25	NESE	WILDCAT	Bottineau
3699	163	82	26	SENW	WILDCAT	Bottineau
11565	163	82	27	SWSW	NORTH HAAS EXT.	Bottineau
11324	163	82	28	NENW	NORTH HAAS EXT.	Bottineau
11772	163	82	29	NWNE	NORTH HAAS	Bottineau
11279	163	82	30	SENE	NORTH HAAS	Bottineau
911	163	82	31	NENE	WILDCAT	Bottineau
12798	163	82	32	SWNE	WILDCAT	Bottineau
3467	163	82	34	NWNW	WILDCAT	Bottineau
8918	163	82	36	SENE	WILDCAT	Bottineau
5647	163	83	2	NENW	WILDCAT	Bottineau
3640	163	83	3	NENE	WILDCAT	Bottineau
3438	163	83	4	NESW	SOUTH ANTLER CREEK	XBottineau
11030	163	83	5	SESW	SOUTH ANTLER CREEK	XBottineau
5963	163	83	7	NWNW	WILDCAT	Bottineau
1264	163	83	10	SWSE	WILDCAT	Bottineau
8321	163	83	11	NESW	NORTH HAAS EXT.	Bottineau
10290	163	83	12	NWSW	NORTH HAAS EXT.	Bottineau
3721	163	83	13	SENE	NORTH HAAS	Bottineau
10176	163	83	14	SWSW	NORTH HAAS	Bottineau
3074	163	83	15	SESE	HAAS	Bottineau
3770	163	83	16	NWSE	HAAS	Bottineau
3115	163	83	17	SENE	HAAS EXT.	Bottineau
6343	163	83	18	SENE	WILDCAT	Bottineau
1325	163	83	20	SESE	WILDCAT	Bottineau
3068	163	83	21	SENE	HAAS	Bottineau
11546	163	83	22	SESW	HAAS	Bottineau
12000	163	83	23	SESE	HAAS	Bottineau
8589	163	83	24	SWNE	NORTH HAAS	Bottineau
6738	163	83	25	SENW	HAAS	Bottineau
7598	163	83	26	SWSE	HAAS	Bottineau
6670	163	83	27	NENE	HAAS	Bottineau
5327	163	83	32	NWSE	SOUTHWEST HAAS	Bottineau
10049	163	83	33	SENW	SOUTHWEST HAAS	Bottineau
6722	163	83	35	SENE	HAAS	Bottineau
6671	163	83	36	NESW	HAAS	Bottineau
8842	163	84	1	SWSW	ELMORE EXT.	Renville
5295	163	84	2	SESW	ELMORE EXT.	Renville
3817	163	84	4	NENE	ELMORE EXT.	Renville
11100	163	84	6	NWNW	SHERWOOD EXT.	Renville

WELL	TO.	RA.	SEC.	QUART.	FIELD	COUNTY
5290	163	84	7	SWNE	WILDCAT	Renville
12762	163	84	8	NENW	WILDCAT	Renville
814	163	84	13	NWNW	WILDCAT	Renville
11910	163	84	14	SWSW	EDEN VALLEY	Renville
3212	163	84	15	NESE	EDEN VALLEY	Renville
9624	163	84	16	NESW	WILDCAT	Renville
5740	163	84	17	NENE	WILDCAT	Renville
2785	163	84	18	NESE	WILDCAT	Renville
11867	163	84	20	NWSE	WILDCAT	Renville
10946	163	84	21	SWNW	WILDCAT	Renville
4693	163	84	22	SWSE	EDEN VALLEY	Renville
11855	163	84	23	NWSE	EDEN VALLEY EXT.	Renville
2640	163	84	24	SENW	WILDCAT	Renville
11399	163	84	25	SWSW	HURLEY EXT.	Renville
11040	163	84	26	NWSE	EDEN VALLEY EXT.	Renville
7491	163	84	27	SENW	EDEN VALLEY	Renville
6245	163	84	28	SENE	EDEN VALLEY EXT.	Renville
960	163	84	30	SENE	WILDCAT	Renville
8012	163	84	32	NESW	WILDCAT	Renville
4612	163	84	34	NWNW	WILDCAT	Renville
11304	163	84	35	NWSE	HURLEY	Renville
5835	163	84	36	NESW	WILDCAT	Renville
11124	163	85	1	SWSW	SHERWOOD EXT.	Renville
3881	163	85	2	NWSE	SHERWOOD	Renville
8504	163	85	3	SENW	SHERWOOD	Renville
1726	163	85	3	SENW	SHERWOOD	Renville
5806	163	85	4	NWNW	WEST SHERWOOD	Renville
10410	163	85	5	NWSW	WEST SHERWOOD EXT.	Renville
3434	163	85	6	NWNW	WILDCAT	Renville
6732	163	85	7	SWSW	BLUELL	Renville
3737	163	85	8	NWSE	WILDCAT	Renville
9600	163	85	9	NWNW	WEST SHERWOOD EXT.	Renville
3816	163	85	10	SENW	SHERWOOD	Renville
1239	163	85	12	NWSW	WILDCAT	Renville
10666	163	85	13	NESE	WILDCAT	Renville
3011	163	85	14	NESE	WILDCAT	Renville
4166	163	85	15	SENE	WILDCAT	Renville
6458	163	85	17	NESW	WILDCAT	Renville
6123	163	85	18	SWNW	BLUELL	Renville
3973	163	85	19	NWSW	WILDCAT	Renville
3253	163	85	20	NESE	WILDCAT	Renville
8636	163	85	21	NENE	WILDCAT	Renville
3806	163	85	23	SESW	WILDCAT	Renville
6703	163	85	25	NENW	WILDCAT	Renville
11411	163	85	26	SWNW	COLQUHOUN EXT.	Renville
5649	163	85	30	NWNE	WILDCAT	Renville
4165	163	85	32	SENW	WILDCAT	Renville
11294	163	85	34	SESE	COLQUHOUN	Renville
4132	163	85	35	NWNW	COLQUHOUN	Renville
6410	163	86	2	SWNE	WILDCAT	Renville
2581	163	86	3	SESW	PROSPERITY	Renville

WELL	TO.	RA.	SEC.	QUART.	FIELD	COUNTY
9921	163	86	4	SESE	WILDCAT	Renville
5808	163	86	6	NWNW	PLEASANT	Renville
8686	163	86	7	SESE	PLEASANT EXT.	Renville
5917	163	86	8	NWNW	PLEASANT EXT.	Renville
4839	163	86	9	SWNE	WILDCAT	Renville
4512	163	86	10	SWNW	WILDCAT	Renville
7473	163	86	11	SWNW	BLUELL EXT.	Renville
5101	163	86	12	SESW	BLUELL EXT.	Renville
11379	163	86	13	NESE	BLUELL	Renville
3683	163	86	14	NENW	BLUELL EXT.	Renville
3599	163	86	17	SWSE	WILDCAT	Renville
1007	163	86	23	NWNE	BLUELL	Renville
11535	163	86	24	NENW	BLUELL	Renville
1040	163	86	26	NWNE	BLUELL EXT.	Renville
4017	163	86	27	SENW	BLUELL	Renville
1822	163	86	29	NENW	WILDCAT	Renville
12046	163	86	32	NENW	WILDCAT	Renville
3719	163	86	35	SESW	SEVENMILE COULEE EXT	Renville
5760	163	87	1	NWNW	PLEASANT	Renville
5592	163	87	2	SENE	PLEASANT	Renville
6749	163	87	3	NWSE	NEWPORTE	Renville
12043	163	87	4	SENW	NEWPORTE	Renville
6436	163	87	5	NESE	NEWPORTE	Renville
12083	163	87	7	NENE	WILDCAT	Renville
6296	163	87	9	NESW	DES LACS	Renville
6401	163	87	10	NESW	NEWPORTE EXT.	Renville
5556	163	87	11	SENE	PLEASANT	Renville
5834	163	87	12	SESW	PLEASANT	Renville
8533	163	87	13	NENE	PLEASANT EXT.	Renville
6473	163	87	16	NENE	NEWPORTE EXT.	Renville
12497	163	87	22	SENW	WILDCAT	Renville
3912	163	87	24	NESE	WILDCAT	Renville
4977	163	87	29	NESE	WILDCAT	Renville
10263	163	88	1	NWSW	WILDCAT	Burke
9424	163	88	8	NENW	WILDCAT	Burke
1080	163	88	11	SESE	WILDCAT	Burke
1490	163	88	31	SESE	WILDCAT	Burke
10264	163	88	34	NWSW	WILDCAT	Burke
8941	163	89	6	SESE	WILDCAT	Burke
10382	163	89	11	NWNW	NORTHGATE	Burke
2800	163	89	13	SWNW	NORTH STAR EXT.	Burke
11765	163	89	15	NESW	NORTH STAR EXT.	Burke
1573	163	89	17	NESW	WILDCAT	Burke
11641	163	89	22	NWNW	NORTH STAR	Burke
6877	163	89	23	NWNW	NORTH STAR	Burke
4526	163	89	27	SESE	NORTH STAR EXT.	Burke
3530	163	89	28	NESW	NORTH STAR EXT.	Burke
6031	163	89	29	SWSW	PERELLA EXT.	Burke
10619	163	89	30	NESW	PERELLA	Burke
6204	163	89	31	NENE	PERELLA	Burke
2653	163	89	35	SWSW	WILDCAT	Burke

WELL	TO.	RA.	SEC.	QUART.	FIELD	COUNTY
3408	163	90	1	SENW	WILDCAT	Burke
11382	163	90	12	SESW	WILDCAT	Burke
12126	163	90	13	NENW	WILDCAT	Burke
1076	163	90	22	NENE	STONY RUN	Burke
2074	163	90	26	NWNW	STONY RUN EXT.	Burke
5969	163	90	34	SESE	WOBURN	Burke
6572	163	90	35	SESW	WOBURN EXT.	Burke
359	164	74	36	SWSE	WILDCAT	Bottineau
1411	164	76	31	NESE	WILDCAT	Bottineau
10318	164	77	28	SWSW	NORTH SOURIS	Bottineau
5127	164	77	30	SWSW	WILDCAT	Bottineau
11685	164	77	31	NENW	SOURIS	Bottineau
3202	164	77	32	SWSW	NORTH SOURIS EXT.	Bottineau
10043	164	77	33	NWNE	NORTH SOURIS	Bottineau
4115	164	77	34	NWSW	NORTH SOURIS EXT.	Bottineau
4818	164	77	35	NESW	WILDCAT	Bottineau
9313	164	78	25	SWSE	SOURIS	Bottineau
11518	164	78	26	SWSW	SOURIS	Bottineau
11909	164	78	27	SWSE	SOURIS	Bottineau
6285	164	78	31	SWSE	NORTHEAST LANDA	Bottineau
10304	164	78	32	NWSW	NORTHEAST LANDA	Bottineau
10552	164	78	33	SESW	NORTHEAST LANDA	Bottineau
10097	164	78	34	NWNE	SOURIS	Bottineau
11488	164	78	35	SWNW	SOURIS	Bottineau
11461	164	78	36	SWNE	SOURIS	Bottineau
3775	164	79	32	SENE	WILDCAT	Bottineau
5349	164	79	33	SENE	NORTHEAST LANDA EXT.	Bottineau
10706	164	79	34	SENW	NORTHEAST LANDA	Bottineau
3481	164	79	35	NWSE	NORTHEAST LANDA	Bottineau
11662	164	79	36	NWNW	NORTHEAST LANDA	Bottineau
623	164	80	27	SESE	NORTH WESTHOPE EXT.	Bottineau
3593	164	80	32	SWNW	WILDCAT	Bottineau
6874	164	80	33	SESE	WILDCAT	Bottineau
9966	164	80	34	SWSW	RICHBURG	Bottineau
10462	164	80	35	SWNE	NORTH WESTHOPE	Bottineau
3738	164	80	36	SESE	NORTH WESTHOPE	Bottineau
1470	164	81	27	SWSE	WILDCAT	Bottineau
4780	164	81	33	SENE	WILDCAT	Bottineau
4053	164	81	35	NENE	WILDCAT	Bottineau
1149	164	81	36	NWNE	WILDCAT	Bottineau
3706	164	82	35	NESW	WILDCAT	Bottineau
5652	164	83	29	SWSW	SOUTH ANTLER CREEK	Bottineau
3949	164	83	30	NWNE	SOUTH ANTLER CREEK	Bottineau
4029	164	83	31	NENW	SOUTH ANTLER CREEK	Bottineau
8946	164	83	32	SWSE	SOUTH ANTLER CREEK	Bottineau
8284	164	83	33	SESE	WHEATON	Bottineau
8216	164	83	34	SESE	WHEATON	Bottineau
4156	164	83	35	NESW	WILDCAT	Bottineau
9032	164	84	25	SWSE	SOUTH ANTLER CREEK	Renville
9673	164	84	26	SWSW	ELMORE	Renville
10261	164	84	27	SESE	ELMORE	Renville

WELL	TO.	RA.	SEC.	QUART.	FIELD	COUNTY
9229	164	84	28	SESW	ELMORE	Renville
7684	164	84	30	SWSW	SHERWOOD	Renville
9305	164	84	31	NWSW	SHERWOOD	Renville
8120	164	84	32	NENE	ELMORE EXT.	Renville
5800	164	84	33	NWSW	ELMORE EXT.	Renville
12639	164	84	34	SENE	ELMORE	Renville
10314	164	84	35	NWNW	ELMORE	Renville
8989	164	84	36	NWSW	ELMORE	Renville
11682	164	85	25	SWSW	SHERWOOD	Renville
3651	164	85	26	SWSW	SHERWOOD	Renville
3038	164	85	27	SESW	SHERWOOD EXT.	Renville
12733	164	85	28	SWSE	WEST SHERWOOD	Renville
9980	164	85	29	SESE	WEST SHERWOOD EXT.	Renville
2656	164	85	30	SESW	WILDCAT	Renville
5926	164	85	31	SWNE	WILDCAT	Renville
6754	164	85	32	SESE	WEST SHERWOOD EXT.	Renville
5451	164	85	33	NWSE	WEST SHERWOOD	Renville
12622	164	85	34	SWSE	SHERWOOD	Renville
12764	164	85	35	SWNE	SHERWOOD	Renville
11334	164	85	35	SWNW	SHERWOOD	Renville
12456	164	85	36	NESW	SHERWOOD	Renville
4200	164	86	29	SWSE	WILDCAT	Renville
9637	164	86	30	SESW	PLEASANT EXT.	Renville
1087	164	86	31	NWNE	WILDCAT	Renville
5942	164	86	32	NWSW	PLEASANT EXT.	Renville
3629	164	86	33	SESE	WILDCAT	Renville
3826	164	86	34	NWNW	WILDCAT	Renville
3906	164	86	36	SWNW	WILDCAT	Renville
6561	164	87	32	SENW	NEWPORTE EXT.	Renville
6349	164	87	34	SWSW	NEWPORTE	Renville
6022	164	87	35	NENE	PLEASANT EXT.	Renville
5756	164	87	36	SESE	PLEASANT	Renville
10262	164	88	31	NWSE	WILDCAT	Burke
8841	164	88	34	SESW	WILDCAT	Burke
10423	164	88	36	SESW	WILDCAT	Burke
12509	164	89	32	SENE	WILDCAT	Burke

LSD	SEC.	TO.	RA.	PROVINCE
13	36	1	18W1	Manitoba
6	21	1	19W1	Manitoba
14	29	1	20W1	Manitoba
16	23	1	21W1	Manitoba
10	14	1	25W1	Manitoba
16	15	1	25W1	Manitoba
2	22	1	25W1	Manitoba
10	23	1	25W1	Manitoba
10	27	1	25W1	Manitoba
1	30	1	25W1	Manitoba
14	33	1	25W1	Manitoba
9	13	1	26W1	Manitoba
7	16	1	26W1	Manitoba

LSD	SEC.	TO.	RA.	PROVINCE
16	18	1	26W1	Manitoba
12	19	1	27W1	Manitoba
1	3	1	28W1	Manitoba
1	16	1	28W1	Manitoba
1	11	2	28W1	Manitoba
1	22	2	28W1	Manitoba
15	5	1	30W1	Manitoba
3	6	1	30W1	Sask.
11	30	1	30W1	Sask.
11	31	1	30W1	Sask.
13	32	1	30W1	Sask.
5	3	1	31W1	Sask.
6	4	1	31W1	Sask.
1	5	1	31W1	Sask.
5	6	1	31W1	Sask.
9	8	1	31W1	Sask.
15	12	1	31W1	Sask.
13	16	1	31W1	Sask.
13	17	1	31W1	Sask.
1	20	1	31W1	Sask.
15	23	1	31W1	Sask.
5	30	1	31W1	Sask.
1	35	1	31W1	Sask.
3	1	1	32W1	Sask.
3	2	1	32W1	Sask.
9	3	1	32W1	Sask.
3	4	1	32W1	Sask.
3	5	1	32W1	Sask.
3	8	1	32W1	Sask.
3	10	1	32W1	Sask.
3	12	1	32W1	Sask.
7	14	1	32W1	Sask.
5	19	1	32W1	Sask.
1	23	1	32W1	Sask.
15	26	1	32W1	Sask.
1	27	1	32W1	Sask.
3	33	1	32W1	Sask.
9	7	1	33W1	Sask.
9	9	1	33W1	Sask.
1	12	1	33W1	Sask.
7	17	1	33W1	Sask.
9	23	1	33W1	Sask.
9	11	1	34W1	Sask.
12	27	1	34W1	Sask.
3	6	2	33W1	Sask.
9	10	2	33W1	Sask.
7	26	2	33W1	Sask.
5	1	2	34W1	Sask.

Appendix B - Well-logs with the Madison Groups intervals tops given.

WELL	Mad.	Rat.	M.A.	Mid.	RI	StA	Blu	SAM	Sher.	K-1	Mo.	K-2	Glen.
2530	2575	0	0	0	0	N/A	N/A	2644	2650	2617	2625	2640	2645
5978	2927	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5765	2968	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2504	2990	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1631	3154	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2489	3340	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8307	3500	0	3600	3630	3634	3650	3653	3668	3674	3676	3690	3740	3766
1668	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6711	3704	3782	3882	3906	3918	3954	3960	3982	3990	4016	4030	4054	4064
10741	3819	3924	4022	4048	4080	4100	4108	4127	4133	4142	4151	4164	4170
5531	4300	4540	4650	4678	4710	4737	4740	4750	4753	4796	4810	4828	4839
8323	4174	4380	4485	4512	4546	4568	4575	4610	4620	4666	4680	4696	4713
47	4185	0	4758	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2929	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
656	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6100	0	4780	4894	4920	4955	4976	4985	N/A	5020	5054	5069	5093	5102
5304	5226	5467	5602	5633	5680	5702	5713	5726	5730	5760	5770	5799	5834
6725	5211	5450	5584	5615	5659	5686	5696	5720	5778	5818	N/A	N/A	N/A
5723	5154	5394	5528	5560	5606	5638	5643	5670	5675	5685	5695	5727	5752
4155	5060	5296	5452	5475	5517	5547	5553	5572	5580	5589	5600	5631	5646
3824	5648	5914	6044	6081	6117	6141	6155	6200	6208	6230	6242	6289	6304
4799	5742	5966	6104	6136	6166	6204	6211	6258	6270	6292	6302	6333	6357
3039	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8412	5294	5533	5668	5705	5727	5770	5783	5801	5810	5822	5830	5862	5882
6008	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6006	5894	6138	6279	6301	6349	6382	6388	6404	6410	6430	6440	6475	6490
5077	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8547	5494	5902	6042	6078	6120	6145	6155	6204	6210	6256	6260	6298	6314
4159	5410	5814	5958	5990	6022	6064	6071	6120	6132	6162	6172	6196	6206
4658	5842	6090	6233	6270	6293	6330	6336	6366	6372	6386	6396	6426	6440
8939	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11076	5963	6244	6296	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6610	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5860	5807	6028	6160	6170	6200	6230	6240	6318	6326	6356	6364	N/A	N/A
10601	5820	6170	6200	6232	6265	6306	6314	6346	6354	6386	6394	N/A	N/A

WELL	Mad.	Rat.	M.A.	Mid.	Riv.	StA	Blu.	SAM	Sher.	K-1	Mo.	K-2	Glen.
12512	5838	6080	6208	6234	6270	6310	6316	6350	6358	6392	6400	N/A	N/A
6934	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5962	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3963	0	0	0	6478	0	6545	6570	N/A	6595	6641	N/A	N/A	N/A
5223	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5444	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5075	6215	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5180	5960	6188	6307	6355	6381	6420	6428	6462	6470	6505	6515	N/A	N/A
11308	6142	6392	6504	6556	6581	6608	6616	6634	6649	6742	6768	N/A	N/A
5468	6136	6380	6500	6530	6564	6590	6600	N/A	N/A	N/A	N/A	N/A	N/A
10505	6219	6475	6510	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11808	6222	6478	6600	6630	6653	6691	6700	6756	6762	6814	6840	N/A	N/A
6459	6152	6402	6534	6564	6595	6630	6640	6660	6680	N/A	N/A	N/A	N/A
4768	5910	6333	6460	6496	6525	6565	6660	6684	N/A	N/A	N/A	N/A	N/A
5058	5800	6240	6380	6418	6436	6484	6490	6528	6533	N/A	N/A	N/A	N/A
5095	0	0	6400	6430	6457	6500	6510	6546	6552	N/A	N/A	N/A	N/A
10491	6114	6379	6420	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11669	6230	6480	6610	6636	6670	6709	6721	6758	6763	6800	6812	6878	6890
7711	6260	6520	6648	6678	6718	6750	6758	6794	6800	6937	6847	6920	6937
5795	6074	6321	6414	6504	6527	6569	6576	6618	6625	6670	6680	N/A	N/A
7612	6392	6650	6754	6768	6810	6859	6870	6908	6916	6970	6982	7068	7078
8749	6316	6576	6680	6706	6753	6778	6792	N/A	N/A	6942	6962	7018	7030
7368	6948	7230	7370	7396	7420	7470	7482	7493	7504	7568	7576	7692	7704
6764	7120	7410	7556	7580	7606	7625	7642	7662	7666	N/A	N/A	7898	7908
12032	7320	7620	7792	7820	7848	7880	7886	8005	8014	8032	8042	8082	8098
12472	7331	7626	7774	7800	7827	N/A	N/A	N/A	N/A	N/A	N/A	8110	8122
8949	7374	7672	7822	7848	7873	7892	7907	N/A	N/A	N/A	N/A	8200	8210
11900	7436	7740	7894	7917	7947	7963	7970	7990	7996	8090	8106	8218	8228
7369	7480	7780	7937	7960	7986	8010	8023	8030	8036	8150	8164	8244	8256
10810	7644	7790	7950	7972	8010	8026	8038	8048	8054	8108	8124	8246	8256
7220	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
474	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8157	7524	7830	7994	8016	8044	8066	8080	8124	8130	8186	8196	8265	8274
6885	7513	7818	7974	7998	8024	8042	8060	8076	8086	8190	8202	N/A	N/A
9243	7368	7676	7834	7858	7888	7912	7926	7944	7956	8152	8182	8490	8500

WELL	Mad.	Rat.	M.A.	Mid.	Riv.	StA	Blu.	SAM	Sher.	K-1	Mo.	K-2	Glen.
7674	7486	7796	7950	7982	8010	8033	8052	8062	8068	8256	8266	N/A	N/A
12230	7470	7799	7948	7978	8005	8030	8045	8055	8060	8175	8190	N/A	N/A
12231	7574	7892	8062	8092	8122	8143	8164	8184	8192	N/A	N/A	N/A	N/A
560	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2827	2580	0	2626	2642	0	2672	2678	2698	2706	2760	2772	2784	2795
6357	2918	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5802	3000	0	3054	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5206	3004	0	3052	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
387	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5022	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10513	3152	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
358	3178	0	3278	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5185	3255	0	3322	3334	0	3358	3362	3396	3403	3520	3528	3600	3610
4536	3328	0	3360	0	0	3420	3432	N/A	N/A	3564	3580	3650	3660
2479	3204	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3270	3420	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1354	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3175	3420	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5059	3622	3700	3803	3824	3856	3874	3883	3896	3919	3939	3951	3967	3980
3670	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6439	3676	3747	3842	3869	3899	3918	3927	3950	3958	3980	3992	4005	4031
4148	3612	3663	3764	3798	3819	3840	3849	3864	3874	3904	3919	3938	3956
10283	3700	3780	3878	3912	3938	3954	3964	3983	3989	4000	4011	4020	4030
4112	3942	4108	4204	4234	4265	4283	4290	4315	4319	4329	4340	4356	4364
0819	4100	4288	4393	4418	4452	4469	4475	4500	4508	4518	4531	4549	4559
3124	4138	4324	4429	4453	4490	4511	4517	4542	4546	4557	4572	4590	4603
6314	4177	4368	4470	4496	4530	4552	4558	4581	4587	4600	4616	4634	4645
4923	4162	4328	4440	4468	4507	4526	4534	4559	4568	4578	4593	4618	4628
5563	4240	4450	4552	4571	4608	4641	4644	4674	4678	4688	4700	4728	4740
5923	4170	4374	4475	4512	4549	4566	4574	4594	4605	4618	4628	4654	4667
2946	4040	4202	4305	4334	4365	4373	4394	4412	4419	4429	4441	4456	4468
11055	4278	4460	4578	4610	4650	4672	4681	4724	4734	4761	4780	4803	4815
3501	4118	4430	4434	4460	4494	4511	4520	4535	4544	4561	4571	4592	4600
12412	4272	4420	4534	4562	4603	4624	4631	4656	4663	4674	4690	4715	4726
5139	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

WELL	Mad.	Rat.	M.A.	Mid.	Riv.	StA	Blu.	SAM	Sher.	K-1	Mo.	K-2	Glen.
4343	4398	4631	4744	4777	4800	4838	4844	4870	4878	4894	4908	4936	4947
8211	4432	4640	4754	4780	4823	4850	4854	4865	4892	4907	4922	4956	4967
5300	4445	4652	4762	4796	4824	4858	4864	4896	4900	4916	4930	4966	4975
4117	4430	4641	4754	4784	4823	4848	4852	4870	4885	4900	4911	4944	4956
5149	4430	4675	4767	4817	0	4842	4846	4906	4920	4946	4957	4992	5007
1138	4511	4750	4868	4895	4927	4966	4980	4996	5010	5030	5054	5088	5100
4145	4496	4666	4786	4811	4849	4884	4888	4922	4928	4948	4962	5002	5010
4805	4589	4824	4949	4976	5019	5046	5052	5074	5088	5111	5123	5160	5170
126	4765	5001	5126	0	0	5224	5232	5254	5268	5286	5304	5334	5345
8541	4840	5070	5204	5235	5280	5308	5316	5339	5362	5390	5404	5442	5458
4400	4816	5058	5184	5218	5252	5287	5294	5328	5337	5366	5382	5431	5440
4990	4920	5190	5328	5356	5391	5471	5478	5486	5493	5510	5521	5574	5586
12742	5106	5344	5478	5509	5555	5583	5590	5631	5644	5672	5687	5740	5750
3812	5149	5500	5629	5663	5735	5827	5839	5864	5871	5882	5891	5941	5959
3984	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11701	5186	5460	5503	5604	5680	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
52	5060	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6073	5876	6070	6190	6218	6250	6286	6298	6354	6365	6382	6395	N/A	N/A
1438	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3125	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6223	5708	5950	6074	6100	6137	6176	6185	6224	6234	6265	6276	N/A	N/A
8109	5818	6060	6175	6200	6237	6270	6282	N/A	N/A	6360	6370	N/A	N/A
5368	5906	6150	6272	6300	6330	N/A	N/A	6420	6430	6465	6475	N/A	N/A
8056	6005	6252	6370	6400	6435	6468	6474	6508	6514	6560	6570	N/A	N/A
6932	5960	6218	6324	6354	6380	N/A	N/A	6466	6471	6510	6520	N/A	N/A
6440	5845	6084	6202	6230	6262	6300	6308	6345	6351	6384	6394	N/A	N/A
6012	5814	6058	6186	6217	6251	6290	6296	6340	6346	6380	6389	N/A	N/A
6043	5878	6074	6192	6233	6258	6298	6306	6343	6351	6380	6390	N/A	N/A
5520	5917	6120	6284	6310	6350	6392	6400	6436	6441	N/A	N/A	N/A	N/A
7696	6042	6290	6406	6432	6464	6504	6512	N/A	N/A	N/A	N/A	N/A	N/A
8376	6084	6323	6435	6465	6488	6530	6538	N/A	N/A	N/A	N/A	N/A	N/A
9094	5994	6240	6362	6388	6424	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4835	5864	6118	6242	6280	6310	6350	6356	6395	6402	6434	6442	N/A	N/A
4639	5850	6074	6194	6234	6264	6295	6305	6345	6351	N/A	N/A	N/A	N/A
7042	6030	6278	6410	6436	6470	6516	6522	6564	6574	N/A	N/A	N/A	N/A

WELL	Mad.	Rat.	M.A.	Mid.	Riv.	StA	Blu.	SAM	Sher.	K-1	Mo.	K-2	Glen.
4216	6190	6447	6550	6580	6613	6646	6660	N/A	N/A	N/A	N/A	N/A	N/A
3581	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9983	6596	6860	6994	7023	7056	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10044	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9758	6712	6978	7104	7130	7163	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7847	7343	7644	7794	7815	7844	7870	7882	N/A	N/A	N/A	N/A	N/A	N/A
7626	7304	7608	7758	7780	7806	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9757	7154	7452	7598	7625	7662	7676	7690	7716	7721	7816	7826	7910	7921
6635	7356	7658	7818	7842	7874	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
780	2714	0	0	0	0	N/A	N/A	N/A	N/A	0	0	0	0
2728	2903	0	0	0	0	N/A	N/A	N/A	N/A	0	0	0	0
1457	2892	0	0	0	0	N/A	N/A	N/A	N/A	0	0	0	0
5081	2971	0	0	0	0	3091	3100	3118	3124	3139	3149	3170	3180
2567	2966	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2610	3013	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2629	2978	0	0	0	0	N/A	N/A	N/A	N/A	0	0	0	0
1471	3000	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2312	3220	0	0	0	0	N/A	N/A	N/A	N/A	0	0	0	0
5279	3170	0	0	0	0	N/A	N/A	N/A	N/A	0	0	0	0
2642	3350	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1674	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
39	3460	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2011	3490	3548	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1986	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3229	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5240	3614	3682	3776	0	0	3851	3858	3871	3880	3888	3898	3910	3920
9045	3595	3626	3726	3754	3770	3805	3811	3838	3841	3847	3860	3874	3883
2402	3556	3612	3717	3752	3777	3796	3802	3828	3832	3870	3880	3900	3910
5136	3553	3575	3674	3700	3730	3752	3760	3787	3790	3825	3835	3850	3870
10917	3608	3670	3772	3800	3830	3850	3858	3880	3883	3912	3918	3943	3960
5983	3619	3690	3790	3819	3849	3870	3874	3890	3904	3910	3920	3936	3950
7568	3671	3787	3888	3926	3940	3965	3973	4000	4003	4011	4020	4035	4048
3201	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3759	3594	0	3778	0	0	N/A	N/A	N/A	N/A	3924	3932	3946	3960
3453	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

WELL	Mad.	Rat.	M.A.	Mid.	Riv.	StA	Blu.	SAM	Sher.	K-1	Mo.	K-2	Glen.
2956	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3107	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5982	3773	3899	4007	4037	4060	4084	4093	4114	4121	4141	4148	4166	4180
5066	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3071	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10553	3791	3908	4012	4041	4060	4092	4101	4124	4130	4163	4174	4189	4202
883	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1632	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3189	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4021	4189	4350	4458	4488	4513	4550	4554	4580	4592	4606	4620	4652	4665
10403	4200	4352	4462	4492	4519	4456	4462	4580	4595	4612	4622	4654	4666
3485	4010	4160	4270	4295	4321	4355	4364	4425	4450	4494	4497	4500	4519
4372	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11213	4100	4249	4362	4395	4434	4456	4462	4494	4506	4555	4572	4599	4618
11868	4243	4400	4510	4539	4582	4606	4610	4625	4650	4666	4682	4708	4719
4409	4184	4301	0	4526	0	N/A	N/A	N/A	4426	4439	4452	4471	4499
5275	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4209	4132	4417	4500	4531	4555	N/A	N/A	N/A	4620	4631	4641	4671	4700
6023	4278	4454	4516	4596	4620	4642	N/A	N/A	4692	4708	4730	4748	4772
3952	4270	4444	4555	0	0	N/A	N/A	4710	4722	4734	4745	4774	4816
5498	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2017	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6404	4308	4465	4580	4613	4643	4681	4686	4728	4738	4746	4751	4800	4825
6005	4394	4555	4669	4700	4742	4770	4781	4804	4810	4825	4840	4877	4896
5079	4316	4490	4606	4634	4668	4702	4716	4738	4747	4781	4796	4828	4840
5236	4471	4643	4764	4792	4835	4859	4865	4893	4905	4920	4928	4967	5000
5542	4439	4614	4730	4759	4800	4824	4831	4864	4873	4889	4904	4937	4952
6871	4379	4620	4732	4762	4803	4826	4832	4866	4872	4894	4907	4941	4969
6486	4354	4554	4664	4694	4718	4761	4768	N/A	4794	4846	4860	4893	4939
5539	4392	4540	4664	4695	4740	4766	4780	4804	4809	4834	4850	4887	4903
7055	4693	4868	4988	5019	5065	5093	5108	5131	5140	5168	5179	5222	5232
6502	4821	4996	5125	5153	5204	5227	5234	5284	5291	5324	5337	5382	5396
9293	5020	5228	5352	5385	5429	5456	5466	5505	5515	5547	5564	5596	5605
12690	5052	5306	5433	5462	5498	5534	5548	5586	5596	5632	5650	5689	5702
9499	4958	5208	5332	5360	5400	5436	5447	5484	5492	5530	5548	5581	5593

WELL	Mad.	Rat.	M.A.	Mid.	Riv.	StA	Blu.	SAM	Sher.	K-1	Mo.	K-2	Glen.
7910	4834	5060	5188	5222	5267	5294	5313	5340	5353	5383	5400	5444	5461
6201	4994	5223	5341	5371	5407	5446	5450	5465	5480	5493	5500	5531	5551
11095	5135	5392	5504	5535	5565	5605	5612	5649	5657	5686	5696	N/A	N/A
4251	5496	5705	5814	5849	5873	5961	5965	5977	5982	5996	6006	6026	6033
392	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6032	5100	5351	5477	5507	5551	5581	5590	5610	5616	5630	5644	5673	5686
5809	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4630	5660	5903	6016	6040	6082	6114	6119	6143	6150	6180	6186	6220	6229
3837	5598	5771	5894	0	0	N/A	N/A	6049	6060	6082	6090	6107	6119
10551	5573	5802	5902	5926	5963	6004	6008	6050	6056	6122	6134	N/A	N/A
12710	5418	5654	0	5758	5819	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12694	5810	6088	0	6190	6249	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9077	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8170	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3552	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4956	5544	5787	5890	5922	5957	5997	6005	6050	6056	6090	6100	N/A	N/A
9550	5667	5907	6005	6043	6071	6114	6125	6166	6174	N/A	N/A	N/A	N/A
7710	5775	6018	6124	6150	6188	6242	6250	6278	6284	6332	6342	N/A	N/A
8057	5958	6206	6306	6334	6354	6400	6415	6450	6458	N/A	N/A	N/A	N/A
7043	5958	6204	6314	6342	6366	6407	6412	6456	6464	N/A	N/A	N/A	N/A
6978	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11666	5932	6170	6268	6292	6320	6356	6364	6424	6432	6498	6512	6640	6650
11829	6085	6320	6424	6450	6480	N/A	N/A	N/A	6533	6576	6588	6655	6664
3256	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10309	6260	6522	6626	6652	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11486	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9150	6145	6338	6486	6516	6544	6576	6590	6638	6650	6714	6733	N/A	N/A
12721	5987	6222	6322	6347	6379	6400	6413	6432	6440	6484	6494	6575	6590
5707	5905	6150	6254	6280	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7960	5914	6150	6250	6275	6300	6335	6344	N/A	N/A	N/A	N/A	N/A	N/A
4569	6206	6445	6546	6577	6600	6630	6639	N/A	N/A	N/A	N/A	N/A	N/A
1503	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4794	6214	6458	6570	6600	6632	6661	6674	6682	6690	6732	6742	6808	6818
3995	6092	6342	6432	6468	6484	6518	6528	6540	6545	6592	6602	6672	6688
6295	6157	6404	6510	6542	6556	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

WELL	Mad.	Rat.	M.A.	Mid.	Riv.	StA	Blu.	SAM	Sher.	K-1	Mo.	K-2	Glen.
7646	N/A	N/A	N/A	6514	N/A	6576	6586	6634	6340	6724	3728	N/A	N/A
3673	6340	6584	6692	6720	6750	6780	6792	N/A	N/A	N/A	N/A	N/A	N/A
1813	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11554	6539	6800	6924	6952	6986	7024	7030	7074	7080	7126	7134	7200	7210
11872	6670	6924	7047	7072	7110	7150	7155	7170	7180	7230	7250	7318	7340
12274	6648	6910	7032	7056	7097	7110	7120	7148	7152	7204	7213	7292	7314
3575	6630	6907	7024	7050	7070	7133	7148	N/A	N/A	N/A	N/A	N/A	N/A
9478	6752	7026	7162	7188	7206	7046	7056	7294	7300	7361	7374	7486	7504
4194	6754	7042	7190	7220	7236	7271	7284	7323	7330	N/A	N/A	N/A	N/A
528	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6677	6900	7170	7316	7340	7360	7402	7410	7447	7450	7516	7522	7630	7642
11016	7170	7460	7603	7630	7662	7692	7700	7728	7735	7808	7820	7912	7926
8880	2757	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
274	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1462	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5281	3000	0	3050	3062	3080	3084	3090	3110	3114	0	0	0	0
5391	2984	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6406	2992	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0	0
1973	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2076	3216	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2765	3300	3384	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3994	3217	3246	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2762	3362	3394	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5283	3280	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2546	3243	3290	3384	3420	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1463	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2652	3333	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1635	3300	0	3597	3620	3642	3668	3672	3724	3730	3750	3763	3792	3810
4000	3496	0	3550	3570	3612	3662	3668	N/A	3673	3703	3719	3742	3760
10282	3639	3693	3754	3822	3855	3874	3880	3895	3912	3933	3947	3962	3981
5076	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11435	3522	3541	3576	3602	3633	3654	3660	N/A	3688	3696	3707	3722	3738
2867	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12449	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12553	3851	3950	0	4057	4110	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

WELL	Mad.	Rat.	M.A.	Mid.	Riv.	StA	Blu.	SAM	Sher.	K-1	Mo.	K-2	Glen.
12461	3860	3958	4064	4090	4127	4145	4152	N/A	4183	4195	4205	4228	4241
10982	3814	3916	4024	4049	4075	4100	4109	4140	4146	4164	4177	4200	4212
3428	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3214	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7831	3802	3900	4006	4032	4068	4085	4095	4123	4132	4166	4178	4200	4213
5232	3870	3978	4081	4110	4147	4167	4173	4188	4205	4236	4250	4273	4284
1622	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3376	3959	4124	4230	0	0	N/A	N/A	N/A	4346	4390	4404	4424	4434
3210	3804	3932	4035	4054	4082	4104	4115	4160	4168	4190	4207	4250	4264
5596	3870	3973	4080	4112	4150	4172	4178	4192	4205	4216	4226	4250	4266
2747	3942	4092	4198	4227	4267	4290	4294	4316	4322	4336	4348	4372	4382
5611	4056	4194	4304	4340	4360	4397	4404	4415	4433	4446	4458	4488	4498
10166	4044	4190	4302	4332	4375	4394	4402	4428	4435	4454	4462	4494	4502
8735	4070	4190	4302	4332	4370	4394	4404	4430	4436	4450	4463	4494	4504
4666	4056	4244	4351	4380	4420	4440	4445	4469	4477	4490	4501	4532	4542
6380	3902	4068	4166	4197	4220	4252	4257	4280	4286	4300	4309	4336	4352
4127	3914	4058	4162	4193	4220	4254	4260	4272	4287	4300	4312	4340	4356
4146	4042	4220	4328	4358	4380	4416	4424	4444	4454	4467	4478	4504	4515
8884	4074	4232	4342	4369	4412	4436	4442	4464	4472	4486	4496	4524	4534
10344	4076	4222	4332	4363	4403	4425	4431	4454	4461	4476	4486	4518	4528
9205	4128	4270	4378	4408	4445	4470	4475	4490	4505	4520	4531	4562	4574
4779	4132	4280	4390	4421	4460	4481	4486	4505	4517	4532	4545	4574	4585
3660	4074	4238	4349	4376	4417	4438	4443	4481	4467	4502	4517	4547	4558
2643	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8383	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5939	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5183	4080	4247	4358	4392	4418	4454	4459	4472	4484	4522	4533	4469	4480
10042	3985	4090	4202	4236	4274	4297	4302	N/A	4344	4390	4403	4431	4442
9119	3964	4125	4219	4248	4284	N/A	N/A	N/A	N/A	4382	4400	4458	4473
8786	4044	4172	4287	4310	0	4382	4388	N/A	4421	4437	4447	4478	4488
7134	4127	4240	4358	4392	4431	4452	4461	4477	4497	4517	4530	4562	4575
9976	4149	4259	4375	4408	4450	4473	4480	4500	4515	4536	4548	4580	4593
3025	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5043	4190	4286	4405	4430	4480	4502	4510	4539	4550	4566	4580	4611	4624
8920	4123	4254	4370	4404	4445	4466	4474	4504	4510	4528	4538	4568	4580

WELL	Mad.	Rat.	M.A.	Mid.	Riv.	StA	Blu.	SAM	Sher.	K-1	Mo.	K-2	Glen.
10204	4132	4244	4362	4396	4435	4460	4466	4498	4505	4522	4532	4562	4575
3898	4130	4250	4366	4400	4438	4464	4468	4500	4504	4518	4530	4556	4568
3297	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10155	4141	4258	4372	4406	4446	4468	4473	4501	4509	4528	4540	4571	4582
10101	4124	4236	4358	4390	4434	4450	4461	4492	4500	4514	4524	N/A	N/A
10733	4166	4278	4395	4426	4470	4492	4500	4527	4534	4552	4563	4595	4608
4002	4196	4330	4448	4474	4524	4547	4553	4581	4590	4606	4620	4658	4670
7882	4144	4276	4390	4422	4463	4486	4491	4521	4526	4542	4552	4581	4592
8384	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9204	4142	4280	4390	4420	4460	4482	4488	4512	4524	4535	4546	4591	4604
7617	0	4282	4396	4420	4468	4485	4492	4522	4528	4542	4555	N/A	4592
6411	4170	4308	4424	4455	4497	4518	4525	4552	4560	4575	4589	4628	4640
12561	4168	4309	4425	4458	4499	4520	4526	4555	4562	4578	4591	4633	4646
5052	4313	4468	4585	4616	4661	4684	4692	4719	4726	4746	4759	4798	4812
7706	4354	4490	4612	4644	4687	4711	4717	4746	4756	4775	4790	4834	4844
12422	4202	4345	4458	4490	4529	4554	4560	4588	4594	4608	4621	4656	4668
6269	4163	4324	4438	4464	4510	4530	4538	4562	4571	4584	4598	4632	4640
4661	4228	4426	4544	4572	4617	4642	4648	4678	4685	4700	4714	4750	4762
4585	4480	4604	4722	4752	4787	4822	4832	4850	4857	4874	4880	4906	4917
7056	4400	4530	4648	4678	4729	4754	4762	4798	4808	4836	4850	4942	4950
8263	4319	4422	4543	4574	4620	4648	4652	4682	4692	4712	4722	4760	4770
12301	4450	4575	4692	4720	4770	4797	4804	N/A	N/A	N/A	N/A	N/A	N/A
7637	4550	4688	4804	4839	4885	4910	4918	4940	4944	4956	4966	4996	5011
5932	4290	4464	4580	4620	4662	4688	4694	4723	4733	4754	4764	4805	4826
5390	4376	4508	4630	4662	4700	4732	4740	4771	4778	4800	4813	4848	4871
5276	4414	4549	4673	4701	4736	4771	4780	4810	4818	4842	4852	4895	4918
7709	4526	4675	4794	4824	4871	4898	4905	4940	4946	4975	4986	5012	5034
11082	4394	4540	4609	4640	4736	4760	4766	4798	4813	4830	4843	4884	4908
7916	4710	4850	4970	5004	5050	5074	5086	5103	5108	5123	5134	5164	5186
3783	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6409	4907	5074	5193	5223	5268	5294	5301	5330	5335	5349	5358	5380	5400
8716	4812	4996	5122	5154	5197	5222	5234	5254	5264	5275	5285	5324	5352
4007	4730	4890	5012	5045	5080	5116	5122	5145	5155	5170	5180	5216	5240
5843	4915	5084	5195	5226	5271	5300	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11851	4928	5096	5200	5227	5261	5298	5310	5343	5347	5390	5400	N/A	N/A

WELL	Mad.	Rat.	M.A.	Mid.	Riv.	StA	Blu.	SAM	Sher.	K-1	Mo.	K-2	Glen.
6007	5026	5215	5320	5352	5285	5428	5433	5472	5478	N/A	N/A	N/A	N/A
12193	5103	5316	5424	5450	5490	5527	5535	N/A	N/A	N/A	N/A	N/A	N/A
12464	5160	5400	5504	5530	5574	5600	5615	5641	5656	5736	5754	N/A	N/A
5902	0	5288	5390	5426	5452	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5872	5052	5236	5340	5370	5404	5440	5449	N/A	N/A	N/A	N/A	N/A	N/A
12326	4948	5156	5268	5312	5342	5369	5382	5416	5426	N/A	N/A	N/A	N/A
12210	4990	5169	5280	5310	5342	5382	5394	5426	5432	5466	5474	5540	5552
7530	4930	5104	5220	5249	5284	5320	5330	5378	5384	5412	5420	N/A	N/A
10411	4950	5128	5240	5266	5303	5339	5346	5390	5396	5425	5433	N/A	N/A
12719	4957	5149	5256	5292	5342	5358	5370	5400	5410	5442	5452	N/A	N/A
12545	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12159	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5864	5120	5324	5430	5460	5488	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11788	5112	5320	5424	5456	5484	5521	5530	5566	5570	N/A	N/A	N/A	N/A
5885	5062	5266	5364	5394	5428	5460	5472	5502	5512	5548	5558	N/A	N/A
5771	5034	5240	5338	5370	5400	5436	5444	5480	5486	N/A	N/A	N/A	N/A
5217	4968	5175	5292	5320	5368	5392	5404	N/A	N/A	N/A	N/A	N/A	N/A
10680	5092	5335	5438	5472	5500	N/A	N/A	N/A	N/A	5630	5640	N/A	N/A
10501	5092	5300	5400	5430	5462	5506	5538	5344	N/A	N/A	N/A	N/A	N/A
12029	5096	5349	5400	5483	5515	5550	5564	5600	5610	N/A	N/A	N/A	N/A
5515	5006	5220	5334	5360	5400	5440	5454	5490	5500	N/A	N/A	N/A	N/A
12399	5205	5410	5514	5543	5575	5600	5622	5655	5660	5726	5734	N/A	N/A
6334	5350	5589	5700	5730	5757	N/A	N/A	5886	5894	N/A	N/A	N/A	N/A
10674	5252	5500	5600	5635	5668	5692	5702	5736	5740	N/A	N/A	N/A	N/A
11547	0	0	0	5700	0	5764	5776	5814	5822	5890	5896	N/A	N/A
6371	5552	5590	5692	5720	5759	5790	5807	N/A	N/A	N/A	N/A	N/A	N/A
5063	5474	5713	5814	5842	5860	5915	5928	5954	5958	N/A	N/A	N/A	N/A
10974	5338	5600	5697	5730	5750	5788	5800	N/A	N/A	N/A	N/A	N/A	N/A
8262	0	5595	5694	0	5750	5790	5804	N/A	N/A	N/A	N/A	N/A	N/A
4179	5492	5740	5848	5880	5910	5958	5972	N/A	N/A	N/A	N/A	N/A	N/A
7427	5350	5594	5698	5738	5758	5808	5820	N/A	N/A	N/A	N/A	N/A	N/A
6621	5412	5650	5750	5780	5815	5850	5860	N/A	N/A	N/A	N/A	N/A	N/A
5326	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6553	0	5920	6020	6046	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6574	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

WELL	Mad.	Rat.	M.A.	Mid.	Riv.	StA	Blu.	SAM	Sher.	K-1	Mo.	K-2	Glen.
1340	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10274	6040	6282	0	6432	6469	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1876	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6041	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12729	5939	6193	0	6303	6361	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10778	6053	6320	6432	6460	6483	6520	6526	6594	6599	N/A	N/A	N/A	N/A
10275	6143	6390	6492	6520	6553	6593	6600	6652	6660	6736	6747	N/A	N/A
12229	6270	6522	6653	6679	6712	6739	6745	6807	6815	6894	6904	N/A	N/A
10546	6348	6608	6746	6772	6805	6834	6840	6862	6866	6902	6910	6976	6994
3540	6428	6684	6812	6840	6850	6904	6911	6936	6940	6980	6990	N/A	N/A
3005	6650	6935	7080	7110	7140	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10528	6795	7075	7216	7244	7286	7306	7312	7340	7344	7418	7432	7510	7524
2632	2425	0	0	0	0	2496	2502	2530	2536	2580	2596	2613	2624
5503	2864	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5627	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5549	2974	0	3030	3050	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1626	2984	0	3094	3120	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1460	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1652	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1963	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6353	3366	0	3400	3418	3443	3454	3460	N/A	N/A	N/A	N/A	N/A	N/A
2159	3362	0	3392	3416	3438	3448	3450	N/A	N/A	N/A	N/A	N/A	N/A
3620	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1538	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10284	3515	3531	3568	3598	3630	3652	3659	3684	3694	3724	3737	3765	3786
1919	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11922	3428	3439	3461	3489	3504	3538	3546	3573	3576	3584	3591	3613	3622
1651	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1947	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3967	3441	3460	3493	3519	3549	3569	3576	3600	3610	3638	3644	3668	3710
6700	3516	3520	3548	3578	3611	3630	3637	3662	3670	3683	3692	3716	3731
2675	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10608	3728	3788	3893	3918	3960	3978	3985	4012	4020	4049	4060	4084	4098
3111	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1187	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

WELL	Mad.	Rat.	M.A.	Mid.	Riv.	StA	Blu.	SAM	Sher.	K-1	Mo.	K-2	Glen.
11699	3831	3922	4028	4056	4093	4110	4116	4144	4150	4158	4171	4194	4212
4351	3822	3924	4026	4054	4081	4115	4121	4150	4155	4163	4176	4200	4221
7990	3821	3956	4056	4082	4123	4141	4149	4174	4186	4190	4200	4228	4236
11376	3810	3905	4010	4038	4073	4092	4100	4124	4130	4138	4150	4172	4192
11415	3772	3898	4002	4028	4068	4085	4092	4123	4127	4136	4148	4172	4178
9932	3859	3874	3904	3948	3990	4017	4023	4048	4078	4110	4125	4164	4193
12794	3903	3924	3966	3998	4038	4064	4071	4122	4130	4166	4181	4228	4250
4790	3892	3960	4072	4103	4143	4166	4172	4212	4220	4254	4268	4303	4321
1388	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3218	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9952	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4363	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4125	4025	4162	4270	4302	4344	4365	4370	4386	4394	4444	4457	4492	4508
3009	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12080	4022	4131	4244	4274	4316	4335	4346	4390	4394	4408	4420	4451	4458
5807	4092	4212	4324	4355	4395	4418	4424	4462	4469	4480	4490	4526	4536
6379	4004	4158	4286	4300	4340	4363	4368	4402	4400	4428	4440	4472	4496
10943	3860	4000	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9306	3910	3938	4050	4080	4124	4148	4155	4188	4193	4222	4238	4278	4292
3539	4040	4140	4260	4286	4340	4366	4371	4403	4409	4427	4441	4476	4490
3742	4058	4166	4288	4317	4368	4393	4400	4429	4436	4456	4472	4500	4519
3195	4081	4176	4296	4324	4375	4402	4410	4440	4447	4470	4476	4510	4527
10420	4044	4106	4226	4255	4303	4330	4336	4365	4374	4392	4405	4435	4456
7204	4038	4123	4242	4270	4320	4344	4354	4383	4392	4418	4434	4466	4482
3960	0	0	4076	4108	4151	4166	4172	4214	4219	4250	4267	4306	4324
12298	4007	4051	4162	4195	4240	4260	4271	4306	4312	4350	4365	4405	4420
12426	4013	4062	4188	4216	4266	4288	4294	4330	4340	4376	4394	4434	4453
949	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9989	4040	4135	4255	4283	4332	4356	4366	4395	4404	4422	4436	4466	4487
5705	4102	4180	4300	4329	4380	4404	4411	4444	4451	4473	4481	4510	4522
3981	4095	4170	4289	4324	4366	4392	4398	4430	4440	4470	4484	4519	4536
12405	3982	4070	4186	4219	4248	4289	4294	4334	4340	4380	4400	4440	4456
12443	3989	4065	4178	4206	4254	4274	4283	4320	4328	4360	4378	4418	4434
8418	4022	4118	4236	4268	4309	4332	4438	4368	4378	4401	4413	4448	4467
12285	4113	4200	4315	4347	4390	4412	4420	4450	4460	4490	4505	4541	4558

WELL	Mad.	Rat.	M.A.	Mid.	Riv.	StA	Blu.	SAM	Sher.	K-1	Mo.	K-2	Glen.
5024	4145	4229	4346	4376	4425	4450	4456	4490	4496	4518	4530	4560	4573
5692	4176	4244	4374	4402	4450	4476	4483	4518	4522	4544	4557	4588	4596
4231	4156	4241	4360	4385	4435	4460	4466	4496	4504	4532	4546	4582	4596
12612	4118	4214	4328	4355	4401	4425	4431	4464	4469	4492	4506	4540	4554
10345	4095	4200	4313	4345	4386	4410	4415	4445	4454	4470	4480	4514	4524
5938	4142	4210	4330	4361	4409	4438	4444	4476	4484	4510	4521	N/A	N/A
3409	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1709	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3078	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10084	4185	4285	4375	4405	4454	4484	4492	4508	4515	4523	4531	4555	4566
3802	4374	4465	4594	4622	4662	4702	4706	4728	4736	4750	4757	N/A	N/A
8058	4434	4525	4650	4680	4733	4760	4769	4787	4792	4807	4822	4850	4863
3962	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3887	4192	4260	4375	4407	4456	4483	4489	4523	4530	4554	4564	4598	4608
5521	4240	4330	4449	4479	4528	4552	4559	N/A	N/A	4594	4602	N/A	N/A
10952	4334	4408	4528	4554	4613	4640	4648	4668	4674	4688	4696	4722	4733
1206	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8032	4344	4426	4545	4573	4625	4648	4659	4678	4688	4788	4796	N/A	N/A
10897	4310	4419	4543	4571	4623	4648	4656	4692	4700	4727	4747	4772	4784
3427	4460	4530	4650	4678	4717	4760	4766	4794	4806	4848	4856	4901	4914
11163	4450	4550	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4106	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6329	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4040	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6328	4608	4638	4740	4768	4806	4846	4852	4906	4915	4935	4946	N/A	N/A
4183	4592	4682	4804	4836	4874	4911	4919	5012	5048	N/A	N/A	N/A	N/A
4613	4456	4538	4654	4684	4733	4754	4757	4798	4803	4840	4850	N/A	N/A
7492	4574	4700	4828	4860	4899	4937	4948	4995	5003	5035	5046	N/A	N/A
8212	4593	4698	4820	4891	4927	4937	4940	4984	4990	5016	5026	5108	5116
8818	4720	4843	4966	4996	5034	5070	5076	5113	5140	5170	5210	N/A	N/A
8783	4654	4772	4882	4912	4949	4984	4990	5036	5042	5068	5081	5155	5165
7694	4570	4674	4796	4828	4865	4900	4910	N/A	N/A	4990	5005	N/A	N/A
3902	4528	4650	4775	4808	4846	4883	4890	4920	4925	4979	4994	N/A	N/A
8424	4700	4826	4946	4976	5015	5052	5060	5102	5108	5186	5194	N/A	N/A
5087	4734	4878	4994	5022	5060	5097	5104	5188	5196	5188	5196	N/A	N/A

WELL	Mad.	Rat.	M.A.	Mid.	Riv.	StA	Blu.	SAM	Sher.	K-1	Mo.	K-2	Glen.
8810	4670	4805	4922	4950	4986	5020	5027	5105	5114	5182	5192	N/A	N/A
11115	4704	4820	4930	4952	4989	5028	5034	5082	5102	5130	5138	N/A	N/A
5916	4978	5118	5224	5251	5267	N/A	N/A	5326	5332	5366	5374	N/A	N/A
6641	5016	5170	5280	5306	5342	5382	5388	5422	5432	N/A	N/A	N/A	N/A
6344	4754	4888	5003	5330	5378	5096	5110	N/A	N/A	N/A	N/A	N/A	N/A
8264	4878	5026	5134	5164	5195	5230	5240	N/A	N/A	5326	5336	N/A	N/A
6079	5020	5200	5310	5326	5372	5410	5420	N/A	N/A	5500	5510	N/A	N/A
4933	5050	5230	5337	5368	5400	5438	5445	5480	5486	5525	5533	N/A	N/A
5309	5001	5170	5280	5305	5342	5380	5390	5422	5430	5464	5474	N/A	N/A
11677	4931	5098	5210	5238	5275	5313	5320	5363	5370	N/A	N/A	N/A	N/A
6089	4904	5053	5168	5193	5230	5262	5274	5312	5320	5354	5363	N/A	N/A
7534	4822	4974	5090	5117	5153	5186	5200	N/A	N/A	N/A	N/A	N/A	N/A
4943	4852	5014	5136	5166	5200	5238	5246	N/A	N/A	N/A	N/A	N/A	N/A
6416	4938	5112	5234	5265	5300	5337	5344	N/A	N/A	N/A	N/A	N/A	N/A
12373	4997	5157	5264	5294	5325	5363	5370	5403	5407	5458	5475	N/A	N/A
10775	5076	5208	5372	5400	5434	5470	5480	5513	5518	N/A	N/A	N/A	N/A
5949	5094	5275	5384	5412	5447	5480	5492	N/A	N/A	N/A	N/A	N/A	N/A
5952	5050	5306	5412	5440	5472	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9093	5078	5250	5360	5387	5419	5456	5464	5492	5499	5556	5564	N/A	N/A
5718	4988	5168	5280	5307	5344	5388	5392	N/A	N/A	N/A	N/A	N/A	N/A
8260	4926	5104	5220	5249	5294	5322	5330	5374	5380	N/A	N/A	N/A	N/A
5828	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12039	5082	5250	5360	5390	5423	5460	5468	5502	5508	5559	5570	5640	5654
5589	5064	5238	5344	5372	5405	5442	5450	5483	5492	5530	5540	N/A	N/A
12003	5202	5412	5524	5550	5580	5620	5626	5660	5664	5700	5710	5772	5784
12720	5326	5582	5690	5720	5747	5788	5800	5830	5834	5882	5888	5954	5971
8261	5140	5352	5462	5490	5520	5575	5580	5616	5622	N/A	N/A	N/A	N/A
5851	5210	5460	5574	5603	5643	5690	5698	5734	5740	5798	5807	N/A	N/A
7771	5250	5501	5617	5646	5684	5728	5735	5775	5780	5846	5856	N/A	N/A
12334	0	0	0	0	0	5827	5840	N/A	N/A	N/A	N/A	N/A	6008
6157	5153	5300	5475	5500	5537	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2134	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11834	5445	5692	5794	5822	5852	5888	5900	5950	5957	6026	6042	6097	6115
12711	5502	5748	5852	5880	5910	5950	5956	5994	6000	6078	6094	6192	6204
12529	5436	5674	5788	5812	5843	5888	5896	5928	5935	5960	5994	6046	6060

WELL	Mad.	Rat.	M.A.	Mid.	Riv.	StA	Blu.	SAM	Sher.	K-1	Mo.	K-2	Glen.
12333	5433	5672	5782	5803	5834	5878	5885	5915	5922	5963	5975	6050	6066
12277	5502	5742	5856	5882	5910	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9149	5647	5893	6015	6040	6073	6127	6133	6157	6163	6240	6250	N/A	N/A
1801	5603	5847	5970	5992	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12219	5400	5675	5782	5804	5846	5879	5884	5918	5923	5970	5976	6046	6067
12127	5398	5656	5765	5790	5828	5860	5868	5900	5905	5924	5956	6032	6067
12009	6044	6328	6445	6468	6502	6526	6533	6613	6620	6720	6752	N/A	N/A
10326	5932	6206	6313	6342	6373	6413	6424	6498	6503	6575	N/A	N/A	N/A
9953	5976	6222	6337	6362	6395	6442	6448	N/A	N/A	N/A	N/A	N/A	N/A
9752	6000	6270	6388	6414	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1843	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8697	6030	6282	6396	6422	6454	6480	6485	6505	6510	6548	6556	6676	6648
10273	5913	6184	6293	6318	6349	6375	6380	6400	6405	6466	6478	6569	6600
3446	6678	6981	7122	7154	7154	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10667	6496	6768	6882	6910	6936	6982	6988	N/A	N/A	N/A	N/A	N/A	N/A
10914	6430	6716	6832	6865	6898	6930	6934	N/A	N/A	N/A	N/A	N/A	N/A
10639	6718	7000	7126	7150	7178	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3604	6806	7038	7212	7236	7260	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10592	6795	7072	7202	7220	7251	7282	7290	7322	7326	7390	7404	N/A	N/A
582	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11397	2700	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12064	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4863	2890	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4645	2914	0	0	0	0	N/A	N/A	N/A	N/A	0	0	0	0
1577	2866	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1053	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12700	2890	0	2924	2948	0	N/A	N/A	N/A	N/A	0	0	0	0
12468	2950	0	2974	2998	N/A	N/A	N/A	N/A	N/A	0	0	0	0
4864	2950	0	0	0	0	N/A	N/A	N/A	N/A	0	0	0	0
4644	2941	0	0	3050	3080	3094	3102	N/A	N/A	0	0	0	0
1481	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3057	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
362	0	0	3320	3350	0	N/A	N/A	N/A	N/A	0	0	0	0
12540	3170	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7676	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

WELL	Mad.	Rat.	M.A.	Mid.	Riv.	StA	Blu.	SAM	Sher.	K-1	Mo.	K-2	Glen.
11149	3278	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8308	3320	0	0	0	0	3366	3373	3792	3460	3406	3419	3432	3444
1828	3323	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11347	3263	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12154	3250	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8066	3212	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11075	3239	0	3270	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5694	3272	0	3294	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2054	3290	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2639	3314	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11810	3213	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1759	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5659	3216	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8508	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4384	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4316	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5671	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10454	3432	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5385	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10453	3482	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10456	3445	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6133	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4107	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8843	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1957	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11232	3400	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4915	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10455	3437	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3791	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3602	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3688	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7430	3430	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3519	3420	3439	3480	3528	3546	3575	3585	3595	3600	3610	3621	3640	3699
2912	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3830	3400	0	3440	3476	3500	3519	3528	3551	3554	3582	3596	3428	3496

WELL	Mad.	Rat.	M.A.	Mid.	Riv.	StA	Blu.	SAM	Sher.	K-1	Mo.	K-2	Glen.
4836	3400	0	3438	3468	3500	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5296	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10351	3418	0	3444	3478	3503	3523	3530	3549	3558	3586	3592	3636	3702
10781	3575	3588	3625	3655	3680	3712	3718	3737	3746	3760	3773	3794	3842
962	3638	3650	3686	3711	3738	3768	3780	3806	3818	3830	3847	3870	3929
10924	3611	3690	3830	3857	3910	3932	3946	4003	4014	4046	4055	4094	4102
2596	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1183	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4192	3817	3838	3872	3900	3949	3967	3980	4006	4012	4026	4040	4080	4130
12166	3814	3900	4012	4038	4085	4107	4119	4142	4151	4164	4177	N/A	N/A
4362	3755	3769	3804	3836	3876	3898	3908	3930	3938	3948	3960	3990	4005
2975	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12586	3888	3914	3964	3991	4039	4059	4070	4100	4106	4123	4138	4178	4217
3404	3780	3834	3948	3976	4010	4040	4048	4086	4094	4110	4122	4156	4186
3484	3866	3919	4030	4061	4104	4124	4132	4164	4172	4188	4203	4246	4275
38	N/A	N/A	N/A	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10360	3840	3850	3889	3920	3965	3988	4000	4040	4049	4082	4102	4140	4165
5071	3832	3894	4016	4050	4077	4111	4122	4154	4160	4194	4208	4244	4263
5100	3806	3876	3990	4022	4058	4086	4098	4126	4136	4144	4158	4189	4210
12121	3902	3914	3966	3996	4038	4059	4072	4102	4108	4120	4134	4164	4186
12278	3976	4008	4060	4083	4137	4158	4168	4196	4203	4222	4234	4269	4300
8895	3952	3988	4105	4132	4183	4204	4214	4243	4251	4272	4284	4312	4333
10919	4020	4038	4080	4107	4159	4181	4189	4218	4226	4246	4258	4286	4297
10631	4026	4060	4114	4141	4193	4215	4223	4253	4261	4282	4294	4326	4355
11369	3958	3974	4090	4116	4167	4189	4198	4226	4234	4253	4263	4288	4301
1916	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12006	3846	3864	3904	3935	3979	4000	4010	4036	4043	4056	4068	4100	4115
12308	4000	4020	4138	4160	4215	4237	4248	4274	4280	4300	4312	4340	4348
1728	4025	4076	4197	4224	4276	4297	4309	4337	4343	4364	4376	4400	4410
4781	3968	4006	4126	4150	4204	4227	4236	4263	4270	4290	4302	4334	4344
3810	3920	3978	4090	4118	4167	4187	4197	4227	4234	4249	4262	4300	4322
9960	4010	4063	4184	4210	4261	4283	4294	4322	4331	4350	4364	4394	4407
11714	4036	4110	4234	4260	4310	4333	4341	4370	4378	4397	4410	4439	4447
10831	4050	4060	4114	4140	4192	4216	4226	4254	4262	4283	4294	4322	4334
3598	4112	4140	4190	4218	4270	4290	4298	4336	4340	4366	4380	4410	4420

WELL	Mad.	Rat.	M.A.	Mid.	Riv.	StA	Blu.	SAM	Sher.	K-1	Mo.	K-2	Glen.
3067	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2770	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4205	4127	4202	4260	4285	4340	4362	4370	4405	4414	4440	4449	4481	4495
5314	4248	4260	4316	4344	4397	4421	4430	4450	4456	N/A	N/A	N/A	N/A
12205	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5228	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3886	4134	4237	4358	4390	4430	4466	4474	N/A	N/A	N/A	N/A	N/A	N/A
2899	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4214	4082	4143	4268	4297	4347	4374	4380	4415	4422	4449	4460	4485	4500
3543	4086	4142	4260	4288	4341	4365	4374	4402	4410	4434	4448	4474	4484
11443	4131	4180	4300	4329	4376	4396	4408	4442	4450	4479	4498	N/A	N/A
5439	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5253	4270	4286	4410	4441	4490	4511	4522	4561	4570	4605	4614	4648	4664
2995	4289	4331	4468	4495	4531	4564	4574	N/A	N/A	N/A	N/A	N/A	N/A
5645	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3281	4153	4208	4331	4361	4410	4434	4442	4474	4481	4510	4526	4552	4562
6480	4104	4168	4294	4324	4374	4398	4407	4437	4443	4470	4480	4512	4522
4657	4236	4294	4418	4452	4497	4517	4529	4574	4582	4621	4635	N/A	N/A
3659	4394	4427	4520	4560	4588	4622	4632	4664	4671	4689	4702	4742	4756
11053	4455	4523	4642	4676	4719	4742	4752	4800	4816	4850	4860	N/A	N/A
5064	4398	4452	4574	4600	4632	4671	4679	4702	4709	4785	4793	N/A	N/A
11905	4332	4378	4510	4550	4582	4612	4626	4672	4683	4728	4742	4775	4795
8616	4402	4458	4578	4608	4656	4676	4690	4710	4738	4788	4800	4834	4847
8891	4500	4568	4688	4715	4752	4785	4798	4832	4870	4888	4909	N/A	N/A
4203	4562	4642	4754	4782	4828	4851	4864	N/A	N/A	N/A	N/A	N/A	N/A
4604	4578	4632	4748	4774	4809	4842	4854	N/A	N/A	4936	4942	N/A	N/A
4270	4534	4590	4706	4733	4770	4802	4814	4844	4887	4910	4923	N/A	N/A
9818	4400	4454	4576	4606	4642	4678	4690	4708	4745	4782	4794	N/A	N/A
9817	4430	4485	4606	4635	4685	4707	4718	4740	4780	N/A	N/A	N/A	N/A
3572	4390	4440	4561	4590	4628	4661	4678	4700	4709	4766	N/A	N/A	N/A
10534	4412	4466	4600	4629	4666	4700	4710	4734	4784	4803	4815	N/A	N/A
9280	4454	4514	4634	4662	4698	4731	4742	4766	4807	4833	4842	N/A	N/A
12267	4494	4560	4676	4706	4743	4776	4788	4814	N/A	N/A	N/A	N/A	N/A
6233	4659	4682	4752	4817	4851	4886	4896	N/A	N/A	N/A	N/A	N/A	N/A
4043	4750	4793	4840	4868	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

WELL	Mad.	Rat.	M.A.	Mid.	Riv.	StA	Blu.	SAM	Sher.	K-1	Mo.	K-2	Glen.
7227	4578	4663	4777	4804	4844	4874	4888	4915	4953	4972	4984	5034	5049
10167	4555	4612	4734	4764	4820	4844	4857	4884	4919	N/A	N/A	N/A	N/A
5640	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9046	4390	4460	4587	4616	4654	4693	4705	4725	4752	4780	4791	N/A	N/A
2697	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4298	4512	4569	4682	4712	4742	4776	4786	4828	4836	4878	4889	4918	4928
3667	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11556	4793	4872	4989	5020	5054	5089	5100	5206	N/A	N/A	N/A	N/A	N/A
4140	4792	4870	4984	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12406	0	0	0	5020	0	5094	5098	5134	N/A	5193	5198	N/A	5278
11129	4754	4820	4930	4959	4991	5030	5037	5078	5116	5150	5162	N/A	N/A
5746	4727	4782	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11361	4650	4708	4816	4842	4877	4912	4918	4945	4982	5037	N/A	N/A	N/A
11792	4564	4612	4722	4750	4780	4818	4826	4850	4897	4922	4936	4996	5008
3836	4634	4720	4832	4862	4894	4934	4944	5010	5024	5054	5065	N/A	N/A
7299	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10760	4740	4804	4910	4937	4980	5005	5012	5069	5117	N/A	N/A	N/A	N/A
3526	4784	4854	4962	4992	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6933	4756	4848	4955	4974	5023	5047	5056	5079	5094	N/A	N/A	N/A	N/A
6044	4664	4724	4829	4854	4890	4924	4936	N/A	N/A	N/A	N/A	N/A	N/A
3713	4660	4742	4848	4877	4907	4944	4952	4984	5024	5055	5068	5120	5133
5465	4694	4790	4896	4932	4955	4992	5000	5111	N/A	N/A	N/A	N/A	N/A
6446	4770	4852	4955	4986	5028	5049	5059	N/A	N/A	N/A	N/A	N/A	N/A
3335	4970	5106	5220	5255	5284	5320	5328	N/A	N/A	N/A	N/A	N/A	N/A
6099	4746	4830	4940	4970	5002	5037	5046	5080	5108	5144	N/A	N/A	N/A
9092	4718	4820	4928	4956	4986	5024	5034	5098	5152	N/A	N/A	N/A	N/A
8477	4700	4794	4904	4928	4972	4997	5004	N/A	N/A	N/A	N/A	N/A	N/A
10628	4922	5027	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7716	5027	5110	5217	5247	5287	5312	5320	5420	5428	5515	5532	5647	5666
11809	5070	5182	5286	5319	5343	5381	5392	5430	5438	5498	5513	5575	5585
12012	5120	5220	5328	5360	5393	5419	5426	5472	5478	5550	5568	N/A	N/A
8041	4799	4897	5000	5030	5062	5094	5104	5138	5144	N/A	N/A	N/A	N/A
7577	5056	5170	5270	5300	5333	5361	5373	5400	5406	5460	5473	5546	5566
12008	5116	5232	5336	5368	5400	5432	5437	5454	5485	5540	5548	N/A	N/A
12771	5149	5270	5372	5400	5432	5462	5470	5510	5515	5584	5592	N/A	N/A

WELL	Mad.	Rat.	M.A.	Mid.	Riv.	StA	Blu.	SAM	Sher.	K-1	Mo.	K-2	Glen.
12759	5151	5291	5396	5420	5455	5478	5486	5530	5538	5594	5602	N/A	N/A
12587	5214	5341	0	5448	5509	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12041	5038	5146	5250	5278	5313	5336	5342	5381	5388	5448	5458	N/A	N/A
8851	5516	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11038	5009	5150	5254	5281	5322	5346	5353	5400	5410	5462	5495	N/A	N/A
12758	5123	5303	5410	5442	5479	5503	5510	5539	5546	5637	5648	N/A	N/A
12704	5140	5302	5410	N/A	5472	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12524	5154	5346	5446	5472	5511	5531	5540	5578	5582	5635	5642	5713	5725
11951	5129	5316	5423	5452	5492	5517	5522	5566	5574	N/A	N/A	N/A	N/A
12647	5130	5310	5423	5454	5496	5522	5530	5567	5572	5600	5610	5640	5650
6819	5127	5252	5358	5285	5424	5454	5460	5493	5502	5550	5560	N/A	N/A
1628	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2979	0	0	0	5607	0	5678	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3884	5197	5374	5484	5512	5537	5584	5590	5624	5630	5632	5644	N/A	N/A
1128	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11849	5256	5466	5568	5596	5530	5659	5673	5706	5713	5783	5797	N/A	N/A
6482	5296	5496	5600	5628	5654	5692	5707	5735	5740	5804	5820	N/A	N/A
1885	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1698	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9910	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1410	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12220	5510	5776	5882	5900	5940	5974	5980	6022	6030	6096	6106	6162	6176
12191	5480	5730	5830	5854	5898	5930	5941	5984	5990	6088	6104	N/A	N/A
4097	5584	5827	5932	5964	5987	6032	6042	6116	6122	6148	6166	N/A	N/A
1808	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10272	5804	6066	6176	6200	6244	6258	6271	6290	6295	6354	6266	6455	6500
1005	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8699	5988	6260	6376	6400	6433	6460	6473	6490	6498	6550	6562	6640	6672
995	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11642	6260	6566	6684	6710	6740	6748	6760	6802	6806	6872	6884	6982	6996
10508	6146	6436	6560	6584	6620	6655	6669	6684	6692	6748	6458	6840	6858
9938	2734	0	0	2780	2793	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3083	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1630	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1666	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

WELL	Mad.	Rat.	M.A.	Mid.	Riv.	StA	Blu.	SAM	Sher.	K-1	Mo.	K-2	Glen.
2862	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
83	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
571	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1102	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1579	2880	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8878	2819	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
969	2940	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
348	2920	0	0	0	0	N/A	N/A	N/A	N/A	0	0	0	0
9559	2922	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6358	2931	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3905	2928	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1523	2944	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9745	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6356	2908	0	2942	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5507	2976	0	3005	0	0	N/A	N/A	N/A	N/A	N/A	N/A	0	0
4646	2996	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
544	2974	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5280	3000	0	3026	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9522	3065	0		3106	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
327	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1527	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11286	3119	0	3250	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8051	3208	3229	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9719	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2908	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3779	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2157	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2921	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3991	3232	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5977	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12778	3243	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11574	3250	3310	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8450	3275	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8029	3298	3350	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11287	3211	3245	3377	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

WELL	Mad.	Rat.	M.A.	Mid.	Riv.	StA	Blu.	SAM	Sher.	K-1	Mo.	K-2	Glen.
1667	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9028	3200	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10045	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9302	3282	0	3326	3350	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3855	3295	0	3355	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10092	3305	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8030	3290	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11863	3252	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4273	3236	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8995	3243	3251	3256	3264	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12689	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2094	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1984	3353	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2064	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2219	2957	2985	3004	3020	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2359	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4721	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7730	3358	3376	3412	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2073	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1838	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11916	3240	0	3274	0	0	3780	N/A	N/A	N/A	3296	3300	3328	3343
10163	3284	0	0	3378	0	3428	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3945	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1943	3372	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7729	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3203	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5174	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6315	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5213	3450	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4004	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2137	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2140	3293	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12389	3264	3372	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5175	3342	0	3398	3427	3453	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1932	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

WELL	Mad.	Rat.	M.A.	Mid.	Riv.	StA	Blu.	SAM	Sher.	K-1	Mo.	K-2	Glen.
5172	3412	3470	3516	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3504	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5239	3450	0	3509	3539	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8248	3434	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7513	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6640	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3711	3322	0	3367	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4670	3428	3448	3460	3489	3519	3544	3550	3575	3579	3586	3596	3615	3656
5943	3554	3561	3584	3610	3653	3667	3680	3704	3707	3716	3727	3748	3790
2202	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2248	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1155	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12551	3662	3675	3783	3808	3840	3873	3882	3908	3912	3920	3932	3958	3980
3258	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4924	3635	3665	3715	3740	3786	3805	3816	3840	3846	3858	3869	3896	3912
11587	3772	3780	0	3798	3833	3860	3880	3897	3902	3915	3929	3962	3975
10172	3725	3728	3742	3757	3780	3820	3830	3858	3862	3878	3890	3925	3940
8772	0	0	0	0	0	3862	3870	3900	3906	3920	3932	3971	3985
3544	3805	0	0	3818	3848	3880	3890	3916	3922	3938	3951	3992	4005
7052	3726	0	3737	3764	3810	3830	3841	3868	3871	3883	3894	3928	3944
11743	3724	3730	3752	3779	3810	3844	3854	3880	3888	3898	3913	3946	3963
2500	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8608	3710	3728	3751	3778	3820	3848	3856	3882	3888	3898	3913	3946	3965
2369	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
910	3870	0	0	3880	3920	3945	3956	3982	3990	4008	4019	4052	4062
11156	3870	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3653	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11400	3784	0	3802	3828	3876	3895	3906	3930	3936	3950	3963	3997	4010
9136	3792	0	0	3822	3862	3885	3896	3924	3928	3942	3955	3990	4003
3766	3804	3813	3828	3860	3900	3924	3934	3958	3966	3978	3988	4026	4055
7258	3824	3836	3852	3878	3916	3948	3956	3982	3990	4000	4012	4044	4062
8517	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7261	3874	3886	3911	3936	3986	4008	4018	4047	4052	4066	4078	4107	4118
10804	3845	3858	3885	3910	3960	3985	3993	4019	4026	4040	4051	4084	4096
2540	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

WELL	Mad.	Rat.	M.A.	Mid.	Riv.	StA	Blu.	SAM	Sher.	K-1	Mo.	K-2	Glen.
5991	3940	3955	3970	3997	4050	4068	4077	4104	4115	4130	4145	4186	4198
2877	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2542	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9491	3830	0	0	0	3877	3898	3905	3933	3940	3954	3967	4010	4022
6391	3870	0	0	3888	3936	3960	3967	4000	4006	4022	4035	4068	4128
6692	3900	0	0	3920	3972	3993	4005	4035	4044	4060	4070	4107	4118
3771	3902	3918	3936	3962	4010	4026	4040	4068	4078	4094	4108	4148	4159
11592	3964	0	3970	4005	4058	4078	4088	4115	4124	4141	4156	4196	4212
2743	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3207	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7259	3926	0	3940	3975	4012	4034	4046	4074	4080	4101	4114	4146	4156
8522	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8521	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11236	0	0	0	3957	4000	4024	4034	4064	4072	4090	4100	N/A	N/A
7260	3908	0	3922	3955	4001	4026	4032	4060	4067	4086	4096	4126	4136
11138	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11271	3972	3974	3992	4017	4068	4089	4098	4128	4136	4156	4166	4196	4207
9181	4109	4130	4154	4211	4260	4283	4291	4326	4335	4362	4374	4406	4418
10920	4018	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6257	3988	4014	4040	4060	4118	4138	4150	4178	4187	4206	4218	4248	4262
6535	4020	4038	4056	4084	4130	4156	4164	4195	4203	4225	4238	4278	4288
6206	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9823	4186	4200	4220	4242	4292	4314	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4206	4220	4226	4244	4268	4320	4341	4353	4397	4403	4438	4451	4483	4494
11673	4180	4189	4209	4236	4290	4316	4322	4364	4373	4406	4417	N/A	N/A
1962	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3017	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5538	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6487	4234	4249	4294	4323	4374	4398	4403	4445	4454	4485	4495	N/A	N/A
3705	0	0	4286	4328	4366	4392	4398	4438	4444	4464	4486	4322	4334
3910	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3334	4116	4154	4206	4234	4284	4304	4314	4346	4354	4380	4394	4428	4445
11054	4202	4210	4239	4269	4315	4339	4346	4388	4396	4431	N/A	N/A	N/A
10665	4474	4484	4510	4538	4568	4604	4613	4658	4666	4716	4730	4796	4807
3987	4358	4366	4396	4422	4453	4486	4500	4541	4550	4594	4605	N/A	N/A

WELL	Mad.	Rat.	M.A.	Mid.	Riv.	StA	Blu	SAM	Sher.	K-1	Mo.	K-2	Glen.
5626	4505	4568	4620	4645	4687	4714	4724	4764	4775	4812	4821	N/A	N/A
1136	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1727	4518	4560	4674	4704	4738	4771	4786	4820	4840	4870	4882	4952	4972
6624	4525	4530	4570	4597	4639	4665	4672	4713	4732	4766	4780	4847	4865
6684	4524	4535	4578	4606	4647	4670	4676	4727	4744	4776	4794	4855	4872
5644	0	0	4734	4760	4803	4830	4835	4832	4905	N/A	N/A	N/A	N/A
11707	0	0	0	4804	0	4868	4876	4925	4930	N/A	N/A	N/A	N/A
3851	4680	4720	4817	4852	4888	4925	4932	4967	4972	N/A	N/A	N/A	N/A
3368	4717	4742	4846	4876	4905	4936	4946	4982	4987	5030	5050	5132	5145
11325	4650	4705	4817	4845	4878	4909	4920	4990	4994	5025	5042	N/A	N/A
5518	4603	4645	4738	4756	4790	4825	4833	4852	4854	4872	4886	4930	4944
815	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6384	4610	4635	4748	4774	4818	4838	4849	N/A	N/A	N/A	N/A	N/A	N/A
3703	4684	4702	4812	4844	4877	4909	4919	4970	4988	5022	5032	N/A	N/A
4576	4690	4738	4848	4880	4910	4940	4950	4997	5030	N/A	N/A	N/A	N/A
3350	4792	4814	4920	4950	4977	5005	5015	5053	5058	5117	5127	5197	5209
9538	4827	4876	4990	5020	5061	5085	5094	5134	5155	N/A	N/A	N/A	N/A
5852	4762	4822	4935	4968	4996	5027	5036	5086	5102	5130	5140	N/A	N/A
9881	4624	4649	4764	4790	4825	4857	4865	4916	4926	4975	4985	N/A	N/A
5331	4602	4642	4760	4794	4828	4864	4872	4930	4940	4982	4994	N/A	N/A
4930	4704	4770	4890	4923	4953	4987	4998	5060	5072	N/A	N/A	N/A	N/A
11342	4780	4835	4956	4989	5019	5051	5061	5108	5117	5165	5186	5214	N/A
3563	4760	4832	4942	4975	5004	5034	5044	5086	5096	5145	5155	N/A	N/A
6875	4714	4772	4886	4916	4950	4985	4994	5033	5046	5086	5096	N/A	N/A
5510	4726	4776	4885	4914	4941	4975	4984	5018	5027	5060	5074	N/A	N/A
12128	4722	4802	4914	4942	4982	5005	5014	5048	5056	5109	5119	N/A	N/A
3852	4904	5000	5112	5140	5165	5201	5208	5241	5246	5265	5290	5391	5400
12237	4980	5084	5196	5226	5253	5294	5300	5334	5340	5406	5416	N/A	N/A
11196	4947	5050	5160	5188	5227	5251	5258	5291	5298	5376	5384	N/A	N/A
10955	4955	5059	5164	5194	5228	5254	5260	5295	5302	5370	5384	N/A	N/A
7450	4876	4950	5060	5086	5120	5142	5153	5184	5192	5254	5264	5334	5348
8084	4868	4948	5056	5086	5110	5145	5196	5222	N/A	N/A	N/A	N/A	N/A
5898	4735	4802	4910	4940	4963	4997	5008	5048	5058	5106	5112	N/A	N/A
3789	4900	4990	5098	5127	5153	5190	5198	5242	5264	N/A	N/A	N/A	N/A
3838	4943	5046	5146	5186	5210	5246	5254	5290	5296	5364	5373	N/A	N/A

WELL	Mad.	Rat.	M.A.	Mid.	Riv.	StA	Blu.	SAM	Sher.	K-1	Mo.	K-2	Glen.
11274	5034	5163	5272	5300	5334	5360	5370	5402	5410	N/A	N/A	N/A	N/A
10956	4950	5075	5182	5210	5234	5272	5280	5312	5320	5390	5400	N/A	N/A
8659	5033	5153	5263	5290	5325	5351	5362	5395	5400	5462	5472	N/A	N/A
10826	5007	5118	5227	5252	5280	5318	5326	5358	5363	5430	5444	N/A	N/A
12567	5038	5153	5262	5290	5320	5357	5365	5397	5401	5461	5470	N/A	N/A
6507	4940	5046	5154	5180	5208	5243	5250	5283	5292	N/A	N/A	N/A	N/A
11043	4940	5060	5162	5195	5218	5254	5262	5296	5302	5364	5372	5446	5450
10614	5010	5124	5231	5260	5287	5325	5331	5368	5374	5426	5462	N/A	N/A
10986	5083	5228	5338	5367	5394	5435	5442	5476	5482	5534	5542	N/A	N/A
3760	5102	5238	5346	5374	5394	5442	5444	5483	5490	5550	5557	N/A	N/A
7751	5094	5214	5323	5350	5387	5415	5422	5457	5464	5528	5535	N/A	N/A
12075	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3608	4971	5040	5148	5178	5206	5242	5250	5287	5293	5340	5354	N/A	N/A
5757	4843	4917	5022	5051	5078	5110	5119	5155	5160	N/A	N/A	N/A	N/A
5928	5074	5234	5344	5370	5407	5451	5460	5486	5495	N/A	N/A	N/A	N/A
11936	5092	5222	5334	5360	5400	5440	5447	5474	5482	5540	5550	N/A	N/A
4147	5154	5332	5444	5475	5521	5568	5574	5595	5602	5670	5680	N/A	N/A
4533	5128	5304	5418	5446	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3968	5096	5250	5358	5386	0	5470	5476	5500	5510	5570	5580	N/A	N/A
3205	5070	5204	5314	5342	5364	5408	5416	5450	5460	5536	5544	N/A	N/A
10786	4972	5088	5196	5224	5258	5288	5294	5328	5334	5403	5420	N/A	N/A
6146	4994	5120	5228	5258	5284	5324	5328	5362	5368	N/A	N/A	N/A	N/A
12609	5118	5260	5368	5395	5438	5461	5472	5500	5506	N/A	N/A	N/A	N/A
11737	5136	5278	5384	5410	5442	5480	5496	5515	5520	5601	5612	5696	5710
12084	5173	5370	5474	5496	5533	5571	5586	5610	5620	5686	5696	N/A	N/A
12543	5222	5458	5567	5595	5625	5665	5680	5704	5709	5783	5800	N/A	N/A
3618	5056	5222	5340	5368	5394	5436	5444	5478	5484	5548	5560	N/A	N/A
10978	5088	5250	5363	5394	5428	5462	5468	5504	5510	5570	5578	5624	5635
12467	5090	5240	5348	5374	5410	5440	5450	5485	5490	5541	5549	N/A	N/A
11600	5150	5322	5430	5462	5494	5526	5530	5564	5572	5636	5642	N/A	N/A
7976	5252	5466	5572	5596	5634	5672	5681	5712	5720	5772	5778	5850	5855
12530	5342	5580	5694	5722	5754	5792	5800	5849	5856	5940	5949	6078	6082
10270	5321	5534	5640	5668	5704	5758	5764	5790	5798	5870	5879	N/A	N/A
11042	5480	5740	5852	5874	5912	5938	5943	5964	5971	6016	6024	0	0
10271	5368	5623	5734	5766	5800	5849	5855	5900	5905	5982	5992	N/A	N/A

WELL	Mad.	Rat.	M.A.	Mid.	Riv.	StA	Blu.	SAM	Sher.	K-1	Mo.	K-2	Glen.
11555	5492	5772	5872	5912	5949	5968	5974	6050	6056	6114	6129	6197	6234
12190	5429	5700	5811	5840	5877	5916	5926	5978	5985	6050	6070	6134	6179
12520	5680	5915	6030	6055	6080	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1258	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11741	5793	6032	6147	6172	6203	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11572	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1807	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11424	5768	6052	6162	6188	6210	6250	6266	6280	6290	6356	6268	N/A	N/A
11161	5785	6063	6176	6200	6232	6263	6276	6294	6300	6364	6371	N/A	N/A
1842	5803	6096	6218	6242	6270	6310	6322	6338	6344	6400	6413	6500	6584
11050	5708	5972	6082	6108	6141	6175	6186	6230	6538	6323	6334	6350	6437
10604	5675	5916	6029	6653	6072	6114	6120	6149	6155	6235	6248	6340	6350
11203	5643	5892	6002	6025	6042	6090	6095	6128	6134	6198	6210	N/A	N/A
11695	5670	5926	6034	6056	6086	6120	6126	6156	6164	6236	6246	6338	6352
9822	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10392	5700	5940	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10387	5768	5824	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9484	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1169	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11428	5958	6237	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12135	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
328	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11739	3388	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5764	3148	0	0	3190	3204	3220	3224	N/A	N/A	0	0	0	0
8326	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1585	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1525	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12053	3046	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
895	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9009	3048	3122	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12565	2990	0	3017	3040	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1583	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8628	3012	0	0	3061	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1584	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5277	3000	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

WELL	Mad.	Rat.	M.A.	Mid.	Riv.	StA	Blu.	SAM	Sher.	K-1	Mo.	K-2	Glen.
2056	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5184	3006	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12518	3050	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3822	3060	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1529	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1642	3058	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1586	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6385	3127	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10767	3130	3143	3170	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1964	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2638	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3961	3085	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3654	3118	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10648	3156	0	0	0	0	N/A	N/A	N/A	N/A	0	0	0	0
2506	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11601	3168	3184	3204	3223	3238	3247	N/A	N/A	N/A	0	0	0	0
1850	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3827	3155	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2058	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11028	3102	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3776	3154	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11434	3164	0	0	0	0	N/A	N/A	N/A	N/A	0	0	0	0
4655	3203	0	0	0	0	N/A	N/A	N/A	N/A	0	0	0	0
2544	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7376	3142	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6286	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8018	3208	3240	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7827	3266	3288	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4828	3280	3310	3420	3426	3442	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9299	3318	3380	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5660	3320	3390	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3004	3294	3320	3417	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5065	3270	3296	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9156	3310	3345	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5559	3318	3226	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

WELL	Mad.	Rat.	M.A.	Mid.	Riv.	StA	Blu.	SAM	Sher.	K-1	Mo.	K-2	Glen.
4676	3190	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6232	3192	3255	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6417	3322	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3845	3305	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11837	3367	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5364	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12532	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11278	3221	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9012	3208	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9277	3190	3260	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8815	3217	3318	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10738	3218	3256	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2872	3400	3412	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4651	3396	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3088	3404	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2387	3424	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2994	3414	3430	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7888	3232	3280	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3642	3203	3216	3304	3324	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10160	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10219	3375	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11306	3386	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3325	3440	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1909	3422	3430	3455	3480	3510	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1670	3490	3495	3515	3540	3570	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11444	3490	3516	3554	3578	3614	3644	3651	N/A	N/A	N/A	N/A	N/A	N/A
3326	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3047	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5038	3078	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2732	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8526	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4589	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5480	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2595	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1588	3490	0	3554	3574	3620	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

WELL	Mad.	Rat.	M.A.	Mid.	Riv.	StA	Blu.	SAM	Sher.	K-1	Mo.	K-2	Glen.
11658	3502	3521	3556	3580	3615	3644	3652	3674	3680	3684	3694	3714	3740
12014	3486	3504	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5998	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10124	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8506	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3234	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2002	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6039	3460	0	3476	3500	3537	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3377	3500	3511	3549	3579	3608	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2622	3566	0	3650	3670	3702	3742	3750	N/A	N/A	N/A	N/A	N/A	N/A
3101	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10938	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5339	3514	3600	3636	3660	3700	3729	3736	3759	3762	3774	3786	3808	3817
12741	3570	3590	3600	3624	3670	3693	3701	3726	3732	3742	3753	3778	3797
9287	3604	3612	3636	3650	3688	3716	3723	3750	3754	3762	3775	3800	3817
1629	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12686	3596	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
916	3603	3640	3672	3698	3730	3764	3772	3799	3803	3814	3833	3853	3867
7817	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11244	3741	3752	3758	3774	3812	3842	3850	3878	3882	3892	3906	3942	3951
9834	3744	0	0	3772	3808	3830	3843	3866	3870	3880	3892	3926	3940
1431	3727	0	0	3752	3790	3819	3828	3852	3860	3870	3882	3919	3929
11243	3730	0	0	3755	3796	3824	3830	3857	3862	3872	3886	3920	3934
2699	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7765	3648	3655	0	0	3671	3693	3702	3730	3736	3748	3760	3793	3803
3197	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10591	3738	0	0	3750	3779	3800	3808	3840	3846	3862	3874	3908	3920
1448	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8292	3704	0	0	0	0	3767	3774	3803	3811	3826	3840	3880	3895
10361	3638	0	0	0	3677	3700	3706	3733	3746	3752	3767	3803	3823
3425	0	0	0	0	0	3696	3703	3733	3738	3748	3760	3796	3816
1465	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2676	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3161	0	0	0	0	0	3944	3950	3982	3990	4010	4020	4058	4074
1725	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

WELL	Mad.	Rat.	M.A.	Mid.	Riv.	StA	Blu.	SAM	Sher.	K-1	Mo.	K-2	Glen.
11246	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11483	3748	0	0	3777	3820	3842	3850	3878	3882	3895	3907	3946	3953
8800	3763	0	0	0	3816	3840	3850	3876	3882	3895	3906	3948	3960
1427	3941	0	0	3972	4010	4046	4052	4082	4090	4108	4120	4160	4170
3508	3870	3880	3898	3920	3973	3995	4003	4029	4036	4053	4066	4104	4118
12781	3810	0	0	0	3858	3880	3888	3916	3923	3936	3950	3990	4009
9275	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11312	3780	0	0	0	3818	3842	3850	3874	3880	3894	3907	3946	3960
9059	3813	0	0	0	3860	3884	3891	3925	3934	3956	3968	3998	4018
2012	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3465	3940	0	0	0	0	4020	4026	4060	4072	4100	4112	4140	4154
3454	0	0	0	0	0	4036	4042	4081	4085	4120	4132	4165	4179
4319	3991	0	0	0	0	4066	4072	4114	4120	4154	4168	4199	4205
7895	3914	0	0	0	3950	3978	3985	4018	4026	4050	4063	4094	4111
6649	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2945	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1439	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3293	0	0	0	0	0	4085	4091	4122	4128	4152	4166	4204	4224
6363	0	0	4160	4189	4236	4264	4270	4308	4315	4348	4358	N/A	N/A
5378	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8231	4118	0	4150	4170	4225	4252	4258	4295	4304	4336	4358	N/A	N/A
1399	4090	0	4120	4145	4196	4224	4230	4261	4273	4302	4316	4350	4362
5859	0	0	0	4003	4058	4080	4088	4115	4123	4144	4156	4194	4207
3727	4030	0	4040	4067	4107	4144	4152	4198	4206	4244	4270	4296	4318
3516	0	0	0	0	4143	4182	4192	4242	4250	4294	4308	4348	4362
1450	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10477	4073	0	0	4086	4124	4162	4166	4210	4216	4250	4258	4294	4302
5568	4132	0	0	4158	4208	4232	4239	4279	4286	4322	4344	4367	4374
10000	4146	0	4160	4184	4240	4262	4270	4315	4335	4362	4376	4408	4415
3280	4194	0	4226	4239	4272	4292	4302	4350	4356	4399	4410	4443	4451
3992	4300	0	4324	4358	4406	4428	4436	4484	4493	4545	4562	4605	4614
5784	4153	0	4170	4197	4245	4267	4276	N/A	N/A	N/A	N/A	N/A	N/A
8655	4136	4156	4174	4206	4254	4278	4287	4328	4336	4373	4382	N/A	N/A
5818	0	0	0	4188	0	4254	N/A	N/A	N/A	4391	4405	N/A	N/A
1201	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

WELL	Mad.	Rat.	M.A.	Mid.	Riv.	StA	Blu.	SAM	Sher.	K-1	Mo.	K-2	Glen.
5186	4162	4173	4192	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3426	4320	4332	0	4363	4396	4431	4440	4480	4488	4532	4550	4614	4625
8362	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2059	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3799	4390	4402	4420	4446	4481	4518	4528	4568	4580	4620	4640	4721	4730
12228	4307	0	4346	4356	4375	4410	4417	4460	4468	4512	4526	N/A	N/A
3956	4370	4380	4396	4426	4460	4498	4506	4546	4560	4596	4610	N/A	N/A
3186	4404	4410	0	4446	4475	4514	4521	4560	4568	4612	4694	4698	4700
4800	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5624	0	0	4675	4700	4750	4770	4780	4830	4840	4878	4890	N/A	N/A
7144	0	0	0	4731	0	4794	N/A	4844	4856	N/A	N/A	N/A	N/A
5900	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2729	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3600	4418	0	4432	4460	4490	4530	4535	4580	4587	4630	4652	4700	4721
5953	0	0	4736	4766	4792	4828	4838	N/A	N/A	N/A	N/A	N/A	N/A
12673	4660	4680	4786	4816	4845	4876	4888	N/A	N/A	N/A	N/A	N/A	N/A
12695	4690	4710	4816	4846	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12130	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11066	4638	4700	4754	4783	4820	4850	4860	4900	4930	N/A	N/A	N/A	N/A
3974	4480	4520	4568	4598	4630	4670	4678	4720	4740	4778	4791	4845	4858
8278	4476	4490	4540	4569	4610	4630	4646	4690	4710	4748	4764	4816	4827
11491	4496	4586	4638	4668	4712	4736	4748	4782	4789	4869	4894	0	0
5231	4558	4620	4670	4700	4732	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3953	4554	4596	4712	4745	4773	4809	4816	4850	N/A	N/A	N/A	N/A	N/A
3188	4602	4672	4788	4821	4850	4884	4892	4933	4939	4962	4988	0	0
5654	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6330	4578	4646	4694	4772	4756	4794	4801	4847	4867	4884	4892	4934	4939
5901	4554	4612	4660	4686	4720	4755	4762	4812	4827	4846	4856	N/A	N/A
9031	0	4736	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5536	4626	4670	4794	4826	4859	4896	4903	4950	4980	4997	5010	N/A	N/A
12756	4652	4688	4800	4828	4870	4894	4904	4950	4975	4986	4996	N/A	N/A
3127	4660	4715	4824	4854	4894	4920	4927	N/A	N/A	N/A	N/A	N/A	N/A
4167	4842	4930	5040	5070	5098	5140	5144	5186	5200	N/A	N/A	N/A	N/A
3725	4674	4724	4827	4868	4898	4934	4944	N/A	N/A	5030	5036	N/A	N/A
3403	4655	4715	4838	4870	4902	4937	4946	4996	5020	5043	5065	N/A	N/A

WELL	Mad.	Rat.	M.A.	Mid.	Riv.	StA	Blu.	SAM	Sher.	K-1	Mo.	K-2	Glen.
4563	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12661	4688	4727	4836	4865	4905	4925	4935	4974	4984	4998	5032	N/A	N/A
5965	4688	4733	4840	4870	4900	4936	4942	N/A	N/A	N/A	N/A	N/A	N/A
867	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6442	4918	5030	5142	5168	5200	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11774	4810	4888	4997	5024	5064	5087	5096	5130	5137	5196	5211	N/A	N/A
11883	4712	4800	4914	4940	4984	5008	5020	5056	5062	5126	5138	5176	5186
10885	4680	4740	4851	4881	4920	4943	4952	4990	5000	5024	5046	5144	N/A
12769	4681	4720	4828	4858	4898	4918	4928	4965	4972	5020	5032	N/A	N/A
6504	4664	4710	4818	4844	4881	4910	4924	4948	4955	5030	5040	5114	5117
5927	4784	4830	4940	4965	5002	5030	5042	5075	5082	5144	5244	N/A	N/A
11763	4922	5044	5166	5195	5228	5269	5275	5310	5318	5370	5380	N/A	N/A
1815	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3923	4930	5028	5138	5166	5194	5226	5244	5278	5284	5334	5344	N/A	N/A
1234	5000	5113	5228	5250	5300	5329	5339	5370	5380	5440	5450	N/A	N/A
9832	5060	5204	5314	5340	5378	5422	5436	5454	5462	5621	5531	N/A	N/A
12371	5060	5220	5330	5356	5390	5418	5428	5488	5496	5596	5608	N/A	N/A
10268	5108	5289	5424	5459	5500	5507	5560	5585	5630	5640	N/A	N/A	N/A
12552	5190	5395	5506	5530	5557	5606	5618	5666	5674	5756	5763	N/A	N/A
1081	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10269	5273	5488	5600	5622	5657	5696	5710	5758	5764	N/A	N/A	N/A	N/A
1006	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12221	5156	5326	5430	5454	5484	5510	5523	5606	5620	5730	5740	N/A	N/A
9335	5250	5450	5556	5580	5602	5638	5650	N/A	N/A	N/A	N/A	N/A	N/A
1251	5278	5486	5596	5620	5628	5670	5689	N/A	N/A	N/A	N/A	N/A	N/A
9940	5358	5580	5688	5714	5735	5770	5779	5798	5803	5870	5880	N/A	N/A
8893	5366	5578	5683	5710	5738	5764	5777	5798	5804	5872	5880	5966	5971
9073	5300	5500	5608	5632	5652	5688	5690	5721	5726	N/A	N/A	N/A	N/A
12007	5216	5408	5510	5534	5565	5590	5595	5616	5621	5685	5695	N/A	N/A
3473	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3365	5312	5568	5678	5720	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12579	5420	5632	5740	5763	5781	5798	5803	5820	5834	N/A	N/A	N/A	N/A
10509	5390	5628	5740	5766	5786	5825	5832	5856	5860	5920	5934	6019	6022
9713	5500	5742	5868	5894	5927	5966	5973	6007	6015	6042	6051	0	0
9511	5424	5656	5766	5790	5833	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

WELL	Mad.	Rat.	M.A.	Mid.	Riv.	StA	Blu.	SAM	Sher.	K-1	Mo.	K-2	Glen.
12250	5392	5624	5732	5758	5782	5798	5802	5818	5832	N/A	N/A	0	0
3847	5378	5580	5698	5720	5738	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9109	5442	5678	5787	5810	0	5874	5880	5893	5898	N/A	N/A	N/A	N/A
9926	5565	5805	5936	5953	5975	5997	6000	6027	6045	6116	6124	0	0
8819	5524	5780	5890	5915	5935	5954	5958	5980	5997	6018	6022	N/A	N/A
9048	5490	5754	5864	5890	5910	5928	5933	5952	5965	N/A	N/A	N/A	N/A
5781	5232	5462	5574	5600	5618	5632	5636	N/A	N/A	N/A	N/A	N/A	N/A
6156	5328	5542	5658	5664	5701	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10383	5414	5654	5766	5790	5810	5840	5848	5874	5880	5946	5958	0	0
11709	5509	5750	5868	5890	5910	5946	5951	5984	5990	6058	6084	0	0
10253	5587	5740	0	5921	5946	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11690	5499	5759	0	5862	5920	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11790	5500	5762	0	5878	5925	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1582	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10753	5590	5850	5961	5985	6006	6050	6057	6100	6104	N/A	N/A	N/A	N/A
10968	5556	5812	5920	5944	0	6000	6004	N/A	N/A	N/A	N/A	N/A	N/A
659	3607	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11018	3313	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6374	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
806	2870	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6052	3150	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7377	2830	0	2876	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6016	2820	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8352	3012	0	0	0	0	N/A	N/A	N/A	N/A	0	0	0	0
685	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
927	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1184	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12061	3348	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11046	3316	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1673	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4643	3344	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5913	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
110	3417	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10762	3500	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
503	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

WELL	Mad.	Rat.	M.A.	Mid.	Riv.	StA	Blu.	SAM	Sher.	K-1	Mo.	K-2	Glen.
4894	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1302	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11128	3074	0	0	0	0	N/A	N/A	N/A	N/A	0	0	0	0
1524	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11060	3050	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6359	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11127	3080	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2386	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
170	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12496	3008	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11317	3010	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10321	3001	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1528	3000	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12528	3016	0	0	0	0	N/A	N/A	N/A	N/A	0	0	0	0
4671	3058	0	3084	3103	3136	3160	3166	N/A	N/A	N/A	N/A	N/A	N/A
10649	3058	0	0	3086	0	N/A	N/A	N/A	N/A	0	0	0	0
1480	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11446	3084	0	3116	3135	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12465	2982	0	0	0	0	N/A	N/A	N/A	N/A	0	0	0	0
64	3010	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12575	3000	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12382	3000	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
504	3064	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1426	3064	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11531	3000	0	0	0	0	N/A	N/A	N/A	N/A	0	0	0	0
12466	2982	0	0	0	0	N/A	N/A	N/A	N/A	0	0	0	0
10452	3008	0	3138	3155	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10236	3012	0	0	3049	0	N/A	N/A	N/A	N/A	0	0	0	0
9521	3010	0	3042	0	0	N/A	N/A	N/A	N/A	0	0	0	0
2014	3050	0	0	0	0	N/A	N/A	N/A	N/A	0	0	0	0
9747	3050	0	3118	3137	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4272	3040	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3238	3020	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12471	3032	3062	3125	3150	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12783	3069	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

WELL	Mad.	Rat.	M.A.	Mid.	Riv.	StA	Blu.	SAM	Sher.	K-1	Mo.	K-2	Glen.
12611	3060	0	3131	3154	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3320	3100	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10246	3105	3136	3218	3240	3262	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1695	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9058	3054	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10580	3045	0	3160	3177	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3985	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10416	3030	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12582	3054	0	3152	3175	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3478	3079	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11940	3127	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11373	3120	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3482	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12280	3090	0	0	0	0	N/A	N/A	N/A	N/A	0	0	0	0
12408	3107	3120	0	0	0	N/A	N/A	N/A	N/A	0	0	0	0
8142	3021	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3375	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1702	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12513	3053	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3934	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12677	3102	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12402	3114	0	0	0	0	N/A	N/A	N/A	N/A	0	0	0	0
12203	3115	0	0	0	0	N/A	N/A	N/A	N/A	0	0	0	0
1896	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12281	3109	0	0	0	0	N/A	N/A	N/A	N/A	0	0	0	0
834	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5602	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3774	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3808	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4399	3215	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9614	3210	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5288	3160	0	0	0	0	N/A	N/A	N/A	N/A	0	0	0	0
240	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4175	3146	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3182	3160	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

WELL	Mad.	Rat.	M.A.	Mid.	Riv.	StA	Blu.	SAM	Sher.	K-1	Mo.	K-2	Glen.
11372	3145	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2776	3159	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8693	3234	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8097	3208	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8919	2997	0	0	0	0	N/A	N/A	N/A	N/A	0	0	0	0
5637	3314	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9988	3229	3260	0	0	0	3274	3279	N/A	N/A	N/A	N/A	N/A	N/A
7793	3229	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8334	3150	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5815	3160	3245	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12300	3122	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8463	3163	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12723	3173	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9099	3228	3264	0	0	0	3284	3290	N/A	N/A	N/A	N/A	N/A	N/A
921	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3026	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12578	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11623	3180	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4623	3160	3190	0	0	0	3206	3212	N/A	N/A	N/A	N/A	N/A	N/A
6151	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8241	3272	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
925	3232	3260	3285	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10595	3270	3280	3310	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4157	3295	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3889	3304	0	3380	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9701	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2879	3306	3345	3375	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8152	3272	3288	3318	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
564	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11011	3282	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2557	0	0	0	0	0	N/A	0	N/A	N/A	N/A	N/A	N/A	N/A
2672	2970	0	3078	3100	3128	3148	3144	3162	3184	3232	N/A	N/A	N/A
10726	3460	0	3482	3492	3515	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3744	3380	0	3450	3474	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10347	0	0	0	3408	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

WELL	Mad.	Rat.	M.A.	Mid.	Riv.	StA	Blu.	SAM	Sher.	K-1	Mo.	K-2	Glen.
3208	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1956	3300	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3623	3420	0	3470	3497	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5550	3385	0	3440	3464	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
248	3380	3420	3450	3470	3519	3541	3548	3588	3600	3658	3670	3720	3752
2192	3414	0	3470	3500	3519	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3595	3492	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3765	3440	3452	3496	3513	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10958	3375	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3499	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1383	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10352	3301	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9638	3385	3404	3432	0	0	N/A	N/A	3456	3462	3470	3482	3500	3530
1225	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9639	3456	3486	3596	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11251	3474	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11010	3490	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8698	3487	0	3504	0	0	N/A	N/A	3532	3540	3550	3562	3596	3612
4846	3490	0	0	3549	3560	3564	3570	3574	3595	3613	3684	3710	N/A
5251	3440	0	0	0	0	N/A	N/A	3476	3484	3492	3507	3534	3550
3554	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5638	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8502	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5768	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1839	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8045	3534	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2006	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5250	3457	0	3524	0	0	N/A	N/A	3554	3558	3570	3584	3616	3627
12483	3405	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1510	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11398	3420	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8635	3454	3462	3512	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5238	3504	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10768	3508	0	3516	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5193	3535	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

WELL	Mad.	Rat.	M.A.	Mid.	Riv.	StA	Blu.	SAM	Sher.	K-1	Mo.	K-2	Glen.
3250	3584	0	3660	0	0	3664	3670	3686	3694	3708	3721	3756	3768
3876	3520	0	3582	0	0	3588	3593	3608	3614	3624	3640	3668	3690
11924	3500	0	3545	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1920	3454	0	3574	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11864	3488	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1353	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3726	3596	0	3627	0	0	3634	3640	3656	3664	3684	3694	3732	3752
4114	3648	0	3684	0	0	3692	3696	3717	3723	3743	3755	3794	3808
4378	3600	0	3642	0	0	N/A	N/A	3678	3684	3700	3714	3752	3775
5324	3564	0	0	0	0	N/A	N/A	3619	3628	3640	3654	3694	3714
3764	3550	0	0	0	0	N/A	N/A	3594	3597	3611	3624	3660	3676
11445	3540	0	0	0	0	N/A	N/A	3568	3572	3589	3600	3630	3646
338	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4219	3582	0	3624	0	0	3680	3686	3667	3674	3682	3695	3734	3753
4186	3578	0	3634	0	0	N/A	N/A	3672	3678	3694	3705	3744	3764
11646	3634	0	3670	0	0	3674	3680	3700	3707	3725	3738	3776	3800
11120	3730	0	3814	0	0	3820	3828	3844	3854	3874	3885	3920	3949
11121	3710	0	3782	0	0	3788	3794	3816	3824	3842	3856	3892	3908
12136	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8249	3578	0	3640	0	0	3646	3652	3672	3680	3694	3708	3745	3758
8320	0	0	0	0	0	3614	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8319	3572	0	3614	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4753	3572	0	3640	0	0	3646	3650	3670	3676	3688	3701	3735	3756
3699	3598	0	3654	0	0	3660	3666	3688	3694	3708	3722	3760	3776
11565	3630	0	3708	0	0	3712	3720	3736	3743	3760	3776	3816	3832
11324	3653	0	3703	0	0	3710	3716	3738	3744	3764	3777	3817	3831
11772	3677	0	3744	0	0	3752	3757	3776	3783	3804	3818	3856	3872
11279	3722	0	3795	0	0	3803	3810	3833	3840	3858	3870	3915	3937
911	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12798	3736	0	0	0	0	N/A	N/A	3848	3852	3870	3884	3916	3933
3467	3642	0	3716	0	0	3723	3728	3698	3705	3720	3733	3825	3835
8918	3596	0	3668	0	0	3674	3680	3702	3706	3718	3732	3764	3774
5647	3700	0	3740	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3640	3700	0	3754	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3438	3764	0	3824	0	0	3832	3838	3874	3878	3900	3914	3954	3968

WELL	Mad.	Rat.	M.A.	Mid.	Riv.	StA	Blu.	SAM	Sher.	K-1	Mo.	K-2	Glen.
11030	3820	0	3878	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5963	3845	0	3932	0	0	3942	3950	3961	3968	3982	3990	4033	4049
1264	3770	0	3823	0	0	N/A	N/A	3860	3874	3896	3911	3948	3965
8321	3717	3728	3772	0	0	3782	3786	3810	3816	3840	3852	3890	3904
10290	3684	0	3732	0	0	3742	3747	3770	3777	3795	3810	3850	3858
3721	0	0	3754	0	0	3761	3767	3787	3793	3812	3825	3866	3878
10176	3766	3786	3838	0	0	3846	3851	3872	3880	3906	3920	3954	3972
3074	3766	3800	3845	0	0	3855	3860	3882	3889	3914	3926	4014	N/A
3770	3828	3841	3896	0	0	3904	3909	3947	3951	3070	3092	4020	4033
115	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6343	3870	0	3953	0	0	3962	3968	3995	4004	4043	4058	4098	4113
1325	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3068	3836	0	3915	0	0	3924	3930	3966	3970	3990	4002	4036	4053
11546	3822	0	3896	0	0	3904	3910	3932	3938	3966	3978	4010	4020
12000	3782	0	3852	0	0	3860	3864	3890	3894	3920	3930	3960	3972
8589	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6738	3753	3775	3844	0	0	3848	3856	3868	3878	3910	3922	3954	3967
7598	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6670	3804	0	3882	0	0	3890	3894	3918	3924	3952	3962	3992	4006
5327	3929	0	0	3943	3992	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10049	3925	0	4014	0	0	N/A	N/A	4050	4058	4088	4102	4134	4151
6722	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6671	3800	0	3888	0	0	N/A	N/A	3927	3932	3955	3964	4002	4022
8842	3888	0	3957	0	0	N/A	N/A	3994	3997	4018	4023	4066	4090
5295	3904	0	3980	0	0	N/A	N/A	4036	4044	4058	4068	4090	4111
3817	3930	0	4006	0	0	N/A	N/A	4032	4039	4054	4064	4099	4125
11100	4024	0	4054	0	0	4063	4068	4096	4101	4107	4114	4148	4154
5290	4040	0	0	0	0	N/A	N/A	4147	4154	4166	4172	4236	4248
12762	4028	0	4102	0	0	N/A	4108	4129	4138	4154	4172	N/A	N/A
814	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11910	3975	0	0	0	0	4058	N/A	4098	4104	4172	4184	4260	4272
3212	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9624	4034	0	4132	0	0	N/A	N/A	4148	4158	4173	4240	4282	4291
5740	4028	0	4112	0	0	N/A	N/A	4159	4170	4188	4227	4277	4287
2785	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

WELL	Mad.	Rat.	M.A.	Mid.	Riv.	StA	Blu.	SAM	Sher.	K-1	Mo.	K-2	Glen.
11867	4078	0	4202	0	0	N/A	N/A	4230	4238	4253	4284	4305	4320
10946	4066	0	4152	0	0	N/A	N/A	4175	4185	N/A	N/A	N/A	N/A
4693	4020	0	4110	0	0	N/A	N/A	4134	4141	4154	4194	4218	4230
11855	3962	0	4044	0	0	N/A	N/A	4070	4081	4096	4116	4156	4178
2640	3960	0	4044	0	0	N/A	N/A	4097	4111	4152	4169	4201	4214
11399	4032	0	4135	0	0	N/A	N/A	4183	4204	4234	4263	N/A	N/A
11040	4018	0	4096	0	0	N/A	N/A	4154	4170	4215	4240	N/A	N/A
7491	4032	0	4121	0	0	N/A	N/A	4162	4200	4222	4236	N/A	N/A
6245	4070	0	4154	0	0	N/A	N/A	4200	4235	4260	4273	N/A	N/A
960	4194	0	4280	0	0	N/A	N/A	4280	4316	4334	4349	N/A	N/A
8012	4150	0	4242	0	0	N/A	N/A	4278	4313	4340	4356	4432	4452
4612	4096	4128	4176	0	0	N/A	N/A	4219	4244	4280	4294	N/A	N/A
11304	4038	0	4128	0	0	N/A	N/A	4188	4208	4240	4260	4298	4306
5835	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11124	4080	4088	4110	0	0	4118	4122	4156	4169	4199	4205	N/A	N/A
3881	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8504	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1726	4060	4060	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5806	4104	0	4168	0	0	N/A	N/A	4199	4205	N/A	N/A	N/A	N/A
10410	4183	0	4294	0	0	4284	4300	4318	4335	4353	4380	4400	4410
3434	4214	0	4320	0	0	N/A	N/A	4354	4361	4426	4443	N/A	N/A
6732	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3737	4200	0	4298	0	0	4291	4302	4326	4334	4413	4432	N/A	N/A
9600	4150	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3816	4124	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1239	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10666	4126	0	4202	0	0	4184	4201	4237	4244	4290	4312	N/A	N/A
3011	4142	0	0	0	0	4232	4248	4282	4291	4320	4358	N/A	N/A
4166	4156	0	4260	0	0	4248	4260	4300	4307	4328	4364	N/A	N/A
6458	4258	0	4370	0	0	4358	4370	4402	4410	4470	4484	N/A	N/A
6123	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3973	4344	0	4432	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3253	4312	4336	4444	0	0	4432	4444	4498	4536	N/A	N/A	N/A	N/A
8636	4244	4265	4274	4300	4333	4364	4381	4422	4490	N/A	N/A	N/A	N/A
3806	4230	4256	4260	4290	4327	4360	4378	4410	4482	N/A	N/A	N/A	N/A

WELL	Mad.	Rat.	M.A.	Mid.	Riv.	StA	Blu.	SAM	Sher.	K-1	Mo.	K-2	Glen.
6703	4180	4205	4250	0	0	4240	4254	4290	4320	4346	4364	N/A	N/A
11411	4260	4278	4296	4324	4360	4392	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5649	4390	4424	4529	0	0	N/A	N/A	4549	4554	4565	4572	N/A	N/A
4165	4430	4454	4490	4524	4524	4588	4599	4652	4704	N/A	N/A	N/A	N/A
11294	4320	4332	4450	4386	4415	4449	4464	4480	4486	4500	4512	4559	4567
4132	4302	4310	4326	4358	4393	4427	4442	4486	4526	4538	4549	4560	4570
6410	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2581	4400	4457	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9921	4406	4426	4475	4504	4530	4566	4572	4593	4599	4608	4615	N/A	N/A
5808	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8686	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5917	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4839	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4512	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7473	4374	4410	4460	4490	4518	4553	4560	4580	4584	4602	4609	N/A	N/A
5101	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11379	4320	0	N/A	4370	4412	4430	4443	4454	4468	4548	4562	N/A	N/A
3683	4382	4430	4463	0	0	4466	4470	4487	4490	4572	4582	N/A	N/A
3599	4514	4580	4630	0	0	4721	4736	4765	4774	4840	4858	N/A	N/A
1007	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11535	4350	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1040	4450	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4017	4540	4597	4630	0	0	4684	N/A	4690	4710	4785	4792	N/A	N/A
1822	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12046	4660	4730	4778	4802	4830	4870	4886	4925	4934	5032	5042	5097	5106
3719	4512	4580	4630	4660	4691	4725	4732	4755	4773	4822	4831	N/A	N/A
5760	4534	4580	4634	4664	4690	4742	4748	N/A	N/A	N/A	N/A	N/A	N/A
5592	4550	4615	4668	4685	4713	4750	4756	N/A	N/A	N/A	N/A	N/A	N/A
6749	4458	4500	4550	4580	4618	4645	4662	4693	4700	4760	4770	4834	4838
12043	4639	4662	4774	4805	4843	4870	4874	N/A	N/A	4925	4932	N/A	N/A
6436	4658	4670	4776	4806	4834	4876	4884	4890	4898	0	0	0	0
12083	4703	4723	4826	4852	4882	4906	4920	4989	4994	5080	5085	N/A	N/A
6296	4670	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6401	4560	4615	4668	4694	4730	4744	4760	4805	4812	4873	4880	4959	4962
5556	4555	4640	4690	4720	4746	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

WELL	Mad.	Rat.	M.A.	Mid.	Riv.	StA	Blu.	SAM	Sher.	K-1	Mo.	K-2	Glen.
5834	4605	4650	4698	4728	4740	4792	4805	4834	4840	4886	4892	4970	4980
8533	4602	4655	4708	4734	4761	4800	4806	N/A	N/A	N/A	N/A	N/A	N/A
6473	4676	4715	4830	4857	4891	4924	4940	4975	4980	5055	5060	0	0
12497	4723	4770	4814	4840	4867	4906	4918	4956	4962	5040	5049	5126	5128
3912	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4977	4832	4910	5011	5048	5078	5114	5120	5122	5127	5172	5180	N/A	N/A
10263	4775	4830	4930	4954	4983	5025	5046	5070	5076	0	0	0	0
9424	4880	4970	5094	5126	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1080	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1490	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10264	5044	5170	5277	5300	5326	5350	5366	5438	5444	0	0	0	0
8941	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10382	4946	5062	5166	5192	5216	5242	5264	5310	5312	0	0	0	0
2800	4994	5100	5204	5230	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11765	5042	5170	5274	5296	5314	5350	5364	5448	5452	0	0	0	0
1573	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11641	5054	5180	5285	5308	5326	5355	5367	5385	5391	5452	5574	N/A	N/A
6877	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4526	5150	5296	5395	5418	5435	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3530	5136	5303	5408	5432	5448	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6031	5160	5360	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10619	5190	5390	5498	5522	5540	5584	5586	N/A	N/A	N/A	N/A	N/A	N/A
6204	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2653	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3408	5080	5238	5348	5378	5394	5457	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11382	5096	5256	5364	5390	5410	5456	5474	5559	5564	0	0	0	0
12126	5120	5268	5377	5404	5432	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1076	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2074	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5969	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6572	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
359	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1411	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10318	2980	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5127	2978	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

WELL	Mad.	Rat.	M.A.	Mid.	Riv.	StA	Blu.	SAM	Sher.	K-1	Mo.	K-2	Glen.
11685	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3202	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10043	2966	0	2999	3012	3035	3045	3051	N/A	N/A	N/A	N/A	N/A	N/A
4115	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4818	3060	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9313	3000	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11518	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11909	3063	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6285	3042	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10304	3070	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10552	3050	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10097	3031	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11488	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11461	2996	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3775	3154	0	0	3214	3327	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5349	3140	0	0	3182	3211	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10706	3132	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3481	3235	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11662	3074	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
623	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3593	3305	3320	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6874	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9966	3274	3288	3344	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10462	3324	0	3395	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3738	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1470	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4780	3408	0	3440	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4053	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1149	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3706	3512	0	3615	3630	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5652	0	0	3586	3604	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3949	3938	3968	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4029	0	0	0	0	0	4007	4012	4040	4045	4058	4064	N/A	N/A
8946	3795	0	0	0	3820	3844	3850	3890	4000	4003	4010	N/A	N/A
8284	3738	0	0	0	0	3770	3780	N/A	N/A	N/A	N/A	N/A	N/A

WELL	Mad.	Rat.	M.A.	Mid.	Riv.	StA	Blu.	SAM	Sher.	K-1	Mo.	K-2	Glen.
8216	3684	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4156	3686	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9032	3793	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9673	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10261	3856	0	0	3956	3993	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9229	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7684	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9305	3980	0	0	0	0	4068	4080	4120	4136	4170	4187	N/A	N/A
8120	3920	0	0	0	0	3988	4000	4045	4052	4084	4101	N/A	N/A
5800	3954	0	0	0	4000	4016	4026	4074	4082	4110	4124	N/A	N/A
12639	3876	0	0	3877	3890	3915	3926	3954	3966	3980	4015	N/A	N/A
10314	3842	0	0	0	0	3889	3900	3928	3940	3962	3991	N/A	N/A
8989	3826	0	0	0	3870	3889	3900	3958	3978	4010	4015	4058	4061
11682	3912	0	0	N/A	N/A	4030	4040	4076	4082	4142	4148	N/A	N/A
3651	4008	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3038	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12733	4062	0	0	4061	4095	4143	4147	N/A	N/A	N/A	N/A	N/A	N/A
9980	4090	0	0	0	0	4168	4186	4218	4228	4278	4285	N/A	N/A
2656	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5926	4155	0	0	0	0	4262	4275	4314	4322	4374	4384	N/A	N/A
6754	0	0	0	4166	0	4238	4246	N/A	N/A	N/A	N/A	N/A	N/A
5451	4094	0	0	0	0	4173	4184	N/A	N/A	4222	4232	N/A	N/A
12622	4070	0	0	0	0	4116	4135	4148	4156	4164	4170	N/A	N/A
12764	4009	0	0	4009	4038	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11334	4023	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12456	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4200	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9637	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1087	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5942	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3629	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3826	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3906	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6561	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6349	4430	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

WELL	Mad.	Rat.	M.A.	Mid.	Riv.	StA	Blu.	SAM	Sher.	K-1	Mo.	K-2	Glen.
6022	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5756	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10262	4842	4902	0	5026	5055	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8841	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10423	4750	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12509	4920	5017	0	5080	5166	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
36118	2565	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0	0
21119	2930	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0	0
29120	3220	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0
23121	3351	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0	0
14125	2960	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0	0
15125	2980	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0	0
22125	2980	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0	0
23125	2948	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0	0
27125	2956	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0	0
30125	3012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0	0
33125	2974	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0	0
13126	3018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0	0
16126	3088	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0	0
18126	3046	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0	0
19127	3230	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0	0
3128	3200	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0	0
16128	3320	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0	0
11228	3148	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0	0
2228	3198	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0	0
5130	3706	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3812	3824	3856	3894
6130	3772	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3931	3944	3982	3993
30130	3610	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3690	3697	3732	3740
31130	3598	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3658	3666	3708	3716
32130	3589	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3618	3626	3655	3666
3131	3851	N/A	N/A	N/A	N/A	3896	3904	N/A	N/A	3922	3930	3944	3950
4131	3882	N/A	N/A	N/A	N/A	3928	3933	3940	3944	3958	3964	3976	3982
5131	3926	N/A	N/A	N/A	N/A	3990	3998	4004	4009	4018	4026	4040	4046
6131	3934	N/A	N/A	N/A	N/A	4004	4022	4038	4042	N/A	4050	4062	4067
8131	3855	N/A	N/A	N/A	N/A	N/A	N/A	3926	3930	3942	3950	3965	3976

WELL	Mad.	Rat.	M.A.	Mid.	Riv.	StA	Blu.	SAM	Sher.	K-1	Mo.	K-2	Glen.
12131	3752	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3824	3832	3876	3888
16131	3810	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3874	3882	3900	3915
17131	3835	N/A	N/A	N/A	N/A	3900	3918	3924	3928	3938	3946	3964	3980
20131	3824	N/A	N/A	N/A	N/A	N/A	N/A	3873	3877	3885	3893	3911	3920
23131	3734	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3766	3772	3812	3821
30131	3810	N/A	N/A	N/A	N/A	3853	3862	3880	3886	3900	3923	3936	3946
35131	3690	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3711	3724	3784	3793
1132	3949	N/A	N/A	N/A	N/A	4012	4030	4046	4054	4066	4074	4132	4142
2132	3980	N/A	N/A	N/A	N/A	4040	4048	4066	4071	4081	4087	4152	4188
3132	3996	N/A	N/A	N/A	N/A	4058	4078	4086	4090	4110	N/A	N/A	N/A
4132	4052	N/A	N/A	N/A	N/A	4128	4146	4155	4160	4182	4188	4236	4250
5132	4100	N/A	N/A	N/A	N/A	4166	4176	4202	4208	4217	4224	4273	4283
8132	4080	N/A	N/A	N/A	N/A	4110	4130	4195	4201	4216	4228	4260	4272
10132	4013	N/A	N/A	N/A	N/A	4090	4110	4118	4124	4146	4150	4215	4222
12132	3969	N/A	N/A	N/A	N/A	4040	4056	4076	4084	4096	4104	4177	4212
14132	3932	N/A	N/A	N/A	N/A	4002	4018	4036	4044	4057	4064	4107	4138
19132	4104	N/A	N/A	N/A	N/A	4169	4180	4190	4196	4218	4236	4255	4266
23132	3904	N/A	N/A	N/A	N/A	3942	3958	3974	3979	3990	3997	4030	4037
26132	3850	N/A	N/A	N/A	N/A	3860	3875	3892	3900	3914	3922	3960	3969
27132	3900	N/A	N/A	N/A	N/A	3922	3934	3940	3952	3968	3990	4010	4019
33132	3926	N/A	N/A	N/A	N/A	N/A	N/A	3966	3970	3984	4000	4046	4056
7133	4354	N/A	4438	4468	4494	4538	4550	4558	4562	4574	4579	4630	4658
9133	4303	N/A	4356	4386	4420	4456	4580	N/A	N/A	4494	4505	4564	4580
12133	4188	N/A	N/A	4268	4288	4316	4330	4368	4374	4426	4448	4498	4506
17133	4338	N/A	4368	4398	4426	4477	4492	4507	4512	4522	4535	4578	4586
23133	4140	N/A	N/A	N/A	N/A	4206	4216	4246	4253	4296	4313	4390	4402
11134	4450	N/A	4506	4534	4573	4597	4604	4616	4620	4650	4658	4715	4723
27134	4354	N/A	4409	4437	4470	4514	4532	4582	4592	4680	4706	4768	4776
6233	4238	N/A	N/A	N/A	N/A	4340	4356	4370	4376	N/A	N/A	N/A	N/A
10233	4052	N/A	N/A	N/A	N/A	4140	4146	4156	4162	4178	4186	4223	4236
26233	3924	N/A	N/A	N/A	N/A	3955	3 962	3 972	3976	3991	3998	4037	4044
1234	4262	N/A	N/A	4312	4338	4372	4384	N/A	N/A	4394	4399	4432	4440

Appendix C - Drill core descriptions

N.D.G.S. 13495
NW NE sec. 33 T. 157 N., R. 81 W.
Ward County
Brunner #1-33

Slabbed core in good condition. There is good correlation between well-log and drill core.

Top of section.

Mohall

4697-4701.75 Packstone: cream, with several ooid horizons at 4697.4-4697.5, 4698.5-4698.9, and 4699.3-4699.6. Laminated anhydrite horizons appear at 4697.15-4699.7. Laminations at 4698.3-4698.5. Stylolites at 4699, 4699.8, 4700.1, and 4701.1-4701.7.

4701.75-4702.8 Wackestone: cream, massive, ooid horizons at 4702.6. Gradational contact with the overlying packstone.

4702.8-4705.6 Packstone: cream, ooid horizon at 4703.4. Stylolites are found at 4703.3 and 4704.5. Gradational contact with the overlying wackestone.

K-2

4705.6-4706.6 Sandy limestone: gray, with anhydrite laminations. Gradational contact with the overlying packstone.

4706.6-4708.9 Quartz sandstone: gray, very fine-grained, poorly sorted, 4707-4707.5; moderately well-sorted 4707.5-4709. Quartz is the predominant mineral and is cemented by calcite. Grains are sub-angular to sub-rounded. Sandstone is laminated from 4706.6-4708. Laminations are black and consist of heavier ferromagnesian minerals. Gradational contact with the overlying sandy limestone.

4708.9-4709.2 Sandy limestone: cream, very fine-grained quartz grains, sub-angular to sub-rounded, moderately well-sorted. Included in the sand are black horizontal laminations of heavier ferromagnesian minerals. Gradational contact with the overlying sandstone.

4709.2-4710.3	Packstone: cream, ooid horizon at 4709.3. Stylolite at 4710. *Ortonelli* located at 4710.1-4710.2. Gradational contact with the overlying sandy limestone.
4710.3-4711.5	Sandy limestone: cream, very fine-grained quartz, sub-angular to sub-rounded, moderately well-sorted. Gradational contact with the overlying packstone.
4711.5-4713.8	Quartz sandstone: cream, very fine-grained, moderately well-sorted. Quartz is predominant mineral, and grains are sub-angular to sub-rounded. Grains are cemented with calcite. Sandstone is massive. Gradational contact with the overlying limestone.
4713.8-4714.1	Sandy limestone: cream, with laminations Gradational contact with the overlying sandstone.
4714.1-4715.1	Quartz sandstone: cream, same characteristics as preceding sandstone. Gradational contact with the overlying limestone.
4715.1-4715.2	Sandy limestone: cream, with laminations. Gradational contact with the overlying sandstone.
4715.2-4717	Quartz sandstone: cream, same characteristics as preceding sandstone. Sharp contact with the overlying limestone.

N.D.G.S. 3194
NE NE sec. 7 T. 158 N., R. 81 W.
Glenburn Field, Renville County
Einar Christianson A #1

Slabbed core in good condition. Core missing in several areas. There is good correlation between well-log and drill core.

Top of section.

Mohall

4496-4496.15	Anhydrite: gray, massive, no porosity.
4496.15-4469.65	Core missing.

4496.65-4497.2	Anhydrite: gray, massive, no porosity.
4497.2-4497.7	Core missing.
4497.7-4498.5	Anhydrite: gray, massive, no porosity.
4498.5-4498.8	Core missing.
4498.8-4499.3	Anhydrite: gray, massive, no porosity.
4499.3-4499.65	Core missing.
4499.65-4500.2	Anhydrite: gray, massive, no porosity.
4500.2-4500.9	Core missing.

K-2

4500.9-4501.3	Anhydrite: gray, sandy, massive. Sand is very fine-grained, primarily quartz, well-rounded, well-sorted. Anhydrite makes up 70-75% of core.
4501.3-4501.65	Core missing.
4501.65-4502.4	Anhydrite: gray, sandy, massive. Same properties as above.
4502.4-4502.85	Core missing.
4502.85-4503.3	Anhydrite: gray, massive, no porosity.
4503.3-4503.5	Core missing.
4503.5-4505.2	Anhydrite: gray, massive, no porosity.
4505.2-4505.8	Core missing.
4505.8-4506.2	Anhydrite: gray, massive, no porosity. Some clay within the core. Anhydrite is 75-80% of core volume.
4506.2-4506.7	Core missing.
4506.7-4508.2	Clayey anhydrite: Gray, massive, algal laminations 4507.8-4507.96, lime mud.
4508.2-4508.75	Core missing.
4508.75-4509.1	Clayey anhydrite: Light gray, algal laminations, carbonate mud.

4509.1-4510.4	Core missing.
4510.4-4515	Clayey anhydrite: light brownish-gray, lime mud, 40% clay, 60% anhydrite.

Bottom of section.

N.D.G.S. 7868
SE NE sec. 1 T. 158 N., R. 82 W.
Glenburn Field, Renville County
Kunkel no. 5

Slabbed core in good condition. There is a strong correlation between well-log and drill core.

Top of section.

K-2

4551-4555.05	Sandy anhydrite: gray, sand grains primarily quartz, very fine-grained, sub-rounded. Sand is massive to 4553.3, laminar bedding from 4553.3 to 4555.25. From 4551 to 4551.5, sand is 10-15%. Sand increases to 35-50% from 4551.5 to 4552. There is a gradational decrease in sand to 15-20% from 4552 to 4553. Sand increased to 25-30% from 4553 to 4553.35. Sand gradually decreased to clay below 4555.05.
4555.05-4555.9	Clayey anhydrite: light gray, interbedded with gray layers. Gradational contact with the overlying sandy anhydrite.
4555.9-4556.5	Anhydrite: gray, massive. Sharp contact with the overlying clayey anhydrite.
4556.5-4557	Core missing.
4577-4558.6	Clayey anhydrite: light gray, massive. Vuggy porosity (15-20%) from 4557.7-4558. Laminations located at 4558, with lime mud, and vuggy porosity 0-20% of core volume.
4558.6-4558.9	Packstone: light brown, vuggy porosity (10-20%). Gradational contact with the overlying clayey anhydrite.
4558.9-4559.1	Clayey anhydrite: white, massive. Sharp contact with the overlying packstone.

4599.1-4559.5 Packstone: light brown, vuggy porosity (15-20%), ooids. Sharp contact with the overlying clayey anhydrite.

4559.5-4559.7 Anhydrite: light gray, massive. Sharp contact with the overlying packstone.

4559.7-4559.8 Packstone: light brown. Sharp contact with the overlying anhydrite.

4559.8-4561.1 Anhydrite: light gray, massive. Gradational contact with the overlying packstone.

Glenburn

4561.1-4571 Packstone: light brown, algal laminations (4561.1-4561.2; 4561.7-4561.75), vuggy porosity (10-15%), ooids (4562-4563). Sharp contact with the overlying anhydrite.

Bottom of section.

N.D.G.S. 7134
NE SW sec. 2, T. 158 N., R. 81 W.
Renville County, Glenburn Field
McEllroy No. 3

Whole core is in good condition. Slabbed core starts at 4562.9'. Well-log interval is five feet above the drill core interval.

Top of section.

Mohall

4560-4564 Anhydrite: gray, massive.

4564-4568.2 Anhydrite: gray layered with clay and very fine sand appearing in thin layers: black laminated clay appears at 4566. Sharp contact with the overlying anhydrite.

K-2

4568.2-4571.6 Sandy anhydrite: gray, very fine sand 30-40% of core; around 4569.8 there is a gradual transition into very fine sandstone. Laminated layers occur between 4570.6 to 4571.1. Gradational contact with the overlying anhydrite.

4571.6-4572.7 Packstone: cream, dolomitized, with Laminations to 4572. Sharp contact with the overlying sandy anhydrite.

4572.7-4572.9 Anhydrite: gray, massive. Sharp contact with the overlying packstone.

Glenburn

4572.9-4575 Packstone: cream, laminations between 4573.7-4573.9. Sharp contact with the overlying anhydrite.

Bottom of section.

N.D.G.S. 7882
NE NE sec. 22, T.158 N., R. 82 W.
Glenburn Field, Renville County
I.R. Presky

Whole core in good condition. Well-log displays K-2 marker at 4759-4786', but no sand is present in drill core.

Top of section.

K-2

4579-4786 Anhydrite: gray, massive, no porosity.

Bottom of section.

N.D.G.S. 3759
SE SE sec. 23, T. 159 N., R. 79 W.
McHenry County
Edwards No. 1

Whole core in good condition. Core missing 3952.5-3953.6'. Well-log is missing.

Top of section.

K-2

3940.7-3944 Clayey anhydrite: gray, massive.

3944-3947 Silty anhydrite: gray, massive. Gradational contact with the overlying clayey anhydrite.

3947-3949	Anhydrite: Gray, massive. Gradational contact with the overlying silty anhydrite.
3949-3950	Claystone: gray, massive. Anhydrite found in channel porosity. Contact with the overlying anhydrite is gradational.
3950-3952.5	Clayey anhydrite: cream, massive. Nodular anhydrite appears between 3952 and 3952.2. Lime mud is concentrated 3951.8-3952. Contact with the overlying claystone is gradational.
3952.5-3953.6	Core missing.
3953.6-3956.2	Clayey anhydrite: cream, massive. Increased lime mud concentration with laminations, 3954.25 to 3954.3, 3954.8 to 3954.9.

Glenburn

3956.2-3971	Packstone: black, ooid rich, several laminations between 3959 and 3960.3. Anhydrite fills vuggy porosity and cracks. Contact with the overlying clayey anhydrite is gradational.

Bottom of section.

N.D.G.S. 4231
NE SW sec. 34, T. 159 N., R. 82 W.
West Glenburn Field, Bottineau County
Kemper #1

Whole core in good condition. Some sections between 4573-4579' are missing. Well-log displays K-2 marker, but no sand appears in the drill core.

Top of section.

K-2

4570-4592.7	Anhydrite: gray, massive.
4592.7-4600	Clayey anhydrite: gray, massive. Around 4596 the clay content becomes greater than 50% of core volume. The contact with the overlying anhydrite is gradational.

Bottom of section.

N.D.G.S. 10345
NW SW sec. 36, T. 159 N., R. 82 W.
Glenburn Field, Bottineau County
Reiquam-State #4

Slabbed core in good condition. Glenburn is present in well-log, but is not in drill core.

Top of section.

Mohall

4510-4510.9	Clayey anhydrite: gray, massive.

K-2

4510.9-4513.7	Sandy anhydrite: gray, massive, very fine-grained quartz with a small amount of dark ferromagnesian minerals. Grains are sub-rounded to sub-angular. No porosity in sandstone. Gradational contact with the overlying clayey anhydrite.
4513.7-4514.9	Clayey anhydrite: gray, massive. Gradational contact with overlying sandy anhydrite.
4514.9-4515.2	Clayey anhydrite: white, thinly laminated. Sharp contact with the overlying massive clayey anhydrite.
4515.2-4515.6	Clayey anhydrite: gray, massive. Sharp contact with the overlying laminated clayey anhydrite.
4515.6-4516	Claystone: white, massive from 4515.6-4515.8; horizontally laminated from 4515.8-4516. Sharp contact with the overlying clayey anhydrite.
4516-4516.6	Clayey anhydrite: gray, massive. Gradational contact with overlying claystone.
4516.6-4517	Silty anhydrite: gray, well-sorted, well-rounded, anhydrite is greater than 80% of core volume, horizontal laminations. Gradational contact with the overlying clayey anhydrite.
4517-4522.2	Clayey anhydrite: gray, nodular texture. Gradational contact with the overlying silty anhydrite.
4522.2-4522.4	Silty anhydrite: gray, laminated. Gradational

contact with the overlying clayey anhydrite.

4522.4-4526.5 Silty anhydrite: gray, massive. Sharp contact with the overlying laminated silty anhydrite.

4526.5-4527 Anhydrite: gray, nodular with clay. Gradational contact with the overlying silty anhydrite.

4527-4530 Anhydrite: light gray, nodular texture, increased silt-clay concentration. Gradational contact with the overlying anhydrite.

Bottom of section.

N.D.G.S. 3887
SE NE sec. 24, T. 159 N., R. 83 W.
Bottineau County
No. 1 Undlin

Whole and slabbed core in poor condition. well-log interval is two feet above the drill core interval.

Top of section.

K-2

4595-4597 Clayey anhydrite: gray and white, nodular texture. Below 4095.55 clay concentration is greater than 70%.

4597-4599 Anhydrite: gray, massive. Sharp contact with the overlying clayey anhydrite.

4599-4606.82 Clayey anhydrite: gray and cream, texture cannot be determined because of core condition. Sharp contact with the overlying anhydrite.

Glenburn

4606.82-4617 Packstone: cream, stylolites at 4606.82, 4610.1; and ooid layers at 4612-4612.2, and 4613.25-4613.65. Porosity changes throughout section. Vuggy porosity 25-30% of core volume 4609-4609.15. Vuggy porosity 10-15% of core volume at 4609.6-4609.8, increasing to over 20%, 4609.8-4606.9. Vuggy porosity 10-15% of core volume at 4610.1-4611. Channel porosity 20-25% of core volume at 4611-4612.25, changing to vuggy porosity at 4612.25. Hard to

tell porosity after 4613.25. Sharp contact with the overlying clayey anhydrite.

Bottom of section.

N.D.G.S. 10897
SE SE sec. 35, T. 159 N., R. 83 W.
Bottineau County
Arthur-Jevens

Whole core in fair condition. K-2 appears in well-log interval, but no sand appears in drill core.

Top of section.

K-2

4763-4766	Anhydrite: cream, nodular with clay. A laminated carbonate layer occurs between 4764.1-4765.5. Massive clay between 4764.7-4764.9.
4766-4766.3	Anhydrite: cream, massive. Gradational contact with the overlying nodular anhydrite.
4766.3-4776.6	Clayey anhydrite: cream, 4766.3-4767.4, and 4769.3-4776.6; gray, 4767.4-4769.3. Nodular texture filled with clay. Laminated clay layer at 4770.37. Laminated carbonate layer between 4771.6-47717.7. Massive clay layer 4774.5-4774.7. Sharp contact with the overlying anhydrite.
4776.6-4779.9	Claystone: cream, massive 4776.7-4777. Laminated carbonate layers 4777-4777.05, 4778.3-4778.9. Pores filled with anhydrite 4777.3-4777.5, 4778-4778.3, 4779.5-4779.7. Gradational contact with the overlying anhydrite.
4779.9-4784.9	Clayey anhydrite: gray, nodular texture. Lime mud from 4781.7. Massive, non-lime clay layer, 4782.4-4782.6. Laminations 4782-4782.4, 4784-4784.3, 4784.9. Gradational contact with the overlying claystone.

4784.9-4785.8 Claystone: cream, massive. Anhydrite fills secondary pore space, 4785.3-4785.8. Gradational contact with the overlying clayey anhydrite.

4785.6-4786.8 Clayey anhydrite: gray, nodular. Sharp contact with the overlying anhydrite.

4786.8-4793.6 Claystone: gray, 4786.8-4788.5; black, 4788.5-4793.6. Massive clay, 4786.8-4787.5. Vuggy porosity filled with anhydrite, 4787.5-4788.6, 4789.3-4789.7. Clay turns to lime at 4787.5. Nodular anhydrite layers occur at 4789-4789.3. At 4789.3-4793.5 are laminations in lime mud. Gradational contact with the overlying clayey anhydrite.

4793.6-4794 Clayey anhydrite: gray, nodular texture with lime clay. Gradational contact with the overlying claystone.

Bottom of section.

N.D.G.S. 2464
NE SW sec. 29, T. 161 N., R. 81 W.
Wiley Field, Bottineau County
Fossum-Federal Land Bank

Whole and slabbed core in good condition. Below 4063.3 the core is in chips. Well-log is illegible.

Top of section.

Mohall

4055-4055.6 Anhydrite: gray, massive.

K-2

4055.6-4058.7 Sandstone: gray, silt to very fine-grained. Grains are predominantly quartz (quartz > 75%), with a small amount of ferromagnesian minerals and anhydrite cement. Grains are well-sorted, sub-angular to sub-rounded. Sandstone is massive with no structure or fossils. Intergranular porosity is between 10 to 20%. From 4057.35 to 4057.5, sandstone grades into silt. From 4058.3 to 4085.5, grains coarsen to very fine-grained sandstone. The contact with the overlying anhydrite is gradational.

4058.7-4061.1 Anhydrite: light gray, nodular texture, 4058.7-4059, with silt. Clayey anhydrite has laminations, 4059-4060. Anhydrite is massive 4060-4061.1. Contact with the overlying sandstone is gradational.

4061.1-4063.7 Clayey anhydrite: gray and light cream, nodular texture with clay. Lime mud layer occurs at 4062.9-4063.1. Clay is 75% of the core volume, 4063.1-4063.3. Below 4063.3 clay percentage increases until core becomes broken up. Contact with the overlying anhydrite is gradational.

Bottom of section.

N.D.G.S. 3347
NE SW sec. 14, T. 161 N., R. 82 W.
Wiley Field, Bottineau County
Newhouse #1

Whole core is in poor condition. Well-log is illegible.

Top of section.

Mohall

4102-4111 Anhydrite: white, massive. A lot of section is missing.

K-2

4111-4113 Anhydritic sandstone: gray, silt to very fine-grained. Grains are predominantly quartz, and are sub-angular to sub-rounded. Anhydrite cement is up to 50% of core volume. Porosity is 10-20% of core volume. Due to missing core section, exact boundaries are uncertain. Nature of contact is uncertain.

4113-4119.5 Anhydrite: gray, massive to 4116. From 4116 the anhydrite becomes clayey with nodular texture. A lot of core section is missing.

Glenburn

4119.5-4122	Packstone: light cream, vuggy porosity less than 10% of core volume and filled with anhydrite. Sharp contact with the overlying anhydrite.

Bottom of section.

N.D.G.S. 2669
NE SE sec. 23, T. 161 N., R. 82 W.
Bottineau County, Wiley Field
Peter Williams #1

Core slabbed and in good condition, 4083-4088'. Core chips are below 4088'. Well-log is illegible.

Top of section.

K-2

4083-4085.3	Sandstone: gray, very fine-grained, moderately well-sorted. Predominant quartz with a small amount of ferromagnesian (biotite) minerals and anhydrite cement. Grains are sub-angular to sub-rounded. Massive, no structures or fossils, less than 10% porosity. Between 4084.65-4084.85 grains coarsen to fine-grained sandstone. From 4084.85-4085 sandstone grades into very fine-grained sandstone. From 4085-4085.3 sandstone grades to fine-grained sandstone.
4085.3-4088	Anhydrite: light cream, massive. Laminated lime mud appears at 4085.65-4086. Anhydrite turns gray at 4086. Anhydrite becomes clayey at 4087.25. Clay is micritic and contains vuggy porosity that is filled with anhydrite. Gradational contact with the overlying sandstone.

Glenburn

4088-4090	Packstone: dark gray, vuggy porosity greater than 20% and filled with anhydrite. Sharp contact with the overlying anhydrite.

Bottom of section.

N.D.G.S. 3286
NE NE sec. 27, T. 161 N., R. 82 W.
Wiley Field, Bottineau County
Tufte B No. 1

Slabbed core in good condition. Well-log correlates with drill core.

K-2

3148-3151.5	Anhydrite: gray, massive, no apparent porosity.
3151.5-3852.7	Sandstone: very fine, sub-rounded to rounded, poorly sorted, anhydrite cement.
3852.7-3853.8	Anhydrite: gray, massive, no apparent porosity.
3853.8-3854.5	Anhydrite: light cream laminations of clay, mixed with anhydrite.
3854.5-3857.5	Anhydrite: gray, massive, no apparent porosity.

Glenburn

3857.5-3858	Packstone: cream, ooids, 20% vuggy porosity.

Bottom of section.

N.D.G.S. 2384
SW NE sec. T. 161 N., R. 82 W.
Wiley Field, Bottineau County
R.H. Witherstine

Slabbed core in fair condition. Well-log is illegible.

Top of section.

K-2

4097-4098.4	Anhydritic sandstone: gray, silt to very fine-grained, predominantly quartz grains are sub-angular to sub-rounded. Anhydrite cement is more than 50% of core volume. Massive, no structures or fossils present. Intergranular porosity is 10-20% of core volume.

4098.4-4101.5 Anhydrite: gray, massive, gradational contact with the overlying sandstone.

4101.5-4102 Mudstone: brown, vuggy porosity is 10-20% core volume and filled with oil. Sharp contact with the overlying anhydrite.

Bottom of section.

N.D.G.S. 9676
NE NE sec. 27 T. 161 N., R. 82 W.
Wiley Field, Bottineau County
Olaf Tufte B Redrill

Whole core in good condition. Well-log correlates with drill core.

Top of section.

K-2

4157-4158.25 Quartz sandstone: gray, very fine-grained, moderately well-sorted, anhydrite cement, no porosity, massive.

4158.25-4161.75 Anhydrite: gray, massive, no porosity. Sharp contact with the overlying sandstone.

Glenburn

4161.75-4163 Packstone: gray to cream, good oil show. Sharp contact with the overlying sandstone.

Bottom of section.

N.D.G.S. 6825
NW NW sec, 23 T. 161 N., R. 82 W.
Wiley Field, Bottineau County
Kirby no. 4

Whole core in good condition. Well-log correlates with drill core.

Top of section.

K-2

4120-4121.3	Silty anhydrite: gray, rounded grains, well-sorted, massive, anhydrite is 50-60% of core volume.
4121.3-4121.6	Clayey anhydrite: gray and cream, massive. Sharp contact with the overlying silty anhydrite.
4121.6-4121.7	Anhydrite: gray, massive. Sharp contact with the overlying clayey anhydrite.
4121.7-4122.5	Clayey anhydrite: gray and cream, laminated. Sharp contact with the overlying clayey anhydrite.
4122.5-4125	Anhydrite: gray, massive. Gradational contact with the overlying clayey anhydrite.
4125-4126	Clayey anhydrite: gray and cream, massive. Sharp contact with the overlying anhydrite.

Bottom of section.

N.D.G.S. 6333
NW NE sec. 25 T. 161 N., R. 82 W.
Wiley Field, Bottineau County
W.H. Witherstine

Slabbed core in good condition. Well-log correlates with drill core.

Top of section.

K-2

41022-4102.85	Quartz sandstone: gray, very fine-grained, well-sorted, grains are sub-angular to sub-rounded. Quartz is the predominant mineral with anhydrite cement. Intergranular porosity is between 10 to 20% of core volume. Massive, there are no structures or fossils.
4102.85-4103.8	Silty anhydrite: cream, nodular with silty texture. Sharp contact with the overlying sandstone.

4103.8-4103.9 Mudstone: cream and medium gray, with laminations. Sharp contact with the overlying silty anhydrite.

4103.9-4104.9 Anhydrite: medium gray, massive. Sharp contact with the overlying limestone.

4104.9-4105.9 Clayey anhydrite: gray, and white clay, nodular texture. Gradational contact with the overlying anhydrite. Around 4105.7 the mud becomes lime.

4105.9-4107.6 Mudstone: cream, massive. Laminations appear at 4106.2-4106.3. Ooid layer found at 4106.8-4107. From 4106.3 to 4107, vuggy porosity is filled with anhydrite. Contact with the overlying clayey anhydrite is gradational.

4107.6-4109.7 Anhydrite: light grayish brown, massive. Contact with the overlying mudstone is gradational.

Glenburn

4109.7-4112 Packstone: grayish brown, anhydrite filled stylolites found at 4109.7-4109.8, 4110.2, and 4110.3. Contact with the overlying anhydrite is sharp.

Bottom of section.

N.D.G.S. 672
NE SE sec. 25 T. 161 N., R. 82 W.
Wiley Field, Bottineau County
#3 Witherstine

Slabbed core in good condition. Well-log is illegible.

Top of section.

Mohall

4094-4095.7 Anhydrite: medium gray, massive.

K-2

4095.7-4098.95 Quartz sandstone: medium gray, silt to very fine-grained, poorly sorted, predominant quartz grains are sub-angular to sub-rounded. The

cement is anhydrite which is about 50% of core volume. From 4097.6 to 4097.8, vuggy porosity is filled with anhydrite. Contact with the overlying anhydrite is gradational.

4098.95-4099.6 Anhydrite: medium gray, massive from 4098.95-4099.45. From 4099.45-4099.6 anhydrite has a nodular texture and is interbedded with clay. Contact with the overlying sandstone is gradational.

4099.6-4099.75 Clayey anhydrite: cream, nodular texture. Sharp contact with the overlying anhydrite.

4099.75-4100 Anhydrite: gray, massive. Contact with the overlying clayey anhydrite is sharp.

Bottom of section.

N.D.G.S. 4092
SE NW sec. 20, T. 163 N., R. 82 W.
North Haas Field, Bottineau County
Anderson #2

Whole core is in good condition. There is some core missing between 3864-3867'. Well-log correlates with drill core.

Top of section.

Mohall

3858-3861.85 Anhydrite: cream, massive.

K-2

3861.65-3864.25 Quartz sandstone: gray, very fine- to fine-grained, poorly sorted, sub-rounded, anhydrite cemented, no porosity, massive. Sharp contact with the overlying anhydrite.

3864.25-3865.75 Quartz sandstone: light brown, very fine- to fine-grained, poorly sorted, sub-rounded grains, quartz cemented, intergranular porosity 20-30% of core volume, good oil show, massive. Sharp contact with the overlying sandstone.

3865.75-3867.1	Quartz sandstone: gray, fine-grained, moderately well-sorted, sub-angular grains, anhydrite cemented, no porosity, massive. Sharp contact with the overlying sandstone.
3867.1-3873	Anhydrite: gray to reddish gray, massive, no porosity. Sharp contact with the overlying sandstone.

Bottom of section.

N.D.G.S. 3988
NE SE sec. 20, T. 163 N., R. 82 W.
North Haas Field
Anderson #1

Whole core in good condition. Well-log interval is ten feet above the drill core interval.

Top of section.

Mohall

3824-3823.05	Anhydrite: gray, massive, no porosity.

K-2

3832.05-3834	Quartz sandstone: gray, very fine- to fine-grained, poorly sorted, sub-angular to sub-rounded grains, anhydrite cemented, no porosity, massive. Sharp contact with the overlying anhydrite.
3834-3834.2	Quartz sandstone: light brown to gray, very fine- to fine-grained, poorly sorted, quartz cemented, intergranular porosity 20-30% of core volume, massive, good oil show. Sharp contact with the overlying sandstone.
3834.2-3835.6	Quartz sandstone: light brown to gray, very fine-grained, moderately well-sorted, anhydrite cemented, no porosity, massive. Sharp contact with the overlying sandstone.
3835.6-3843	Anhydrite: gray to reddish gray, massive, no porosity. Sharp contact with the overlying sandstone.

Bottom of section.

N.D.G.S. 3944
NE SW sec. 21 T. 163 N., R. 82 W.
North Haas Field, Bottineau County
Hallof No. 1

Slabbed core in fair condition. Well-log correlates with the drill core.

Top of section.

K-2

3799-3800.3	Sandstone: light brown and gray in alternating layers, fine-grained, well-sorted. Grains are sub-angular to sub-rounded. Quartz is the dominant mineral, and anhydrite is less than 10% of core volume. Massive, no structures or fossils. Intergranular porosity is less than 10% of the core volume. At 3799.7, the core grades into very fine-grained sandstone.
3800.3-3802.4	Core missing.
3802.4-3815	Anhydrite: gray, massive.

Bottom of section.

N.D.G.S. 11456
SE SW sec. 22, T. 163 N., R. 83 W.
Haas Field, Bottineau County
Person no. 1

Slabbed core in good condition. Well-log is missing.

Top of section.

Glenburn

4015-4025	Packstone: gray, 4015-4017; light brown, 4017-4019.8; medium, 4019.8-4025. Vuggy porosity between 10-20%, 4017.9-4018.7, 4019.8-4020.4, and 4023.7-4025. Vuggy porosity is greater than 20%, 4020.4-4023.7. Stylolites at 4015.1, 4016.7-4016.8, and 4017.5, 4024.1-4024.3. Core is ooid rich at 4021.2-4022.7.

Bottom of section.

N.D.G.S. 1059
NE NE sec. 12, T. 163 N., R. 86 W.
Renville County
Walsh #1

Slabbed core in good condition. Several sections of core are missing. Well-log is illegible.

Top of section.

Mohall

4487.7-4793	Packstone: light brownish gray, porosity varies throughout section. Vuggy and channel porosity 20-25% of core volume, 4487.5-4488.6. Vuggy porosity decreases to less than 10% of core volume, 4488.6-4489.3, increasing to 20% of volume, 4486.3-4489.5. Vuggy and channel porosity decreases to less than 10% of core volume and filled with anhydrite, 4490-4491.7. Channel and vuggy porosity 20-30% of core volume, 4492-4493. Algal laminations at 4489.5-4489.9.
4493-4497	Core missing.
4497-4501.8	Packstone: light brownish gray, vuggy and channel porosity 20-30% of core volume, 4497-4501. Vuggy and channel porosity decreases to 15-20% of core volume, 4501-4501.8. Ooids and stylolites at 4501.6-4501.8.
4501.8-4502.5	Core missing.
4502.5-4514	Packstone: light gray, vuggy and channel porosity 20-25% of core volume to 4506.5. Vuggy and channel porosity decreases to 10-15% of core volume, 4506.5-4608. Porosity further decreases to less than 10% of core volume, 4608-4614. Blue-green algae appear at several different horizons: 4504-4504.1, 4504.3, 4507.4-4507.5, 4507.7-4513.2. Laminations also appear in several different horizons: 4504, 4504.7-4504.8, 4507.3-4507.4, 4507.5-4705.5, 4510.5, 4512.7, and 4513. Corals and ooids at 4508-4513.2.

K-2

4514-4515	Quartz sandstone: gray, silt to very fine-grained, sub-angular to sub-rounded grains. Quartz is 90-95% of grains. Lithic fragments,

galena, and heavy ferromagnesian minerals compose 5% of core volume. Sandstone is cemented by calcite and has faint horizontal bedding. Sharp contact with the overlying limestone.

4515-4516.5 Packstone: gray, vuggy porosity 10-20% of core volume filled with anhydrite. Core contains laminations at 4515-4151.25, and 4516.3-4516.5. Gradational contact with the overlying sandstone.

4516.5-4523 Quartz sandstone: gray, very fine- to fine-grained, grains sub-angular to sub-rounded. Quartz makes up 85-90% of grains, heavier ferromagnesian minerals (hornblende or pyroxene) compose 5-10% minerals, pyrite makes up 5-8% of minerals. There is a minor amount of anhydrite, and calcite is the cement. Intergranular and cavern porosity is 15-20% of core volume and is filled with anhydrite. Massive to 4521. At 4521 the sandstone grades into fine grains to 4522. Sandstone is moderately well-sorted. Sharp contact with the overlying limestone.

4523-4525.6 Packstone: gray, containing fragments of bornite and pyrite. Solitary coral occurs at 4523.5. Gradational contact with the overlying sandstone.

4525.6-4528.5 Quartz sandstone: gray, silt to very fine-grained, grains sub-angular to sub-rounded. Quartz is greater than 90% of grains, with pyrite and bornite less than 10% of grains. Sandstone is cemented by calcite. Sand is moderately well-sorted. Intergranular porosity is 20-23% of core volume. Burrow trails are found at 4526-4527.2. Weak horizontal bedding at 4527.2-4527.5. Gradational contact with the overlying limestone.

4528.5-4535 Core missing.

4535-4535.9 Siltstone: gray, sub-rounded, well-sorted, no porosity. Cemented by calcite. Horizontal laminations present.

4535.9-4536.3 Quartz sandstone: gray, silt to very fine-grained, grains sub-rounded, moderately well-sorted. Quartz is predominant mineral and is cemented by calcite. Horizontal laminations

present. Gradational contact with the overlying siltstone.

4536.3-4538.7 Siltstone: gray, sub-rounded, well-sorted, no porosity. Cemented by calcite. Horizontal bedding is barely observable. Gradational contact with the overlying sandstone.

4538.7-4541 Quartz sandstone: gray, very fine-grained, well-sorted, sub-rounded grains of quartz, cemented by calcite. No porosity. Horizontal bedding barely observable. Gradational contact with the overlying siltstone.

4541-4547.1 Siltstone: gray, sub-rounded, well-sorted, no porosity. Siltstone is cemented by calcite. Horizontal laminations observed at 4542.5-4543.9, 4544.3-4544.5, and 4546-4546.9. Gradational contact with the overlying sandstone.

4547.1-4550.4 Quartz sandstone: gray, very fine- to fine-grained, poorly sorted, grains sub-angular to sub-rounded. Quartz is greater than 90% of grains and cements the sandstone. Intergranular porosity is 20-23% of core volume. Sandstone contains burrows filled with finer grained quartz. Otherwise, the sandstone is massive. Gradational contact with the overlying siltstone.

4550.4-4554.4 Siltstone: gray, grains sub-rounded and well-sorted. No porosity, siltstone is cemented by calcite. Horizontal laminations at 4551.5-4551.8, and 4553-4554.4. Gradational contact with the overlying sandstone.

4554.4-4559.5 Quartz sandstone: gray, silt to very fine-grained, poorly sorted, grains sub-rounded. Quartz is greater than 95% of grains. Sandstone is cemented by calcite. Intergranular porosity is less than 10% of core volume. Silt is contained in caverns in the core. Sandstone is massive to 4556.1. At 4556.1 grain size coarsens to very fine-grained, moderately well-sorted. Horizontal bedding poorly defined, 4556.1-4558.7. Solitary coral horizons at 4556.1-4556.2, and 4559.1-4559.2. Gradational contact with the overlying siltstone.

4559.5-4562.8	Quartz sandstone: gray, very fine-grained, well sorted. Quartz is greater than 95% of grains, and calcite is the cement. Intergranular porosity is 10% of core volume, 4561.2-4562.8. Horizontal bedding is poorly defined. Gradational contact with the overlying siltstone.
4562.8-4563.5	Siltstone: gray, well-sorted, sub-rounded. Grains are cemented by calcite. Inter-granular porosity 10-45% of core volume, 4563.3. Clay layer at 4563.3-4563.5. Gradational contact with the overlying sandstone.
4563.5-4570.7	Packstone: gray, stylolites at 4563.5-4564.5, and 4566.9, Laminations at 4564.1-4564.4, 4566, 4568.1-4568.2, 4569.1-4569.3, 4569.5-4569.6, and 4570.3-4570.4. Sharp contact with the overlying siltstone.
4570.7-4571	Core missing.
4571-4573.4	Quartz sandstone: gray, very fine- to fine-grained sandstone, grains sub-rounded. Calcite cements the sandstone. Massive, no structures or fossils observed.
4573.4-4573.8	Packstone: gray, no porosity. Stylolites at 4573.4-4573.5. Sharp contact with the overlying sandstone.
4573.8-4574	Core missing.
4574-4578.6	Quartz sandstone: gray, silt to very fine-grained sandstone, poorly sorted. Calcite cements the sandstone. Inter-granular porosity is 15-20% of core volume. Massive sandstone has burrow trails filled with silt.
4578.6-4586	Siltstone: gray, well-sorted, sub-rounded silt cemented by calcite. Inter-granular porosity less than 10% of core volume. Gradational contact with the overlying sandstone.
4586-4588	Core missing.
4588-4591	Siltstone: gray, well-sorted, sub-rounded silt grains with calcite cement. Inter-granular porosity less than 10% of core volume. Massive siltstone has burrow trails of mud.
4591-4591.5	Core missing.

4591.5-4592	Siltstone: gray, well-sorted, sub-rounded grains of quartz with quartz cement. Intergranular porosity increases to 20% of core volume.
4592-4592.6	Quartz sandstone: gray, very fine-grained sandstone, sub-rounded grains. Quartz cements sandstone. Inter-granular porosity roughly 20% of core volume. Gradational contact with the overlying siltstone.
4592.6-4595	Siltstone: gray, well-sorted, sub-rounded grains. Grains are nearly all quartz. Siltstone is cemented by calcite. Intergranular porosity is less than 10% of core volume, 4592.6-4594. Porosity increases to roughly 15% at 4594. Siltstone is massive with no observable structure or fossils. Gradational contact with the overlying sandstone.
4595-4596.5	Quartz sandstone: gray, silt to very-fine grained sandstone, moderately well-sorted, sub-angular to sub-rounded grains. Grains are nearly all quartz. Sandstone is cemented by calcite. Intergranular porosity is 10-45% of core volume. Sandstone is massive with no observable sedimentary structures. Gradational contact with the overlying siltstone.
4596.5-4597	Core missing.
4597-4602.2	Quartz sandstone: gray, silt to very-fine grained sandstone, moderately well-sorted, sub-angular to sub-rounded grains. Grains are nearly all quartz. Sandstone is cemented by calcite. Intergranular porosity 15-20% of core volume, 4597-4600. Intergranular porosity is less than 10% of core volume, 4600-4600.2. Sandstone is massive with no obvious structures, 4597-4600. Sandstone contains burrow trails of silt, 4600-4602.
4602.2-4605	Packstone: gray, contains no fossils or porosity. Gradational contact with the overlying sandstone.
4605-4606.5	Packstone: light brownish gray, ooids with an occasional brachiopod fragment. Stylolites are found at 4605.3-4606. Sharp contact with the overlying packstone.

4605.5-4608	Siltstone: gray, grains are nearly all quartz. Siltstone is cemented by calcite. Massive with burrow trails of muddy quartz. Sharp contact with the overlying packstone.
4608-4609.8	Packstone: light brownish gray, ooid rich, brachiopod fragments found at 4608-4608.2. Solitary coral found at 4608.2. No porosity found in limestone. Sharp contact with the overlying siltstone.
4609.8-4611	Siltstone: gray, moderately well-sorted, no porosity. Siltstone is cemented by calcite. Siltstone is massive with burrow trails filled with muddy matrix. Sharp contact with the overlying limestone.
4611-4613.8	Quartz sandstone: gray, silt to very fine-grained sandstone, sub-angular to sub-rounded grains. Nearly all grains are quartz. Sandstone is cemented by calcite. Intergranular porosity is 13-16% of core volume. Massive, no structures or fossils found in siltstone. Gradational contact with the overlying siltstone.
4613.8-4623	Packstone: light brownish gray, grain supported, less than 1% mud. Some grains could be quartz, lithic fragments. Vuggy porosity is 10-20% of core volume. Horizontal laminations, possibly organic, found at 4615.9-4161.1, 4616.5-4616.6, 4616.8-4616.9, 4619.1-4619.2, 4619.9-4620. Stylolite at 4614.5. Brachiopod fragment at 4615.1. Sharp contact with the overlying sandstone.
4623-4626.9	Quartz sandstone: gray, silt to very fine-grained sandstone, moderately well-sorted, grains are sub-angular to sub-rounded. Grains are nearly all quartz. Sandstone is cemented by calcite. Intergranular porosity is 18-22% of core volume. Sandstone is massive with no obvious structures. Sharp contact with the overlying limestone.
4626.9-4629	Sandy packstone: gray, very fine-grained quartz and lithic fragments present in packstone. Limestone fragments at 4627.1-4628.2. Vuggy porosity less than 10% of core volume. Horizontal laminations found at 4627-4629. Gradational contact with the overlying sandstone.

4629-4638	Quartz sandstone: gray, silt to very fine-grained sandstone, moderately well-sorted, grains are sub-angular to sub-rounded. Nearly all grains are quartz. Sandstone is cemented by calcite. Intergranular porosity is 15-20% of core volume. Sandstone is massive with no structures or fossils. Gradational contact with the overlying sandy limestone.

Bottom of section.

Saskatchewan
11-30 1-30W1

Whole core in good condition. Well-log correlates with drill core.

Top of section.

Mohall

3725-3731	Packstone: cream, massive, vuggy porosity 15-20% of core volume. Pore space is filled with oil 3725-3727, and 3728.8-3729.3. Stylolites are found at 3729.8-3729.9.
3731-3731.5	Clayey anhydrite: cream, massive with no porosity. Sharp contact with the overlying limestone.

K-2

3731.4-3734.6	Quartz sandstone: cream, silt to very fine-grained sandstone, well-sorted, grains are sub-angular to sub-rounded. Sandstone is cemented by calcite and is friable. No porosity is observed. Massive, sandstone lacks sedimentary structures. Gradational contact with the overlying anhydrite.
3734.6-3736.7	Anhydrite: cream, massive, no porosity. Gradational contact with the overlying anhydrite.
3736.7-3737.5	Packstone: cream, massive, vuggy porosity 15-20% of core volume. Stylolites at 3737.5. Gradational contact with the overlying anhydrite.

3737.5-3740.5	Quartz sandstone: cream, very fine-grained, well-sorted, grains sub-rounded. Grains are nearly all quartz. Sandstone is cemented by calcite. Intergranular porosity 10-15% of core volume. Massive, sandstone lacks any observable sedimentary structure. Sandstone is friable, 3740-3740.5. Gradational contact with the overlying packstone.

Glenburn

3740.5-3745	Packstone: cream, massive, vuggy porosity is 15-20% of core volume. Gradational contact with the overlying sandstone.

Bottom of section.

Saskatchewan
13-32 1-30W1

Whole core is in good condition. Well-log correlates with drill core.

Top of section.

Mohall

3650-3688	Packstone: cream, vuggy porosity 5-10% of core volume and filled with anhydrite.
3655-3656	Anhydrite: light gray, massive. No porosity. Sharp contact with the overlying limestone.

K-2

3656-3658.5	Quartz sandstone: light gray and brown, silt to very fine-grained sandstone, moderately well-sorted. Grains are nearly all quartz. Sandstone cemented by anhydrite. Porosity could not be determined. Sandstone has a good oil show. Gradational contact with the overlying anhydrite.
3658.5-3663.4	Clayey anhydrite: cream, massive. Gradational contact with the overlying sandstone.
3363.4-3666	Packstone: cream, massive, vuggy porosity is 5-10% of core volume. Gradational contact with the overlying anhydrite.

3666-3666.7 Anhydrite: cream, massive. Sharp contact with the overlying limestone.

Glenburn

3666.7-3670 Packstone: cream, massive, vuggy porosity roughly 20% of core volume. Sharp contact with the overlying anhydrite.

Bottom of section.

Saskatchewan
15-12 1-31W1

Whole core is in good condition. Well-log correlates with drill core.

Top of section.

Mohall

3870-3879 Anhydrite: gray, massive. Anhydrite is sandy, 3875.5-3876.5, and 3878-3879. Sand is less than 20% of core volume.

K-2

3879-3888.6 Anhydritic siltstone: light brown, moderately well-sorted, grains are sub-rounded. Grains are nearly all quartz. Silt is 60-70% of core volume. Anhydrite is the cement and is 40-45% of core volume. There is no porosity in siltstone. Massive, no observable sedimentary structures in siltstone. Gradational contact with the overlying anhydrite.

Glenburn

3888.6-3895 Packstone: light brown, massive, vuggy porosity 10-15% of core volume. Sharp contact with the overlying siltstone.

Bottom of section.

Saskatchewan
3-8 1-32W1

Whole core in good condition. Slabbed core in good condition, 4251-4252. Well-log interval is 2 feet above the drill core interval.

Top of section.

Mohall

4850-4260	Packstone: cream, massive, vuggy porosity 10-14% of core volume. Pore space is filled with anhydrite. Stylolites at 4251.1. 4251, 4257 are filled with anhydrite. Laminations at 4255.4-4255.5.
4260-4263.9	Dolostone: cream, massive, does not react with acid. Vuggy porosity 20-30% of core volume and completely filled with anhydrite. Limestone clasts, 1-5 cm, are found in core, 4261-4263.5. Gradational contact with the overlying limestone.
4263.9-4269.6	Clayey anhydrite: light gray, nodular texture, 4263.9-4265.1; massive texture, 4265.1-4269.9. Clay becomes micritic at 4268. Sharp contact with the overlying dolostone.

K-2

4269.6-4270.4	Sandy anhydrite: light gray, massive, no porosity. Gradational contact with the overlying clayey anhydrite.
4270.4-4275	Clayey anhydrite: light gray, massive, clay is micritic. Gradational contact with the overlying sandy anhydrite.

Bottom of section.

Saskatchewan
1-23 1-32W1
Workman Field

Whole core is in good condition. Core is slabbed at 4029.9-4030.5. Well-log interval does not correlate with drill core interval. Well-log indicates that the top of the K-2 should be at 4030. There is no sand in the core.

Top of section.

Mohall

4029-4029.2	Packstone: light gray, massive, no porosity.

4029.2-4037.3 Anhydrite: light gray, nodular texture at 4030-4030.6. Texture is unknown below 4030.6. No porosity.

K-2

4037.3-4043 Clayey anhydrite: light gray, unknown texture, 4037.3-4042. Below 4042, clayey anhydrite displays horizontal laminations. Clay is micritic. The ratio of clay versus anhydrite is unknown. Gradational contact with the overlying anhydrite.

Bottom of section.

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