Volume 2 of 5

TABLE OF CONTENTS - General

TABLE OF CONTENTS - Detailed

VOLUME 1 of 5: Adjudication Files

VOLUME 2 of 5: Appendix D (D1 to D5)

VOLUME 2 of 5: Appendix D (D1 to D5) continued

VOLUME 3a of 5: Appendix D (D6)

VOLUME 3a of 5: Appendix D (D6) continued

VOLUME 4 of 5: Appendix D (D7 to D11)

VOLUME 4 of 5: Appendix D (D7 to D11) continued

VOLUME 4 of 5: Appendix D (D7 to D11) continued

VOLUME 5 of 5: Operations Plan and Reclamation Plan

VOLUME 5 of 5: Operations Plan and Reclamation Plan continued

VOLUME 5 of 5: Operations Plan and Reclamation Plan continued

VOLUME 5 of 5: Operations Plan and Reclamation Plan continued

FIGURES

FIGURES (continued)

VOLUME 3a of 5: Appendix D (D6) continued

FIGURES (continued)

VOLUME 3a of 5: Appendix D (D6) continued

VOLUME 4 of 5: Appendix D (D7 to D11)

FIGURES (continued)

VOLUME 4 of 5: Appendix D (D7 to D11) continued

VOLUME 5 of 5: Operations Plan and Reclamation Plan

FIGURES (continued)

VOLUME 5 of 5: Operations Plan and Reclamation Plan continued

TABLES

TABLES (continued)

TABLES (continued)

TABLES (continued)

VOLUME 5 of 5: Operations Plan and Reclamation Plan (continued)

PLATES

VOLUME 1 of 5: Adjudication Files

VOLUME 2 of 5: Appendix D (D1 to D5)

PLATES (continued)

ATTACHMENTS

ATTACHMENTS (continued)

TABLE OF CONTENTS

FIGURES

TABLES

PLATES

ATTACHMENTS

D5 GEOLOGY

D5.1 Regional Geology

The Great Divide Basin (Basin) is an oval-shaped structural depression, encompassing some 3,500 square miles in south-central Wyoming. The Basin is bounded on the north by the Wind River Range and Granite Mountains, on the east by the Rawlins Uplift, on the south by the Wamsutter Arch and on the west by the Rock Springs Uplift. The regional geologic map is shown in **Figure D5-1**. Geologic development of the Basin began in the Late Cretaceous and continued through much of the Early Eocene.

D5.1.1 Stratigraphy

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

The Fort Union Formation is unconformably overlain by sediments of Eocene age, making up about 6,200 feet of basin fill. The western and southern portions of the Basin are covered by the Wasatch Group, which consists of sandstone, siltstone, limestone, conglomerate and lignite beds. The rocks in the Wasatch Group are believed to be of fluvial-lacustrine origin. Towards the north and northeast, the Wasatch Group rapidly grades into and inter-tongues with the equally thick, fine- to coarse-grained arkosic sandstones and conglomerates of the Battle Spring Formation, a typical alluvial fan complex. The source of the Battle Spring sediments is believed to be the ancestral Granite Mountains to the north. Pliocene pediment deposits and recent alluvium cover large areas of the surface in the Basin. **Table D5-1** and **Figure D5-2a** show the general stratigraphy of the Basin.

The upper portion of the Battle Spring Formation is the host to the uranium mineralization in the Permit Area. In the Permit Area, the top 700 feet of the Battle Spring Formation is divided into at least five horizons marked from top to bottom as BC, DE, FG, HJ, and KM. These horizons are separated from one another by various thicknesses of shale, mudstone and siltstone (**Figure D5-2b**).

D5.1.2 Structure

The present physiographic feature of the Basin was generated by the Laramide Orogeny. During the Late Cretaceous and Early Tertiary, the structures surrounding the Basin were either rejuvenated or were formed, transforming the area into a bowl-shaped geological structure, the Basin. During this upheaval, the Wind River Mountains and Granite Mountains were uplifted on the north side of the Basin. The Rawlins Uplift formed to the east; the Wamsutter Arch formed to the south; and the Rock Spring Uplift formed to the west. All of these highs formed a ring around the Basin, turning the Basin into a bowl-like structure with drainage being inward. The Continental Divide, extending from the south, splits into two and forms half circles on the east and west sides of the Basin, joining again as one topographic high on the north side of the Basin.

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

Contemporaneous with the uplift of the mountains surrounding the Basin, there were episodes of normal and thrust faulting within and around the Basin. Most of the major faults are located in the northern part of the Basin, with displacement ranging from a few feet to over 3,000 feet. But, toward the center of the Basin near the Permit Area, faulting seems to be only on a minor scale. For example, the displacement at the Lost Creek Fault (Fault) which traverses the mineralized area from west-southwest to east-northeast is zero to about 80 feet. More details about the Fault are given in **Section D5.2.2**.

D5.2 Site Geology

The Permit Area is located near the north-central part of the Basin, where the Basin fills are predominantly the Eocene Battle Spring Formation and the Paleocene Fort Union Formation. Geological cross sections throughout the Permit Area are presented in **Plates D5-1a**, **b**, **c**, **d**, **e**, **f**, and **g**. **Attachment D5-1** contains copies of typical geophysical logs from the Permit Area.

D5.2.1 Stratigraphy

The entire Permit Area is covered by the upper part of the Battle Spring Formation, which is the host to uranium mineralization. Generally, in the Basin, Battle Spring and Wasatch formations, which are time equivalent, interfinger with one another. In the Permit Area, the upper half of the lithologic units consists of Battle Spring Formation and the lower half is made up of Wasatch Formation. The total thickness of the Battle Spring and Wasatch formations under the Permit Area is about 6,200 feet. The Fort Union Formation is 4,650 feet thick beneath the Permit Area and unconformably underlies the Battle Spring/Wasatch formations. Deeper in the Basin and lying unconformably are various Cretaceous, Jurassic, Triassic, Paleozoic, and Precambrian basement lithologic units (**Table D5-1**). A schematic geologic cross section across the Permit Area is shown in **Figure D5-2a**, depicting all lithologic units present under the Permit Area.

The Battle Spring Formation in the Permit Area is part of a major alluvial system, consisting of thick beds of very fine- to coarse-grained arkosic sandstones separated by various layers of mudstones and siltstones. Conglomerate beds may exist locally. The uranium mineralization is associated with finer-grained sandstones and siltstones, which may contain minor organic matter in a few areas. At least five horizons with various amounts of mineralization have been identified. From the surface down, they have been named: BC, DE, FG, HJ, and KM. The two horizons with the most mineralization are HJ and KM, which have been further divided into upper, middle and lower sub-units of sandstones (UHJ Sand, MHJ Sand, and LHJ Sand; and UKM Sand, MKM Sand, and LKM Sand). Geological cross sections through the mineralized zones in the Permit Area are presented in **Plates D5-1a**, **b**, **c**, **d**, **e**, **f**, and **g**. Thickness (isopach) maps of the HJ Horizon and UKM Sand, as well as the shales above the HJ Horizon (Lost Creek Shale) and below the HJ Horizon (Sage Brush Shale), are presented in **Plates D5-2a**, **b**, **c**, and **d**.

The HJ Horizon is 110 to 130 feet thick, averaging about 120 feet. The thinner part of HJ is generally south of the Fault. A thicker part of the HJ Horizon runs parallel to the Fault, trending in a west-southwest to east-northeasterly direction. The mineralization is mostly concentrated in the middle part of the HJ Horizon and occurs as both roll front and tabular deposits. The subdivided sand units within the HJ Horizon are separated by discontinuous shale, siltstone and mudstones.

The UKM Sand lies under the Sage Brush Shale and is 20 to more than 60 feet thick, averaging about 40 feet. In the eastern part of the Permit Area, the unit is 20 to 50 feet thick; whereas the sand unit in the western portion of the permit area is 40 to more than 60 feet thick, indicating the development of a major paleo-channel. The mineralization occurs as both roll front and tabular deposits.

D5.2.2 Structure

The geologic structure in the Permit Area is illustrated on the cross sections (**Plates D5-1a**, **b**, **c**, **d** and **e**) and isopach maps (**Plates D5-2a**, **b**, **c**, and **d**). In the Permit Area, the Battle Spring Formation dips gently to the northwest at roughly three degrees. This pattern is broken locally by a fault referred to as the Lost Creek Fault (i.e., the Fault). The Fault was initially interpreted to be a scissor fault, with a reversal of displacement direction occurring in the western third of the Permit Area. Recent interpretation has revealed that it is, instead, a sequence of sub-parallel faults with opposite displacement occurring in an en echelon configuration.

The 'main' fault trends east-westerly and dissects the eastern two-thirds of the Permit Area. Downward displacement occurs on the south block. Throw is approximately 70 ft to 80 ft within the eastern portion, decreasing to approximately 20 ft to 40 ft in the central portion, and eventually losing identity in the western one-third of the Permit Area.

A subsidiary, sub-parallel fault becomes apparent south of the main fault and in the general vicinity where the main fault loses identity. It continues westerly to the western edge of the Permit Area. Direction of throw on this fault is opposite to the main fault; i.e., downthrown to the north. Displacement ranges from approximately 40 ft to 50 ft in the east, decreasing to 20 ft to 30 ft to the west.

D5.2.3 Ore Mineralogy and Geochemistry

The age of mineralization in the Battle Spring Formation is considered to be between 35 and 26 million years before present. Uranium mineralization in the Basin generally occurs either as tabular or C-shaped roll-front deposits. Oxygen-rich surface water, carrying dissolved uranium, entered various sandstones in the Basin. The water percolated down dip, oxidizing the sandstones on its way down dip. Upon reaching sites rich in organic matter, the water lost its oxidizing potential and deposited the uranium, forming the two types of mineralization mentioned above.

Tabular deposits may form at the interface between oxidizing and reducing conditions (the redox front), where oxidation, for all practical purposes, stops. Localized tabular deposits may also form up-dip from the redox front in an entirely oxidized zone, where carbonaceous materials have gathered and formed locally reducing conditions.

The C-shaped roll-front deposits normally form just at the redox front, where the water loses its oxidizing potential. The uranium precipitates and accumulates in a "C"-shaped deposit, with the concave side facing up-dip toward the oxidized sand. Uranium usually accumulates in finer-grained sandstones that carry various amounts of organic matter, which provides a reducing condition.

The alteration process not only changes the color, but also alters the mineralogy of the host sandstones. The color of unaltered, reduced sandstone is light to dark grey, with carbon trash, dark accessories, and traces of pyrite. Altered, oxidized, sandstone contains iron oxide staining (where former carbonaceous matter and pyrite were present), kaolinized feldspar, and has a pink to tan-buff, greenish-grey to bleached appearance. The presence of pyrite and carbonaceous material appear to be the major controlling factors for the precipitation of uranium mineralization. Thinning of sandstones and diminishing grain size probably slowed the advance of the uranium-bearing solutions and further enhanced the chances of precipitation.

The main uranium minerals are uraninite, a uranium oxide, and coffinite, a uranium silicate. Russell Honea (1979) and John V. Heyse (1979) studied several core samples by scanning electron microprobe (SEM), polished section and thin section. Their conclusions were that the host sands are fine- to coarse-grained, poorly sorted arkose. The uranium mineralization is of sub-microscopic size and can be seen only in SEM magnification. They are associated and at times intergrown with round pyrite particles. The uranium minerals identified are mostly uraninite and, possibly, coffinite. The uranium, besides occurring with pyrite, also occurs as a coating around sand grains and as filling of voids between grains. It also occurs as minute particles within larger clay particles.

The most recent study of the lithology and mineralogy was conducted by Hazen Research under the guidance of Dr. Nick Ferris, Ur-E geologist (Ferris, 2007, company report). He concluded that the rocks, represented by a core sample from a depth of 506 to 507 feet of Hole Number LC-64C, are composed of medium- to coarse-grained sand with interstitial clay and silt. Uranium occurrences are very fine-grained and micron-sized, and are mainly dispersed throughout some of the interstitial clays, and occur similarly in some of the interstitial pyrite as well. Because of the size of uranium mineral particles, it was not certain whether the uranium mineral was coffinite or uraninite. The sample tested, comes from the Upper KM Sand unit and may or may not be representative of the majority of the mineralization in the overlying HJ Horizon within the Permit Area.

Known mineralized intervals are found at depths ranging from near surface down to 1,150 feet below the surface in the Permit Area. It is possible that deeper mineralization may exist as well. The main mineralization horizons trend in an east-northeast direction for at least three miles, and are up to 2,000 feet wide. The thickness of individual

mineralized beds at the Permit Area ranges from five to 28 feet and averages about 16 feet. The mineralization grade ranges from 0.03 percent to more than 0.20 percent equivalent uranium oxide (eU_3O_8). Four main mineralized horizons, from depths of 300 to 700 feet, have been identified. The richest mineralized zone occurs in the middle part of the HJ Horizon (MHJ Sand) and it is about 30 feet thick, 400 to 450 feet deep, and is believed to contain more than 50 percent of the total resource under the Permit Area.

D5.2.4 Subsurface Exploration Activities

D5.2.4.1 Uranium Exploration

Historic and current uranium explorations exist in several areas of the Basin. Historic exploration activities in the Permit Area can be summarized as follows:

- Pre-1976: Numerous companies held the property; uranium mineralization was discovered by Climax Uranium and Conoco.
- 1976: Texasgulf optioned property from Valley Development Inc.
- 1977 through 1979: Texasgulf optioned property from Valley Development Inc., delineated the main trend of the mineralization, obtained a 50-percent interest in the Conoco claims on the trend to the east, and exercised its option with Valley Development Inc.
- 1986: Power Nuclear Corporation acquired the properties.
- 2000: Power Nuclear Corporation sold its Lost Creek properties to New Frontiers Uranium, LLC.
- 2005: New Frontiers Uranium, LLC transferred its Wyoming properties and data including its Lost Creek property to NFU.
- 2005: Ur-Energy USA Inc. purchased NFU from New Frontiers Uranium, LLC on terms.
- 2007: Ur-Energy USA Inc. completes the acquisition of NFU from New Frontiers Uranium, LLC, and maintains NFU as a wholly owned subsidiary.
- 2007: Ur-Energy USA Inc. forms Lost Creek ISR, LLC (LC ISR, LLC) to develop the Lost Creek property into an ISR facility and transfers the Lost Creek property from NFU to LC ISR, LLC.

At least 560 uranium exploration holes had been drilled in Permit Area prior to 2000. The plates and table in **Attachment D5-2** present the locations and total depths of all the known historic drill holes drilled in the Permit Area. The information that LC ISR LLC has pertaining to historic drill hole abandonment and re-plugging is provided in **Table D5-2**, including total depths of holes.

There have been continuing efforts over the years to ensure that drill holes are properly abandoned. In the early 1980s, the Conoco/Texasgulf Joint Venture worked to correct a WDEQ LQD violation resulting from incorrect surface capping and hole abandonment. Copies of the memos to WDEQ LQD explaining the work are included as **Attachment D5-3**. WDEQ-LQD subsequently approved the hole abandonment and released the bond.

In 2006, LC ISR, LLC re-located and re-abandoned twelve historic holes (**Table D5-2**). A drill rig was placed on each hole, and the hole was reamed/washed to 650 fbs A mixture of BH Thermal Grout, exceeding WDEQ-LQD Rules and Regulations Chapter 8 requirements, was pumped into the hole as the drill stem was retrieved. No effort was made to determine the depth of historic drill mud but the rig did have to ream/wash out mud from each hole. The upper 25 feet of each hole was plugged with cement. An attempt to relocate three additional holes was unsuccessful. LC ISR, LLC supplied this information to WDEQ-LQD in a letter dated January 15, 2007 (**Attachment D5-3**). In 2008, geologists discovered four historic holes with failed surface caps (Holes TT31, TT80, TT96, and TT141). Drill rigs were put on each of the four holes so they could be re-plugged. In each case, the drill stem was lowered between 180 and 220 fbs before hitting significant resistance. The holes were washed out and re-plugged to surface using grout. Each hole was also re-capped. **Table D5-2** contains information pertaining to the re-abandonment of these four holes.

Some pumping tests have shown very minor communication between the overlying and underlying aquifers and the HJ horizon (**Section 6.2.2.3**). There are several possible reasons for this communication, one of which is leakage through an improperly abandoned drill hole(s). However, the consistent nature of the response, regardless of distance from the pumping well, suggests that leakage through an improperly abandoned hole(s) is not the most likely cause of communication. Other more likely causes are: pumping from other wells in the area; regional communication between aquifers; background trends; or leakage through the juxtaposed aquifers across the fault.

If additional, improperly abandoned drill holes are found in the future, LC ISR, LLC will plug the holes as described above. In particular, before operations begin in a mine unit, a field inspection will be performed to locate any historic holes with surface capping issues. If the inspection identifies any capping problems, the hole will be re-entered with a drill rig or tremie pipe and re-plugged with grout. A new cement surface cap will also be installed. Aquifer testing of the mine unit prior to operation will also help identify any improperly abandoned holes that could interfere with mine unit operation.

D5.2.4.2 Other Mineral Exploration

Historic and current oil and gas exploration drilling are also in the region. There are no current oil and gas activities within the Basin that are completed in the same horizons as those discussed for ISR production in this application. The nearest significant gas fields are approximately ten miles to the southwest; therefore, no interference is anticipated between oil and gas production activities and ISR activities. There is no exploration of coal bed methane or other mineral resources within the Permit Area and the nearby region.

D5.3 Seismology

The discussion of the seismology of the Permit Area and surrounding areas includes: an analysis of historic seismicity; an analysis of the Uniform Building Code (UBC); a deterministic analysis of nearby faults; an analysis of the maximum credible "floating earthquake;" and a discussion of the existing short- and long-term probabilistic seismic hazard analysis. The materials presented here are mainly based on the seismologic characterization of Sweetwater, Carbon, Fremont, and Natrona Counties by James C. Case and others from the Wyoming State Geological Survey (Case et al., 2002a, 2002b, 2002c and 2003).

D5.3.1 Historic Seismicity

The Permit Area is located in the north-eastern portion of the Basin, in south-central Wyoming. Historically, south-central Wyoming has had a low to moderate level of seismicity compared to the rest of the State of Wyoming. As shown in **Figure D5-3**, most of the historical earthquakes occurred in the west-northwest portion of Wyoming. Significant historical earthquakes adjacent to the Permit Area are described below, and are organized by areas in which they occurred.

D5.3.1.1 Town of Bairoil Area

Bairoil is located about 15 miles northeast of the Permit Area. Historically, there have been only a few earthquakes that have occurred within 20 miles of Bairoil. On August 11, 1916, a non-damaging intensity III earthquake occurred approximately 17 miles northwest of Bairoil. On June 1, 1993, a non-damaging magnitude 3.8, intensity III earthquake occurred four miles north of Bairoil, and was felt by some residents. On

December 10, 1996, a non-damaging magnitude 2.6 earthquake occurred approximately ten miles northwest of Bairoil. A few residents also felt that event.

Two recent earthquakes were recorded near Bairoil in 2000. On May 26, 2000, a magnitude 4.0 earthquake occurred, followed by another (magnitude 2.8) four days later, on May 30, 2000. Both earthquakes were located about 3.5 miles southwest of Bairoil. Most residents in Bairoil felt the first earthquake. No significant damage was associated with either seismic event (Cook, 2000).

D5.3.1.2 City of Rawlins Area

Rawlins is approximately 38 miles southeast of the Permit Area. The first recorded earthquake that was felt and reported immediately southwest of Rawlins occurred on March 28, 1896. The intensity IV earthquake shook for about two seconds. On March 10, 1917, an earthquake (intensity IV) was recorded approximately one mile northeast of Rawlins. The earthquake was felt as a distinct shock that caused wooden buildings to noticeably vibrate. Stone buildings were not affected by the event (*Rawlins Republican*, 1917).

On September 10, 1964, a magnitude 4.1 earthquake occurred approximately 30 miles west of Rawlins. One Rawlins resident reported that the earthquake caused a crack in the basement of his home in Happy Hollow. No other damage was reported (*Daily Times*, 1964).

Small earthquakes were detected, on April 13, 1973, May 30, 1973, and June 1, 1973, approximately six miles west of Hanna. No one reported feeling these events. On July 11, 1975, Rawlins residents felt an earthquake (intensity II) event. On January 27, 1976, an earthquake (magnitude 2.3, intensity V) occurred approximately 12 miles north of Rawlins. Several people reported that they were thrown out of bed (*Daily Times*, 1976). On March 3, 1977, an earthquake (intensity V) was reported approximately 18.5 miles west-northwest of Encampment. Doors and dishes were rattled in southern Carbon County homes; but no significant damage was reported (*Laramie Daily Boomerang*, 1977).

On April 13, 1991 and April 19, 1991, magnitude 3.2 and magnitude 2.9 earthquakes, respectively, occurred near the center of the Seminoe Reservoir. A magnitude 3.1 earthquake occurred on December 18, 1991, southwest of the Seminoe Reservoir, approximately 15 miles northeast of Sinclair. No one reported feeling these Seminoe-Reservoir-area earthquakes. On August 6, 1998, a magnitude 3.6 earthquake occurred approximately 13 miles north of Rawlins. Residents in Rawlins reported hearing a sound and then feeling a jolt. On April, 1999, a magnitude 4.3 earthquake occurred

approximately 29 miles north-northwest of Baggs. It was felt in Rawlins; and residents reported that pictures fell off the walls.

D5.3.1.3 City of Rock Springs Area

Rock Springs is located approximately 80 miles southwest of the Permit Area. The first recorded earthquake that was felt in Sweetwater County occurred on April 28, 1888. This intensity IV earthquake, which originated near Rock Springs, did not cause any appreciable damage. On July 25, 1910, an intensity V earthquake occurred at the same time that the Union Pacific Number One Mine in Rock Springs partially collapsed. On July 28, 1930, an intensity IV earthquake, with an epicenter near Rock Springs, was felt in Rock Springs and Reliance (*Casper Daily Tribune*, 1930). The earthquake awakened many residents; and some merchandise fell off of store shelves.

On March 21, 1942, a non-damaging, intensity III earthquake was felt in the Rock Springs area. This event was followed, on September 14, 1946, by an intensity IV earthquake. On October 25, 1947, a small earthquake with no assigned intensity or magnitude occurred southeast of Rock Springs. Two intensity IV earthquakes occurred in the Rock Springs area on September 24, 1948. The events rattled dishes in parts of Rock Springs.

A magnitude 3.9 event was recorded on January 5, 1964, approximately 23 miles south of Rock Springs. The University of Utah Seismograph Stations detected a non-damaging, magnitude 2.4 earthquake on March 19, 1968. This event was centered approximately 17 miles southeast of Rock Springs. A magnitude 3.2 event occurred on May 29, 1975, approximately 13 miles northeast of Superior. A week later, on June 6, 1975, a magnitude 3.7 earthquake was recorded in the same area. No damage was associated with any of the 1975 events.

The University of Utah Seismograph Stations recorded a non-damaging magnitude 2.7 earthquake on June 5, 1986. This event was located approximately 14 miles southwest of Green River, Wyoming.

On February 1, 1992, the University of Utah Seismograph Stations recorded a non-damaging magnitude 2.3 earthquake, approximately seven miles north of Rock Springs.

D5.3.1.4 City of Lander Area

Lander is about 70 miles northwest of the Permit Area. A number of earthquakes have occurred in the Lander area. The first reported earthquake occurred on January 22, 1889, and had an intensity of III to IV. This was followed by an intensity IV event on

November 21, 1895, during which houses were jarred and dishes rattled. On November 23, 1934, an intensity V earthquake was centered approximately 20 miles northwest of Lander. For a radius of ten miles around Lander, residents reported that dishes were thrown from cupboards, and that pictures fell down from the walls. Cracks were found in buildings along two business blocks; and the brick chimney of the Fremont County Courthouse was separated by two inches from the building. The earthquake was felt at Rock Springs and Green River, Wyoming (*Casper Tribune-Herald*, 1934).

There were a series of earthquakes in the Lander area in the 1950s that caused little damage. On August 17, 1950, there was an intensity IV earthquake that caused loose objects to rattle and buildings to creak. On January 12, 1954, there was an intensity II event; and on December 13, 1955, there was an intensity IV event near Lander, with no damage reported.

On June 14, 1973, a small earthquake was reported about eight miles east-northeast of Lander. The earthquake has been recently interpreted as a probable explosion. On January 31, 1992, a non-damaging magnitude 2.8 earthquake occurred approximately 20 miles northwest of Lander. This event was followed, on October 10, 1992, by a magnitude 4.0, intensity III earthquake centered approximately 22 miles east of Lander.

D5.3.1.5 City of Casper Area

Casper is located about 90 miles northeast of the Permit Area. Two of the earliest recorded earthquakes in Wyoming occurred near Casper. The first was on June 25, 1894, and had an estimated intensity of V. In residences on Casper Mountain, dishes rattled and fell on the floor and people were thrown from their beds. Water in the Platte River changed from fairly clear to reddish, and became thick with mud, due to the river banks slumping into the river during the earthquake. On November 14, 1897, an even larger event was felt. An intensity VI to VII earthquake, one of the largest recorded in central and eastern Wyoming, caused considerable damage to a few buildings. As a result of the earthquake, a portion of the Grand Central Hotel was cracked from the first to the third story. Some of the ceilings in the Grand Central Hotel were also severely damaged.

On October 25, 1922, an intensity IV earthquake was reported in the Casper area. The event was felt in Casper; at Salt Creek, 50 miles north of Casper; and at Bucknum, 22 miles west of Casper. Dishes were rattled and hanging pictures were tilted near Salt Creek. No significant damage was reported in Casper (*Casper Daily Tribune*, 1922). On December 11, 1942, an intensity IV earthquake was recorded north of Casper. Although no damage was reported, the event was felt in Casper, Salt Creek, and Glenrock (*Casper Tribune-Herald*, 1941). On August 2, 1948, another intensity IV earthquake was reported in the Casper area. No damage was reported (*Casper Tribune-Herald*, 1948). In

the 1950s, two earthquakes caused some concern among Casper residents. On January 24, 1954, an intensity IV earthquake near Alcova did not result in any reported damage (*Casper Tribune-Herald*, 1954). On August 19, 1959, an intensity IV earthquake was felt in Casper. Most recently, on October 19, 1996, a magnitude 4.2 earthquake was recorded approximately 15 miles north-northeast of Casper. No damage was reported.

D5.3.2 Uniform Building Code

With safety in mind, the UBC provides Seismic Zone Maps to help identify which building design factors are critical to specific areas of the country. Five UBC seismic zones are recognized, ranging from Zone 0 to Zone 4. These seismic zones are, in part, defined by the probability of having a certain level of ground shaking (horizontal acceleration) in 50 years. The criteria used for defining boundaries on the Seismic Zone Map were established by the Seismology Committee of the Structural Engineers Association of California (SEAOC, 1986). The criteria they developed are as follows:

- Zone 4: ≥ 30 percent gravity (g) effective peak acceleration;
- Zone 3: 20 to ≤ 30 percent g effective peak acceleration;
- Zone 2: 10 to ≤ 20 percent g effective peak acceleration;
- Zone 1: 5 to ≤ 10 percent g effective peak acceleration; and
- Zone 0: ≤ 5 percent g effective peak acceleration.

The Seismology Committee of the Structural Engineers Association of California assumed that there was a 90 percent probability that the above values would not be exceeded in 50 years, or a 100 percent probability that the values would be exceeded in 475 years.

Figure D5-4 shows the delineation of UBC seismic zones in Wyoming. The Permit Area is located in Seismic Zone 1. Since effective peak accelerations (90 percent chance of non-exceedance in 50 years) can range from five to ten percent g in Zone 1, it may be reasonable to assume that an average peak acceleration of 7.5 percent g could be applied to the design of a non-critical facility located near the center of Zone 1.

D5.3.3 Deterministic Analysis of Active Fault Systems

There are two active fault systems in the vicinity of the Permit Area, the Chicken Springs Fault System and the South Granite Mountain Fault System (**Figure D5-5**).

The Chicken Springs Fault System, located six miles east of the Permit Area, is composed of a series of east-west trending segments. In 1996, the Wyoming State

Geological Survey investigated this fault system, and determined that the most recent activity on the system appears to be Holocene in age. Reconnaissance-level studies indicated that the fault system is capable of generating a magnitude 6.5 earthquake (Case et al., 2002a). A magnitude 6.5 earthquake on the Chicken Springs Fault System would generate peak horizontal accelerations of approximately 4.8 percent g at Rawlins (Case et al., 2002a). These accelerations would be roughly equivalent to an intensity V earthquake, which may cause some light damage. Bairoil, however, would be subjected to a peak horizontal acceleration of approximately 23 percent g, or an intensity VII earthquake (Case et al., 2002a). Intensity VII events have the potential to cause moderate damage.

The South Granite Mountain Fault System is located about 14 miles northeast of the Permit Area. This fault system is composed of several northwest-southeast trending normal and thrust faults in southeastern Fremont County and northwestern Carbon County. The active segments of the system have been assigned a maximum magnitude of 6.75, which could generate peak horizontal accelerations of approximately 20 percent g at Bairoil and 6.1 percent g at the Rawlins (Case et al., 2002a). These accelerations would be roughly equivalent to an intensity VII earthquake at the Bairoil and an intensity V earthquake at Rawlins. Bairoil could sustain moderate damage; whereas minor or no damage could occur at Rawlins.

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

Tectonic provinces are regions with a uniform potential for the occurrence of earthquakes that are tied to buried faults with no surface expression. Within a tectonic province, earthquakes associated with buried faults are assumed to occur randomly, and, as a result, can theoretically occur anywhere within that area of uniform earthquake potential. In reality, that random distribution may not be the case, as most earthquakes are associated with specific faults. If all buried faults have not been identified, however, the distribution has to be considered random. "Floating earthquakes" are earthquakes that are considered to occur randomly in a tectonic province.

The US Geological Survey (USGS) identified tectonic provinces in a report titled "Probabilistic Estimates of Maximum Acceleration and Velocity in Rock in the Contiguous United States" (Algermissen et al., 1982). In that report, Sweetwater County was classified as being in a tectonic province with a "floating earthquake" maximum magnitude of 6.1. Geomatrix (1988) suggested using a more extensive regional tectonic province, called the "Wyoming Foreland Structural Province," which is approximately defined by the Idaho-Wyoming Thrust Belt on the west, 104 degrees West longitude on the east, 40 degrees North latitude on the south, and 45 degrees North latitude on the

north. Geomatrix (1988) estimated that the largest "floating earthquake" in the "Wyoming Foreland Structural Province" would have a magnitude in the 6.0 to 6.5 range, with an average value of magnitude 6.25.

D5.3.5 Short-Term Probabilistic Seismic Hazard Analysis

The USGS publishes probabilistic acceleration maps for 500-; 1,000-; and 2,500-year time frames. The maps show what accelerations may be met or exceeded in those time frames by expressing the probability that the accelerations will be met or exceeded in a shorter time frame. For example, a ten percent probability that acceleration may be met or exceeded in 50 years is roughly equivalent to a 100 percent probability of exceedance in 500 years.

The 500-year map provides accelerations that are comparable to those derived from the UBC and from the deterministic analysis on the Green Mountain Segment of the South Granite Mountain Fault System. It was often used for planning purposes for average structures. Based on the 500-year map (ten percent probability of exceedance in 50 years), the estimated peak horizontal acceleration in the Permit Area is approximately 6.5 percent g, which is comparable to the acceleration expected in Seismic Zone 1 of the UBC (**Figure D5-6**). These accelerations (3.9 – 9.2 percent g) are roughly comparable to intensity V earthquakes which can result in cracked plaster and broken dishes, but minor or no construction damages (Case, 2002). All facilities, including the processing plant, pipelines and well structures, at Lost Creek will be designed and constructed to sustain an intensity V earthquake. In addition, the observations of injection, production, and pipeline pressures and associated monitor well measurements, necessary for the in situ operation, will provide short-term information about any unanticipated seismic impacts. The estimated acceleration in the Permit Area is 20 percent g on the 2,500 year map.

N

T 28 N

T 27 N

T 26 N

T 25 N

T 24 N

T 23 N

Fremont

Sweetwater

Carbon

Sweetwater Mine-Mill Complex

R95W R94W R93W R92W R91W R90W R89W

Lost Creek ISR, LLC
Littleton, Colorado, USA

AATA INTERNATIONAL, INC.
Fort Collins, Colorado, USA

Legend

- Quaternary Alluvium
- Miocene Rocks
- White River Fm
- Bridger Fm
- Ice Point Conglomerate
- Crooks Gap Conglomerate
- Green River Fm / Wasatch Fm / Battle Spring Fm
- Fort Union Fm
- Cretaceous Rocks
- Cretaceous-Jurassic Rocks
- Mesozoic-Paleozoic Rocks
- PreCambrian Rocks
- Fold Axis
- Faults (dashed where approximate)
- **Large Stream Facies**
- **Green River-Wasatch Fm Interfinger zone**
- Lost Creek Permit Area

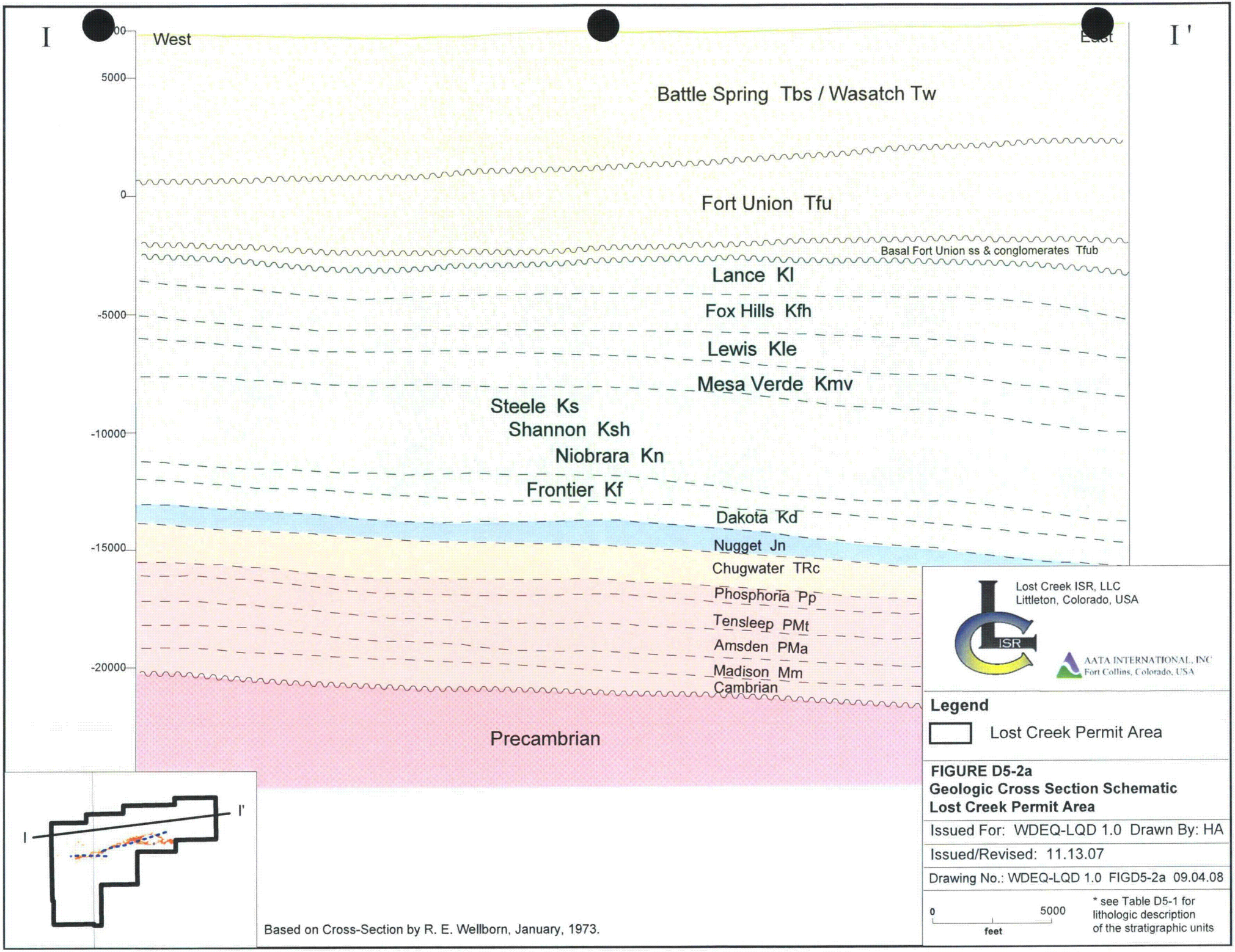
FIGURE D5-1
Regional Geologic Map
Lost Creek Permit Area

Issued For: WDEQ-LQD 1.0 Drawn By: HA

Issued/Revised: 09.17.08

Drawing No: WDEQ-LQD 1.0 FIGD5-1 12.11.07

0 4 miles

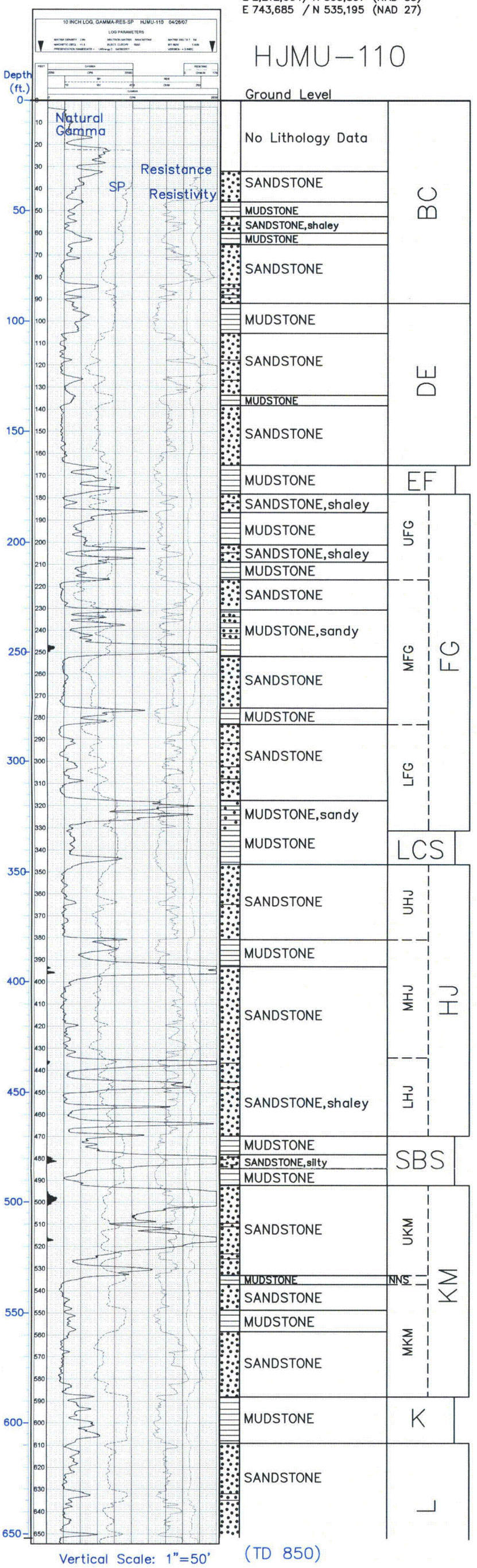

I
West
East
I '
5000
0
-5000
-10000
-15000
-20000
Battle Spring Tbs / Wasatch Tw
Fort Union Tfu
Basal Fort Union ss & conglomerates Tfub
Lance Kl
Fox Hills Kfh
Lewis Kle
Mesa Verde Kmv
Steele Ks
Shannon Ksh
Niobrara Kn
Frontier Kf
Dakota Kd
Nugget Jn
Chugwater TRc
Phosphoria Pp
Tensleep PMt
Amsden PMa
Madison Mm
Cambrian
Precambrian
I
I'
Based on Cross-Section by R. E. Wellborn, January, 1973.
Lost Creek ISR, LLC
Littleton, Colorado, USA
AATA INTERNATIONAL, INC
Fort Collins, Colorado, USA
Legend
Lost Creek Permit Area
FIGURE D5-2a
Geologic Cross Section Schematic
Lost Creek Permit Area
Issued For: WDEQ-LQD 1.0 Drawn By: HA
Issued/Revised: 11.13.07
Drawing No.: WDEQ-LQD 1.0 FIGD5-2a 09.04.08
0
5000
feet
* see Table D5-1 for lithologic description of the stratigraphic units

Lost Creek ISR, LLC

TYPE LOG – LOST CREEK PROJECT

WELL # HJMU–110

E 2,212,004/ N 595,897 (NAD 83)
E 743,685 / N 535,195 (NAD 27)



Battle Springs Formation – Typical Lithology

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

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

MUDSTONE, commonly very silty and/or sandy; soft to very firm; and CLAYSTONE, moderately firm to very firm, dense, blocky.
Secondary amounts of SILTSTONE, commonly very sandy, firm to very firm.

Represents inter–channel and overbank fluvial environments.

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

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

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

FG Horizon: Multiple sandstone units interbedded with mudstones Host to secondary amounts of uranium mineralization.

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

HJ Horizon: Multiple sandstone units interbedded with mudstones Primary host to uranium mineralization.

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

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

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

(Note: MKM has recently been renamed LKM).

K (K Shale): Mudstone and claystone, commonly silty and/or sandy.

Lost Creek ISR, LLC
Littleton, Colorado, USA

FIGURE D5-2b
Stratigraphic Column, Upper Battle Spring Formation
Lost Creek Permit Area

Issued For: WDEQ-LQD 3.0
Issued/Revised: 4.28.09 Drawn By: CVH

Table D5-2 Abandonment Information for Historic Exploration Holes (Page 1 of 15)

	Location								Exploration	Original Plug	Original Plug	1983-1984 TG Reopening, Probing & Re-Plugging Program				URE Replugging Program			
HoleID	N_nad83	E_nad83	S	T	R	Elev	TD	Year	Company	Material	Cap	Water Level (ft.)	Mud Depth (ft.)	Resealing Material	Concrete Recap	Date	Plug Depth (ft)	Replug Material	Concrete Recap
1-13	595656.1	2201396.2	13	25	93	6970	1000	1971	Conoco										
1D-17	596927.03	2214157.2	17	25	92	6965	502	1982	TG	Concrete									
1D-18	596222.05	2210916.2	18	25	92	6943	590	1982	TG	Concrete									
1D-20	595224.02	2213368.2	20	25	92	6933	530	1982	TG	Concrete									
1M-17	596928.02	2214133.2	17	25	92	6964	467	1982	TG	Concrete									
1M-18	596220.05	2210943.2	18	25	92	6943	450	1982	TG	Concrete									
1M-19	595179.06	2210943.2	19	25	92	6922	450	1982	TG	Concrete									
1M-20	595225.03	2213343.2	20	25	92	6933	440	1982	TG	Concrete									
1S-17	596929.03	2214105.2	17	25	92	6964	200	1982	TG	Concrete									
1S-18	596218.05	2210968.2	18	25	92	6943	357	1982	TG	Concrete									
1S-20	595226.02	2213318.2	20	25	92	6932	300	1982	TG	Concrete									
2M-19	595205.05	2210943.2	19	25	92	6923	680	1982	TG	Concrete									
3M-19	595229.07	2210942.2	19	25	92	6924	461	1982	TG	Concrete									
4-1	595685.1	2203263.1	13	25	93	6964	800												
13-1	597151.11	2202677.1	13	25	93	7003	800												
13-2	597126.11	2203274.1	13	25	93	7002	800												
13-3	597154.09	2203861.2	13	25	93	7002	800												
13-4	597110.09	2204605.2	13	25	93	6993	800												
19-1	594384.04	2206739.2	19	25	92	6925	800												
24-1	594952.1	2204119.1	24	25	93	6966	800												
24-2	594958.1	2204565.2	24	25	93	6949	800												
24-3	594950.1	2204989.2	24	25	93	6945	800												
24-4	594172.07	2202752.1	24	25	93	6941	800												
24-5	594173.09	2203324.1	24	25	93	6952	802												
24-6	594157.08	2203881.2	24	25	93	6943	800												
24-7	594389.06	2205338.1	24	25	93	6929	805												
24-8	594394.05	2206079.2	24	25	93	6929	802												
24-9	594961.09	2204468.2	24	25	93	6952	640												
24-10	594957.09	2204661.1	24	25	93	6947	671												
59-1	598920.08	2208938.2	18	25	92	6969	300												
72-1	595290.07	2209052.2	19	25	92	6930	800												
77-1	593497.05	2209014.2	19	25	92	6918	790												
81-1	595513.1	2204371.1	24	25	93	6969	800												
81-2	594196.09	2204301.1	24	25	93	6936	795												
82-1	593038.07	2204412.1	24	25	93	6916	731												
82-2	593032.09	2204357.1	24	25	93	6916	795												
82-3	593243.08	2204408.1	24	25	93	6918	1214												
83-1	594198.09	2204502.2	24	25	93	6932	800												
83-2	594320.09	2204551.1	24	25	93	6934	600												
83-3	595286.1	2204563.2	24	25	93	6961	650												

Table D5-2 Abandonment Information for Historic Exploration Holes (Page 2 of 15)

	Location								Exploration	Original Plug	Original Plug	1983-1984 TG Reopening, Probing & Re-Plugging Program				URE Replugging Program			
HoleID	N_nad83	E_nad83	S	T	R	Elev	TD	Year	Company	Material	Cap	Water Level (ft.)	Mud Depth (ft.)	Resealing Material	Concrete Recap	Date	Plug Depth (ft)	Replug Material	Concrete Recap
83-4	595521.1	2204570.1	24	25	93	6968	1200												
83-5	594510.08	2204496.1	24	25	93	6940	800												
84-1	593998.07	2204508.2	24	25	93	6929	800												
86-1	595611.08	2204417.2	13	25	93	6970	703												
86-2	595612.09	2204466.2	13	25	93	6970	800												
86-3	595613.08	2204371.1	13	25	93	6968	800												
86-4	597087.09	2204169.2	13	25	93	6997	800												
86-5	595719.1	2204365.2	13	25	93	6971	960												
88-1	595729.1	2204769.2	13	25	93	6967	600												
88-2	595725.1	2204565.2	13	25	93	6969	800												
131-1	595892.05	2205988.1	13	25	93	6960	800												
131-2	595620.1	2204668.2	13	25	93	6970	760												
131-3	595619.08	2204758.1	13	25	93	6968	600												
131-4	595730.09	2204769.2	13	25	93	6969	1200												
131-5	595524.09	2204770.2	24	25	93	6965	800												
135-1	594204.1	2204701.1	24	25	93	6932	1200												
139-1	593471.06	2205237.1	24	25	93	6920	780												
139-2	593493.05	2205525.1	24	25	93	6920	1200												
139-3	593493.05	2205777.1	24	24	93	6916	800												
140-1	593492.06	2206063.1	19	25	92	6910	760												
140-2	593491.05	2207525.2	19	25	92	6915	800												
140-3	593485.04	2207223.1	19	25	92	6914	1200												
557	598507.06	2211827.2	17	25	92	6985	650												
558	595807.03	2211804.2	18	25	92	6944	650												
844	591721	2212210.2	20	25	92	6864	560	1969											
A23	596854.02	2213320.2	17	25	92	6955	700	1970	Conoco										
A66	597490.06	2210635.2	18	25	92	6945	360	1970	Conoco										
A67	599898.06	2210516.2	18	25	92	7010	740	1970	Conoco										
A176	598445.08	2210978.2	18	25	92	6975	500	1970	Conoco										
A177	598464.04	2212691.2	17	25	92	6980	500	1970	Conoco										
A178	596051.03	2213327.2	17	25	92	6950	500	1970	Conoco										
A179	596451.02	2213324.2	17	25	92	6960	500	1970	Conoco										
A180	598481.99	2217895.2	16	25	92	6995	620	1970	Conoco										
A181	596250.04	2213328.2	17	25	92	6955	520	1970	Conoco										
A185	595260.01	2213348.2	20	25	92	6939	500/600	1970/19 78	Conoco										
A186	598324.03	2217169.2	16	25	92	6995	620	1970	Conoco										
A187	594860.03	2213350.2	20	25	92	6935	500	1970	Conoco										
A188	595061.04	2213350.2	20	25	92	6935	500	1970	Conoco										
A189	598408.03	2216378.2	17	25	92	6995	620	1970	Conoco										
A190	595445.01	2213345.2	20	25	92	6935	500	1970	Conoco										

Table D5-2 Abandonment Information for Historic Exploration Holes (Page 3 of 15)

	Location								Exploration	Original Plug	Original Plug	1983-1984 TG Reopening, Probing & Re-Plugging Program				URE Replugging Program			
HoleID	N_nad83	E_nad83	S	T	R	Elev	TD	Year	Company	Material	Cap	Water Level (ft.)	Mud Depth (ft.)	Resealing Material	Concrete Recap	Date	Plug Depth (ft)	Replug Material	Concrete Recap
A191	598352.02	2215596.2	17	25	92	6985	690	1970	Conoco										
A196	598399.04	2214795.2	17	25	92	6980	640	1970	Conoco										
A228	598495.05	2213839.2	17	25	92	6983	700	1970	Conoco										
A399	598369.05	2215159.2	17	25	92	6990	520	1970	Conoco										
A400	598506.04	2212209.2	17	25	92	6980	580	1970	Conoco										
A426	598471.07	2211382.2	18	25	92	6980	600	1970	Conoco										
A442	598409.05	2213041.2	17	25	92	6985	600	1970	Conoco										
A443	598364.03	2214974.2	17	25	92	6990	520	1970	Conoco										
CG2-1	600404	2218314.2	16	25	92	7034	660	0											
D19	599857.04	2216739.2	17	25	92	7015	600	0											
D20	598325.08	2209390.2	18	25	92	6975	616	0											
D21	597485.04	2214405.2	17	25	92	6960	700	0											
D22	596360.06	2210438.2	18	25	92	6942	640	0											
D23	593865.04	2210460.2	19	25	92	6910	560	0											
D49	595115.01	2212805.2	20	25	92	6920	660	1970											
D50	595060.05	2210459.2	19	25	92	6921	600	0											
D51	592887.06	2210468.2	19	25	92	6895	780	0											
D52	593851.03	2211615.2	19	25	92	6905	540	0											
D53	599885.03	2213098.2	17	25	92	7010	600	0											
D54	599885.03	2215547.2	17	25	92	7010	600	0											
D55	597485.04	2215579.2	17	25	92	6980	780	0											
D75	597485.04	2213182.2	17	25	92	6960	600	1977											
D76	595083.02	2215205.2	20	25	92	6950	600	1977											
D96	595113.01	2214010.2	20	25	92	6935	540	1970											
D131	595100.02	2214398.2	20	25	92	6942	520	1977											
D132	596555.07	2210458.2	18	25	92	6940	640	1977											
D144	596455.05	2210449.2	18	25	92	6943	540	0											
D149	595117.01	2213688.2	20	25	92	6935	540	1970											
D150	595105.04	2214195.2	20	25	92	6937	540	1970											
D156	595125.02	2213586.2	20	25	92	6935	540	1970											
OH1	598115.02	2218381.2	16	25	92	6991	323	1968											
P1-16	595944.98	2217700.2	16	25	92	6945	680	1988	PNC	PlugGel									
P1-17	596669.02	2213891.2	17	25	92	6961	500	1987	PNC	PlugGel									
P1-18	595993.02	2211572.2	18	25	92	6939	560	1987	PNC	PlugGel							Couldn't		
P1-19	594450.06	2206714.2	19	25	92	6934	560	1987	PNC	PlugGel									
P1-20	595263.03	2212905.2	20	25	92	6927	560	1987	PNC	PlugGel									
P1-24	593705.05	2205770.1	24	25	93	6917	600	1987	PNC	PlugGel									
P2-16	596359.99	2217708.2	16	25	92	6942	600	1988	PNC	PlugGel									
P2-17	596435.04	2213125.2	17	25	92	6949	660	1988	PNC	PlugGel									
P2-18	595955.02	2211702.2	18	25	92	6949	500	1990	PNC	PlugGel							Couldn't		

Table D5-2 Abandonment Information for Historic Exploration Holes (Page 4 of 15)

	Location								Exploration	Original Plug	Original Plug	1983-1984 TG Reopening, Probing & Re-Plugging Program				URE Replugging Program			
HoleID	N_nad83	E_nad83	S	T	R	Elev	TD	Year	Company	Material	Cap	Water Level (ft.)	Mud Depth (ft.)	Resealing Material	Concrete Recap	Date	Plug Depth (ft)	Replug Material	Concrete Recap
P2-19	593945.04	2206898.1	19	25	92	6920	720	1988	PNC	PlugGel									
P2-20	595325.01	2213920.2	20	25	92	6935	560	1987	PNC	PlugGel									
P2-24	593578.1	2204250.1	24	25	93	6925	560	1987	PNC	PlugGel									
P3-17	595903.01	2214910.2	17	25	92	6946	640	1988	PNC	PlugGel									
P3-18	596042.04	2211702.2	18	25	92	6944	500	1990	PNC	PlugGel									
P3-19	595757.06	2210925.2	19	25	92	6931	500	1992	PNC	PlugGel									
P3-20	595415.02	2212912.2	20	25	92	6934	520	1990	PNC	PlugGel									
P3-24	593083.08	2202706.1	24	25	93	6920	730	1988	PNC	PlugGel									
P4-17	596705.02	2214320.2	17	25	92	6964	633	1988	PNC	PlugGel									
P4-18	596141.03	2211693.2	18	25	92	6942	500	1990	PNC	PlugGel									
P4-19	595632.04	2210922.2	19	25	92	6929	500	1992	PNC	PlugGel									
P4-20	595465.03	2212912.2	20	25	92	6934	520	1990	PNC	PlugGel									
P5-17	596255.03	2212964.2	17	25	92	6945	650	1988	PNC	PlugGel									
P5-18	596192.03	2211689.2	18	25	92	6940	500	1990	PNC	PlugGel									
P5-19	595456.07	2210913.2	19	25	92	6933	500	1992	PNC	PlugGel									
P5-20	595565.04	2212915.2	20	25	92	6936	520	1990	PNC	PlugGel									
P6-17	596009.03	2212119.2	17	25	92	6946	500	1990	PNC	PlugGel									
P6-18	595856.06	2210922.2	18	25	92	6935	500	1992	PNC	PlugGel									
P6-19	595359.04	2210916.2	19	25	92	6933	500	1992	PNC	PlugGel									
P6-20	595615.01	2212916.2	20	25	92	6937	520	1990	PNC	PlugGel									
P7-17	596059.04	2212118.2	17	25	92	6948	500	1990	PNC	PlugGel									
P7-19	595801.06	2211125.2	19	25	92	6933	500	1992	PNC	PlugGel									
P7-20	595652.03	2212925.2	20	25	92	6935	520	1990	PNC	PlugGel									
P8-17	596208.04	2212115.2	17	25	92	6953	500	1990	PNC	PlugGel									
P8-19	595602.05	2211118.2	19	25	92	6936	500	1992	PNC	PlugGel									
P9-17	596005.03	2211912.2	17	25	92	6947	500	1990	PNC	PlugGel									
P10-17	596207.02	2211923.2	17	25	92	6950	500	1990	PNC	PlugGel									
RD34	598491.02	2219625.2	16	25	92	6972	840	0											
RD125	595904.98	2219820.2	21	25	92	6955	480	1968											
RD131	599905.02	2219820.2	16	25	92	7005	850	1968											
RD188	596037.02	2215568.2	17	25	92	6950	800	1968											
RD189	597429.98	2217545.2	16	25	92	6975	800	1968											
RD210	596401.99	2221870.2	16	25	92	6980	600	1968											
RD301	596485.01	2218820.2	16	25	92	6945	600	1968											
RD343	594646.02	2214392.2	20	25	92	6947	650	1968											
RD345	596004.04	2214099.2	17	25	92	6950	650	1968											
RD392	595876.99	2218386.2	16	25	92	6940	600	1968											
RD393	596515	2221500.2	16	25	92	6963	200	1968											
RD404	598240	2218465.2	16	25	92	6985	550	1968											
RD412	598755.03	2214360.2	17	25	92	6997	700	1968											

Table D5-2 Abandonment Information for Historic Exploration Holes (Page 5 of 15)

	Location								Exploration	Original Plug	Original Plug	1983-1984 TG Reopening, Probing & Re-Plugging Program				URE Replugging Program			
HoleID	N_nad83	E_nad83	S	T	R	Elev	TD	Year	Company	Material	Cap	Water Level (ft.)	Mud Depth (ft.)	Resealing Material	Concrete Recap	Date	Plug Depth (ft)	Replug Material	Concrete Recap
RD436	595141.03	2211158.2	19	25	92	6925	670	1968											
RD445	598456.01	2221499.2	16	25	92	6987	600	1968											
RD446	599729.04	2217176.2	16	25	92	7015	800	1968											
RE6	585415.01	2207290.1	30	25	92	6800	800												
TE1	593316.09	2204335.1	24	25	93	6920	720	1976	TG		None	Dry			Yes				
TE2	593169.09	2204479.2	24	25	93	6918	700	1976	TG		Octoplug	188	191		Yes				
TE3	594956.1	2204613.1	24	25	93	6946	680	1976	TG		? Too Deep				Yes				
TE4	595053.1	2204676.1	24	25	93	6950	680	1976	TG		Octoplug	205	401	ShurGel & QuickGel	Yes				
TE5	594853.1	2204660.1	24	25	93	6945	680	1976	TG		Sagebrush	Dry			Yes				
TE6	595558.08	2204518.1	24	25	93	6969	700	1976	TG		Octoplug	Dry			Yes				
TE7	595409.08	2204391.1	24	25	93	6943	700	1976	TG		Octoplug	Dry			Yes				
TE8	595511.1	2204170.1	24	25	93	6967	720	1976	TG		Octoplug	Dry			Yes				
TE9	594133.09	2202533.2	24	25	93	6939	820	1976	TG		Octoplug	210	276		Yes				
TE10	594052.08	2202729.1	24	25	93	6940	820	1977	TG		Octoplug	210	221		Yes				
TE11	594240.09	2203252.1	24	25	93	6948	720	1977	TG		Octoplug	Dry			Yes				
TE12	594097.1	2203400.1	24	25	93	6949	720	1977	TG		Octoplug	215	227		Yes				
TE17	595168.1	2204405.2	24	25	93	6961	1200	1977	TG		? Too Deep				Yes				
TE18	593478.08	2204245.1	24	25	93	6923	775	1977	TG		None	Dry			Yes				
TE19	593073.08	2204571.1	24	25	93	6917	700	1977	TG		Octoplug	Dry			Yes				
TE20	593051.09	2204215.1	24	25	93	6917	800	1977	TG		Octoplug	Dry			Yes				
TE21	593969.09	2202348.2	24	25	93	6936	1200	1977	TG		Octoplug	207	238		Yes				
TE22	594260.08	2203457.1	24	25	93	6949	800	1977	TG		Octoplug	215	235		Yes				
TE23	593929.1	2203500.1	24	25	93	6945	800	1977	TG		Octoplug	210	228		Yes				
TE26	595582.1	2203010.2	24	25	93	6963	600	1977	TG		Octoplug	221	225		Yes				
TE27	595359.07	2203343.1	24	25	93	6961	600	1977	TG			*Not Located*							
TE28	595146.09	2203764.1	24	25	93	6963	640	1977	TG		Octoplug	224	444	ShurGel & QuickGel	Yes				
TE29	594657.08	2204119.1	24	25	93	6952	620	1977	TG		None	Dry			Yes				
TE30	595096.08	2204232.1	24	25	93	6962	620	1977	TG		Octoplug	Dry			Yes				
TE31	595563.1	2203635.2	24	25	93	6962	620	1977	TG			*Not Located*							
TE32	595969.1	2203437.2	13	25	93	6972	700	1977	TG			*Not Located*							
TE33	596029.08	2203969.1	13	25	93	6977	800	1977	TG		? Down Hole				Yes				
TE34	595508.04	2205700.2	24	25	93	6964	620	1977	TG		Octoplug	223	228		Yes				
TE35	595544.11	2202972.2	24	25	93	6963	620	1977	TG		Octoplug	223	235		Yes				
TE36	595398.09	2203423.1	24	25	93	6962	620	1977	TG		Octoplug	Dry			Yes				
TE37	595327.08	2203351.1	24	25	93	6957	620	1977	TG		Octoplug	219	277		Yes				
TE38	595462.07	2203643.1	24	25	93	6961	380	1977	TG										
TE39	595123.09	2204273.2	24	25	93	6962	620	1977	TG		None	216	220		Yes				
TE40	595054.08	2204202.1	24	25	93	6961	620	1977	TG			*Not Located*							

Table D5-2 Abandonment Information for Historic Exploration Holes (Page 6 of 15)

	Location								Exploration	Original Plug	Original Plug	1983-1984 TG Reopening, Probing & Re-Plugging Program				URE Replugging Program			
HoleID	N_nad83	E_nad83	S	T	R	Elev	TD	Year	Company	Material	Cap	Water Level (ft.)	Mud Depth (ft.)	Resealing Material	Concrete Recap	Date	Plug Depth (ft)	Replug Material	Concrete Recap
TE41	595721.1	2202859.1	31	25	93	6970	620	1977	TG			*Not Located*							
TE42	595433.1	2203177.2	24	25	93	6957	620	1977	TG		Permaplug	219	228		Yes				
TE43	595201.08	2203537.2	24	25	93	6956	620	1977	TG		Permaplug	218	226		Yes				
TE44	595234.09	2204071.1	24	25	93	6963	620	1977	TG		? Down Hole								
TE45	594991.08	2204357.2	24	25	93	6954	620	1977	TG		Octoplug	211	221		Yes				
TE46	594499.09	2204304.1	24	25	93	6943	1200	1977	TG		None	Dry			Yes				
TE47	594209.09	2204194.1	24	25	93	6940	760	1977	TG		Octoplug	204	248		Yes				
TE48	594349.1	2203883.2	24	25	93	6947	600	1977	TG		None	212	225		Yes				
TE49	594361.08	2203138.1	24	25	93	6938	600	1977	TG			*Not Located*							
TE50	594311.1	2202895.1	24	25	93	6940	800	1977	TG		Octoplug	209	234		Yes				
TE51	594282.09	2202540.1	24	25	93	6941	700	1977	TG		Octoplug	Blockage at about 100 ft.			Yes				
TE52	594068.09	2201824.1	24	25	93	6936	1200	1977	TG		Octoplug	209	247		Yes				
TE53	593827.08	2201824.1	24	25	93	6935	800	1977	TG		Octoplug	210	238		Yes				
TE56	593541.08	2202141.1	24	25	93	6930	700	1977	TG		None	203	230		Yes				
TE57	593908.1	2202619.1	24	25	93	6938	1200	1977	TG		Octoplug	210	235		Yes				
TE58	593183.07	2202195.1	24	25	93	6921	1200	1977	TG			*Not Located*							
TE59	593222.08	2202557.1	24	25	93	6927	700	1977	TG			*Not Located*							
TE60	593526.09	2203012.2	24	25	93	6923	700	1977	TG			*Not Located*							
TE61	593722.08	2203363.1	24	25	93	6941	1200	1977	TG		Octoplug	209	225		Yes				
TE62	593126.07	2202936.1	24	25	93	6917	700	1977	TG			*Not Located*							
TE63	593804.08	2203657.1	24	25	93	6936	700	1977	TG		Octoplug	Dry			Yes				
TE64	593698.09	2203836.1	24	25	93	6931	680	1977	TG		None	195	224		Yes				
TE65	593638.08	2203697.1	24	25	93	6931	1203	1977	TG		Octoplug	Dry			Yes				
TE66	593619.08	2204003.2	24	25	93	6927	700	1977	TG		Octoplug	Dry			Yes				
TE67	593312.08	2204125.1	24	25	93	6921	719	1977	TG		Octoplug	191	389	ShurGel & QuickGel	Yes				
TE68	593833.09	2204381.1	24	25	93	6928	1202	1977	TG			*Not Located*							
TE69	593486.09	2204515.1	24	25	93	6922	793	1977	TG		Octoplug	191	209		Yes	2006	650	Grout	25' Cement
TE70	593246.07	2204209.1	24	25	93	6919	1202	1977	TG		Octoplug	189	252		Yes				
TE71	593393.07	2204517.1	24	25	93	6923	700	1977	TG		Octoplug	Dry			Yes	2006	650	Grout	25' Cement
TE72	593494.1	2204411.1	24	25	93	6924	700	1977	TG		Octoplug	192	211		Yes	2006	650	Grout	25' Cement
TE73	593604.09	2204522.2	24	25	93	6926	700	1977	TG		Octoplug	Dry			Yes	2006	650	Grout	25' Cement
TE74	595632.08	2202770.2	24	25	93	6969	600	1977	TG		Octoplug	227	249		Yes				
TE75	595532.1	2202655.1	24	25	93	6968	600	1977	TG		Octoplug	229	270		Yes				
TE77	593783.08	2201859.1	24	25	93	6934	640	1977	TG		None	Dry			Yes				
TE79	594306.08	2201716.1	23	25	93	6939	700	1977	TG		None	214	308		Yes				
TE80	594169.09	2201859.1	24	25	93	6937	680	1977	TG		Octoplug	Dry			Yes				
TE81	595311.1	2202715.1	24	25	93	6958	700	1977	TG		Octoplug	?	250		Yes				
TE83	593457.08	2201861.1	23	25	93	6928	640	1977	TG		Octoplug	207	326		Yes				

Table D5-2 Abandonment Information for Historic Exploration Holes (Page 7 of 15)

	Location								Exploration	Original Plug	Original Plug	1983-1984 TG Reopening, Probing & Re-Plugging Program				URE Replugging Program			
HoleID	N_nad83	E_nad83	S	T	R	Elev	TD	Year	Company	Material	Cap	Water Level (ft.)	Mud Depth (ft.)	Resealing Material	Concrete Recap	Date	Plug Depth (ft)	Replug Material	Concrete Recap
TE84	594536.1	2202965.1	24	25	93	6944	600	1977	TG		Octoplug	212	241		Yes				
TE87	595530.09	2202265.2	23	25	93	6969	700	1977	TG		Octoplug	233	238		Yes				
TE88	594716.08	2202856.1	23	25	93	6948	700	1977	TG		Octoplug	216	219		Yes				
TE89	593597.1	2204508.2	24	25	93	6927	660	1977	TG		Octoplug	194	230		Yes	2006	650	Grout	25' Cement
TE90	593905.08	2202120.1	24	25	93	6936	700	1978	TG		Permaplug	209	243		Yes				
TE91	593304.08	2203117.2	24	25	93	6916	700	1978	TG		? Too Deep				Yes				
TE92	593305.1	2202719.1	24	25	93	6927	700	1978	TG		Permaplug	204	252		Yes				
TE93	593507.09	2202516.1	24	25	93	6933	600	1978	TG		Permaplug	205	225		Yes				
TE94	593704.1	2202120.1	24	25	93	6931	700	1978	TG		Permaplug	205	227		Yes				
TE96	593505.09	2203320.1	24	25	93	6928	700	1978	TG		Permaplug	203	207		Yes				
TE97	593505.09	2203120.1	24	25	93	6925	700	1978	TG		? Down Hole								
TE101	593305.1	2202920.1	24	25	93	6919	720	1978	TG		Permaplug	195	199		Yes				
TG1-17	595905.01	2211920.2	17	25	92	6944	500	1978	TG		Permaplug	160	238		Yes				
TG1-18	595705.05	2210720.2	18	25	92	6929	600	1978	TG		Permaplug	151	156		Yes				
TG1-19	593105	2210720.1	19	25	92	6908	600	1978	TG		Permaplug	145	223		Yes				
TG1-20	595505.03	2211920.2	20	25	92	6936	500	1978	TG										
TG1A-19(60deg)	595427.03	2211712.2	19	25	92	6940	200	1980	TG										
TG1A-19(75deg)	595427.03	2211712.2	19	25	92	6940	380	1980	TG		? Angle Hole				Yes				
TG1A-20(60deg)	595607.04	2212520.2	20	25	92	6933	200	1980	TG		? Angle Hole				Yes				
TG1A-20(75deg)	595605.04	2212520.2	20	25	92	6933	380	1980	TG										
TG2-18	595905.05	2210720.2	18	25	92	6933	600	1978	TG		Permaplug	156	242		Yes				
TG2-19	593505.02	2210720.1	19	25	92	6912	600	1978	TG		Permaplug	143	144		Yes				
TG2-20	595705.02	2211920.2	20	25	92	6940	500	1978	TG										
TG3-17	596105.04	2213720.2	17	25	92	6945	600	1978	TG		Permaplug	155	160		Yes				
TG3-18	596105.07	2210720.2	18	25	92	6939	600	1978	TG		? Too Deep				Yes				
TG3-19	593905.04	2210720.1	19	25	92	6912	600	1978	TG		Permaplug	129	139		Yes				
TG3-20	595705.02	2212320.2	20	25	92	6937	500	1978	TG										
TG4-18	596305.07	2210720.2	18	25	92	6940	600	1978	TG		Permaplug	164	176		Yes				
TG4-19	594305.06	2210720.1	19	25	92	6923	600	1978	TG		Permaplug	138	>450	ShurGel & QuickGel	Yes				
TG4-20	595505.03	2212320.2	20	25	92	6934	600	1978	TG										
TG5-17	595905.01	2212320.2	17	25	92	6939	500	1978	TG		Permaplug	151	368	ShurGel & QuickGel	Yes				
TG5-18	596505.06	2210720.2	18	25	92	6944	660	1978	TG		Permaplug	159	168		Yes				
TG5-19	594705.05	2210720.2	19	25	92	6934	600	1978	TG		Permaplug	145	215		Yes				
TG5-20	595705.02	2212720.2	20	25	92	6934	600	1978	TG										

Table D5-2 Abandonment Information for Historic Exploration Holes (Page 8 of 15)

	Location								Exploration	Original Plug	Original Plug	1983-1984 TG Reopening, Probing & Re-Plugging Program				URE Replugging Program			
HoleID	N_nad83	E_nad83	S	T	R	Elev	TD	Year	Company	Material	Cap	Water Level (ft.)	Mud Depth (ft.)	Resealing Material	Concrete Recap	Date	Plug Depth (ft)	Replug Material	Concrete Recap
TG6-17	596105.04	2211920.2	17	25	92	6950	600	1978	TG		Permaplug	166	395	ShurGel & QuickGel	Yes				
TG6-18	596705.05	2210720.2	18	25	92	6947	660	1978	TG		Permaplug	166	306		Yes				
TG6-19	595105.07	2210720.2	19	25	92	6927	600	1978	TG		? Too Deep				Yes				
TG6-20	595505.03	2212720.2	20	25	92	6931	600	1978	TG										
TG7-17	596105.04	2212320.2	17	25	92	6945	540	1978	TG		Permaplug	157	239		Yes				
TG7-18	596905.08	2210720.2	18	25	92	6949	660	1978	TG		Permaplug	167	224		Yes				
TG7-19	595305.06	2210720.2	19	25	92	6929	600	1978	TG		? Down Hole				Yes				
TG7-20	595105.04	2213120.2	20	25	92	6932	520	1978	TG										
TG8-17	596305.03	2212320.2	17	25	92	6953	560	1978	TG		? Down Hole								
TG8-18	595914.04	2211508.2	18	25	92	6944	600	1978	TG		Permaplug	157	341		Yes				
TG8-19	595505.06	2210720.2	19	25	92	6926	600	1978	TG		Yes				Yes				
TG8-20	595505.03	2213120.2	20	25	92	6934	600	1978	TG										
TG9-17	595828.03	2212707.2	17	25	92	6936	560	1978	TG		Permaplug	151	163		Yes				
TG9-18	595905.05	2211120.2	18	25	92	6935	600	1978	TG			*Not Located*							
TG9-19	595505.06	2211120.2	19	25	92	6935	600	1978	TG		Permaplug	158	>450	ShurGel & QuickGel	Yes				
TG9-20	595305.03	2213120.2	20	25	92	6932	600	1978	TG										
TG10-17	596105.04	2212720.2	17	25	92	6941	600	1978	TG		Permaplug	153	313		Yes				
TG10-18	596305.07	2211120.2	18	25	92	6946	600	1978	TG		Permaplug	166	298		Yes				
TG10-19	595305.03	2211120.2	19	25	92	6932	500	1978	TG		Permaplug	154	283		Yes				
TG10-20	595305.03	2212720.2	20	25	92	6930	600	1978	TG										
TG11-17	596305.03	2212720.2	17	25	92	6949	600	1978	TG		Permaplug	159	186		Yes				
TG11-18	596711.06	2211120.2	18	25	92	6951	660	1978	TG			*Not Located*							
TG11-19	595705.05	2211120.2	19	25	92	6932	500	1978	TG		Permaplug	Dry			Yes				
TG11-20	595305.03	2212320.2	20	25	92	6931	600	1978	TG										
TG12-17	595826.03	2213108.2	17	25	92	6939	560	1978	TG		Permaplug	152	154		Yes				
TG12-18	597105.07	2211120.2	18	25	92	6959	660	1978	TG		Permaplug	173	206		Yes				
TG12-19	595705.02	2211520.2	19	25	92	6942	500	1978	TG		Permaplug	160	331		Yes				
TG12-20	595705.02	2213320.2	20	25	92	6938	600	1978	TG										
TG13-17	596105.04	2213120.2	17	25	92	6949	600	1978	TG		Permaplug	158	288		Yes				
TG13-18	595905.05	2211220.2	18	25	92	6936	500	1979	TG		Permaplug	154	379	ShurGel & QuickGel	Yes				
TG13-19	595305.03	2211520.2	19	25	92	6932	540	1978	TG		? Down Hole				Yes				
TG13-20	595705.02	2213720.2	20	25	92	6942	600	1978	TG										
TG14-18	597105.04	2211520.2	18	25	92	6949	600	1978	TG			*Not Located*							
TG14-19	595505.03	2211520.2	19	25	92	6941	500	1978	TG		Permaplug	159	175		Yes				
TG14-20	595505.03	2213720.2	20	25	92	6941	540	1978	TG										
TG15-17	596505.03	2213720.2	17	25	92	6961	600	1978	TG		Permaplug	167	341		Yes				
TG15-18	596116.03	2211511.2	18	25	92	6943	500	1978	TG		Permaplug	156	238		Yes				

Table D5-2 Abandonment Information for Historic Exploration Holes (Page 9 of 15)

	Location								Exploration	Original Plug	Original Plug	1983-1984 TG Reopening, Probing & Re-Plugging Program				URE Replugging Program			
HoleID	N_nad83	E_nad83	S	T	R	Elev	TD	Year	Company	Material	Cap	Water Level (ft.)	Mud Depth (ft.)	Resealing Material	Concrete Recap	Date	Plug Depth (ft)	Replug Material	Concrete Recap
TG15-19	595305.06	2210920.2	19	25	92	6930	580	1980	TG		? Too Deep				Yes				
TG15-20	595305.03	2213720.2	20	25	92	6938	540	1978	TG										
TG16-17	596505.03	2214120.2	17	25	92	6961	600	1978	TG		Permaplug	167	241		Yes				
TG16-19	595505.06	2210920.2	19	25	92	6930	580	1980	TG			*Not Located*							
TG16-20	595305.03	2214120.2	20	25	92	6938	600	1978	TG										
TG17-17	596105.04	2214520.2	17	25	92	6949	600	1978	TG		Permaplug	160	205		Yes				
TG17-19	595705.05	2210920.2	19	25	92	6929	580	1980	TG		? Too Deep				Yes				
TG17-20	595505.03	2214120.2	20	25	92	6940	540	1978	TG										
TG18-17	596505.03	2214520.2	17	25	92	6961	600	1978	TG		Permaplug	167	190		Yes				
TG18-19	595305.03	2211320.2	19	25	92	6931	580	1980	TG		Yes				Yes				
TG18-20	595705.02	2214120.2	20	25	92	6943	600	1978	TG										
TG19-17	596105.04	2214920.2	17	25	92	6948	600	1978	TG		Permaplug	156	203		Yes				
TG19-19	595505.03	2211320.2	19	25	92	6940	580	1980	TG		? Too Deep				Yes				
TG19-20	595715.03	2214516.2	20	25	92	6948	600	1978	TG										
TG20-17	596505.03	2214920.2	17	25	92	6956	600	1978	TG		Permaplug	161	294		Yes				
TG20-18	595905.05	2210920.2	18	25	92	6935	580	1980	TG		? Too Deep				Yes				
TG20-19	595705.02	2211320.2	19	25	92	6935	580	1980	TG		? Too Deep				Yes				
TG20-20	595505.03	2214520.2	20	25	92	6941	540	1978	TG										
TG21-17	596305.03	2214120.2	17	25	92	6954	600	1978	TG		Permaplug	163	357	ShurGel & QuickGel	Yes				
TG21-18	595905.01	2211320.2	18	25	92	6933	580	1980	TG		? Too Deep				Yes				
TG21-19	595505.03	2211720.2	19	25	92	6936	580	1980	TG		? Down Hole				Yes				
TG21-20	595305.03	2214520.2	20	25	92	6949	516	1978	TG										
TG22-17	596705.02	2214120.2	17	25	92	6966	600	1978	TG		Permaplug	171	248		Yes				
TG22-18	596105.04	2211320.2	18	25	92	6938	580	1980	TG		? Down Hole				Yes				
TG22-19	595705.02	2211720.2	19	25	92	6942	580	1980	TG		? Too Deep				Yes				
TG22-20	595305.03	2214920.2	20	25	92	6947	540	1978	TG										
TG23-17	595905.01	2215320.2	17	25	92	6948	600	1978	TG		Permaplug	155	186		Yes				
TG23-18	595905.01	2211720.2	18	25	92	6942	580	1980	TG		None	Dry			Yes		Couldn't		
TG23-19	595705.05	2210520.2	19	25	92	6936	580	1980	TG		? Too Deep				Yes				
TG23-20	595505.03	2214920.2	20	25	92	6944	540	1978	TG										
TG24-17	596105.04	2215320.2	20	25	92	6944	600	1978	TG		Permaplug	157	201		Yes				
TG24-18	596119.02	2211707.2	18	25	92	6948	580	1980	TG		? Too Deep				Yes				
TG24-19	595505.06	2210520.2	19	25	92	6931	580	1980	TG										
TG24-20	595705.02	2214920.2	17	25	92	6951	600	1978	TG										
TG25-17	595905.01	2215720.2	17	25	92	6954	600	1978	TG		Permaplug	159	221		Yes				
TG25-18	596305.03	2211720.2	18	25	92	6942	580	1980	TG		? Too Deep				Yes				
TG25-19	595305.06	2210520.2	19	25	92	6931	580	1980	TG		? Too Deep				Yes				
TG25-20	595705.02	2215320.2	20	25	92	6949	600	1978	TG										
TG26-17	596105.04	2215720.2	17	25	92	6953	600	1978	TG		Permaplug	158	166		Yes				

Table D5-2 Abandonment Information for Historic Exploration Holes (Page 10 of 15)

	Location								Exploration	Original Plug	Original Plug	1983-1984 TG Reopening, Probing & Re-Plugging Program				URE Replugging Program			
HoleID	N_nad83	E_nad83	S	T	R	Elev	TD	Year	Company	Material	Cap	Water Level (ft.)	Mud Depth (ft.)	Resealing Material	Concrete Recap	Date	Plug Depth (ft)	Replug Material	Concrete Recap
TG26-20	595505.03	2215320.2	20	25	92	6950	540	1978	TG										
TG27-17	596505.03	2215720.2	17	25	92	6960	600	1978	TG		Permaplug	163	271		Yes				
TG27-18	596005.03	2211699.2	18	25	92	6951	580	1980	TG		None	Dry			Yes				
TG27-20	595305.03	2215320.2	20	25	92	6951	540	1978	TG										
TG28-17	596505.03	2215320.2	17	25	92	6956	600	1978	TG		Permaplug	162	225		Yes				
TG28-20	595305.03	2215720.2	20	25	92	6956	540	1978	TG										
TG29-17	596305.03	2213720.2	17	25	92	6946	600	1978	TG		Permaplug	161	238		Yes				
TG29-20	595505.03	2215720.2	20	25	92	6953	540	1978	TG										
TG30-17	596705.02	2214520.2	17	25	92	6964	600	1978	TG		Permaplug	168	243		Yes				
TG30-20	595705.02	2215720.2	20	25	92	6952	600	1978	TG										
TG31-20	595705.02	2216120.2	20	25	92	6957	600	1978	TG										
TG32-17	595905.01	2216120.2	17	25	92	6956	600	1978	TG		Permaplug	160	196		Yes				
TG32-20	595505.03	2216120.2	20	25	92	6953	540	1978	TG										
TG33-17	596105.04	2216120.2	17	25	92	6957	600	1978	TG		Permaplug	161	200		Yes				
TG33-20	595305.03	2216120.2	20	25	92	6949	540	1978	TG										
TG34-17	595905.01	2216520.2	17	25	92	6958	600	1978	TG		Permaplug	158	275		Yes				
TG34-20	595705.02	2216520.2	20	25	92	6955	600	1978	TG										
TG35-17	595905.01	2216920.2	17	25	92	6954	600	1978	TG		Permaplug	152	333		Yes				
TG35-20	595505.03	2216520.2	20	25	92	6949	540	1978	TG					Resealed					
TG36-17	595905.01	2212120.2	17	25	92	6940	580	1980	TG		? Too Deep				Yes				
TG36-20	595305.03	2216520.2	20	25	92	6943	540	1978	TG										
TG37-17	596105.04	2212120.2	17	25	92	6947	580	1980	TG		Permaplug	161	317		Yes				
TG38-17	595905.01	2212520.2	17	25	92	6937	580	1980	TG		Permaplug	151	176		Yes				
TG39-17	596105.04	2212520.2	17	25	92	6941	580	1980	TG		? Too Deep				Yes				
TG39-20	595704.99	2216920.2	20	25	92	6950	600	1978	TG										
TG40-17	596305.03	2212520.2	17	25	92	6949	580	1980	TG		? Too Deep				Yes				
TG41-17	595905.01	2212920.2	17	25	92	6938	580	1980	TG		? Too Deep				Yes				
TG41-20	595504.99	2216920.2	20	25	92	6946	540	1978	TG										
TG42-17	596145.04	2212920.2	17	25	92	6942	580	1980	TG		? Too Deep				Yes				
TG42-20	595305	2216920.2	20	25	92	6941	540	1978	TG										
TG43-17	596305.03	2213120.2	17	25	92	6950	580	1980	TG		Permaplug	161	438	ShurGel & QuickGel	Yes				
TG43-20	595105.01	2216920.2	20	25	92	6939	540	1978	TG										
TG44-17	596505.03	2213520.2	17	25	92	6958	580	1980	TG		Permaplug	166	286		Yes				
TG44-20	592105	2212120.2	20	25	92	6879	460	1979	TG										
TG45-17	596505.03	2213920.2	17	25	92	6958	580	1980	TG		? Too Deep				Yes				
TG46-17	596705.02	2213920.2	17	25	92	6962	580	1980	TG		? Down Hole				Yes				
TG47-17	596505.03	2214320.2	17	25	92	6958	580	1980	TG		? Too Deep				Yes				
TG48-17	596305.03	2212120.2	17	25	92	6951	580	1980	TG		? Too Deep				Yes				
TG49-17	596005.03	2212520.2	17	25	92	6938	580	1980	TG		Permaplug	151	159		Yes				

Table D5-2 Abandonment Information for Historic Exploration Holes (Page 11 of 15)

	Location								Exploration	Original Plug	Original Plug	1983-1984 TG Reopening, Probing & Re-Plugging Program				URE Replugging Program			
HoleID	N_nad83	E_nad83	S	T	R	Elev	TD	Year	Company	Material	Cap	Water Level (ft.)	Mud Depth (ft.)	Resealing Material	Concrete Recap	Date	Plug Depth (ft)	Replug Material	Concrete Recap
TG50-17	596205.02	2212520.2	17	25	92	6945	580	1980	TG		? Too Deep				Yes				
TG51-17	597105.04	2214720.2	17	25	92	6972	600	1981	TG		Concrete	Did Not							
TG52-17	599105.04	2215520.2	17	25	92	7001	600	1981	TG		Concrete	Did Not							
TG52-20	595305.03	2212120.2	20	25	92	6929	580	1980	TG										
TG53-20	595505.03	2212120.2	20	25	92	6933	580	1980	TG										
TG54-20	595705.02	2212120.2	20	25	92	6936	580	1980	TG										
TG55-20	595105.04	2212520.2	20	25	92	6926	580	1980	TG										
TG56-20	595305.03	2212520.2	20	25	92	6928	580	1980	TG										
TG57-20	595505.03	2212520.2	20	25	92	6932	580	1980	TG										
TG58-20	595705.02	2212520.2	20	25	92	6936	580	1980	TG										
TG59-20	595305.03	2212920.2	20	25	92	6928	580	1980	TG										
TG60-20	595505.03	2212920.2	20	25	92	6930	580	1980	TG										
TG61-20	595717.03	2212910.2	20	25	92	6939	580	1980	TG										
TG62-20	595505.03	2213320.2	20	25	92	6933	580	1980	TG										
TG63-20	595305.03	2213520.2	20	25	92	6938	580	1980	TG										
TG64-20	595505.03	2213520.2	20	25	92	6938	580	1980	TG										
TG65-20	595705.02	2213520.2	20	25	92	6936	580	1980	TG										
TG66-20	595305.03	2213920.2	20	25	92	6935	580	1980	TG										
TG67-20	595505.03	2213920.2	20	25	92	6939	580	1980	TG										
TG68-20	595705.02	2213920.2	20	25	92	6941	580	1980	TG										
TG69-20	595305.03	2214320.2	20	25	92	6937	580	1980	TG										
TG70-20	595505.03	2214320.2	20	25	92	6941	580	1980	TG										
TG71-20	595705.02	2213120.2	20	25	92	6935	580	1980	TG										
TG72-20	595405.01	2212520.2	20	25	92	6930	580	1980	TG										
TG73-20	595805.03	2212520.2	20	25	92	6935	580	1980	TG										
TGC1-19	595405.04	2210920.2	19	25	92	6932	500	1980	TG		Permaplug	154	180		Yes				
TGC1A(45	595207.05	2210920.2	19	25	92	6927	140	1980	TG		? Angle Hole				Yes				
TGC1A(60	595205.05	2210920.2	19	25	92	6927	200	1980	TG		? Angle Hole				Yes				
TGC2-19	595565.07	2210920.2	19	25	92	6935	480	1980	TG		Yes				Yes				
TGC16	595905.05	2211170.2	18	25	92	6936	475	1979	TG										
TGC17	595905.05	2211160.2	18	25	92	6935	423	1979	TG		? Too Deep				Yes				
TGC18	595905.05	2211150.2	18	25	92	6935	442	1979	TG		Permaplug	155	369	ShurGel & QuickGel	Yes				
TGC19	595905.05	2211130.2	18	25	92	6935	465	1979	TG		Permaplug	155	389		Yes				
TGC20	596005.06	2210920.2	18	25	92	6939	460	1980	TG		? Too Deep				Yes				
TGC21	595805.06	2210920.2	18	25	92	6933	477	1980	TG		? Down Hole				Yes				
TT1	594953.08	2204825.1	24	25	93	6945	680	1976	TG		None	Dry			Yes				
TT2	595475.1	2204952.2	24	25	93	6959	700	1976	TG		Octoplug	Dry			Yes				
TT3	595420.11	2204780.1	24	25	93	6962	720	1976	TG			*Not Located*							
TT4	593417.05	2205460.1	24	25	93	6919	600	1976	TG		Octoplug	Dry			Yes				

Table D5-2 Abandonment Information for Historic Exploration Holes (Page 12 of 15)

	Location								Exploration	Original Plug	Original Plug	1983-1984 TG Reopening, Probing & Re-Plugging Program				URE Replugging Program			
HoleID	N_nad83	E_nad83	S	T	R	Elev	TD	Year	Company	Material	Cap	Water Level (ft.)	Mud Depth (ft.)	Resealing Material	Concrete Recap	Date	Plug Depth (ft)	Replug Material	Concrete Recap
TT5	593395.04	2207708.2	19	25	92	6913	580	1976	TG		Sagebrush	174	356	ShurGel & QuickGel	Yes				
TT6	593412.03	2209201.2	19	25	92	6914	600	1976	TG		Sagebrush	Dry			Yes				
TT7	594288.07	2205245.2	24	25	93	6928	820	1976	TG		Octoplug	Dry			Yes				
TT8	594331.05	2206907.2	19	25	92	6923	740	1976	TG		Sagebrush	Dry			Yes				
TT9	595215.06	2209136.2	19	25	92	6928	600	1976	TG			*Not Located*							
TT13	593270.05	2205464.1	24	25	92	6914	500	1976	TG		Octoplug	Dry			Yes				
TT14	593468.04	2207633.2	19	25	92	6914	500	1976	TG		? Too Deep				Yes				
TT15	593316.06	2207796.1	19	25	92	6912	540	1976	TG		? Down Hole				Yes				
TT16	593275.04	2209357.1	19	25	92	6907	600	1976	TG		Octoplug	165	175		Yes				
TT17	594039.08	2204966.1	24	25	93	6927	1140	1976	TG		Octoplug	Dry			Yes				
TT18	593906.06	2208235.2	19	25	92	6923	1000	1976	TG		Octoplug	163	169		Yes				
TT19	595115.05	2209294.2	19	25	92	6921	600	1976	TG		None	Dry			Yes				
TT20	599133.06	2209282.2	18	25	92	6972	1160	1977	TG		Permaplug	210	270		Yes				
TT22	596083.09	2204681.1	13	25	93	6975	700	1977	TG		Octoplug	223	270		Yes				
TT23	596043.09	2205075.1	13	25	93	6974	600	1977	TG		Octoplug	226	261		Yes				
TT24	596008.08	2205501.1	13	25	93	6972	600	1977	TG		Octoplug	Dry			Yes				
TT25	593708.04	2205143.2	13	25	93	6923	700	1977	TG		Octoplug	184	196		Yes				
TT26	593470.05	2204871.2	24	25	93	6922	700	1977	TG		Octoplug	Dry			Yes				
TT27	593695.08	2204686.2	24	25	93	6929	700	1977	TG		Octoplug	Dry			Yes	2006	650	Grout	25' Cement
TT28	593844.08	2204869.1	24	25	93	6926	700	1977	TG		None	Dry			Yes				
TT29	593677.06	2206284.1	24	25	93	6913	700	1977	TG		Octoplug	Dry			Yes				
TT30	595509.06	2205700.2	19	25	92	6919	780	1977	TG		Octoplug	187	202		Yes				
TT31	594159.05	2207422.2	19	25	92	6923	600	1977	TG			*Not Located*			Yes	10/19/08	600	Grout	8' Cement
TT32	594439.04	2208146.2	19	25	92	6930	600	1977	TG		Octoplug	180	233		Yes				
TT33	593680.05	2209018.2	23	25	93	6911	600	1977	TG		Octoplug	177	208		Yes				
TT34	594905.04	2209306.2	19	25	92	6921	600	1977	TG		None	Dry			Yes				
TT35	593362.06	2209532.2	19	25	92	6909	600	1977	TG		Octoplug	163	183		Yes				
TT36	593543.05	2209921.2	19	25	92	6910	600	1977	TG		Octoplug	164	187		Yes				
TT37	595908.06	2209670.2	19	25	92	6936	800	1977	TG			*Not Located*							
TT38	593926.04	2210194.2	19	25	92	6911	600	1977	TG		None	115	120		Yes				
TT39	595302.05	2209531.2	19	25	92	6930	600	1977	TG		Octoplug	Dry			Yes				
TT40	594804.05	2208920.2	19	25	92	6924	800	1977	TG		Octoplug	Dry			Yes				
TT41	594695.04	2209407.2	19	25	92	6916	600	1977	TG		Octoplug	151	174		Yes				
TT42	595128.04	2209429.2	19	25	92	6925	600	1977	TG			*Not Located*							
TT43	594180.05	2209901.2	19	25	92	6913	1000	1977	TG			*Not Located*							
TT44	593427.06	2209722.2	19	25	92	6912	600	1977	TG		Octoplug	Dry			Yes				
TT45	593611.04	2208653.1	19	25	92	6918	1000	1977	TG		Sagebrush	Dry			Yes				
TT46	593714.04	2208317.2	19	25	92	6920	1000	1977	TG		Octoplug	177	189		Yes				
TT47	594087.06	2208151.2	19	25	92	6921	700	1977	TG		None	156	234		Yes				

Table D5-2 Abandonment Information for Historic Exploration Holes (Page 13 of 15)

	Location								Exploration	Original Plug	Original Plug	1983-1984 TG Reopening, Probing & Re-Plugging Program				URE Replugging Program			
HoleID	N_nad83	E_nad83	S	T	R	Elev	TD	Year	Company	Material	Cap	Water Level (ft.)	Mud Depth (ft.)	Resealing Material	Concrete Recap	Date	Plug Depth (ft)	Replug Material	Concrete Recap
TT48	593984.06	2207672.2	19	25	92	6920	1000	1977	TG		Octoplug	Dry			Yes				
TT49	593968.04	2207319.2	19	25	92	6919	1000	1977	TG		None	Dry			Yes				
TT50	594069.04	2206895.1	19	25	92	6919	900	1977	TG		Octoplug	Dry			Yes				
TT51	593748.03	2206819.2	19	25	92	6913	1000	1977	TG		? Too Deep				Yes				
TT52	593825.05	2206062.1	24	25	93	6919	1000	1977	TG		Octoplug	179	376	ShurGel & QuickGel	Yes				
TT53	593280.06	2206263.2	24	25	93	6907	1000	1977	TG		None	Dry			Yes				
TT54	593634.04	2205782.1	24	25	93	6916	700	1977	TG			*Not Located*							
TT55	593362.06	2205643.1	24	25	93	6915	700	1977	TG		Octoplug	182	210		Yes				
TT56	593488.06	2205036.1	24	25	93	6921	700	1977	TG		Octoplug	Dry			Yes				
TT57	593065.04	2204994.1	24	25	93	6916	700	1977	TG		Octoplug	184	194		Yes				
TT58	593252.07	2204765.1	24	25	93	6919	700	1977	TG			*Not Located*							
TT59	593969.09	2204722.1	24	25	93	6928	1060	1977	TG		? Too Deep				Yes				
TT60	594406.09	2204986.1	24	25	93	6933	900	1977	TG		Octoplug	189	210		Yes				
TT61	593485.07	2204631.1	24	25	93	6921	700	1977	TG		? Too Deep				Yes	2006	650	Grout	25' Cement
TT62	595246.1	2205278.1	24	25	93	6948	820	1977	TG		? Down Hole				Yes				
TT63	595435.07	2209681.2	19	25	92	6933	600	1977	TG		Octoplug	Dry			Yes				
TT64	594910.06	2209108.1	19	25	92	6923	600	1977	TG		Octoplug	155	193		Yes				
TT65	594425.06	2208538.2	19	25	92	6928	600	1977	TG		? Too Deep				Yes				
TT66	595025.04	2208968.2	19	25	92	6927	600	1977	TG			*Not Located*							
TT67	594095.06	2207861.1	19	25	92	6922	700	1977	TG			*Not Located*							
TT68	593868.06	2207115.1	19	25	92	6915	700	1977	TG		Octoplug	Dry			Yes				
TT69	593676.08	2204875.1	24	25	93	6924	700	1977	TG			*Not Located*							
TT70	595144.09	2205263.1	24	25	93	6947	760	1977	TG		Octoplug	198	199		Yes				
TT71	595268.08	2205177.1	24	25	93	6951	760	1977	TG		Octoplug	201	204		Yes				
TT72	595357.11	2205291.2	24	25	93	6951	760	1977	TG		Octoplug	199	203		Yes				
TT73	595218.05	2205380.1	24	25	93	6947	760	1977	TG		Octoplug	195	234		Yes				
TT74	595224.05	2209765.2	19	25	92	6928	600	1977	TG		Octoplug	156	170		Yes				
TT75	595342.04	2210066.2	19	25	92	6927	600	1977	TG			*Not Located*							
TT76	593612.06	2209426.2	19	25	92	6921	600	1977	TG		Sagebrush	Dry			Yes				
TT77	593343.06	2208992.2	19	25	92	6909	600	1977	TG		Octoplug	167	180		Yes				
TT78	595072.06	2209155.2	19	25	92	6925	600	1977	TG		Sagebrush	159	184		Yes				
TT79	594757.06	2208708.2	19	25	92	6931	600	1977	TG		Sagebrush	Dry			Yes				
TT80	594528.06	2208397.2	19	25	92	6933	600	1977	TG		Octoplug	180	222		Yes	10/2/08	600	Grout	8' Cement
TT81	594292.04	2208019.2	19	25	92	6926	700	1977	TG		Octoplug	175	232		Yes				
TT82	594140.05	2207810.2	19	25	92	6923	700	1977	TG		Octoplug	176	214		Yes				
TT83	593627.05	2206946.2	19	25	92	6911	700	1977	TG		None	Dry			Yes				
TT84	593492.06	2206483.1	24	25	93	6908	700	1977	TG		None	Dry			Yes				
TT85	594997.05	2209563.2	19	25	92	6921	600	1977	TG		Octoplug	153	320		Yes				
TT86	595136.05	2210060.2	19	25	92	6921	600	1977	TG			*Not Located*							

Table D5-2 Abandonment Information for Historic Exploration Holes (Page 14 of 15)

	Location								Exploration	Original Plug	Original Plug	1983-1984 TG Reopening, Probing & Re-Plugging Program				URE Replugging Program			
HoleID	N_nad83	E_nad83	S	T	R	Elev	TD	Year	Company	Material	Cap	Water Level (ft.)	Mud Depth (ft.)	Resealing Material	Concrete Recap	Date	Plug Depth (ft)	Replug Material	Concrete Recap
TT87	595404.06	2209864.2	19	25	92	6932	600	1977	TG		Octoplug	161	190		Yes				
TT88	595437.07	2210272.2	19	25	92	6926	600	1977	TG			*Not Located*							
TT89	594598.05	2210127.2	19	25	92	6909	600	1977	TG		Octoplug	Dry			Yes				
TT90	595901.07	2210184.2	19	25	92	6937	600	1977	TG		Octoplug	Dry			Yes				
TT94	596605.07	2210420.2	18	25	92	6948	660	1978	TG		? Down Hole				Yes				
TT95	596205.05	2210420.2	18	25	92	6938	660	1978	TG		? Too Deep				Yes				
TT96	595805.06	2210420.2	18	25	92	6934	660	1978	TG		Sagebrush	Dry			Yes	9/26/08	600	Grout	8' Cement
TT97	595425.06	2210413.2	19	25	93	6927	600	1978	TG		? Down Hole				Yes				
TT98	595105.07	2208720.2	19	25	92	6912	700	1978	TG		? Down Hole				Yes				
TT99	594805.06	2208420.2	19	25	92	6916	700	1978	TG		Permaplug	Dry			Yes				
TT100	594605.04	2207820.1	19	25	92	6918	700	1978	TG		Permaplug	187	202		Yes				
TT101	594405.04	2207420.2	19	25	92	6912	700	1978	TG			*Not Located*							
TT102	593705.05	2207120.1	19	25	92	6914	660	1978	TG		Permaplug	177	203		Yes				
TT103	593705.05	2207520.2	19	25	92	6918	700	1978	TG		? Too Deep				Yes				
TT104	593705.05	2207920.1	19	25	92	6919	600	1978	TG		? Too Deep				Yes				
TT105	594305.06	2206520.2	24	25	93	6926	660	1978	TG		Permaplug	180	247		Yes				
TT106	594090.04	2206536.2	24	25	93	6924	700	1978	TG		Octoplug	178	200		Yes				
TT107	593624.04	2205535.2	24	25	93	6920	700	1978	TG		Octoplug	Dry			Yes				
TT108	594318.06	2205590.1	24	25	93	6924	700	1978	TG		Octoplug	176	182		Yes				
TT109	594105.04	2206720.2	19	25	92	6923	700	1978	TG		? Down Hole				Yes				
TT110	594768.05	2208715.2	19	25	92	6932	560	1978	TG		Octoplug	176	229		Yes				
TT111	595446.06	2210267.2	19	25	92	6928	500	1978	TG		Octoplug	155	170		Yes				
TT112	593905.04	2206520.1	24	25	93	6919	660	1978	TG		? Too Deep				Yes				
TT113	594105.04	2206320.2	24	25	93	6921	660	1978	TG		Permaplug	176	214		Yes				
TT114	593705.05	2205520.1	24	25	93	6920	660	1978	TG		Permaplug	186	197		Yes				
TT120	593905.04	2208120.2	19	25	92	6920	600	1978	TG		? Too Deep				Yes				
TT121	593905.04	2207920.1	19	25	92	6919	600	1978	TG		Permaplug	172	243		Yes				
TT122	593905.04	2207720.1	19	25	92	6919	600	1978	TG		Permaplug	Dry			Yes				
TT123	593905.04	2207520.2	19	25	92	6919	600	1978	TG		Permaplug	Dry			Yes				
TT124	594305.06	2207520.2	19	25	92	6927	620	1978	TG		? Too Deep				Yes				
TT125	593705.05	2207720.1	19	25	92	6917	600	1978	TG		Permaplug	178	251		Yes				
TT126	594305.06	2207720.1	19	25	92	6927	600	1978	TG		Permaplug	179	382	ShurGel & QuickGel	Yes				
TT127	594305.06	2207920.2	19	25	92	6926	600	1978	TG		Permaplug	176	228		Yes				
TT128	593505.06	2207720.1	19	25	92	6916	600	1978	TG		? Too Deep				Yes				
TT129	594305.06	2208120.2	19	25	92	6926	600	1978	TG		Permaplug	176	197		Yes				
TT130	593905.04	2205120.2	24	25	93	6927	700	1978	TG		Permaplug	Dry			Yes				
TT131	593905.04	2205320.1	24	25	93	6924	700	1978	TG		Permaplug	180	218		Yes				
TT132	593705.05	2205320.1	24	25	93	6920	700	1978	TG		Permaplug	184	203		Yes				
TT133	593905.08	2204920.1	24	25	93	6927	700	1978	TG		Permaplug	183	191		Yes				

Table D5-2 Abandonment Information for Historic Exploration Holes (Page 15 of 15)

	Location								Exploration	Original Plug	Original Plug	1983-1984 TG Reopening, Probing & Re-Plugging Program				URE Replugging Program			
HoleID	N_nad83	E_nad83	S	T	R	Elev	TD	Year	Company	Material	Cap	Water Level (ft.)	Mud Depth (ft.)	Resealing Material	Concrete Recap	Date	Plug Depth (ft)	Replug Material	Concrete Recap
TT134	593905.04	2205520.1	24	25	93	6921	700	1978	TG		? Down Hole				Yes				
TT135	593505.06	2205320.1	24	25	93	6922	700	1978	TG		Permaplug	Dry			Yes				
TT136	593505.06	2205120.1	24	25	93	6920	700	1978	TG		Permaplug	187	394	ShurGel & QuickGel	Yes				
TT137	593305.06	2205320.1	24	25	93	6919	700	1978	TG		? Too Deep				Yes				
TT138	593305.06	2205120.1	24	25	93	6922	700	1978	TG		Permaplug	Dry			Yes				
TT139	593305.06	2204920.1	24	25	93	6922	630	1978	TG		? Too Deep				Yes				
TT140	594505.06	2208120.2	19	25	92	6923	600	1978	TG		? Too Deep				Yes				
TT141	594505.06	2207920.2	19	25	92	6924	600	1978	TG			*Not Located*				9/29/08	600'	Grout	8' Cement
TT142	594505.06	2207720.1	19	25	92	6922	620	1978	TG		Permaplug	184	243		Yes				
TT143	594505.06	2207520.2	19	25	92	6924	620	1978	TG		Permaplug	185	204		Yes				
TT144	594105.04	2207720.1	19	25	92	6922	620	1978	TG		Permaplug	Dry			Yes				
TT145	593905.04	2207520.2	19	25	92	6923	620	1978	TG		None	Dry			Yes				
TT146	593669.09	2204615.1	24	25	93	6929	700	1978	TG		Permaplug	191	207		Yes	2006	650	Grout	25' Cement
TT147	593620.1	2204614.1	24	25	93	6927	560	1978	TG		Permaplug	195	236		Yes	2006	650	Grout	25' Cement
TT148	593620.1	2204604.2	24	25	93	6927	560	1978	TG		Permaplug	195	236		Yes	2006	650	Grout	25' Cement
TT149	593568.09	2204613.1	24	25	93	6925	700	1978	TG		Permaplug	193	239		Yes	2006	650	Grout	25' Cement
TT150	594105.04	2207420.2	19	25	92	6925	650	1978	TG		Permaplug	176	249		Yes				
TT151	594405.04	2208020.2	19	25	92	6927	660	1978	TG		Permaplug	179	294		Yes				
TT152	594400.06	2208121.2	19	25	92	6910	520	1978	TG		Permaplug	179	236		Yes				
TT153	594005.06	2207420.2	19	25	92	6923	650	1978	TG		Permaplug	175	210		Yes				
TT154	594005.06	2207520.2	19	25	92	6924	700	1978	TG		? Down Hole				Yes				
TT155	594405.04	2208110.2	19	25	92	6924	490	1978	TG		Permaplug	179	272		Yes				
TT156	593620.1	2204594.1	24	25	93	6927	600	1978	TG		Permaplug	195	396	ShurGel & QuickGel	Yes	2006	650	Grout	25' Cement

Copies of the following WDEQ/LQD plates are not included in this package, as they are the same as the plates submitted to NRC in February 2009 in response to NRC's November 2008 Request for Additional Information.

Plate Number		Title
NRC Technical Report	**WDEQ/LQD Permit Application**	
2.6-1b	D5-1b	Geologic Cross-Section B-C
2.6-1c	D5-1c	Geologic Cross-Section C-D
2.6-1d	D5-1d	Geologic Cross-Section D-E
2.6-1e	D5-1e	Geologic Cross-Section F-F'
2.6-1f	D5-1f	Geologic Cross-Section G-G'
2.6-1g	D5-1g	Geologic Cross-Section H-H'
2.6-4a	--	Isopach Map of the FG Horizon
2.6-4b	D5-2a	Isopach Map of the Lost Creek Shale
2.6-4c	D5-2b	Isopach Map of the HJ Horizon
2.6-4d	D5-2c	Isopach Map of the Sagebrush Shale
2.6-4e	D5-2d	Isopach Map of the UKM Sand

ATTACHMENT D5-3

Communication with WDEQ LQD related to Drill Hole Abandonment

Texasgulf Minerals and Metals, Inc.

P.O. Box 191 2755 State Highway 67 Victor, Colorado 80860

Cripple Creek and Victor Operations
(303) 689-2977

September 16, 1987

Richard G. Stockdale
State Engineer's Office
Herschler Building
Cheyenne, WY 82002

Re: Permit Nos. U.W. 61528
through U.W. 61539

Dear Mr. Stockdale:

In response to your letter regarding the above referenced monitor wells, theses specific wells were abandoned by Texasgulf in 1985. these wells were installed to monitor ground water quality on mining claims under Texasgulf's control. The claims were subsequently dropped by the company. As part of the procedure, the monitor wells were abandoned.

Enclosed is specific data on how each monitor well was abandoned. In each case, as much of the casing pipe as possible was pulled and the hole filled with concrete.

If you have further questions, please contact us.

Sincerely,

C. Alan Tapp

C. Alan Tapp
Manager
Cripple Creek Operations

CAT/kl

xc: Gonzalo Tufino
William Strait
Files (2)

RMITTE TEXASGULF INC
DRESS 5932 MCINTYRE STREET
GOLDEN CO 80403

APPROVED AUGUST 1982
REVIEW AUGUST 1987

PERMIT NUMBER	NAME OF WELL	LOCATION 1/4 1/4, SEC-TWP-RGE		IF WELL IS ABANDONED PLEASE PROVIDE: DATE	REASON	METHOD	IF STILL MONITORING SHOW LIFE
61528	M-25-92-20-1S	NW¼ NW¼	20-25-92	11-6-85	Property Abandonment	Filled with Concrete	
61529	M-25-92-20-1M	NW¼ NW¼	20-25-92	11-6-85	Property Abandonment	Filled with Concrete	
61530	M-25-92-20-1D	NW¼ NW¼	20-25-92	11-6-85 *	Property Abandonment	Filled with Concrete	
61531	M-25-92-19-3M	NE¼ NE¼	19-25-92	11-7-~~87~~ 85	Property Abandonment	Filled with Concrete	
61532	M-25-92-19-2M	NE¼ NE¼	19-25-92	11-8-~~87~~ 85	Property Abandonment	Filled with Concrete	
61533	M-25-92-19-1M	NE¼ NE¼	19-25-92	11-8-~~87~~ 85	Property Abandonment	Filled with Concrete	
W 61534	M-25-92-18-1M	SE¼ SE¼	18-25-92	11-8-~~87~~ 85	Property Abandonment	Filled with Concrete	
W 61535	M-25-92-18-1S	SE¼ SE¼	18-25-92	11-8-~~87~~ 85	Property Abandonment	Filled with Concrete	
W 61536	M-25-92-18-1D	SE¼ SE¼	18-25-92	11-8-~~87~~ 85	Property Abandonment	Filled with Concrete	
W 61537	M-25-92-17-1S	SW¼ SW¼	17-25-92	11-7-85	Property Abandonment	Filled with Concrete	
W 61538	M-25-92-17-1M	SW¼ SW¼	17-25-92	11-7-85	Property Abandonment	Filled with Concrete	
W 61539	M-25-92-17-1D	SW¼ SW¼	17-25-92	11-7-85	Property Abandonment	Filled with Concrete	
JW							
JW							
JW							
JW							
UW							
UW							
UW							
UW							
UW							
UW							
UW							
UW							
UW							
UW							
UW							
UW							
UW							
UW							
UW							
UW							
UW							
UW							
UW							
UW	[illegible] cell 21 [illegible] 87						

C. Alan [illegible] as agent for Texasgulf

9-17-87

Texasgulf memo

Date August 22, 1983

To D. C. Edmiston Location Golden

From C. Alan Tapp Location Golden

Subject Lost Creek/Conoco - 1983 Program Summary

In a letter to Wyoming's DEG, November 24, 1982, Texasgulf outlined in detail its 1983 program for the Lost Creek/Conoco property. The program as outlined to Mr. Roy Spears presented a remedial plan, which once completed would rescind a Notice of Violation issued to Texasgulf on May 20, 1982. The program was initiated as outlined in June, 1983 and completed in late July, 1983. Approximately seventy-five percent of Texasgulf's Lost Creek/Conoco property was inventoried, the remainder will be completed in 1984.

Appendix B details Texasgulf's 1983 plan as presented to the DEQ. Basically, it involved inspecting down the hole conditions for every Texasgulf drill hole to determine the adequacy of past sealing efforts. Water levels and mud column depths were measured and recorded. Concrete caps were placed on all Texasgulf holes which were not originally capped with concrete or if the original concrete cap had failed. Appendix C listed the detailed results of the survey while Appendix D lists a section by section summary. Plate I indicates those sections inventoried this year and those scheduled for inventory in 1984.

In summary, 31 square miles of land were physically inspected this summer. This represents 269 individual drill holes in the survey. Approximately fifty-one percent of the holes inspected, ~~of~~ or 138 holes, were previously capped with concrete caps. In almost all cases these were tested to determine how secure they were in the drill hole and not removed. An attempt was made to remove several concrete caps, but in every case the cap was well secured. Two concrete caps had failed and slipped down the drill hole and were recapped.

Approximately forty-one percent of the holes, or 111 holes, were recapped with new concrete caps. The old caps were usually permaplugs and in a few cases the old octoplug. These were either removed or breeched, when possible, so that water levels and mud columns could be measured. The old caps were left in the drill hole at a depth of five feet and a new concrete cap was installed at approximately two feet below the surface and backfilled to the surface.

After completing this survey, it was determined that nine drill holes and one from Texasgulf's 1982 inventory required resealing. One drill hole in Section 20, as determined from our October, 1982 inventory, was also inadequately sealed. Appendix E lists those holes resealed. All ten drill holes were resealed in late July using a mixture of water, Shur-gel, and Quick-gel. They were then recapped with concrete caps and backfilled to the surface. Mud specifications exceeded those required by the Wyoming DEQ. A sample of abandonment fluid submitted to NL Industries for testing yielded the following characteristics:

	Actual	Requirement
API filtrate	4.8 cc	13.5 cc
10 Min. Gel Strength	42 lbs./100 ft.^{2}	20 lbs./100 ft.^{2}

This same type of program will be conducted in 1984 on the remaining Lost Creek/Conoco property. Approximately ten square miles will be covered, containing around 500 drill holes. The 1984 program will be more time consuming since all drill holes will have to be recapped with concrete caps and the extensive number of holes left to be inventoried.

CAT/dd

cc: 03-002-006-04
C. Alan Tapp

APPENDICES

APPENDIX A

Wyoming Department of Environmental Quality

Notice of Violation May 20, 1982

THE STATE OF WYOMING

ED HERSCHLER
GOVERNOR

Department of Environmental Quality

LAND QUALITY DIVISION

401 WEST 19TH STREET TELEPHONE 307-777-7756 CHEYENNE, WYOMING 82002

May 20, 1982

CERTIFIED MAIL RETURN RECEIPT REQUESTED
Certified No. 73824

Mr. David C. Edmiston
Vice - President, Special Projects
Texasgulf, Incorporated
5926 McIntyre Street
Golden, Colorado 80401

RE: Notice of Violation, Docket # 1085 - 82, Drilling Notification #47

Dear Mr. Edmiston:

Enclosed you will find an inspection report dated May 10, 1982, recommending a Notice of Violation and the Notice of Violation.

We expect Texasgulf, Inc. to respond to this Notice of Violation by June 18, 1982, by providing a detailed plan for correcting surface capping and sealing problems found during the May 7 - 10, 1982, inspection. A projected timetable should also be provided for completion of remedial work necessary to bring all sites drilled by Texasgulf in Township 24 North, Range 92 West, Township 25 North, Range 92 West, and Township 25 North, Range 93 West, in compliance with Wyoming Statute 35-11-404.

It is hoped this course of action will avoid a recommendation for enforcement action, which would be made after June 18, 1982, depending upon your response.

Should questions arise, please call me at (307) 777-7756.

Sincerely,

Roy G. Spears

Roy G. Spears
Abandoned Drill Site
Program Supervisor

RGS:mk

Enclosures: Notice of Violation
Inspection Report

cc: Alan Guile

NOTICE OF VIOLATION

IN THE MATTER OF THE NOTICE)
OF VIOLATION ISSUED TO MR.)
DAVID C. EDMISTON, VICE-)
PRESIDENT, SPECIAL PROJECT)
TEXASGULF INC., 5926 McINTYRE)
STREET, GOLDEN, CO 80401)
Certified No. 73824, DN #47

DOCKET NO. 1085-82

NOTICE

NOTICE IS HEREBY GIVEN THAT:

1. This notice is being sent to you pursuant to Wyoming Statute 35-11-701(c)(i), which requires that in any case of the failure to correct or remedy an alleged violation, the Director of the Department of Environmental Quality shall cause written notice to be issued and served upon the person alleged to be responsible;

2. On May 7 and 10, 1982, an inspection was conducted by a representative of the Land Quality Division, Department of Environmental Quality. Drill sites inspected were located in T.24N., R.92W., T.25N., R.92W., and T.25N., R.93W.;

3. Said inspection revealed that Drill Holes Numbered TC17, TG 19 18 25 92, TG 21 18 25 92 and 27 other holes identified in the report of said inspection, were not sealed as required by Wyoming Statute 35-11-404(c)(ii). Wyoming Statute 35-11-404(c)(ii) requires that drill holes which have encountered any groundwater shall be sealed;

4. Said inspection also revealed that Drill Holes Numbered TC 17, TG 19 18 25 92, TG 21 18 25 92 and 41 other holes identified in the report, were not properly surface capped. This in in violation of Wyoming Statute 35-11-404(c)(iii).

5. With this document, the Department of Environmental Quality is notifying Mr. David C. Edmiston of Texasgulf Inc. of the aforementioned violations.

6. Any person who violates any provision of the Environmental Quality Act or any rule, standard, permit, license or variance adopted thereunder is liable to a penalty of ten thousand dollars ($10,000) for each day of violations, which penalty may be recovered in a civil action brought by the Attorney General in the name of the People of the State of Wyoming.

DATED this 20th day of May, 1982.

Roger Shaffer for
Walter C. Ackerman, Administrator
Land Quality Division
Department of Environmental Quality

PLEASE DIRECT ALL INQUIRIES REGARDING THIS NOTICE OF VIOLATION TO Roy Spears, Abandoned Drill Site Program Supervisor, Department of Environmental Quality, Land Quality Division, 401 West 19th Street, Cheyenne, WY 82002, Telephone (307) 777-6192, OR Alan Guile, Abandoned Drill Site Inspector, 210 Lincoln St., Lander, WY 82520, Telephone (307) 332-3047.

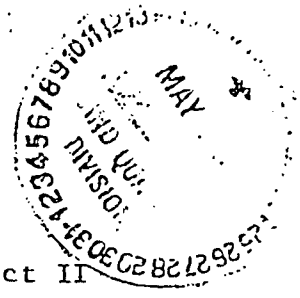
INSPECTION REPORT

RE : Texasgulf, Inc. Drilling Notification No. 47

DATE OF TRIP: May 7 and 10, 1982

SUBJECT : Inspection of DN47

PARTICIPANTS: C. Alan Tapp - Texasgulf
Alan Guile - Lander DEQ-LQD AG



PREPARED BY : Alan Guile, Abandoned Drill Site Inspector, District II

On May 7 and 10, 1982, an inspection of the above was conducted.

Of the 94 holes reported in 1979, 16 holes or 17% were inspected. Of the 148 holes reported in 1980, 26 holes or 18% were inspected. Surface reclamation was adequate at all sites and therefore is not reported in the summary.

Summary of results - 1979

TC 18 NWNE, Section 34, T.25N., R.93W. TD 800 feet
No cap. Dry hole. Violation Wyoming Statute 35-11-404(c)(iii)

TC 17 NWNE, Section 34, T.25N., R.93W. TD 800 feet
No cap. Encountered water at -163 feet. No bottom at -295 feet. Violation of Wyoming Statute 35-11-404(c)(ii) and (iii).

TT 146 NWNE, Section 24, T.25N., R.93W. TD 700 feet
Perma-plug. Water at -192 feet with bridge or bottom at -215 feet. Violation of Wyoming Statute 404(c)(ii) and (iii)

TT 149 NWNE, Section 24, T.25N., R.93W. TD 700 feet
Perma-plug. Water at -191 feet with bridge or bottom at -247 feet. Violation of Wyoming Statute 404(c)(ii) and (iii).

TT 148 NWNE, Section 24, T.25N., R.93W. TD 560 feet
Perma-plug. Water at -196 feet with bridge or bottom at -201 feet. Violation of Wyoming Statute 404-(c)(iii).

TT 155 SENW, Section 19, T.25N., R.92W. TD 514 feet
Perma-plug. Water at -179 feet with bridge or bottom at -256 feet. Violation of 404(c)(ii) and (iii).

TT 151 SWNW, Section 19, T.25N., R.92W. TD 660 feet
Perma-plug. Water at -179 feet with no bottom at -300 feet. Violation of Wyoming Statute 404(c)(ii) and (iii).

TG 19 18 25 92 SESE, Section 18, T.25N., R.92W. TD 465 feet
Perma plug. Water at -155 feet with no bottom at -300 feet. Violation of Wyoming Statute 404(c)(ii) and (iii).

TG 13 18 25 92 SESE, Section 18, T.25N., R.92W. TD 500 feet
Perma-plug. Water at -154 feet with no bottom at -300 feet. Violation of Wyoming Statute 404(c)(ii) and (iii).

TG 47 20 25 92 NESW, Section 20, T.25N., R.92W. TD 460 feet
Perma-plug. Water at -124 feet with bridge or bottom at -156 feet. Violation of Wyoming Statute 404(c)(ii) and (iii).

TG 46 20 25 92 NESW, Section 20, T.25N., R.92W. TD 460 feet Perma-plug. Water at -125 feet with bridge or bottom at -167. Violation of Wyoming Statute 404(c)(ii) and (iii).

TG 49 20 25 92 NESW, Section 20, T.25N., R.92W. TD 460 feet Perma-plug. Water at -115 feet with no bottom at -300 feet. Violation of Wyoming Statute 404(c)(ii) and (iii).

TG 7 29 25 92 SESE, Section 29, T.25N., R.92W. TD 600 feet Perma-plug. Unable to check down hole conditions as Perma-plug slid down the hole. Violation of Wyoming Statute 404(c)(iii).

TG 6 29 25 92 SESE, Section 29, T.25N., R.92W. TD 600 feet Perma-plug. Water at -143 feet with no bottom at -300 feet. Violation of Wyoming Statute 404(c)(ii) and (iii).

TG 3 6 24 92 SENW, Section 6, T.24N., R.92W. TD 400 feet Perma-plug. Water at -175 feet with no bottom at -300 feet. Violation of Wyoming Statute 404(c)(ii) and (iii).

TG 2 6 24 92 SENW, Section 6, T.24N., R.92W. TD 400 feet Perma-plug. Water at -175 feet with no bottom at -300 feet. Violation of Wyoming Statute 404(c)(ii) and (iii).

Summary of results - 1980

TG 21 18 25 92 SESE, Section 18, T.25N., R.92W. TD 580 feet Perma-plug. Water at -152 feet with no bottom at -300 feet. Violation of Wyoming Statute 404(c)(ii) and (iii).

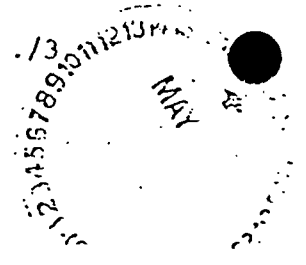
TG 22 18 25 92 SESE, Section 18, T.25N., R.92W. TD 580 feet Perma-plug. Unable to check down hole as Perma-plug slid down hole. Violation of Wyoming Statute 404(c)(iii).

TG 20 18 25 92 SESE, Section 18, T.25N., R.92W. TD 580 feet Perma-plug. Perma-plug slid down hole. Violation of Wyoming Statute 404(c)(iii).

TG 19 19 25 92 NENE, Section 19, T.25N., R.92W. TD 580 feet Perma-plug. Water at -159 feet with bridge or bottom at -173 feet. Violation of Wyoming Statute 404(c)(iii).

TG 18 19 25 92 NENE, Section 19, T.25N., R.92W. TD 580 feet. Perma-plug. Perma-plug slid down hole. Violation of Wyoming Statute 404(c)(iii).

TG 15 19 25 92 NENE, Section 19, T.25N., R.92W. TD 580 feet. Perma-plug. Perma-plug slid down hole. Violation of Wyoming Statute 404(c)(iii).



TG 53 20 25 92 NWNW, Section 20, T.25N., R.92W. TD 580 feet
Perma-plug. Water at -149 feet with bridge or bottom at -163 feet. Violation of Wyoming Statute 404(c)(ii) and (iii).

TG 50 17 25 92 SWSW, Section 17, T.25N., R.92W. TD 580 feet
Perma-plug. Water at -157 feet with bridge or bottom at -291 feet. Violation of Wyoming Statute 404(c)(ii) and (iii).

TG 49 17 25 92 SWSW, Section 17, T.24N., R.92W. TD 580 feet
Perma-lug. Water at -151 feet with bridge or bottom at -165 feet. Violation of Wyoming Statute 404(c)(iii).

TG 73 20 25 92 NWNW, Section 20, T.25N., R.92W. TD 580 feet.
Perma-plug. Water at -150 feet with bridge or bottom at -162 feet. Violation of Wyoming Statute 404(c)(iii).

TG 38 17 25 92 SWSW, Section 17, T.25N., R.92W. TD 580 feet
Perma-plug. Water at -150 feet with no bottom at -300 feet. Violation of Wyoming Statute 404(c)(ii) and (iii).

TG 52 20 25 92 NWNW, Section 20, T.25N., R.92W. TD 580 feet
Perma-plug. Water at -147 feet with bridge or bottom at -211. Violation of Wyoming Statute 404(c)(ii) and (iii).

TG 59 20 25 92 NWNW, Section 20, T.25N., R.92W. TD 580 feet
Perma-plug. Perma-plug slid down hole. Violation of Wyomaing Statute 404(c)(iii).

TG 60 20 25 92 NWNW, Section 20, T.25N., R.92W. TD 580 feet
Perma-plug. Water at -137 feet with bridge or bottom at -190 feet. Violation of Wyoming Statute 404(c)(ii) and (iii).

TG 61 20 25 92 NWNW, Section 20, T.25N., R.92W. TD 580 feet
Perma-plug. Water at -147 feet with bridge or bottom at -238. Violation of Wyoming Statute 404(c)(ii) and (iii).

TG 37 21 25 92 NWNE, Section 21, T.25N., R.92W. TD 500 feet
Unable to locate hole.

TG 41 21 25 92 NWNE, Section 21, T.25N., R.92W. TD 580 feet.
Perma-plug. Water at -119 feet with no bottom at -300 feet. Violation of Wyoming Statute 404(c)(ii) and (iii).

TG 4 15 25 92 SESW, Section 15, T.25N., R.92W. TD 400 feet.
Perma-plug. Water at -104 feet with no bottom at -300 feet. Violation of Wyoming Statute 404(c)(ii) and (iii).

TG 5 15 25 92 SESW, Section 15, T.25N., R.92W. TD 400 feet Perma-plug. Water at -91 feet with bridge or bottom at -238 feet. Violation of Wyoming Statute 404(c)(ii) and (iii).

TG 3 22 25 92 NENW, Section 22, T.25N., R.92W. TD 580 feet Perma-plug. Water at -99 feet with no bottom at -300 feet. Violation of Wyoming Statute 404(c)(ii) and (iii).

TG 4 32 25 92 NENW, Section 32, T.25N., R.92W. TD 260 feet Perma-plug. Water at -135 feet with bottom at -255 feet. Violation of Wyoming Statute 404(c)(ii) and (iii).

TG 6 28 25 92 SWNW, Section 28, T.25N., R.92W. TD 340 feet Perma-plug. Water at -81 feet with bridge or bottom at -170 feet. Violation of Wyoming Statute 404(c)(ii) and (iii).

TG 7 28 25 92 SWNW, Section 28, T.25N., R.92W. TD 340 feet Perma-plug. Water at -72 feet with bridge or bottom at -196 feet. Violation of Wyoming Statute 404(c)(ii) and (iii).

TG 13 29 25 92 SESE, Section 29, T.25N., R.92W. TD 600 feet Perma-plug. Water at -134 feet with bridge or bottom at -187 feet. Violation of Wyoming Statute 404(c)(ii) and (iii).

TG 27 6 24 92 NENE, Section 6, T.24N., R.92W. TD 240 feet Perma-plug. Water at -94 feet with bottom at -220 feet. Violation of Wyoming Statute 404(c)(ii) and (iii).

TG 25 6 24 92 NENE, Section 6, T.24N., R.92W. TD 240 feet. Perma-plug. Water at -125 feet with bottom at -223 feet. Violation of Wyoming Statute 404(c)(ii) and (iii).

Conclusions

Of the 42 holes inspected 41 (98%) had capping violations. The other hole was not located. Of the 35 holes in which down hole conditions were checked, 30 (86%) were in violation of sealing requirements.

It is recommended that a Notice of Violation be issued.

AG:tc

cc: -Roy Spears, Abandoned Drill Site Program Supervisor - Cheyenne DEQ-LQD
-C. Alan Tapp, Senior Geologist
Project Evaluation Department
Texasgulf Inc.
5926 McIntyre Street
Golden, CO 80401

APPENDIX B

Proposed Remedial Plan

November 24, 1982

Texasgulf Inc.

5926 McIntyre Street Golden, Colorado 80403 (303) 279-2636

Project Evaluation Department

November 24, 1982

Department of Environmental Quality
Land Quality Division
401 West 19th Street
Cheyenne, Wyoming 82002

Attention: Mr. Roy Spears

Dear Mr. Spears:

On October 14, 1982, Texasgulf initiated a field program to inventory abandoned drill holes in Section 20, Township 25 North, Range 93 West of Sweetwater County, Wyoming. The inventory consisted of vegetation surveys in and around the drill sites and measurements of water levels and mud column depths for each hole. Seventy-nine drill holes were inventoried during the process, which was completed on October 22, 1982. The data generated by the inventory and Texasgulf's interpretation are enclosed. Our interpretations indicate that all holes exhibit statistical adequacy for reclamation, all holes are capped, and all holes were sealed according to D.E.Q. regulations which were in effect at the time they were drilled.

Results of studies by Texasgulf and a hydrologic consultant support the fact that on the Lost Creek/ Conoco property the Battlesprings Formation is one aquifer. A potentiometric map can be constructed for Section 20. This map depicts a relatively uniform water table which fits well with local and regional data, regardless of mud levels in drill holes.

An independent hydrologic evaluation of Texasgulf's raw drill hole data plus other sources of data was made by Hydro-Search, Inc. and is enclosed. Their final interpretation is that the Battlesprings Formation is one aquifer. In light of the compiled facts it is difficult to make any other interpretation.

As a result of local physical conditions present in each bore hole after sealing, drilling mud levels are subject to change. One drill hole inspected in Section 20, Tg-35-20, did not meet Texasgulf's sealing standards. This hole will be resealed in conjunction with the 1983 program.

Texasgulf's Lost Creek/Conoco property consists of approximately forty sections of land. Since our inventory covered only one section of our property, we cannot be certain other areas will show identical results. We will inventory other holes on our property in 1983 and make necessary corrections to bring any substandard findings to our standards. We will initiate the program outlined below during May of 1983 to cover about half of our property, or twenty sections. In 1984 the remainder of the property will be inventoried in the same manner.

(1) Beginning in May, 1983, Texasgulf will inspect about twenty sections in the Lost Creek/Conoco property in the same manner as performed in Section 20. The D.E.Q. will be provided the inventoried data.

(2) Concrete caps will be installed in all inventoried holes in accordance with D.E.Q.'s recommendations.

(3) During the inventory each drill site will be evaluated for reclamation success. Any found substandard will be reseeded in accordance to Wyoming Statute 35-11-404(c)(v).

(4) Drill holes which we locate that do not meet drill holes abandonment standards will be identified and resealed at the end of the summer inspection program.

Sincerely,

C. Alan Tapp

C. Alan Tapp
Project Manager

CAT/dd

Enclosures

cc: D. C. Edmiston
Lynn Graham
03-002-006-04

APPENDIX C

Drill Hole Inspection Summary, 1983

	No. Holes Inspected[1]	No. Dry Holes	No. Holes w/Concrete Caps	No. Holes Recapped
Sec. 5, T24N, R92W	12	0	10	2
Sec. 6	32	9	7	25
Sec. 1, T24N, R93W	1	1	0	1
Sec. 2, T25N, R91W	2	1	0	1
Sec. 2, T25N, R92W	6	1	3	2
Sec. 3	15	0	12	3
Sec. 4	4	0	4	0
Sec. 5	5	1	4	1
Sec. 8	3	0	1	2
Sec. 10	1	0	0	1
Sec. 11	15	2	9	6
Sec. 14	7	0	0	7
Sec. 15	1	0	0	1
Sec. 28	23	1	13	8
Sec. 29	26	0	7	17
Sec. 30	2	0	2	0
Sec. 31	20	0	17	3
Sec. 32	22	0	14	8
Sec. 33	29	0	25	1
Sec. 36	8	0	8	3
Sec. 16, T26N, R91W	14	3	2	7
Sec. 21, T26N, R92W	9	1	0	5
Sec. 24, T26N, R92W	3	0	0	2
Sec. 25	3	0	0	3
Sec. 29	3	1	0	1
Sec. 36	3	0	0	1
Totals	269	21	138	111

[1] Some drill sites were inspected but the actual drill hole was not locatable. Not all holes insepcted were Texasgulf's.

APPENDIX D

Drill Hole Inventory by Section

Hole ID	Location	Original Cap	Depth to Water	Depth to Mud	Recapped w/concrete
		Sec. 5,T24N,R92W			
Tg 5-5	Sec. 5-24W-92W	Concrete Did not remove			
Tg 2-5	Sec. 5-24W-92W	Concrete Did not remove			
Tg 3-5	Sec. 5-24N-92W	Concrete Did not remove			
Tg 4-5	Sec. 5-24N-92W	Concrete Did not remove			
Tg 6-5	Sec. 5-24W-92W	Concrete Did not remove			
Tg 11-5	Sec. 5-24N-92W	Concrete Did not remove			
Tg 1-5	Sec. 5-24N-92W	Perma-plug	185'	203'	Yes
Tg 9-5	Sec. 5-24N-92W	Concrete on surface but could not locate hole			
Tg 10-5	Sec. 5-24N-92W	Octoplug			Yes
Tg 12-5	Sec. 5-24N-92W	Concrete cap surface Did not remove			
Tg 8-5	Sec. 5-24N-92W	Concrete cap Did not remove			
Tg 7-5	Sec. 5-24N-92W	Concrete cap Did not remove			
		Sec. 6-T24W,R92W			
Tg 9-32	Sec. 32-25N-92W	Concrete Did not remove			
Tg 8-32	Sec. 32-25N-92W	Octoplug	197'	238'	Yes
Tg hole approx. 200' due north of Tg 20-29. Someone has removed stake!		Concrete cap Did not remove			
Tg 27-6	Sec. 6-24N-92W	Perma-plug	115'	219'	Yes

Hole ID	Location	Original Cap	Depth to Water	Depth to Mud	Recapped w/concrete
Tg 36-6	Sec. 6-24N-92W	2 Octoplugs	Dry		Yes
Tg 6-6	Sec. 6-24N-92W	Perma-plug	185'	348'	Yes
Tg 35-6	Sec. 6-24N-92W	Concrete cap Did not remove			
Tg 17-6	Sec. 6-24N-92W	Perma-plug	Dry		Yes
Tg 16-6	Sec. 6-24N-92W		Dry		Yes
Tg 33-6	Sec. 6-24N-92W	Concrete cap @+3' Did not remove			
Tg 34-6	Sec. 6-24N-92W	Concrete was around collar of hole. However, pushed bar down +5' and could not hit cement cap.			
Tg 15-6	Sec. 6-24N-92W	Perma-plug	Dry		Yes
Tg 14-6	Sec. 6-24N-92W	Perma-plug	180'	182'	Yes
Tg 13-6	Sec. 6-24N-92W	Perma-plug	Dry		Yes
Tg 11-6	Sec. 6-24N-92W	Perma-plug	181'	281'	Yes
Tg 12-6	Sec. 6-24N-92W	Perma-plug	219'	349'	Yes
Unmarked	Sec. 6-24N-92W		Dry		Yes
Tg 31-6	Sec. 6-24N-92W	Concrete Did not open			
Tg 30-6	Sec. 6-24N-92W	Concrete Did not open			
Unmarked, stake removed	East of Tg 30-6		Dry		Yes
Unmarked, stake removed	Sec. 6-24N-92W North of Tg 31-6	Concrete Did not open			
Unmarked, stake removed	Sec. 6-24N-92W northwest of hole above.	Perma-plug	Dry		Yes

Hole ID	Location	Original Cap	Depth to Water	Depth to Mud	Recapp w/concr
		Sec. 6,T24N-R92W			
Tg 25-6	Sec. 6-24N-92W	Perma-plug	125'	214'	Yes
Tg 20-6	Sec. 6-24N-92W	Perma-plug	122'	174'	Yes
Tg 8-6	Sec. 6-24N-92W	Perma-plug	199'	341'	Yes
Tg 7-6	Sec. 6-24N-92W	Perma-plug	228'?	355'	Yes
Tg 9-6	Sec. 6-24N-92W	Perma-plug	192'	212'	Yes
Tg 23-6	Sec. 6-24N-92W	Perma-plug	85'?	225'	Yes
Tg 24-6	Sec. 6-24N-92W	Perma-plug	?	113'	Yes
Tg 22-6	Sec. 6-24N-92W	Perma-plug	200'	209'	Yes
Tg 21-6	Sec. 6-24N-92W	Perma-plug	194'	232'	Yes
Tg 5-6	Sec. 6-24N-92W		Dry		Yes
		Sec. 1,T24N,R92W			
Tg 1-1 This hole has not been re-claimed	Sec. 1-24N-92W	Perma-plug	Dry	Mud pit is still open	Yes
		Sec. 2,T24N,R92W			
Open Hole - No ID. Probably an old Conoco hole. Due south of SW section corner Sec. 36 approx. 40'. Tried to recap but hole was too large.					
RD-464		Open	Dry		Yes
		Sec. 2,T25N-R92W			
Tg 2-2	Sec. 2-25N-92W	Perma-plug	157'	307'	Yes
Tg 6-2	Sec. 2-25N-92W	Concrete Did not disturb			

Hole ID	Location	Original Cap	Depth to Water	Depth to Mud	Recapped w/concrete
Tg 7-2	Sec. 2-25N-92W	Concrete to surface Did not disturb			
Tg 5-2	Sec. 2-25N-92W	Concrete Did not disturb			
Tg 4-2	Sec. 2-25N-92W		Dry		Yes
Tg 8-2	Sec. 2-25N-92W	Couldn't find hole			
		Sec. 3,T25N,R92W			
Tg 7-3	Sec. 3-25N-92W	Concrete Did not remove			
Tg 5-3	Sec. 3-25N-92W	Concrete Did not remove			
Tg 6-3	Sec. 3-25N-92W	Concrete Did not remove			
Tg 8-3	Sec. 3-25N-92W	Concrete Did not remove			
Tg 14-3	Sec. 3-25N-92W	Concrete Did not remove			
Tg 1-3	Sec. 3-25N-92W	Perma-plug Cap slipped and could not breach to measure water.			Yes
TG 13-3	Sec. 3-25N-92W	Concrete Did not remove			
Tg 12-3	Sec. 3-25N-92W	Concrete cap Did not remove			
Old unmarked hole north of Tg's E-W fence toward western end		Open			Yes
Tg 3-3	Sec. 3-25N-92W	Concrete cap Did not remove			
Tg 4-3	Sec. 3-25N-92W	Concrete Did not remove			
Tg 2-3	Sec. 3-25N-92W	Cannot locate drill hole. Marker knocked down.			

Hole ID	Location	Original Cap	Depth to Water	Depth to Mud	Recap w/conc
Tg 11-3	Sec. 3-25N-92W	Concrete cap Could not get through it. It was badly broken.			Yes
Tg 10-3	Sec. 3-25N-92W	Concrete cap down approx. 3'. Could not remove it.			
Tg 9-3	Sec. 3-25N-92W	Concrete cap Did not remove it. Cap down +4'.			
		Sec. 4,T25N,R92W			
Tg 1-4	Sec. 4-25N-92W	Concrete cap @ 3'. Did not remove.			
Tg 2-4	Sec. 4-25N-92W	Concrete cap @ approx. 3'. Did not remove.			
Tg 3-4	Sec. 4-25N-92W	Concrete tap @ approx. 3'. Did not remove.			
Tg 4-4	Sec. 4-25N-92W	Concrete cap @ approx. +4'. Did not remove.			
		Sec. 5,T25N,R92W			
Tg 3-5	Sec. 5-25N-92W	Concrete cap Did not remove			
Unidentified hole between Tg 3-5 and Tg 2-5 Could not locate hole.					
Tg 2-5	Sec. 5-25N-92W	Concrete cap Did not remove. Cap @ approx. 3'			
Tg 1-5	Sec. 5-25N-92W	Concrete cap at surface. Removed and found 2' dirt on top of sage bush. Recapped.	Dry		Yes
Tg 13-5	Sec. 5-25N-92W	Concrete Did not remove			

Hole ID	Location	Original Cap	Depth to Water	Depth to Mud	Recap w/conc
		Sec. 8,T25N,R92W			
Tg 1-8	Sec. 8-25N-92W	Concrete cap to surface. Good cap did not remove.			
Capped unidentified open hole near central part of Section 8.					Yes
Unreclaimed, unidentified Conoco drill hole in SE¼ of Section 9		Open but dry - Capped but did not fill.			Yes
		Sec. 10,T25N-R92W			
Conoco Hole in NE¼ SE¼ Sec. 10		Open Recapped			Yes
		Sec. 11,T25N,R92W			
Tg 5-11	Sec. 11-25N-92W	Concrete cap Did not remove			
Tg 1-11	Sec. 11-25N-92W	Perma-plug	Water just on top of mud.	86'	Yes
Tg 9-11	Sec. 11-25N-92W	Concrete cap Did not remove			
Tg 6-11	Sec. 11-25N-92W	Concrete cap @ approx. 3'. Did not remove.			
Tg 7-11	Sec. 11-25N-92W	Concrete cap @ approx. 4'. Did not remove.			
Tg 10-11	Sec. 11-25N-92W	Concrete cap Did not remove			
Tg 2-11	Sec. 11-25N-92W	Perma-plug	123'	308'	Y
Tg 11-11	Sec. 11-25N-92W	Concrete cap Did not remove			
Tg 3-11	Sec. 11-25N-92W	Perma-plug	119'	213'	

Hole ID	Location	Original Cap	Depth to Water	Depth to Mud	Recapped w/concrete
Tg 8-11	Sec. 11-25N-92W	Concrete cap Did not remove			
Hole # 673	Sec. 11	Open hole	Dry		Yes
Hole #109	Sec. 11	Open hole	Dry		Yes
Tg 12-11	Sec. 11-25N-92W	Concrete cap @ approx. 3'. Did not remove.			
Tg 13-11	Sec. 11-25N-92W	Concrete cap just under surface. Did not remove.			
Tg 4-11	Sec. 11-25N-92W	Perma-plug	119'	244'	Yes
		Sec. 14,T25N,R92W			
Tg 6-14	Sec. 14-25N-92W	Perma-plug	128'	333'	Yes
Tg 7-14	Sec. 14-25N-92W	Perma-plug	132'	354'	Yes
Tg 5-14	Sec. 14-25N-92W	Perma-plug	119'	340'	Yes
Tg 4-14	Sec. 14-25N-92W	Perma-plug	121'	354'	Yes
Tg 3-14	Sec. 14-25N-92W	Perma-plug	122'	353'	Yes
Tg 2-14	Sec. 14-25N-92W(?)	Perma-plug	137'	357'	Yes
Tg 2-14	Sec. 14-25N-92@(?) NNW approx. 400' from above hole 539200-760000	Perma-plug	125'	348'	Yes
		Sec. 15,T25NR92W			
Old Conoco hole - NE¼ Sec. 15		Open hole			Yes
		Sec. 28,T25N,92W			
Stake has been removed. Hole is NE of northern end of last fence more or less 400'.		Concrete cap Did not remove			
Stake has been removed. Hole is due east of above hole 200' more or less.		Concrete cap Did not remove			

Hole ID	Location	Original Cap	Depth to Water	Depth to Mud	Recapped w/concrete
Tg (?) Part of label is missing. Due north of above hole.	Sec. 28-25N-92W	Perma-plug	125'	131'	Yes
Tg 16-28	Sec. 28-25N-92W	Concrete Did not remove			
Tg 19-28	Sec. 28-25N-92W	Concrete Did not remove			
Label missing. Hole approx. 400' due south of Tg 19-28		Concrete Did not remove			
Tg 17-28	Sec. 28-25N-92W	Concrete Did not remove			
Tg 22-28	Sec. 28-25N-92W	Concrete Did not remove			
Tg 6-28	Sec. 28-25N-92W	Perma-plug	83'	164'	Yes
Tg 7-28	Sec. 28-25N-92W	Perma-plug	71'	171'	Yes
Unlabeled hole 200' more or less from east from Tg 7-28-25-92. Could not locate hole. Stake was knocked down.					
Label missing NE¼	Sec. 28-25N-92W	Perma-plug	71'	233'	Yes
Tg 10-28	Sec. 28-25N-92W	Concrete Did not remove			
Tg 11-28	Sec. 28-25N-92W	Concrete cap Did not remove			
Tg 12-28	Sec. 28-25N-92W	Concrete Did not remove			
Tg 1-28	Sec. 28-25N-92W	Perma-plug	133'	311	Yes
Label missing. Hole more or less 400' easterly from Tg 1-28.		Perma-plug	138'	173'	Yes
Label missing. Hole more or less 400' easterly from Tg 7-28		Perma-plug	138'	275'	Yes

Hole ID	Location	Original Cap	Depth to Water	Depth to Mud	Recapped w/concrete
Tg 15-28	Sec. 28-25N-92W	Concrete Did not remove			
Tg 3-28	Sec. 28-25N-92W	Hole open @ surface. Perma-plug was side-ways.	Dry		Yes
Stake missing. Due south of Tg 3-28. More or less 100-200'.		Concrete cap Did not remove			
Site more or less 100' south of above hole. Does not appear to have been drilled.					
Tg 13-28	Sec. 28-25N-92W	Concrete cap Did not remove			
		Sec. 29,T25N,R92W			
Tg 3-29	Sec. 29-25N-92W	Perma-plug Slipped down hole	140'	323'	Yes
Tg 5-29	Sec. 29-25N-92W	Perma-plug Slipped down hole	Could not measure water.		Yes
Tg 4-29	Sec. 29-25N-92W	Perma-plug	154'	282'	Yes
Tg 2-29	Sec. 29-25N-92W	Perma-plug	155'	247'	Yes
Tg 10-29	Sec. 29-25N-92W	Perma-plug	154'	170'	Yes
Tg 9-29	Sec. 29-25N-92W	Perma-plug	150'	312'	Yes
Tg 7-29	Sec. 29-25N-92W	Could not locate hole.			
Number is unknown. Unmarked TG hole approx. 200' due south of Tg 7-29		Cap slid down hole			Yes
Unmarked Tg hole approx. 400-500' south of Tg 7-29		Perma-plug	135'	311'	Yes
Tg 20-29 (Someone has pulled up our drill hole stakes this year)	Sec. 29-25N-92W	Cement cap Did not remove			Yes

Hole ID	Location	Original Cap	Depth to Water	Depth to Mud	Recapped w/concrete
Tg 20-29	Sec. 29-25N-92W	Concrete cap Did not remove			
Due north of above hole. Stake has been removed.		Concrete Did not remove			
Tg 27-29	Sec. 29-25N-92W	Concrete Cap had slipped down hole 5' more or less. Repositioned and filled back up w/dirt. Did not remove.			
Tg 28-29	Sec. 29-25N-92W	Concrete cap @ surface Did not remove			
Stake has been removed & does not have ID. Hole is SW of Tg 1-29.		Perma-plug	132'	157'	Yes
Tg 1-29	Sec. 29-25N-92W	Perma-plug	142'	216'	Yes
Tg 8-29	Sec. 29-25N-92W	Perma-plug	143'	177'	Yes
Tg 19-29	Sec. 29-25N-92W	Octoplug w/"stuff" on top. Could not remove-slipped down hole.			
Tg 18-29	Sec. 29-25N-92W	Could not locate cap @ +5', no evidence of cement.			Yes
Hole WSW from Tg 18-29. Label missing.		Perma-plug	105'	332'	Yes
South of above hole 200' more or less. No stake.		Octoplug	102'	330'	Yes
Tg 16-29	Sec. 29-25N-92W 200' more or less from above hole.	Could not locate cap @ +5'. Cap appeared to be in solid.			
Tg 15-29	Sec. 29-25N-92W	Could not locate cap @ +5'. Solid cap.			

Hole ID	Location	Original Cap	Depth to Water	Depth to Mud	Recapped w/concrete
Tg 23-29	Sec. 29-25N-92W	Concrete Did not remove			
Tg 22-29	Sec. 29-25N-92W	Concrete cap @ +5' Did not remove			
Tg 24-29	Sec. 29-25N-92W	Concrete cap had failed.	127'	181'	Yes
Tg 25-29	Sec. 29-25W-92W	Concrete Did not remove			
Tg 26-29	Sec. 29-25N-92W	Concrete Did not remove			
		Sec. 31,T25N,R92W			
Tg 3-31	Sec. 31-25N-92W	Concrete cap Did not remove			
Tg 4-31	Sec. 31-25N-92W	Concrete cap Did not remove			
Tg 2-31	Sec. 31-25N-92W	Concrete cap Did not remove			
Tg 22-31	Sec. 31-25N-92W	Concrete cap Did not remove			
Tg 6-31	Sec. 31-25N-92W	Concrete cap Did not remove			
Tg 5-31	Sec. 31-25N-92W	Concrete cap Did not remove			
Tg 11-31	Sec. 31-25N-92W	Concrete cap Tried to remove but could not.			
Tg 17-31	Sec. 31-25N-92W	Concrete cap Did not remove			
Tg 7-31	Sec. 31-25N-92W	Concrete cap Did not remove			
Tg 12-31	Sec. 31-25N-92W	Concrete cap Tried to remove but could not			

Hole ID	Location	Original Cap	Depth to Water	Depth to Mud	Recapped w/concrete
Tg__-31 Hole ID was partially missing	Sec. 31-25N-92W	Perma-plug	141'	184'	Yes
Hole due north of Tg 12-31-25-92 approx. 400-500'. Marker has been removed from concrete cap. No ID.		Concrete cap Did not remove			
Marker stake has been removed. Due east of hole Tg 11-31-25-92(?) approx. +3'.		Concrete Did not remove			
No ID on hole stake - has been removed. Due west of last hole.		Cement cap @ +2' Did not remove			
		Sec. 30,T25N,R92W			
Tg 1-30	Sec. 30-25N-92W	Concrete cap Did not remove			
No hole marker. Stake has been removed. Due east from last hole.		Concrete cap @ approx. 3-4'. Did not remove.			
		Sec. 31,T25N-R92W			
Tg 15-31	Sec. 31-25N-92W	Concrete cap Cap is +3' thick. Tried to remove but could not.			
Tg__+31 Due south approx. 400' from last hole. Stake has been removed. Old lathe by hole Tg 14-31-92.	Sec. 31-25N-92W	Octoplug @ +5' Could not breach it to measure for water.			Yes
Unmarked hole. Stake has been removed. Due south of NE most hole in Sec. #6, T24-R92W.		Perma-plug	123'	210'	Yes
Due west of last hole. No marker stake has been removed. (Small stake in hole - Tg 7-31-25-92)		Concrete cap Did not remove			
Approx. NNE 200' from last hole. Stake has been removed.		Concrete cap			

Hole ID	Location	Original Cap	Depth to Water	Depth to Mud	Recapped w/concrete
Tg 20-31(?)	Sec. 31 or 30(?) 24N-92W	Concrete cap			
Tg 4-32	Sec. 32-25N-92W	Perma-plug slipped down hole. Could not probe.			Yes
Tg 12-25	Sec. __-25N-92W (Missing sec. No.- Due to south of #5 200' more or less)	Concrete Did not remove			
Tg 13-25	Sec. __-25N-92W (Missing sec. No.- Due north of Tg 4-32 200' more or less)	Concrete Did not remove			
Hole on west-central edge of Sec. 32. Label is missing.	Sec. 32-25N-92W	Perma-plug	146'	189'	Yes
Tg 11-32	Sec. 32-25N-92W	Concrete Did not remove			
	Sec. 32;T25N-R92W				
Tg 7-32	Sec. 32-25N-92W	Concrete Did not remove			
Tg 10-32	Sec. 32-25N-92W	Octoplug	129'	228'	Yes
Tg 9-32	Sec. 32-25N-92W	Concrete Did not remove			
Tg 8-32	Sec. 32-25N-92W	Concrete Did not remove			
Tg 1-32	Sec. 32-25N-92W	Perma-plug	203'	254'	Yes
Old Tg hole label is missing	Sec. 32-25N-92W (North central)	Perma-plug	144'	224'	Yes
Tg 18-32	Sec. 32-25N-92W	Concrete Did not remove			

Hole ID	Location	Original Cap	Depth to Water	Depth to Mud	Recapped w/concrete
Tg 19-32	Sec. 32-25N-92W	Concrete Did not remove			
Tg 5-32	Sec. 32-25N-92W	Perma-plug	153'	294'	Yes
Tg 5-32 (SW 400')Stake has been removed.	Sec. 32-25N-92W	Concrete Did not remove			
Tg 14-32 (Due north of above hole)	Sec. 32-25N-92W	Concrete Did not remove			
Due north of above hole. Stake has been removed.	Sec. 32-25N-92W	Concrete Did not remove			
Due north of above hole. Tg 17-32	Sec. 32-25N-92W	Concrete Did not remove			
Tg 2-32	Sec. 32-25N-92W	Perma-plug	150'	215'	Yes
Tg 4-32	Sec. 32-25N-92W(?) (200' more or less due north of the above hole & 400' due north of Tg 20)	Perma-plug	134'	249'	Yes
	Sec. 33,T25N-R92W				
Tg 15-33	Sec. 33-25N-92W	Concrete Did not remove			
Tg 16-33	Sec. 33-25N-92W	Concrete Did not remove			
Tg 4-33	Sec. 33-25N-92W	Concrete Did not remove			
Tg 3-33	Sec. 33-25N-92W	Concrete Did not remove			
Tg 2-33	Sec. 33-25N-92W	Concrete Did not remove			
Tg 1-33	Sec. 33-25N-92W	Perma-plug	169'	216'	Yes
Tg 5-33	Sec. 33-25N-92W	Concrete Did not remove			

Hole ID	Location	Original Cap	Depth to Water	Depth to Mud	Recapped w/concrete
Tg 26-33	Sec. 33-25N-92W	Concrete Did not remove			
Tg 27-33	Sec. 33-25N-92W	Concrete Did not remove			
Stake is missing, middle hole of three in central part of Sec. 33		Concrete Did not remove			
Tg 24-33	Sec. 33-25N-92W	Concrete Did not remove			
Tg 22-33	Sec. 33-25N-92W	Concrete Did not remove			
Tg 7-33	Sec. 33-25N-92W	Concrete Did not remove			
Tg 6-33	Sec. 33-25N-92W	Concrete Did not remove			
Tg 17-33	Sec. 33-25N-92W	Concrete Did not remove			
Tg's(?) No marker on hole - not a Tg hole. Different marker.					
Tg 29-33	Sec. 33-25N-92W	Concrete Did not remove			
Tg 20-33	Sec. 33-25N-92W	Concrete Did not remove			
Tg 19-33	Sec. 33-25N-92W	Concrete Did not remove			
Tg 18-33	Sec. 33-25N-92W	Concrete Did not remove			
Tg 17-33	Sec. 33-25N-92W	Concrete Did not remove			
Tg 8-33	Sec. 33-25N-92W	Concrete Did not remove			
Tg 9-33 Stake was pulled up and lying on ground. Could not locate hole.	Sec. 33-25N-92W				

Hole ID	Location	Original Cap	Depth to Water	Depth to Mud	Recapped w/concrete
Hole approx. 200' east of Tg-33. Stake has been removed. ID(?)		Concrete Did not remove			
Tg 11-33	Sec. 33-25N-92W	Concrete Did not remove			
Tg 12-33	Sec. 33-25N-92W	Concrete Did not remove			
Tg 13-33	Sec. 33-25N-92W	Concrete Did not remove			
No ID. Stake has been removed. Hole is east of Tg 13-33		Concrete Did not remove			
Tg 21-33	Sec. 33-25N-92W	Concrete cap Did not remove			
		Sec. 36,T25N,R92W			
Tg 6-36	Sec. 36-25N-93W	Concrete cap Did not remove			
Tg 3-36	Sec. 36-25N-93W	Concrete cap Did not remove. Could not locate cap at 5'. Cement around edges of hole and @ collars. Put a second concrete cap in.			
Tg 2-36	Sec. 36-25N-92W	Concrete Did not remove			
Tg 1-36	Sec. 36-25N-92W	Concrete Did not remove			
Tg 4-36	Sec. 36-25N-93W(?)	Concrete Did not remove			
Tg 8-36	Sec. 36-25N-92W(?) Dug up and no cap present-even though concrete was around collar.	Concrete cap? Octoplug approx. 2-3' down hole. It was turned sideways.	99'	191'	Yes

Hole ID	Location	Original Cap	Depth to Water	Depth to Mud	Recapped w/concrete
Tg 5-36	Sec. 36-25N-92W	Concrete cap Tried to remove but could not. At least 18" thick-maybe more.			Yes
Tg 7-36	Sec. 36-25N-92W	Concrete cap to surface. Did not remove.			
		Sec. 16,T26N,R91W			
Hole on southern endline @ surface.	Sec. 16-26N-91W	Concrete at surface Did not remove cap.			
NW across creek from above hole.		Capped-Not Tg hole			
SW from stock pond in Osborne Draw-old Conoco hole - could not find hole.					
Due south from above hole. No ID.		Recapped	Dry		
Due south stock pond @ top of small hill. Did not open.		Concrete			
South of above hole - Conoco's (B-67)					
B-1115, south of above hole (Conodo's)		Recapped	Dry		Yes
South of B-115 approx. 100' (B-83) Conoco's (?)		Octoplug Opened recapped			Yes
B-112 - South of B-83		Open	Dry		Yes
South of B-112 #B-9. Could not locate hole but badly caved around it approx. 4' diameter. Filled best we could.					Yes
Hole south of above hole - No ID		Open			Yes
West of last fence next to diagonal road - fence is N-S northern most hole - no ID - no hole.					
South of above hole #75/30. Could not move stake. Left alone.					
South of #26. #76/30. Recapped hole.					

Hole ID	Location	Original Cap	Depth to Water	Depth to Mud	Recapped w/concr
		Sec. 21,T26N,R92W			
D-73 Conoco hole(?)	Sec. 21-26N-92W		Dry		Yes
Unidentified hole on west edge of Sec. 21			Open, water?		Yes
Due west of above hole in Osborne Draw - Could not locate holes (2) and not Tg's.					
Due north of above hole (in a fence N-S) Could not locate hole.					
In fence north from above hole. Both were open and old - not Tg's.					Yes
North of above and next to road. Could not locate hole - not Tg's.					
West of above hole - not Tg's. Completed Section 21					Yes
An old Conoco hole next to 1/4 section marker for Sections 20 & 21.					Yes
Due north approx. 300' from the above hole - Not Tg's and already capped					
		Sec. 24,T26N,R92W			
Unidentified hole next to creek. Approx. 1/2 mile north of Tg holes. Hole caved 3-4' in diameter approx. 8-10' deep. Tried to cap but couldn't - left open.					
Unidentified hole in NE/1/4 of Sec. 24 - Open					Yes
Open hole due west of above hole.					Yes

Note: Numerous old Conoco holes were checked in Sec. 24. In most cases we could not locate holes. If they were capped, we left them along. If they were open, we recapped them with concrete.

Hole ID	Location	Original Cap	Depth to Water	Depth to Mud	Recapped w/concrete
		Sec. 25,T26N-R92W			
Tg 2-25	Sec. 25-26N-92W	Perma-plug	154'	378'	Yes
Tg 3-25	Sec. 25-26N-92W	Perma-plug slid down			Yes
Tg 1-25	Sec. 25-26N-92W	Perma-plug	193' Hit heavy fluid @ approx. 200'.	282'	Yes
		Sec. 29,T26N,R92W			
Tg 132-29	Sec. 29-26N-92W		Dry		Yes

Due north of hole Tg 132-29 approx. 400'. Could not locate hole.

Due north of #20 approx. 600'. Could not locate hole.

		Sec. 36,T26N,R92W			
RD 368		Open Recapped w/concrete			Yes

Checked numerous old Conoco holes. No Tg holes. Recapped any open holes.

Open hole - no ID in south central Sec. 36. Too large to fill. Open approx. 3' in diameter + approx. 6' deep. Not Tg's.

APPENDIX E

Sealed Drill Holes and Abandonment Fluid Characteristics

Resealed Drill Holes

HOLE ID	LOCATION
Tg-35-20-25-92	NE¼, NE¼, Sec. 20, T25N, R92W
Tg-1-14-25-92(?)	NW¼, NW¼, Sec. 14, T25N, R92W
Tg-2-14-25-92	NW¼, NW¼, Sec. 14, T25N, R92W
Tg-3-14-25-92	NW¼, NW¼, Sec. 14, T25N, R92W
Tg-4-14-25-92	NW¼, NW¼, Sec. 14, T25N, R92W
Tg-5-14-25-92	NW¼, NW¼, Sec. 14, T25N, R92W
Tg-7-14-25-92	NW¼, NW¼, Sec. 14, T25N, R92W
Tg-13-29-25-92(?)	NW¼, SE¼, Sec. 29, T25N, R92W
Tg-14-29-25-92(?)	NW¼, SE¼, Sec. 29, T25N, R92W
Tg-2-25-26-92	SW¼, NE¼, Sec. 25, T26N, R92W

August 1, 1983

Mr. Allen Tapp
Texas Gulf Sulfer
5932 McIntyre Street
Golden, Colorado 80403

Re: Sample of Abandonment Fluid

Dear Mr. Tapp:

Following is data concerning the sample of abandonment fluid you provided that was used to plug holes in Wyoming:

Mud Weight	8.7 ppg
API Filtrate	4.8 cc
Plastic Viscosity, cp	15
Yield Point, lbs/100 ft^2	54
Initial Gel Strength, lbs/100 ft^2	18
10 Min. Gel Strength, lbs/100 ft^2	42

We now have testing equipment at our office. Please let me know when you have additional samples to be checked. Thanks for your business.

Sincerely,

Don Vesely

DPV/bb

Sealing fluid characteristics for 1983 program, cot

NL Baroid/NL Industries, Inc.
5926 McIntyre Street — Golden, Colorado 80403 — (303) 279-6640

PLATES

Map of Inventoried Land, 1983 PLATE I
1:4000 scale

Texasgulf memo

Date September 12, 1984

To E.J. Poole/I.L. Turner Location Golden

From C.A. Tapp Location Golden

Subject 1984 Lost Creek and Conoco Program

Attached is the final report for the 1984 Lost Creek and Conoco program. As you are aware, this program was initially presented to the Wyoming D.E.Q. in 1982. Its purpose was to rescind a Notice of Violation issued to Texasgulf by the D.E.Q. for failure to properly abandon drill holes. That Notice of Violation has been rescinded by the State and our program as presented is now complete.

cs Tapp

C. A. T.

/av
Attachment: Report

GCLC-77

Texasgulf memo

Date September 5, 1984

To E.J. Poole/I.L. Turner Location Golden

From C.A. Tapp Location Golden

Subject Lost Creek/ Conoco - 1984 Program Summary

Texasgulf has completed its 1984 program on the Lost Creek and Conoco properties in Sweetwater County, Wyoming. In a letter to Wyoming's D.E.Q., November 24, 1982, a two year program was outlined which would inventory Texasgulf drill holes, recapping and resealing those holes which were determined to be substandard. The 1983 phase of the program inventoried seventy-five percent of the two properties. A detailed summary of that program was sent to the Wyoming D.E.Q.

The 1984 program completes the plan as presented to the D.E.Q. in 1982. Basically it involved inspecting down the hole conditions for all locateable Texasgulf drill holes to determine the adequacy of past sealing efforts. Appendix A details all holes inspected during the 1984 program. Water levels and mud column depths were measured and recorded. Concrete caps were placed on all Texasgulf holes which were not originally capped with concrete or if the original concrete cap had failed. Down the hole conditions were evaluated and any holes which did not meet our standards for sealing were resealed. Appendix B lists those drill holes which were resealed this year.

One square mile, Sec. 20, T25N R92W, containing roughly 80 drill holes was inspected in 1982 and recapped with perma-plugs. A small ledge was cut around the bore hole and the perma-plug placed on that ledge before backfilling. During the D.E.Q.'s June, 1984 inspection, several of these holes were reviewed. Mr. Alan Guile, field inspector for the D.E.Q., felt all of these were adequately capped and Texasgulf would not have to recap them with concrete caps.

Approximately nine square miles of land were inventoried in 1984. A total of 427 drill holes were inspected, of which 371 holes, eighty-seven percent, were recapped with concrete caps. Fifty-six holes could not be located for one of numerous reasons. It is interesting to note that seventy-two holes, seventeen percent, were dry. Table 1 summarizes our activities on the Lost Creek and Conoco properties.

TABLE 1

SUMMARY OF INSPECTION ACTIVITIES

	Number of Holes Inspected	Number of Holes Recapped [1]	Number of Dry Holes	Number of Holes Resealed
1982	79	79[2]		
1983	269	111	21	10[3]
1984	427	371	72	27
Total	775	561	93	37

Upon completion of the field inventory it was determined that twenty-seven holes requred resealing. All holes were resealed late in August using a mixture of water, Shur-gel, and Quick-gel. After sealing the bore hole, they were recapped with concrete caps. Abandonment fluid specifications were tested in the field and exceeded those required by the Wyoming D.E.Q.

The inspection and resealing program of 1984 completes Texasgulf's program as outlined to the Wyoming D.E.Q. in November, 1982. All issues with the State pertaining to drill hole abandonment should be resolved at this time. However, one more inspection will probably be scheduled in the spring of 1985 to review the work completed this summer.

1. Some drill holes were unlocateable.
2. Holes recapped with perma-plugs.
3. One hole from the 1982 program was resealed in 1983.

C. A. T.

/av
Attachments - Appendix A &
Appendix B

APPENDIX A

Hole ID	Original Cap	Depth To Water	Depth To Mud	Recapped w/concrete
TT-1	Open Hole	Dry		Yes
TT-2	Octoplug	Dry		Yes
TT-3	Could not locate drill hole.			
TT-4	Octoplug	Dry		Yes
TT-5	Sage Brush	174'	356'	Yes
TT-6	Sage Brush	Dry		Yes
TT-7	Octoplug	Dry		Yes
TT-8	Sage Brush	Dry		Yes
TT-9	Could not locate drill hole.			
TT-10	Cap was too deep to breach.			Yes
TT-11	Octoplug	239'	443'	Yes
TT-12	Cap slipped down drill hole.			Yes
TT-13	Octoplug	Dry		Yes
TT-14	Cap was too deep to breach.			Yes
TT-15	Cap slipped down the hole.			Yes
TT-16	Octoplug	165'	175'	Yes
TT-17	Octoplug	Dry		Yes
TT-18	Octoplug	163'	169'	Yes
TT-19	Open Hole	Dry		Yes
TT-20	Perma-plug	210'	270'	Yes
TT-21	Octoplug	Dry		Yes
TT-22	Octoplug	223'	270'	Yes
TT-23	Octoplug	226'	261'	Yes
TT-24	Octoplug	Dry		Yes
TT-25	Octoplug	184'	196'	Yes
TT-25(?)	Perma-plug	184'	246'	Yes
TT-26	Octoplug	Dry		Yes
TT-27	Octoplug	Dry		Yes
TT-28	Open hole	Dry		Yes
TT-29	Octoplug	Dry		Yes
TT-30	Octoplug	187'	202'	Yes
TT-31	Could not locate drill hole.			
TT-32	Octoplug	180'	233'	Yes
TT-33	Octoplug	177'	208'	Yes

Hole ID	Orinigal Cap	Depth To Water	Depth To Mud	Recapped w/concrete
TT-34	Open Hole	Dry		Yes
TT-35	Octoplug	163'	183'	Yes
TT-36	Octoplug	164'	187'	Yes
TT-37	Could not locate drill hole.			
TT-38	Open Hole	115'	120'	Yes
TT-39	Octoplug	Dry		Yes
TT-40	Octoplug	Dry		Yes
TT-41	Octoplug	151'	174'	Yes
TT-42	Could not locate drill hole.			
TT-43	Could not locate drill hole.			
TT-44	Octoplug	Dry		Yes
TT-45	Sage Brush	Dry		Yes
TT-46	Octoplug	177'	189'	Yes
TT-47	Open Hole	156'	234'	Yes
TT-48	Octoplug	Dry		Yes
TT-49	No Cap	Dry		Yes
TT-50	Octoplug	Dry		Yes
TT-51	Cap was too deep to breach.			Yes
TT-52	Octoplug	179'	376'	Yes
TT-53	No Cap	Dry		Yes
TT-54	Could not locate drill hole.			
TT-55	Octoplug	182'	210'	Yes
TT-56	Octoplug	Dry		Yes
TT-57	Octoplug	184'	194'	Yes
TT-58	Could not locate drill hole.			
TT-59	Cap was too deep to breach.			Yes
TT-60	Octoplug	189'	210'	Yes
TT-61	Cap was too deep to breach.			Yes
TT-62	Cap slipped down drill hole.			Yes
TT-63	Octoplug	Dry		Yes
TT-64	Octoplug	155'	193'	Yes
TT-65	Cap was too deep to breach.			Yes
TT-66	Could not locate drill hole.			Yes
TT-67	Could not locate drill hole.			Yes
TT-68	Octoplug	Dry		Yes

Hole ID	Original Cap	Depth To Water	Depth To Mud	Recapped w/concrete
TT-69	Could not locate drill hole.			
TT-70	Octoplug	198'	199'	Yes
TT-71	Octoplug	201'	204'	Yes
TT-72	Octoplug	199'	203'	Yes
TT-73	Octoplug	195'	234'	Yes
TT-74	Octoplug	156'	170'	Yes
TT-75	Could not locate drill hole.			
TT-76	Sage Brush	Dry		Yes
TT-77	Octoplug	167'	180'	Yes
TT-78	Sage Brush	159'	184'	Yes
TT-79	Sage Brush	Dry		Yes
TT-80	Octoplug	180'	222'	Yes
TT-81	Octoplug	175'	232'	Yes
TT-82	Octoplug	176'	214'	Yes
TT-83	Open Hole	Dry		Yes
TT-84	No Cap	Dry		Yes
TT-85	Octoplug	153'	320'	Yes
TT-86	Could not locate drill hole.			
TT-87	Octoplug	161'	190'	Yes
TT-88	Could not locate drill hole.			
TT-89	Octpplug	Dry		Yes
TT-90	Octoplug	Dry		Yes
TT-91	Octoplug	245'	373'	Yes
TT-92	Octoplug	237'	413'	Yes
TT-93	Octoplug	221'	419'	Yes
TT-94	Cap slipped down drill hole.			Yes
TT-95	Cap was too deep to breach.			Yes
TT-96	Sage Brush	Dry		Yes
TT-97	Cap slipped down drill hole.			Yes
TT-98	Cap slipped down drill hole.			Yes
TT-99	Perma-plug	Dry		Yes
TT-100	Perma-plug	187'	202'	Yes
TT-101	Could not locate drill hole.			
TT-102	Perma-plug	177'	203'	Yes

Hole ID	Orinigal Cap	Depth To Water	Depth To Mud	Recapped w/concrete
TT-103	Cap was too deep to breach			Yes
TT-104	Cap was too deep to breach.			Yes
TT-105	Perma-plug	180'	247'	Yes
TT-106	Octoplug	178'	200'	Yes
TT-107	Octoplug	Dry		Yes
TT-108	Octoplug	176'	182'	Yes
TT-109	Cap slipped down drill hole.			Yes
TT-110	Octoplug	176'	229'	Yes
TT-111	Octoplug	155'	170'	Yes
TT-112	Cap was too deep to breach.			Yes
TT-113	Perma-plug	176'	214'	Yes
TT-114	Perma-plug	186'	197'	Yes
TT-115	Perma-plug	251'	415'	Yes
TT-116	Could not locate drill hole.			
TT-117	Cap slipped down drill hole.			Yes
TT-118	Perma-plug	225'	>475'	Yes
TT-119	Cap was too deep to breach.			Yes
TT-120	Cap was too deep to breach.			Yes
TT-121	Perma-plug	172'	243'	Yes
TT-122	Perma-plug	Dry		Yes
TT-123	Perma-plug	Dry		Yes
TT-124	Cap was too deep to breach.			Yes
TT-125	Perma-plug	178'	251'	Yes
TT-126	Perma-plug	179'	382'	Yes
TT-127	Perma-plug	176'	228'	Yes
TT-128	Cap was too deep to breach.			Yes
TT-129	Perma-plug	176'	197'	Yes
TT-130	Perma-plug	Dry		Yes
TT-131	Perma-plug	180'	218'	Yes
TT-132	Perma-plug	184'	203'	Yes
TT-133	Perma-plug	183'	191'	Yes
TT-134	Cap slipped down drill hole.			Yes

Hole ID	Orinigal Cap	Depth To Water	Depth To Mud	Recapped w/concrete
TT-135	Perma-plug	Dry		Yes
TT-136	Perma-plug	187'	394'	Yes
TT-137	Cap was too deep to breach.			Yes
TT-138	Perma-plug	Dry		Yes
TT-139	Cap was too deep to breach.			Yes
TT-140	Cap was too deep to breach.			Yes
TT-141	Could not locate drill hole.			
TT-142	Perma-plug	184'	243'	Yes
TT-143	Perma-plug	185'	204'	Yes
TT-144	Perma-plug	Dry		Yes
TT-145	Open Hole	Dry		Yes
TT-146	Perma-plug	191'	207'	Yes
TT-147	Perma-plug	195'	236'	Yes
TT-148	Perma-plug	195'	236'	Yes
TT-149	Perma-plug	193'	239'	Yes
TT-150	Perma-plug	176'	249'	Yes
TT-151	Perma-plug	179'	294'	Yes
TT-152	Perma-plug	179'	236'	Yes
TT-153	Perma-plug	175'	210'	Yes
TT-154	Cap slipped down drill hole.			Yes
TT-155	Perma-plug	179'	272'	Yes
TT-156	Perma-plug	195'	396'	Yes

Hole ID	Orinigal Cap	Depth To Water	Depth To Mud	Recapped w/concrete
TE-1	Open Hole	Dry		Yes
TE-2	Octoplug	188'	191'	Yes
TE-3	Cap was too deep to breach.			Yes
TE-4	Octoplug	205'	401'	Yes
TE-5	Sage Brush	Dry		Yes
TE-6	Octoplug	Dry		Yes
TE-7	Octoplug	Dry		Yes
TE-8	Octoplug	Dry		Yes
TE-9	Octoplug	210'	276'	Yes
TE-10	Octoplug	210'	221'	Yes
TE-11	Octoplug	Dry		Yes
TE-12	Octoplug	215'	227'	Yes
TE-13	Could not locate drill hole.			
TE-14	Octoplug	296'	395'	Yes
TE-15	Octoplug	Dry		Yes
TE-16	Could not locate drill hole.			
TE-17	Cap was too deep to breach.			Yes
TE-18	Open Hole	Dry		Yes
TE-19	Octoplug	Dry		Yes
TE-20	Octoplug	Dry		Yes
TE-21	Octoplug	207'	238'	Yes
TE-22	Octoplug	215'	235'	Yes
TE-23	Octoplug	210'	228'	Yes
TE-25	Octoplug	Dry		Yes
TE-26	Octoplug	221'	225'	Yes
TE-27	Could not locate drill hole.			
TE-28	Octoplug	224'	444'	Yes
TE-29	Open Hole	Dry		Yes
TE-30	Octoplug	Dry		Yes
TE-31	Could not locate drill hole.			
TE-32	Could not locate drill hole.			
TE-33	Cap slipped down drill hole			Yes
TE-34	Octoplug	223'	228'	Yes

Hole ID	Orinigal Cap	Depth To Water	Depth To Mud	Recapped w/concrete
TE-35	Octoplug	223'	235'	Yes
TE-36	Octoplug	Dry		Yes
TE-37	Octoplug	219'	277'	Yes
TE-39	No Cap	216'	220'	Yes
TE-40	Could not locate drill hole.			
TE-41	Could not locate drill hole.			
TE-42	Perma-plug	219'	228'	Yes
TE-43	Perma-plug	218'	226'	Yes
TE-44	Cap slipped down drill hole.			
TE-45	Octoplug	211'	221'	Yes
TE-46	No Cap	Dry		Yes
TE-47	Octoplug	204'	248'	Yes
TE-48	No Cap	212'	225'	Yes
TE-49	Could not locate drill hole.			
TE-50	Octoplug	209'	234'	Yes
TE-51	Octoplug	Obstruction in hole @ about 100'		Yes
TE-52	Octoplug	209'	247'	Yes
TE-53	Octoplug	210'	238'	Yes
TE-54	Could not locate drill hole.			
TE-55	Could not locatd drill hole.			
TE-56	Open Hole	203'	230'	Yes
TE-57	Octoplug	210'	235'	Yes
TE-58	Could not locate drill hole.			
TE-59	Could not locate drill hole.			
TE-60	Could not locate drill hole.			
TE-61	Octoplug	209'	225'	Yes
TE-62	Could not locate drill hole.			
TE-63	Octoplug	Dry		Yes
TE-64	Open Hole	195'	224'	Yes
TE-65	Octoplug	Dry		Yes
TE-66	Octoplug	Dry		Yes
TE-67	Octoplug	191'	389'	Yes
TE-68	Could not locate drill hole.			
TE-69	Octoplug	191'	209'	Yes

Hole ID	Orinigal Cap	Depth To Water	Depth To Mud	Recapped w/concrete
TE-70	Octoplug	189'	252'	Yes
TE-71	Octoplug	Dry		Yes
TE-72	Octoplug	192'	211'	Yes
TE-73	Octoplug	Dry		Yes
TE-74	Octoplug	227'	249'	Yes
TE-75	Octoplug	229'	270'	Yes
TE-76	Octoplug	211'	248'	Yes
TE-77	Open Hole	Dry		Yes
TE-78	Octoplug	Dry		Yes
TE-79	Open Hole	214'	308'	Yes
TE-80	Octoplug	Dry		Yes
TE-81	Octoplug	?	250'	Yes
TE-82	Octoplug	212'	253'	Yes
TE-83	Octoplug	207'	326'	Yes
TE-84	Octoplug	212'	241'	Yes
TE-85	Could not locate drill hole.			
TE-86	Open Hole	223'	275'	Yes
TE-87	Octoplug	233'	238'	Yes
TE-88	Octoplug	216'	219'	Yes
TE-89	Octoplug	194'	230'	Yes
TE-90	Perma-plug	209'	243'	Yes
TE-91	Cap was too deep to breach.			Yes
TE-92	Perma-plug	204'	252'	Yes
TE-93	Perma-plug	205'	225'	Yes
TE-94	Perma-plug	205'	227'	Yes
TE-95	Could not locate drill hole.			
TE-96	Perma-plug	203'	207'	Yes
TE-97	Cap slipped down drill hole.			
TE-101	Perma-plug	195'	199'	Yes

Hole ID	Orinigal Cap	Depth To Water	Depth To Mud	Recapped w/concrete
TGC-1-15	Could not locate drill hole.			
TGC-2-15	Could not locate drill hole.			
TG-3-15	Could not locate drill hole.			
TG-4-15	Perma-plug	104'	200'	Yes
TG-5-15	Perma-plug	90'	233'	Yes
TG-6-15	Perma-plug	94'	229'	Yes
TG-7-15	Perma-plug	99'	115'	Yes
TG-8-15	Open Hole	113'	200'	Yes
TG-9-15	Perma-plug	92'	245'	Yes
TG-10-15	Perma-plug	97'	225'	Yes
TG-11-15	Perma-plug	100'	231'	Yes
TG-1-17	Perma-plug	160'	238'	Yes
TG-3-17	Perma-plug	155'	160'	Yes
TG-5-17	Perma-plug	151'	368'	Yes
TG-6-17	Perma-plug	166'	395'	Yes
TG-7-17	Perma-plug	157'	239'	Yes
TG-8-17	Cap slipped down drill hole.			
TG-9-17	Perma-plug	151'	163'	Yes
TG-10-17	Perma-plug	153'	313'	Yes
TG-11-17	Perma-plug	159'	186'	Yes
TG-12-17	Perma-plug	152'	154'	Yes
TG-13-17	Perma-plug	158'	288'	Yes
TG-15-17	Perma-plug	167'	341'	Yes
TG-16-17	Perma-plug	167'	241'	Yes
TG-17-17	Perma-plug	160'	205'	Yes
TG-18-71	Perma-plug	167'	190'	Yes
TG-19-17	Perma-plug	156'	203'	Yes
TG-20-17	Perma-plug	161'	294'	Yes
TG-21-17	Perma-plug	163'	357'	Yes
TG-22-17	Perma-plug	171'	248'	Yes
TG-23-17	Perma-plug	155'	186'	Yes
TG-24-17	Perma-plug	157'	201'	Yes

Hole ID	Orinigal Cap	Depth To Water	Depth To Mud	Recapped w/concrete
TG-25-17	Perma-plug	159'	221'	Yes
TG-26-17	Perma-plug	158'	166'	Yes
TG-27-17	Perma-plug	163'	271'	Yes
TG-28-17	Perma-plug	162'	225'	Yes
TG-29-17	Perma-plug	161'	238'	Yes
TG-30-17	Perma-plug	168'	243'	Yes
TG-32-17	Perma-plug	160'	196'	Yes
TG-33-17	Perma-plug	161'	200'	Yes
TG-34-17	Perma-plug	158'	275'	Yes
TG-35-17	Perma-plug	152'	333'	Yes
TG-36-17	Cap was too deep to breach.			Yes
TG-37-17	Perma-plug	161'	317'	Yes
TG-38-17	Perma-plug	151'	176'	Yes
TG-39-17	Cap was too deep to breach.			Yes
TG-40-17	Cap was too deep to breach.			Yes
TG-41-17	Cap was too deep to breach.			Yes
TG-42-17	Cap was too deep to breach.			Yes
TG-43-17	Perma-plug	161'	438'	Yes
TG-44-17	Perma-plug	166'	286'	Yes
TG-45-17	Cap was too deep to breach.			Yes
TG-46-17	Cap slipped down drill hole.			Yes
TG-47-17	Cap was too deep to breach.			Yes
TG-48-17	Cap was too deep to breach.			Yes
TG-49-17	Perma-plug	151'	159'	Yes
TG-50-17	Cap was too deep to breach.			Yes
TG-51-17	Concrete cap. Did not remove.			
TG-52-17	Concrete cap. Did not remove.			
TG-1-18	Perma-plug	151'	156'	Yes
TG-2-18	Perma-plug	156'	242'	Yes
TG-3-18	Cap was too deep to breach.			Yes
TG-4-18	Perma-plug	164'	176'	Yes
TG-5-84	Perma-plug	159'	168'	Yes
TG-6-18	Perma-plug	166'	306'	Yes

Hole ID	Orinigal Cap	Depth To Water	Depth To Mud	Recapped w/concrete
TG-7-18	Perma-plug	167'	224'	Yes
TG-8-18	Perma-plug	157'	341'	Yes
TG-9-18	Could not locate drill hole.			
TG-10-18	Perma-plug	166'	298'	Yes
TG-11-18	Could not locate drill hole.			
TG-12-18	Perma-plug	173'	206'	Yes
TG-13-18	Perma-plug	154'	379'	Yes
TG-14-18	Could not locate drill hole.			
TG-15-18	Perma-plug	156'	238'	Yes
TG-16-18	Cap slipped down dill hole.			
TGC-17-18	Cap was too deep to breach.			Yes
TGC-18-18	Perma-plug	155'	369'	Yes
TGC-19-18	Perma-plug	155'	389'	Yes
TG-20-18	Cap was too deep to breach.			Yes
TGC-20-18	Cap was too deep to breach.			Yes
TG-21-18	Cap was too deep to breach.			Yes
TGC-21-18	Cap slipped down drill hole.			Yes
TG-22-18	Cap was too deep to breach.			Yes
TG-23-18	No Cap.	Dry		Yes
TG-24-18	Cap was too deep to breach.			Yes
TG-25-18	Cap was too deep to breach.			Yes
TG-27-18	No Cap.	Dry		Yes
TG-1-19	Perma-plug	145'	223'	Yes
TGC-1-19	Perma-plug	154'	180'	Yes
TGC-1A-60-19	Angle hole. Could not probe.			Yes
TGC-1A-45-19	Angle hole. Could not probe.			Yes
TG-2-19	Perma-plug	143'	144'	Yes
TGC-2-19	Could not breach cap.			Yes
TG-3-19	Perma-plug	129'	139'	Yes
TG-4-19	Perma-plug	138'	>450'	Yes
TG-5-19	Perma-plug(open)	145'	215'	Yes
TG-6-19	Cap was too deep to breach.			Yes
TG-7-19	Cap slipped down drill hole.			Yes

Hole ID	Orinigal Cap	Depth To Water	Depth To Mud	Recapped w/concrete
TG-8-19	Cap failed at surface. Could not probe.			Yes
TG-9-19	Perma-plug(open)	158'	>450'	Yes
TG-10-19	Perma-plug	154'	283'	Yes
TG-11-19	Perma-plug	Dry		Yes
TG-12-19	Perma-plug	160'	331'	Yes
TG-13-19	Cap slipped down drill hole.			Yes
TG-14-19	Perma-plug	159'	175'	Yes
TG-15-19	Cap was too deep to breach.			Yes
TG-16-19	Could not locate drill hole.			
TG-17-19	Cap was too deep to breach.			Yes
TG-18-19	Cap failed at surface. Could not probe.			Yes
TG-19-19	Cap was too deep to breach.			Yes
TG-20-19	Cap was too deep to breach.			Yes
TG-21-19	Cap slipped down drill hole.			Yes
TG-22-19	Cap was too deep to breach.			Yes
TG-23-19	Cap was too deep to breach.			Yes
TG-24-19	Cap was too deep to breach.			Yes
TG-25-19	Cap was too deep to breach.			Yes
TG-1A-75-19	Angle hole. Could not probe.			Yes
TG-1A-60-19	Angle hole. Could not probe.			Yes
TG-1-21	Perma-plug	144'	316'	Yes
TG-2-21	Perma-plug	142'	366'	Yes
TG-3-21	Cap was too deep to breach.			Yes
TG-4-21	Perma-plug	118'	414'	Yes
TG-5-21	Cap was too deep to breach.			Yes
TG-6-21	Perma-plug	129'	142'	Yes
TG-7-21	Perma-plug	132'	296'	Yes
TG-8-21	Cap slipped down drill hole.			Yes
TG-9-21	Perma-plug	116'	159'	Yes
TG-10-21	Cap was too deep to breach.			Yes
TG-11-21	Perma-plug	124'	282'	Yes
TG-12-21	Perma-plug	131'	279'	Yes
TG-13-21	Perma-plug	121'	421'	Yes
TG-14-21	Perma-plug	128'	259'	Yes

Hole ID	Orinigal Cap	Depth To Water	Depth To Mud	Recapped w/concrete
TG-14-21	Could not locate drill hole.			
TG-15-21	Perma-plug	128'	429'	Yes
TG-17-21	Perma-plug	129'	145'	Yes
TG-18-21	Perma-plug	121'	166'	Yes
TG-19-21	Perma-plug	133'	291'	Yes
TG-20-21	Cap slipped down drill hole.			Yes
TG-21-21	Perma-plug	109'	319'	Yes
TG-22-21	Perma-plug	115'	116'	Yes
TG-23-21	Cap slipped down drill hole.			Yes
TG-24-21	Cap was too deep to breach.			Yes
TG-25-21	Perma-plug	100'	312'	Yes
TG-26-21	Open	Dry		Yes
TG-28-21	Perma-plug	127'	131'	Yes
TG-29-21	Perma-plug	115'	308'	Yes
TG-30-21	Cap slipped down drill hole.			Yes
TG-31-21	Sage Brush	110'	113'	Yes
No ID	Drill site, but could not locate drill hole.			
TG-32-21	Perma-Plug	Dry		Yes
TG-33-21	Sage Brush	Dry		Yes
TG-34-21	Perma-plug	88'	117'	Yes
TG-35-21	Perma-plug	80'	115'	Yes
TG-36-21	Could not locate drill hole.			
TG-37-21	Cap was too deep to breach.			Yes
TG-38-21	Cap slipped down drill hole.			Yes
TG-39-21	Perma-plug	88'	202'	Yes
TG-40-21	Perma-plug	86'	93'	Yes
TG-41-21	Cap was too deep to breach.			Yes
TG-42-21	Perma-plug	112'	345'	Yes
TG-44-21	Concrete cap. Did not remove.			
TG-45-21	Concrete cap. Did not remove.			
TG-46-21	Could not locate drill hole.			
TG-47-21	Concrete cap. Did not remove.			
TG-48-21	Cap was too deep to breach.			Yes
TG-49-21	Could not locate drill hole.			

Hole ID	Orinigal Cap	Depth To Water	Depth To Mud	Recapped w/concrete
TG-50-21	Concrete cap. Did not remove.			
TG-51-21	Concrete cap. Did not remove.			
TG-3-21(?)	Sage Brush	98'	218'	Yes
TGC-27-21	Could not locate drill hole.			
TGC-16-21	Could not locate drill hole.			
TG-1-22	Could not locate drill hole.			
TG-2-22	Perma-plug	97'	279'	Yes
TG-3-22	Perma-plug	98'	284'	Yes

TOTAL NUMBER OF HOLES INSPECTED:	427	100%
TOTAL NUMBER OF HOLES CAPPED:	371	87%
NUMBER OF DRY HOLES:	72	17%
NUMBER OF WET HOLES:	213	50%
NUMBER OF UNPROBED HOLES:	142	33%

/av

APPENDIX B

RESEALED DRILL HOLES

Hole Number	Location
TT-5	SW1/4, NW1/4, Sec. 19, T25N, R92W
TT-11	SW1/4, SE1/4, Sec. 7, T25N, R92W
TT-52	SE1/4, NE1/4, Sec. 24, T25N, R93W
TT-91	SW1/4, SE1/4, Sec. 7, T25N, R92W
TT-92	SE1/4, SW1/4, Sec. 7, T25N, R92W
TT-93	NW1/4, NE1/4, Sec. 18, T25N, R92W
TT-115	NW1/4, NE1/4, Sec. 13, T25N, R93W
TT-118	NE1/4, NW1/4, Sec. 18, T25N, R92W
TT-126	SW1/4, NW1/4, Sec. 19, T25N, R92W
TT-136	SW1/4, NE1/4, Sec. 24, T25N, R93W
TT-156	SW1/4, NE1/4, Sec. 24, T25N, R93W
TE-4	NW1/4, NE1/4, Sec. 24, T25N, R93W
TE-14	NW1/4, NW1/4, Sec. 23, T25N, R93W
TE-28	NE1/4, NW1/4, Sec. 24, T25N, R93W
TE-67	SW1/4, NE1/4, Sec. 24, T25N, R93W
TG-5-17	SW1/4, SW1/4, Sec. 17, T25N, R92W
TG-6-17	SW1/4, SW1/4, Sec. 17, T25N, R92W
TG-21-17	SE1/4, SW1/4, Sec. 17, T25N, R92W
TG-43-17	SW1/4, SW1/4, Sec. 17, T25N, R92W
TG-13-18	SE1/4, SE1/4, Sec. 18, T25N, R92W
TGC-18-18	SE1/4, SE1/4, Sec. 18, T25N, R92W
TG-4-19	SE1/4, NE1/4, Sec. 19, T25N, R92W
TG-9-19	NE1/4, NE1/4, Sec. 19, T25N, R92W
TG-2-21	NW1/4, NW1/4, Sec. 21, T25N, R92W
TG-4-21	NE1/4, NW1/4, Sec. 21, T25N, R92W
TG-13-21	NE1/4, NW1/4, Sec. 21, T25N, R92W
TG-15-21	NW1/4, NE1/4, Sec. 21, T25N, R92W

January 15, 2007

Melissa L. Bautz
Senior Environmental Analyst
State of Wyoming
Department of Environmental Quality
Land Quality Division
510 Meadowview Drive
Lander, WY 82520

RE: Drilling Notification No. 334DN Amendment, NFU Wyoming, LLC

Dear Ms. Bautz,

NFU Wyoming, LLC, an affiliate of Ur-Energy USA, has completed the installation of 17 new monitoring wells within the Lost Creek Project area, T25N, R92 and 93W, Sweetwater County, Wyoming. These water wells were also permitted through the State Engineer's Office.

During the 2006 field activities, a total of 19 historic exploration holes near our new wells were found to be open. This includes seven holes drilled in 2005 by NFU Wyoming in which the plug gel did not sufficiently stabilize. These holes were reamed out, plugged with grout, and capped with 25 feet of cement to assure the quality and integrity of our hydrological testing results. This plugging method was approved by the WDEQ for use by NFU Wyoming in 2006. This part of the project constituted over 11,600 feet of reaming and plugging at an additional cost to NFU Wyoming of $30,000.

For reclamation, each well and historic drilling site was then recontoured, the stockpiled topsoil was replaced, and the site was reseeded. A detailed, site-specific vegetation survey conducted by Keammerer Ecological Consultants, Inc. in 2006 indicated that the vegetation types growing on the site are slightly different than the standard BLM recommended seed mix. The new mix and the seeding proportions are indicated on the completion reports. With the permission of both the WDEQ and the BLM, this new seed mix was used at each disturbed site in order to promote re-vegetation similar to the existing conditions.

Per the Reporting Requirements, Section 8, Form 9DN, "Department of Environmental Quality, Land Notification of Intent to Explore for Noncoal Minerals by Drilling", we are

attaching the following lists of information in duplicate to your office and the State Engineer's office with a copy to the U.S. BLM office in Rawlins.

1. A tabulation of the monitoring wells and historic plugged holes, including quadrangle location, northing and easting coordinates, elevation, total depth/depth plugged, date completed/plugged, land ownership, disturbance, reclamation, seed mix, seeding method, and seeding date.
2. A tabulation of the wells by ¼, ¼ Section, Township, and Range
3. A map on USGS quadrangle format showing the location of the wells and an outline of the general area of the exploration activities.

If you need any additional information, please do not hesitate to contact either myself of Dawn Schippe at 720-981-4588.

Sincerely,

Harold A. Backer
VP US Operations

Cc: State Engineer's Office
Mark Newman, U.S. BLM

2006 Drilling Program WDEQ Completion Report
NFU Wyoming, LLC - Lost Creek Project - Sweetwater County
Drilling Notification Number #334DN

Operator: NFU Wyoming, LLC
Operator Address: 10758 W. Centennial Road, Suite 200, Littleton, CO 80127
Drilling Notification Number: 334DN

Hole ID	WY State Engineer Permit Number	USGS 7.5 Minute Quad	WY State Plane, NAD 27 West Central Zone N	WY State Plane, NAD 27 West Central Zone E	Pilot Hole TD	Date Completed	Capping Method	Plugging Method	Ownership	Disturbance	Reclamation	Seed Mix (Approved by WDEQ and BLM)	Seed Method	Seeding
LC15M	U.W. 175260	Osbourne Well	534,823	744,546	350	9/13/2006	Monitoring Well was installed and is operational. 4 1/2" diameter PVC well, protruding approximately 2' out of ground with 1/2, 3/4, or 1 hp pump installed. Entire assembly protected by locking well cover anchored below ground surface.	Monitoring Well is operational. Schedule 40 PVC pipe anchored in ground by cement (except LC29, 30, and 31M which are gravel packed to 20' below surface, above is 15' bentonite chips, with 5' soil on top), 7 7/8" diameter drilled hole.	US Department of the Interior US BLM	15' x 25' Disturbance, all drilled from same pad	Stockpiled topsoil and replaced after completion of drilling and recontouring of site	Total 19.5 lb/acre: Thickspike wheatgrass 4 lb/acre; Western wheatgrass 2 lb/acre; Indian ricegrass 2 lb/acre; Prairie sandreed 2 lb/acre; Great Basin wildrye 2 lb/acre; Big sagebrush 1 lb/acre; Rubber rabbitbrush 1 lb/acre; Winterfat (Ceratoides lanata) 1.5 lb/acre; Slender wheatgrass (Agropyron trachycaulum) 2.5 lb/acre; Sandberg Bluegrass (Poa secunda) 1.5 lb/acre	Seed spread with Kubota tractors and Truax no-till seed drills; fertilizer will be spread in Spring 2007	12/22/2006
LC16M	U.W. 175260	Osbourne Well	534,820	744,562	472	9/13/2006	Same as Above	Same as Above	Same as Above		Same as Above	Same as Above	Same as Above	12/22/2006
LC17M	U.W. 175260	Osbourne Well	534,840	744,562	575	9/13/2006	Same as Above	Same as Above	Same as Above		Same as Above	Same as Above	Same as Above	12/22/2006
LC29M	U.W. 175260	Osbourne Well	534,837	744,547	171	9/21/2006	Same as Above	Same as Above	Same as Above		Same as Above	Same as Above	Same as Above	12/22/2006
LC18M	U.W. 175261	Osbourne Well	535,318	743,362	350	9/21/2006	Same as Above	Same as Above	Same as Above	15' x 25'	Same as Above	Same as Above	Same as Above	12/21/2006
LC19M	U.W. 175261	Osbourne Well	535,317	743,378	463	9/21/2006	Same as Above	Same as Above	Same as Above	Disturbance, all	Same as Above	Same as Above	Same as Above	12/21/2006
LC20M	U.W. 175261	Osbourne Well	535,332	743,377	543	9/22/2006	Same as Above	Same as Above	Same as Above	drilled from	Same as Above	Same as Above	Same as Above	12/21/2006
LC21M	U.W. 175262	Antelope Reservoir	532,850	736,277	410	9/21/2006	Same as Above	Same as Above	Same as Above	15' x 25'	Same as Above	Same as Above	Same as Above	12/21/2006
LC22M	U.W. 175262	Antelope Reservoir	532,850	736,292	592	9/22/2006	Same as Above	Same as Above	Same as Above	Disturbance, all	Same as Above	Same as Above	Same as Above	12/21/2006
LC23M	U.W. 175262	Antelope Reservoir	532,835	736,292	634	9/22/2006	Same as Above	Same as Above	Same as Above	drilled from	Same as Above	Same as Above	Same as Above	12/21/2006
LC30M	U.W. 175262	Antelope Reservoir	532,836	736,276	236	9/21/2006	Same as Above	Same as Above	Same as Above	same pad	Same as Above	Same as Above	Same as Above	12/21/2006
LC24M	U.W. 175263	Osbourne Well	535,203	744,580	542	9/22/2006	Same as Above	Same as Above	Same as Above	15' x 25'	Same as Above	Same as Above	Same as Above	12/22/2006
LC25M	U.W. 175264	Osbourne Well	534,621	743,406	380	9/22/2006	Same as Above	Same as Above	Same as Above	Same as Above	Same as Above	Same as Above	Same as Above	12/21/2006
LC26M	U.W. 175265	Osbourne Well	534,832	748,203	436	9/22/2006	Same as Above	Same as Above	Same as Above	Same as Above	Same as Above	Same as Above	Same as Above	12/22/2006
LC27M	U.W. 175266	Osbourne Well	539,018	753,260	477	9/27/2006	Same as Above	Same as Above	State	Same as Above	Same as Above	Same as Above	Same as Above	12/22/2006
LC28M	U.W. 175267	Battle Springs	524,437	733,364	563	9/22/2006	Same as Above	Same as Above	US DOI BLM	Same as Above	Same as Above	Same as Above	Same as Above	12/21/2006
LC31M	U.W. 175268	Battle Springs	524,434	733,380	191	9/22/2006	Same as Above	Same as Above	Same as Above	Same as Above	Same as Above	Same as Above	Same as Above	12/22/2006

Maintaining all completed water wells under State Engineer Permits listed above