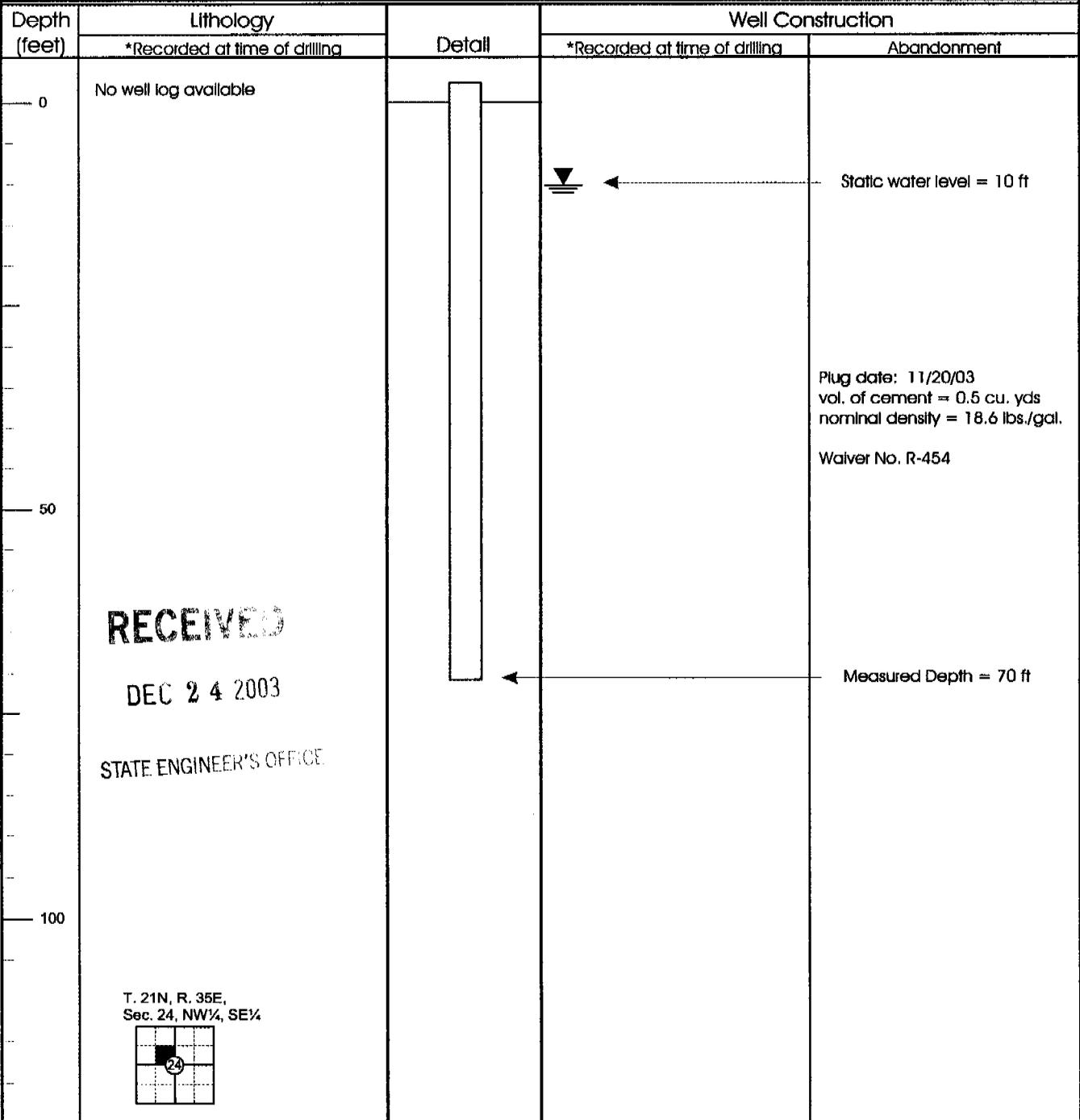


	<b>Lahontan GeoScience, Inc.</b>  <b>Well Abandonment Log</b>	Project: <b>Water Well Closures                  in Dixie Valley</b>	Project No.: <b>NASF: 03140</b> Sheet <b>1</b> of <b>1</b>
		Contract No: lic <b>49162</b>	Boring No.: <b>081E</b>

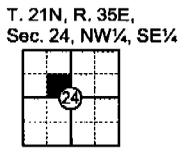
Location (TRS): <b>T. 21N, R. 35E, Sec. 24, NW¼, SE¼</b>	Location (Lat/Lon): <b>39° 41.224' N, 118° 5.370' W</b>	Elevation: <b>3410 ft</b>
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Permit No.: <b>none</b>	Well Log: <b>none</b>	Measured Depth: <b>70 ft</b>	Perf. Date: <b>-</b>
Borehole Dia.: <b>unknown</b>	Casing Size: <b>4", steel</b>	Measured Casing Size: <b>4", steel</b>	Plug Date: <b>11/20/03</b>
Borehole Depth: <b>unknown</b>	Casing Depth: <b>unknown</b>	Static Water Level: <b>10 ft</b>	Supervised by: <b>J. R. Humphrey</b>
Perforations at time of construction: <b>unknown</b>		Additional Perforations: <b>None</b>	Driller: <b>W. E. Knoblock</b>

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placed in the well. The amount of grout used was 146 percent of the cylindrical well volume.

#### **Well 81D**

Well 81D was located in SE¼, NW¼, section 24, T21N, R35E. A search of the records archived at the Carson City office of DWR failed to identify a log that could be confidently associated with this well. This well was probably used as a domestic supply. The 3-inch diameter steel casing was measured to a depth of 135 feet bgs. The well contained a 2-inch diameter inner liner of unknown depth. At the time of abandonment the well was flowing at a rate of about 5 gpm. A temporary plug was installed on the well to control the flow prior to closure. After installation it was noted that water was flowing outside the casing to the surface, indicating a casing break at depth. The placement of the inner liner could have been an attempt to repair a break in the 3-inch casing.

The presence of the inner liner precluded an attempt to pull the casing. The small diameter of the well precluded the use of the mills knife to perforate the casing. A waiver from NAC 534.420-5(b) was requested from DWR to allow sealing in place. Waiver number R-454 was received on November 12, 2003, approving this approach.

The well was abandoned on November 20, 2003, by placing 135 feet of 1-inch diameter poly pipe in the well and pumping neat cement grout to the land surface. Approximately 2 cubic yards of grout weighing about 18 lbs/gal were placed in the well. As the level of the grout approached 10 feet bgs it was observed flowing outside the casing, confirming the approximate location of the break. The amount of grout used was 1833 percent of the cylindrical well volume, indicating that the grout thoroughly permeated the formation around the well. Subsequent to grouting the well the casing was cut down to land surface.

#### **Well 81E**

Well 81E was located in SE¼, NW¼, section 24, T21N, R35E. A search of the records archived at the Carson City office of DWR failed to identify a log that could be confidently associated with this well. This well was probably used for pasture irrigation. The 4-inch diameter steel casing was measured to a depth of 70 feet bgs. At the time of abandonment the static water level was at 10 feet bgs although it was apparent that the well was flowing at the surface recently.

Obstructions, debris, and/or foreign materials were found in this well. Compressed air and a jetting tool were used to clear the casing down to 70 feet bgs. Sand, gravel, decaying wood, and other unidentified material were ejected from the hole. The exposed section of the casing was deteriorating and an attempt to pull the casing caused the upper portion to deform. The small diameter of the well precluded the use of the mills knife to perforate the casing. A waiver from NAC 534.420-5(b) was requested from DWR to allow sealing in

place. Waiver number R-454 was received on November 12, 2003, approving this approach.

The well was abandoned on November 20, 2003, by placing 63 feet of 2-inch diameter steel pipe in the hole and pumping neat cement grout to the land surface. Approximately 0.5 cubic yards of grout weighing about 18 lbs/gal were placed in the well. The amount of grout used was 221 percent of the cylindrical well volume, indicating that the grout permeated the surrounding formation through existing perforations and/or casing breaks. Subsequent to grouting the well the casing was cut down to 1 foot below land surface.

#### **Well 81F**

Well 81F was located in SE $\frac{1}{4}$ , SW $\frac{1}{4}$ , section 18, T21N, R35E. A search of the records archived at the Carson City office of DWR failed to identify a log that could be confidently associated with this well. This well was probably used for crop irrigation. The 12-inch diameter steel casing was measured to a depth of 120 feet bgs. At the time of abandonment the static water level was at the surface although it was apparent that the well had been flowing at the surface recently.

A 6-inch diameter turbine pump was installed in the well at the time of abandonment. As the pump column was being removed it parted at a slip joint at 40 feet bgs. The driller was not able to securely grasp the remaining string to lift it from the casing. Compressed air and a jetting tool were used to clear the casing of sand and gravel around the column. Seven hours of jetting in the casing over 2 days did not free the remaining pipe. As soon as the jetting operation was halted the well would start to sand in. With the pump column remaining in the hole the perforation tool could only operate in the upper 40 feet. This section of the well was perforated on October 28, 2003 by making 6 cuts per vertical foot. A waiver from NAC 534.420-5(b) was requested from DWR to allow sealing after perforating the upper 40 feet. Waiver number R-453 was received on October 30, 2003, approving this approach.

The well was abandoned on November 5, 2003, by placing 107 feet of 2-inch diameter steel pipe in the hole and pumping neat cement grout to the land surface. Approximately 4 cubic yards of grout weighing about 18 lbs/gal were placed in the well. The amount of grout used was 115 percent of the cylindrical well volume. Subsequent to grouting the well the casing was cut down to 1 foot below land surface.

#### **Well 94B**

Well 94B was located in SW $\frac{1}{4}$ , NW $\frac{1}{4}$ , section 24, T21N, R35E. A search of the records archived at the Carson City office of DWR failed to identify a log that could be confidently associated with this well. The prior use of this well is not clear. The casing top had a compression fitting on it that is not a normal feature of a water supply well. The 6-inch diameter steel casing was measured to a