

101874



Lahontan GeoScience, Inc.

Well Abandonment Log

Project:  
Water Well Closures at  
Dixie Valley EWR

Project No.:  
NASF: 05190

Sheet 1 of 1

Contract No.:  
N68711-05-P-7614

Boring No.:  
007C



Location (TRS):  
T. 21N, R. 34E, Sec. 1, SW<sup>SE</sup>/<sub>4</sub>, SE<sup>SW</sup>/<sub>4</sub>

Location (Lat/Lon):  
39.70868° N, 118.11063° W

Elevation:  
3393 ft

Permit No.:  
None

Well Log:  
None

Measured Depth:  
174 ft

Perf. Date:  
11-09-05

Borehole Dia.:  
unknown

Casing Size:  
unknown

Measured Casing Size:  
4 in., PVC

Plug Date:  
11-09-05

Borehole Depth:  
unknown

Casing Depth:  
unknown

Static Water Level:  
Flowing

Supervised by:  
J. R. Humphrey

Perforations at time of construction:  
unknown

Additional Perforations:  
17 - 174 ft

Driller:  
W. E. Knoblock

Depth (feet)	Lithology	Detail	Well Construction	
	*Recorded at time of drilling		*Recorded at time of drilling	Abandonment
0	No well log available			Flowing at the time of closure
50				Casing separated at 17 ft
100			Additional perforations: Casing split from 174 to 17 ft	
150			plug date: 11-09-05 vol. of cement = 2 cu. yds nominal density = 18.5 lbs./gal.	
200			Measured Depth = 174 ft	

T. 21N, R. 34E,  
Sec. 1, SW<sup>SE</sup>/<sub>4</sub>, SE<sup>SW</sup>/<sub>4</sub>





Lahontan GeoScience, Inc.  
1105 Terminal Way  
Suite 202  
Reno, Nevada 89502-2162  
775-828-0111 (voice)  
775-847-7266 (fax)

RECEIVED  
2006 JAN 20 AM 10:39  
STATE ENGINEERING OFFICE

January 18, 2006

Mr. Tom Gallagher  
Nevada Division of Water Resources  
123 West Nye Lane  
Suite 246  
Carson City, Nevada 89706-0818

Re: Abandonment of 5 wells in Dixie Valley Electronic Warfare Range

Dear Mr. Gallagher,

A letter report summarizing the closure of five water wells located on U.S. Navy land in Dixie Valley, Churchill County, Nevada, was submitted to your office on November 28, 2005. That report incorrectly associated a DWR permit number with well 007C. This well, now abandoned, was never assigned a permit number by DWR. This letter transmits a revised report removing references to the permit number in Table 1 and on the Well Abandonment Log for 007C. These are the only changes to the report. Please replace the old report in your files with the corrected version. I apologize for any inconvenience this may cause your staff.

Regards,

James R. Humphrey  
Project Superintendent  
Lahontan GeoScience, Inc.

cc: Gary Cottle, Environmental Division, NAS Fallon

Attachments: Well Abandonment Descriptions  
Table 1: Well Abandonment Summary (Revised)  
Well Abandonment Logs (5) (Revised)



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RECEIVED

2006 JAN 20 AM 10:39

STATE ENGINEER'S OFFICE

November 28, 2005

Mr. Tom Gallagher  
Nevada Division of Water Resources  
123 West Nye Lane  
Suite 246  
Carson City, Nevada 89706-0818

Re: Abandonment of 5 wells in Dixie Valley Electronic Warfare Range

Dear Mr. Gallagher,

This letter report summarizes the results of the abandonment of 5 water wells located on U.S. Navy land in Dixie Valley, Churchill County, Nevada. Lahontan GeoScience, Inc. (LGS) has been retained by the Navy to close various wells located on the Dixie Valley Electronic Warfare Range. These wells were either illegally established by the previous owners and/or have had their water rights forfeited, requiring abandonment in accordance with Nevada Administrative Code (NAC) 534.420. This letter responds to the requirements of NAC 534.420-8 by providing the locations of the wells (by public land survey and geographic coordinates), the name of the owner of the well (currently the U. S. Navy), the condition of the well, the static water level, and a detailed description of the method of plugging.

The field portion of this project was performed from 7 September to 21 November 2005. Table 1 contains a list of the wells abandoned in this phase along with the locations and the amount of grout used to seal the casing. The Driller was William E. Knoblock (license number ab2213) and the Project Superintendent was James R. Humphrey. A Smeal 5T pump rig with 12,000 lbs pullback capacity was used to remove pumps from the wells, operate the mills knife to perforate casing, and set the 1.5-inch diameter tremie pipe for grouting. Cement grout was prepared on site using a 1-yard cement-mixing trailer. Water was added on site from a local source, using a 5-horsepower (hp) transfer pump and a 4-inch diameter flow meter. Approximately 140 gallons of water was added to each load to achieve a nominal density of 18 pounds per gallon. The density of the grout was checked prior to placement using a mud balance and checked again when the grout reached the top of the casing. A 40-hp grout pump was used to force the neat cement through the tremie pipe. In total 10.8 cubic yards of grout was placed into the wells.



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Attached to this letter is a description of the sealing procedures at each well, accompanied by a well abandonment log. If you have any questions regarding this report please contact the Project Superintendent James R. Humphrey at 775-828-0111.

Regards,

James R. Humphrey  
Project Superintendent  
Lahontan GeoScience, Inc.

William E. Knoblock  
Driller, Lic. No. ab2213  
Lahontan GeoScience, Inc.

Attachments: Well Abandonment Descriptions  
Table 1: Well Abandonment Summary  
Well Abandonment Logs (5)

**Table 1. Well Abandonment Summary**

Well ID (Navy)	Notice of Intent Number	DWR Permit Number	Location		Well Depth (ft)	Casing Diameter (Inches)	Casing Volume (cu yd)	Cement Used (cu yd)	Percent Take
			PLS	Geographic					
007C	56355	None	SE,SW, S1, T21N, R34E	39.70869° N, 118.11063° W	174	4	0.6	4.0	711
31A	56356	None	NW,NW, S9, T21N, R35E	39.70482° N, 118.06054° W	176	4	0.6	1.5	264
39A	56357	None	NW,SW, S10, T21N, R35E	39.69798° N, 118.04198° W	143	4	0.5	1.5	325
48B	56358	None	NW,NW, S21, T21N, R35E	39.67783° N, 118.06166° W	79	8	1.0	1.5	147
63A	56359	None	NW,NE, S17, T21N, R35E	39.69267° N, 118.06850° W	270	6	2.0	2.3	115

## **Well Abandonment Summary**

This summary contains brief descriptions of the abandonment of the 5 wells located in the Dixie Valley Electronic Warfare Range under this phase. This information, along with available data from well logs completed at the time of drilling, is summarized on the Well Abandonment Logs.

### **Well 007C**

Well 007C was located in SE¼, SW¼, section 1, T21N, R34E, on the former Knittle homestead. 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 well was probably used for pasture irrigation. The 4-inch diameter PVC casing was measured to a depth of 174 feet bgs (below ground surface). At the time of abandonment the well was flowing at the surface. The uncontrolled flow created a marsh around the well, inhibiting access. The top of the PVC casing was damaged and a seal could not be installed. A 100-gallon per minute (gpm) water pump was used to lower the water level while a new PVC coupling was glued to the casing. A threaded plug was installed to shut off the flow. The marsh was allowed to dry out for several weeks before abandonment began.

No obstructions, debris, or foreign materials were found in this well. An attempt to pull the well casing caused separation at 17 feet bgs. On 9 November 2005, a mills knife was used to split the casing from 174 feet to 17 feet bgs.

Abandonment started on 9 November 2005, by placing 174 feet of 1.5-inch diameter poly pipe to the bottom of the hole and pumping neat cement grout to the land surface. Approximately 2 cubic yards of grout weighing about 18.5 pounds per gallon (lbs/gal) was placed in the well. Flow from the well stopped after placing the first quarter yard. About 30 minutes after sealing the well flow was reestablished at a position approximately 2 feet from the original borehole. The flow rate increased rapidly, flushing significant quantities of medium-grained sand to the surface. An attempt to insert 1.5-inch diameter steel tremie pipe into the new hole failed. The new hole was allowed to flush and on 21 November 1.5-inch diameter steel pipe was inserted to 174 feet bgs. 2 cubic yards of grout at a density of 18.9 lb/gal was used to seal the aquifer. The amount of grout used to seal the well was 350 percent of the cylindrical well volume.

### **Well 31A**

Well 31A was located in NW¼, NW¼, section 9, 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 well may have been used for domestic water supply. The 4-inch diameter steel casing was measured to a depth of 176 feet bgs. At the time of abandonment the well was leaking through a hose bib installed on the casing.

No obstructions, debris, or foreign materials were found in this well. An attempt to pull the well casing caused separation at 7 feet bgs. On 11 November 2005, a

mills knife was used to cut 2 perforations per foot into the casing from 174 feet to 7 feet bgs.

Abandonment started on 11 November 2005, by placing 176 feet of 1.5-inch diameter steel pipe to the bottom of the hole and pumping neat cement grout to the land surface. Approximately 1.5 cubic yards of grout weighing about 18.9 lbs/gal was placed in the well. The amount of cement used was 264 percent of the cylindrical well volume indicating that sufficient grout had permeated the surrounding formation. Subsequent to sealing the casing was cut to one foot below land surface.

### **Well 39A**

Well 39A was located in NW¼, SW¼, section 10, T21N, R35E. A search of the records archived at the Carson City office of the Division of Water Resources (DWR) failed to identify a log that could be confidently associated with this well. This well was probably used for domestic water supply. The 4-inch diameter steel casing was measured to a depth of 143 feet bgs. The well was completed inside a concrete tub, which was partially demolished to allow access for the pump rig. At the time of abandonment the well was flowing at the surface, creating a large marsh. A temporary plug was installed in the well to stop the flow but an underground diverter pipe rendered this effort largely unsuccessful. Heavy timbers and plywood sheathing were used to provide a stable platform for the rig.

No obstructions, debris, or foreign materials were found in this well. An attempt to pull the casing resulted in the separation of the upper 30 feet. On 11 November 2005, a mills knife was used to cut 2 perforations per foot into the casing from 129 feet to 30 feet bgs.

The well was abandoned on 11 November 2005, by placing 1.5-inch diameter steel pipe to the bottom of the hole and pumping neat cement grout to the land surface. Approximately 1.5 cubic yards of grout weighing about 18.4 lbs/gal was placed in the well. The amount of grout used was 325 percent of the cylindrical well volume, indicating that the grout permeated the surrounding formation through the perforations. Subsequent to grouting the well the casing was cut down to one foot below land surface.

### **Well 48B**

Well 48B was located in NW¼, NW¼, section 21, 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 8-inch diameter steel casing was measured to a depth of 79 feet bgs. At the time of abandonment the well was barely flowing at the surface.

The root system from a nearby salt cedar had grown into the well, almost completely blocking the flow. A tool was fabricated to rip the bulk of the roots

from the casing. An air compressor was used to jet the remaining organic debris from the well. Perforation of the casing was completed on 7 November 2005. The steel casing was very thin and once the mills knife engaged the sidewall it could not be retracted until it reached the surface. Therefore, one continuous rip was cut into the casing from 73 feet to 10 feet bgs. Once the thin-walled casing was split it deformed to the point that the tool could not be reinserted.

The well was abandoned on 10 November 2005, by placing 1.5-inch diameter steel pipe to the bottom of the hole and pumping neat cement grout to the land surface. Approximately 1.5 cubic yards of grout with a density of about 18.6 lbs/gal was placed in the well. The amount of grout used was 147 percent of the cylindrical well volume, indicating that the grout permeated the surrounding formation through the split casing. Subsequent to grouting the well casing was cut down to 1 foot below land surface.

### **Well 63A**

Well 63A was located in NW¼, NE¼, section 17, T21N, R35E. A search of the records archived at the Carson City office of the Division of Water Resources (DWR) failed to identify a log that could be confidently associated with this well. This well may have been used for domestic water supply. The 6-inch diameter steel casing was measured to a depth of 270 feet below bgs. At the time of abandonment the well was leaking through a valve at the surface, creating a marshy area around the site. A PVC cap was used to replace the leaking valve and control the flow.

No obstructions, debris, or foreign materials were found in this well. An attempt to pull the casing failed. On 8 November 2005, a mills knife was used to cut 3 perforations per foot into the casing from 255 feet to 5 feet bgs.

The well was abandoned on 8 November 2005 by placing 270 feet of 1.5-inch diameter steel pipe to the bottom of the hole and pumping neat cement grout to the land surface. Approximately 2.3 cubic yards of grout with a density of 18.1 lbs/gal was 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 one foot below land surface.