WHITE—DIVISION OF WATER RESOURCES
CANARY—CLIENT'S COPY
PINK—WELL DRILLER'S COPY

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DO NOT WRITE ON BACK

STATE OF NEVADA
DIVISION OF WATER RESOURCES

WELL DRILLER'S REPORT

Please complete this form in its entirety in accordance with NRS 534.170 and NAC 534.340

OFFICE USE ONLY
Log No. 83389
Permit No.
Basin 1005

NOTICE OF INTENT NO. 40391

1. OWNER US Army, Hawthorne Army Depot
MAILING ADDRESS 1-5, Maine St
Hawthorne, NV 89415-9401

ADDRESS AT WELL LOCATION

2. LOCATION SE ¼ NE ¼ Sec. 5 T. 8 N/S R. 30 E. Mineral County
PERMIT NO. 40391 (Issued by Water Resources) | Parcel No. 6-300132 | Subdivision Name

3. WORK PERFORMED
☒ New Well ☐ Replace ☐ Recondition
☐ Deepen ☐ Abandon ☐ Other

4. PROPOSED USE
☐ Domestic ☐ Irrigation ☐ Test
☐ Municipal/Industrial ☒ Monitor ☐ Stock

5. WELL TYPE
☐ Cable ☐ Rotary ☐ RVC
☐ Air ☒ Other Auger

6. LITHOLOGIC LOG MW-14

Material	Water Strata	From	To	Thickness
Silty Sand		0	5	5
Silty Sand		5	10	5
Clayey Sand		10	15	5
Gravelly Sand		15	20	5
Bedded Sand		20	25	5
Fine to Med Sand		25	30	5
Fine Sand to Clayey Sand		30	35	5
Bedded Fine Sand		35	40	5
Large Gravel		40	45	5
Clayey Sand & Cobbles		45	50	5
Massive Coarse Sand		50	55	5
Fine to Coarse Sand		55	60	5
Clayey Gravelly Sand		60	65	5
Shalely Clay		65	70	5
Red Fine Sand		70	75	5
Shalely Clay is Sandy Clay		75	80	5
medium sand	✓	80	85	5
Clayey silty Fine Sand		85	90	5
Silty Fine Sand		90	95	5
Clayey silt to coarse sand		95	100	

Date started 1-29, 2001
Date completed 2-06, 2001

7. WELL TEST DATA
TEST METHOD: ☒ Bailer ☐ Pump ☐ Air Lift

	G.P.M.	Draw Down (Feet Below Static)	Time (Hours)
Bailer	1.5	Bailed dry	

8. WELL CONSTRUCTION
Depth Drilled 100 Feet Depth Cased 95' Feet

HOLE DIAMETER (BIT SIZE)

		From	To
8 Inches		0 Feet	100 Feet
10 Inches		0 Feet	95 Feet
Inches		Feet	Feet

CASING SCHEDULE

Size O.D. (Inches)	Weight/Ft. (Pounds)	Wall Thickness (Inches)	From (Feet)	To (Feet)
4½		Sch 40		

Perforations:
Type perforation Mill Slot
Size perforation .020
From 95 feet to 95 feet
From feet to feet
From feet to feet
From feet to feet
From feet to feet

Surface Seal: ☒ Yes ☐ No
Depth of Seal 65
Placement Method: ☒ Pumped ☐ Poured
Seal Type: ☒ Neat Cement ☐ Cement Grout ☐ Concrete Grout
Bentonite Chips 70 to 65
Gravel Packed: ☒ Yes ☐ No
From 70 feet to 95 feet

9. WATER LEVEL
Static water level 54' feet below land surface
Artesian flow G.P.M. P.S.I.
Water temperature °F Quality

10. DRILLER'S CERTIFICATION
This well was drilled under my supervision and the report is true to the best of my knowledge.
Name (Contractor) Water Development Corp.
Address (Contractor) PO Box 141
Zamora CA 95698
Nevada contractor's license number issued by the State Contractor's Board 0012852
Nevada driller's license number issued by the Division of Water Resources, the on-site driller 2111
Signed James Whitley
(By driller performing actual drilling on site or contractor)
Date 3-1-01

(Rev. 3-91) USE ADDITIONAL SHEETS IF NECESSARY (O)-627

TETRA TECH, INC.
FIELD LOG OF BORING

Boring #: MW 14
Sheet 1 of 5

Project Name and Location: Bldg 336 Phase 3 G.W. Invest			TC Number: 11377-02-02
Elevation: ~4000 feet	Date and Time Started: 01/29/01 @ 07:10		Date and Time Completed: 01/29/01 @ 12:15
Completion Depth: 100' bgs	Samples:	Drive:	1-liter: VOA: Other: 4 1½" sleeves
Boring Diameter & Drilling Method: 8" OD HSA Coring	Water Level:	First (date/time):	Second (date/time):
Sample Type: cont. core	Hammer Wt.: Drop:	Boring Location: Concrete Pad @ 102-52	
Drilling Co: Water Dev. Corp	Driller: Jimmy	Geologist: Bob Marvin Tt	

Depth (ft.)	Sample No.	Sample Interval	Recovery	Blow Count	Description	Graphic Symbol	USCS Symbol	Estimated % of Gr	Sa	Si	Cl	P.I.D. Reading	Comments
0	0-8 inches		8"		Concrete (pre-drilled)								
1	8 inch-5 feet		19"		Clayey-silty medium sand. Light tan. Poorly sorted and massive. Weakly indurated.				60	20	20	0	07:30
2													
3													
4	5'-10'		22"		Silty medium sand. Loose to poorly indurated. Graded beds (?) coarse and fine clast layering.				70	20	10	.5	
5													
6	10'-15'		19"		Clayey medium sand first 6 inches of interval, sharp contact with cm scale underlying gravel layer. Silty medium sand for remainder of interval. Poorly indurated to loose. Tan to brown color			5	70	20	5	0	8:00
7													
8													
9													
10													
11	15'-20'		14"		Rounded gravelly sand. Poorly sorted but indistinct bedding exists. Loose to poorly indurated. Light grey to tan with narrow orange oxide coated layers.			20	60	10	10	1.6	
12													
13													
14	20'-25'		22"		Bedded medium sand and coarse sand-gravel layers. well sorted fine sand in last 6 inches of interval. Cm scale silty-clay layers throughout.			5	60	20	15	0	
15													
16													

BORING LOG FORM

Boring #:	MW 14
Sheet	2 of 5

Project Name and Location:

TC Number:

Depth (ft.)	Sample No.	Sample Interval	Recovery	Blow Count	Description	Graphic Symbol	USCS Symbol	Estimated % of Gr	Sa	Si	Cl	P.I.D. Reading	Comments
	25-30		40"		First 20 inches of interval; fine sand with cm scale silty clay interbeds, olive tan color with mm scale orange oxide layers. ~~Medium~~ Last 20 inches of interval medium sand with cm scale very fine sand interbeds. Olive. Interval is weakly indurated.				80	10	10	1.2	
	30-35				Fine sand grading down into clayey fine sand and into massive clay @ 14 inches into interval. Sharp basal contact of clay with underlying poorly sorted gravelly sand, well sorted medium sand @ end of interval. Clay is well indurated, the remainder of interval is loose.			5	50	20	25	1.4	
	35-40		24"		Well bedded fine sand and silty sand layers with magnetite fine layering. Sharp contact @ 16 inches in interval with underlying massive coarse sand. Bedded portion is weakly indurated, coarse sand is loose.				60	20	20	1.1	
	40-45		22"		Chaotic mixture of large, rounded gravel, coarse sand and clayey fine sand. Coarsely bedded			20	40	20	20	0.9	

40-45 continued next page

BORING LOG FORM

Boring #: MW-14
Sheet 3 of 5

Project Name and Location:

TC Number:

Depth (ft.)	Sample No.	Sample Interval	Recovery	Blow Count	Description	Graphic Symbol	USCS Symbol	Estimated % of Gr	Sa	Si	Cl	P.I.D. Reading	Comments
	40-45 (cont)				with gradational contacts. ~~Least~~ Local cm scale beds of well sorted and rounded medium sand. Interval is damp								
	45-50		16"		Clayey sand with fist size cobbles for first 6 inches of interval. Gradational contact with underlying, bedded gravelly sand. Black oxide coating on select ~~bedded~~ beds near center of interval. Fist size cobble jammed in end of core barrel, end interval. Interval is loose. Interval is dry.			30	30	10	20	1.5	
	50-55		23"		Two inches of fine, powdery sand to start interval. Massive coarse sand down to sharp contact with underlying finely bedded silty clay. 5.0 PID reading on silty clay. Interval is loose except for mod. indurated silty clay in last 2 inches of interval. Interval is dry.			5	80	10	5	5.0	
	55-60		21"		Poorly sorted fine to coarse sand with sparce gravel. Massive and loose. 2 inch sandy clay layer @ end of interval. Interval is damp.			5	80	10	5	1.5	

BORING LOG FORM

Boring #: MW 14
Sheet 4 of 5

Project Name and Location:

TC Number:

Depth (ft.)	Sample No.	Sample Interval	Recovery	Blow Count	Description	Graphic Symbol	USCS Symbol	Estimated % of Gr	Sa	Si	Cl	P.I.D. Reading	Comments
	60-65		33"		Clayey-gravelly sand for first 8 inches of interval sharp contact with underlying sandy clay which graded down into massive silty clay for bottom ~20 inches of interval. Sand is weakly indurated, clay is well indurated. Int is damp			5	10	20	65	1.8	9:30
	65-70		34"		Very well indurated shaley clay grading down into well indurated massive clay with local sandy clay zones. Bright white, indurated fine sand-silt (ash?) 2 cm thick near bottom of interval. Brick red, well sorted fine sand in last 2 inches of interval. Interval is damp.				10	10	80	32 55	-sample #1 10:00 ~69' bgs in red sand
	70-75		30"		Brick red, well sorted fine sand, loose and massive for first 18 inches of interval. Sharp contact to silty sand olive-tan, moderately indurated to bottom of interval. Interval is damp.				80	10	10	425	Sample #2 @ ~74 feet 10:30
	75-80		24"		Very well indurated shaley clay for first 12 inches of interval grading down into sandy clay				60	10	30	252	10:50

cont.

BORING LOG FORM

Boring #: MW 14

Sheet 5 of 5

Project Name and Location:

TC Number: 11377-0202

Depth (ft.)	Sample No.	Sample Interval	Recovery	Blow Count	Description	Graphic Symbol	USCS Symbol	Estimated % of Gr	Sa	Si	Cl	P.I.D. Reading	Comments
	75-80(cont.)				and then in well sorted								
					medium sand. 252 PID				60	10	30	—	as prev.
					reading at base of interval.								
					sample MW14-03-S.								Sample MW14-03-S
													~79' bgs
	80-85		41"		Well sorted medium sand				40	20	40	1717	
					in first 8 inches of interval.								
					Free TPH product throughout first 8"								Sample MW14-04-S
					(sample MW14-04-S). Sharp								81' bgs
					contact with underlying								
					shaley clay for next								
					1 foot of interval. Sharp								
					contact with underlying								
					well sorted sand. Gradational								
					contact to underlying								
					massive orange clay.								
					Gradational contact to								
					sandy clay @ end of								
					interval. Interval is damp								
					and nearly wet @ end of interval.								
	85-90		46"		Finely bedded clayey-silty fine				60	20	20	8.5	11:30
					sand with cm scale silty								
					clay layers throughout interval.								
					Moderately to well indurated.								
					Saturated with H_2O @ ~86 bgs.								
	90-95		41"		Finely bedded clayey-silty				60	20	20	12.5	
					sand with mm scale orange								
					clay layers. Water saturated								
					throughout. weakly to								
					moderately indurated.								
	95-100		57"		Clayey silt for first 35								
					inches of interval. Cm scale								
					indurated clay layers throughout.								
					Sharp contact with underlying								
					coarse sand. Gradational								Coarse sand @ 98 feet.
					contact with underlying clayey-								
					silty fine sand. Interval								
					is H_2O saturated and								
					mod. indurated.								

Monitoring Well Construction Data
Hawthorne Army Depot, Hawthorne, Nevada

Monitoring Well: MW 14 **Date:** 2/6/01

Date of well construction: 2/6/01 Time of well construction: 16:00
Reference elevation during construction: ~4000 feet
Depth ground water first encountered:
Depth of static ground water before construction:
Depth of static ground water after construction:
Boring depth: 95 feet Casing length: 95 feet
Borehole diameter: 10 inch Well casing diameter: 4 inch

Blank Casing:
Type Schedule 40 Interval 75 feet bgs to surface
Material PVC Joint type flush thread

Screen Casing:
Type Schedule 40 Interval 95 feet bgs to 75 feet bgs
Material PVC Slot size/design 0.02

Centralizer Depths: none

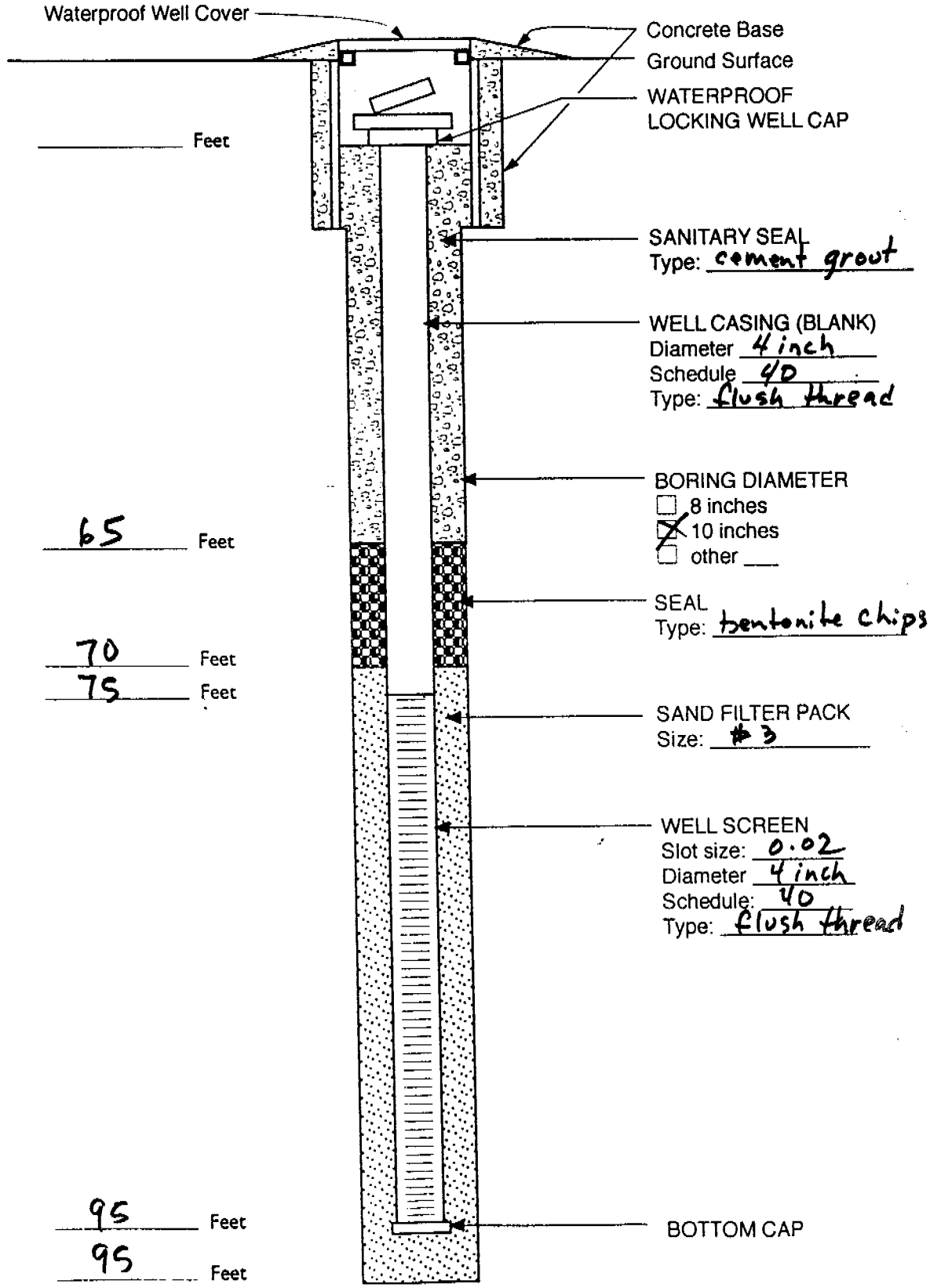
Filter Pack:
Material High Quality Silica Sand Interval 95 feet bgs to 70 feet bgs
Gradation Uniformity coefficient
Size #3 Volume calculated 11 ft³
Volume actual 10.5 ft³ Placement method Poured through 10 inch auger

Transition Sand:
Material Interval
Gradation Uniformity coefficient
Size Volume calculated
Volume actual Placement method

Annular Sealant:
Material bentonite chips Interval 70 feet bgs to 65 feet bgs
Volume calculated Volume actual 3 bags (@ 50 lbs per bag)
Placement method

Grout:
Material cement with ~ 1% bentonite Interval 65 feet bgs to 12 feet bgs
Volume calculated Volume actual 210 gallons
Placement method tremie pipe

Comments: Limited caving occured in hole @ approx 25 feet bgs. Tremie pipe was worked through to top of bentonite seal.

Monitoring Well Construction Sheet

Project: Bldg. 336 Phase 3 Ground Water Invest.
Date: 2/6/01
Project No.: 11377-02-02
Driller: W.D.C. - Jimmy F.
Well Number: MW 14
Drilling Method: Hollow Stem Auger
Field Geologist: R. Marvin
Registered Geologist: _____