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. 83381
Permit No.
Basin

NOTICE OF INTENT NO. 40392

1. OWNER U.S. Army Hawthorne Army Depot
MAILING ADDRESS 1 S. Maine St
Hawthorne NV 89415-9404
ADDRESS AT WELL LOCATION

2. LOCATION ~~SW~~ ¼ ~~NE~~ ¼ Sec. 5 T. 8 N/S R. 30 E Mineral County
PERMIT NO. 40392 (Issued by Water Resources) | Parcel No. 6-30032 | 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 11

Material	Water Strata	From	To	Thickness
Clayey Sand		0	5	5
Damp Clayey Sand		5	10	5
Coarse Sand		10	15	5
Fine Sand		15	20	5
Gravelly coarse Sand		20	25	5
Fine Sand		25	30	5
Fine Sand		30	35	5
Sandy Gravel		35	40	5
Sandy coarse Gravel		40	45	5
Silty Clay		45	50	5
Silty Clay		50	55	5
Gravelly Fine Sand		55	60	5
Silty Fine Sand		60	65	5
Silty Clay		65	70	5
Fine Sand		70	75	5
Fine Sand	H2O	75	80	5
Loose Saturated Sand	✓	80	85	5
Silty Fine Sand		85	90	5
Fine to Med. Silty Sand		90	95	5
Silty Sand & Clay		95	100	5

Date started 1-31, ~~19~~ 2001
Date completed 2-01, ~~19~~ 2001

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

	G.P.M.	Draw Down (Feet Below Static)	Time (Hours)
Bailer	2	Bail dry	

8. WELL CONSTRUCTION
Depth Drilled 100 Feet Depth Cased 90 Feet

HOLE DIAMETER (BIT SIZE)

		From	To
8 Inches		0 Feet	100 Feet
10 Inches		0 Feet	90 Feet
Inches		Feet	Feet

CASING SCHEDULE

Size O.D. (Inches)	Weight/Ft. (Pounds)	Wall Thickness (Inches)	From (Feet)	To (Feet)
4 1/2		Sch 40 PVC	0	70

Perforations:
Type perforation Mill Slot
Size perforation 020
From 70 feet to 90 feet
From feet to feet
From feet to feet
From feet to feet
From feet to feet

Surface Seal: ☒ Yes ☐ No
Depth of Seal 61
Placement Method: ☒ Pumped ☐ Poured
Seal Type: ☒ Neat Cement ☐ Cement Grout ☐ Concrete Grout
Bentonite Chips 61-66
Gravel Packed: ☒ Yes ☐ No
From 70 feet to 90 feet

9. WATER LEVEL
Static water level 75 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 95699
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-11

Sheet 1 of 5

Project Name and Location:			TC Number: 11377-02-02
Elevation: ~4000 feet	Date and Time Started: 1/31/01 @ 14:20		Date and Time Completed: 1/31/01 @ 18:40
Completion Depth: 100' bgs	Samples:	Drive:	1-liter:	VOA:	Other: 2 1½" sleeves
Boring Diameter & Drilling Method: 8" OD HSA Core	Water Level:	First (date/time):	Second (date/time):
Sample Type: Cont. Core	Hammer Wt.:	Drop:	Boring Location:
Drilling Co: Water Dev. Corp	Driller: Jimmy		Geologist: R. Marvin

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	0-5		31"		Broken asphalt @ surface. Poorly sorted, damp, clayey sand. Weakly indurated.				40	40	20	0.7	asphalt??
1													
2	5-10		32"		Poorly sorted, damp clayey sand. Tan to tan-orange color when damp. Cm scale silty clay layers near middle of interval. Weakly indurated. Interval is damp.				40	40	20	0.9	
3													
4													
5													
6	10-15		30"		Coarse, angular-clast sand underlain by poorly sorted clayey sand underlain by well sorted fine sand. Interval is loose.				60	20	20	0.1	
7													
8													
9	15-20		33"		Very fine, well sorted sand for first 14 inches of interval, sharp contact with underlying clay matrix coarse gravel and then gravelly sand to end of interval.								
10													
11													
12													
13	20-25		23"		Gravelly, coarse sand underlain by coarse sand and then by fine, well sorted sand. Interval is damp and loose.				80	15	5	0.1	
14													
15													
16													

BORING LOG FORM

Boring #: MW 11
Sheet 2 of 5

Project Name and Location:

TC Number:

Depth	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		36"		Well sorted fine sand underlain by finely bedded clayey fine sand. Underlain by poorly sorted clayey sand and the gravelly medium sand. Interval is dry to damp and moderately indurated. Bright orange oxide clast coating @ bottom of interval.				80	10	10	0.2	
	30-35		37"		Well sorted fine sand with cm scale interbedded silty clay. Sharp contact with underlying coarse sand with cm scale silty clay interbeds. Sandy gravel in last 2 inches of interval. Interval is loose to poorly indurated.			10	60	15	15	0.1	
	35-40		26"		Sandy rounded gravel for first 8 inches of interval, sharp contact with underlying silty fine sand for next 12 inches of interval. Sharp contact with underlying sandy rounded gravel. Silty sand is weakly indurated, gravelly layers are loose.			10	70	10	10	0.2	Could be trouble...
	40-45				Sandy, coarse, angular gravel. Some clasts fist size and larger (crushed rock frags. in barrel). Massive, dry and loose.			50	40	10		0.0	

BORING LOG FORM

Boring #: mw 11

Sheet 3 of 5

Project Name and Location:

TC Number:

Depth	Sample No.	Sample Interval	Recovery	Blow Count	Description	Graphic Symbol	USCS Symbol	Estimated % of Gr	Sa	Si	Cl	P.I.D. Reading	Comments
	45-50		32"		Silty clay (olive to olive-orange) for first 12 inches of interval. Sharp basal contact with underlying poorly sorted coarse sand, massive and loose.				60	20	20	0.0	
	50-55		38"		Repetative coarsing upward sequences of clay-silty clay and coarse sand. Bright orange oxide coatings in cm scale layers. Interval is loose to moderately indurated. Sand layers are dry, silty clay and clay are damp.			5	70	15	10	0.0	15:50 photos.
	55-60		31"		Gravelly fine sand grading down into fine sand for first 12 inches of interval. Sharp contact with underlying gravelly coarse sand. Sharp contact @ base with silty fine sand. Interval is loose to weakly indurated.			10	60	~~15~~ 20	~~15~~ 10	0.0	
	60-65		40"		Silty fine sand with cm scale clay interbeds for first 12 inches of interval. Sharp basal contact with massive clay for last 28 inches of interval. Interval is damp and moderately to well indurated.				20	10	70	0.1	
	65-70		46"		Silty clay with three distinct ash layers (bright white fine gr. layers) for first 40 inches of interval.				10	30	60		

BORING LOG FORM

Boring #:	MW 11
Sheet 4	of 5

Project Name and Location:

TC Number:

Depth	Sample No.	Sample Interval	Recovery	Blow Count	Description	Graphic Symbol	USCS Symbol	Estimated % of Gr	Sa	Si	Cl	P.I.D. Reading	Comments
	65-70 (cont)				Sharp contact with underlying fine gr. sand. Upper bright white unit is a caliche layer - (not ash) - ~~ca~~ HCl reaction. Interval is damp and well indurated								
	70-75				Well sorted fine sand with cm scale $CaCO_3$ cemented interbeds. Non-cemented portions are weakly calcareous. Interval is damp with a narrow wet zone @ ~70 feet.				90	10		22.0	Calcareous + H_2O Sample MW11-01- @ 16:58 @ 71' bgs
	75-80			60"	Well sorted, H_2O saturated fine sand with multi-cm scale orange clay interbeds for first 28 inches of interval. Fine, well sorted H_2O saturated sand with cm scale $CaCO_3$ bonded interbeds for last 32 inches of interval. Entire interval is weakly calcareous. All sands are weakly indurated.				60	20	20		~~8~~ 17:00
	80-85		55"		Interbedded loose, H_2O saturated sand and massive clay for first 14 inches of interval. Massive brown to orange clay from 14 in. to 35 in. Sharp contact in massive to finely bedded med. sand, H_2O saturated. Clay interval is well indurated, Sand units are loose to poorly indurated.				40	20	40		

BORING LOG FORM

Boring #: MW 11
Sheet 5 of 5

Project Name and Location: Bldg. 336 Phase 3 G.W. Investigation
TC Number: 11377-02-02

Depth	Sample No.	Sample Interval	Recovery	Blow Count	Description	Graphic Symbol	USCS Symbol	Estimated % of Gr	Sa	Si	Cl	P.I.D. Reading	Comments
	85-90		60"		Clayey-silty fine sand, H_2O saturated (8.0 PID sample MW11-02-5) for first 30 inches of interval. Sharp basal contact with well indurated coarse sand with cm scale clay interbeds. Sharp basal contact with silty-clayey fine sand to end of interval. Entire interval is H_2O saturated.				60	20	20	8.0	17:30 Sample MW-11-0 @ ≈86 bgs
	90-95		56"		Fine to medium silty sand with cm scale clay interbeds for first 44 inches of interval. Sands are saturated with H_2O and olive-tan color. Clay zones are orange-tan. Last 12 inches: massive clay and silty clay. Orange-tan color. Interval is weakly indurated.				40	30	30	1.0	
	95-100		54"		Fine, silty sand with one 8 cm thick clay zone. Sharp contact @ 40" into interval with underlying well sorted medium sands containing cm scale silty clay zones. This lower portion is unindurated and flowing.				60	20	20	0.8	

END OF Hole
Robert P. [illegible]

Monitoring Well Construction Data
Hawthorne Army Depot, Hawthorne, Nevada

Monitoring Well: MW 11 **Date:** 02/01/01

Date of well construction: 02/01/01 **Time of well construction:** ~~0:77~~ 7:15 to 12:45
Reference elevation during construction: ~ 4000'
Depth ground water first encountered: 75 feet bgs
Depth of static ground water before construction: N/A
Depth of static ground water after construction:
Boring depth: 100' bgs 8"; 90 bgs 12" **Casing length:** 90 feet
Borehole diameter: 12 inch for well construction **Well casing diameter:** 4 inch

Blank Casing:
Type PVC Schedule 40 **Interval** Surface to 70' bgs
Material **Joint type** Flush Thread

Screen Casing:
Type Schedule 40 **Interval** 70' bgs to 90' bgs
Material PVC **Slot size/design** 0.02

Centralizer Depths: None

Filter Pack:
Material High Quality Silica Sand **Interval** 90 feet bgs to 66 feet bgs
Gradation **Uniformity coefficient** very clean
Size #3 **Volume calculated** 11 bags (11 ft³)
Volume actual 10 bags (10 ft³) **Placement method** poured from surface through auger

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

Annular Sealant:
Material Bentonite Chips **Interval** 66 feet bgs to 61 feet bgs
Volume calculated **Volume actual** 2½ sacks
Placement method poured from surface through auger.

Grout:
Material Cement with ~1% bentonite **Interval** 57 feet bgs to surface
Volume calculated 184 gallons **Volume actual** 193.2
Placement method

Comments: Approximately four feet of stuff in hole bringing grout level up from 61 to 57 feet.

Double ¼ powder meal sis + 1 Nine piece nuggets) 2

Monitoring Well Construction Sheet

Project: Bldg. 336 Phase 3 Ground Water Invest.

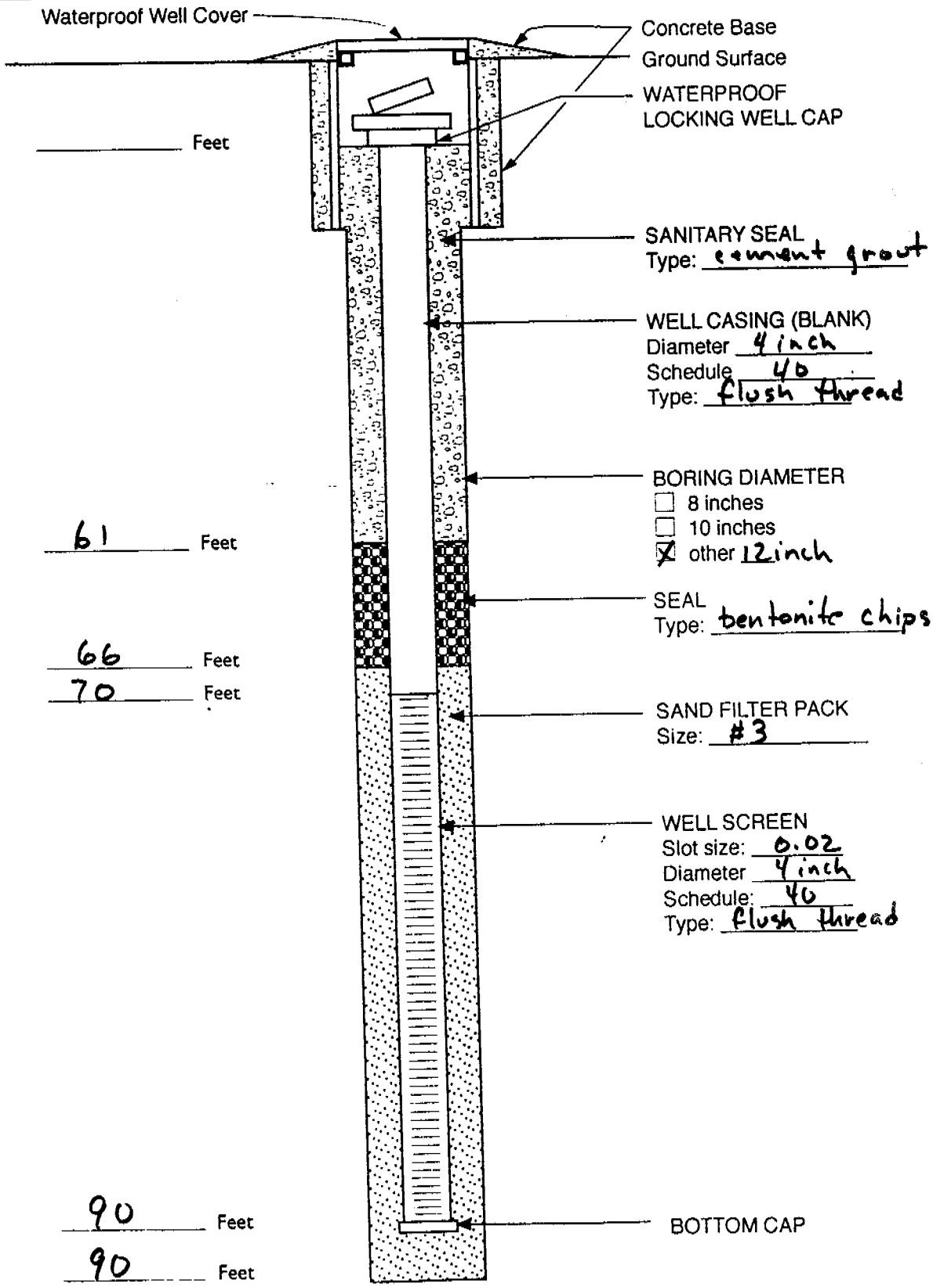
Project No.: 11377-02-02

Well Number: _____

Field Geologist: R. Marvin

Date: _____

Driller: W.D.C. - Jimmy F.

Drilling Method: Hollow Stem Auger

Registered Geologist: _____