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

STATE OF NEVADA
DIVISION OF WATER RESOURCES

OFFICE USE ONLY
Log No. 32050
Permit No.
Basin 6-87

WELL DRILLERS REPORT

PRINT OR TYPE ONLY

Please complete this form in its entirety

NOTICE OF INTENT NO.

1. OWNER Client - Brown & Caldwell
MAILING ADDRESS 723 S Street
Sacramento CA 95814-7092

ADDRESS AT WELL LOCATION ARCO Station 6017
2240 B Street
Sparks NV 89431

2. LOCATION NE ¼ NE ¼ Sec. 06 T. 19 N N/S R. 20 E WASHOE County
PERMIT NO. NW 500 (Issued by Water Resources) | Parcel No. | El Rancho & B Street (Subdivision Name)

3. TYPE OF WORK
New Well ☐ Recondition ☐
Deepen ☐ Other MW ☐

4. PROPOSED USE
Domestic ☐ Irrigation ☐ Test ☐
Municipal ☐ Industrial ☐ Stock ☐

5. TYPE WELL
Cable ☐ Rotary ☐
Other ☐

6. LITHOLOGIC LOG

Material	Water Strata	From	To	Thickness

Date started 5/10/89, 19
Date completed 5/10/89, 19

7. WELL TEST DATA

Pump RPM	G.P.M.	Draw Down	After Hours Pump

BAILER TEST
G.P.M. ..... Draw down ..... feet ..... hours
G.P.M. ..... Draw down ..... feet ..... hours
G.P.M. ..... Draw down ..... feet ..... hours

8. WELL CONSTRUCTION

Diameter hole ..... inches Total depth ..... feet
Casing record .....
Weight per foot ..... Thickness .....

Diameter	From	To
inches	feet	feet
inches	feet	feet
inches	feet	feet
inches	feet	feet
inches	feet	feet
inches	feet	feet

Surface seal: Yes ☐ No ☐ Type .....
Depth of seal ..... feet
Gravel packed: Yes ☐ No ☐
Gravel packed from ..... feet to ..... feet

Perforations:
Type perforation .....
Size perforation .....
From ..... feet to ..... feet
From ..... feet to ..... feet
From ..... feet to ..... feet
From ..... feet to ..... feet
From ..... feet to ..... feet

9. WATER LEVEL

Static water level 32.0 feet below land surface
Flow ..... G.P.M. ..... P.S.I.
Water temperature ..... ° F. Quality .....

10. DRILLERS CERTIFICATION

This well was drilled under my supervision and the report is true to the best of my knowledge.

Name ..... (Contractor)
Address ..... (Contractor)
Nevada contractor's license number .....
Nevada contractor's drillers number .....
Nevada driller's license number ..... (Actual Driller)
Signed ..... (Contractor)
Date .....

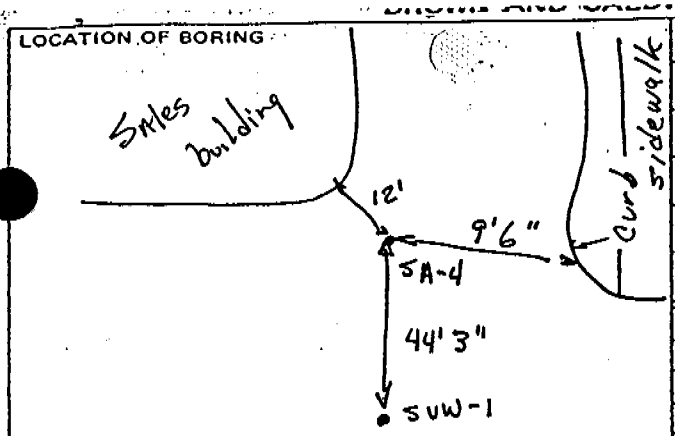
USE ADDITIONAL SHEETS IF NECESSARY

(Rev. 6-81) O-627 CR434

Log # 32050

BROWN AND CALDWELL — BORING LOG

LOCATION OF BORING



CLIENT	ARCO PRODUCTS COMPANY			
LOCATION	2240 B ST, SPARKS, NV.	JOB NO. 4165		
WATER LEVEL	32.0'	(31.78 TOC)		
TIME	1450	1158		
DATE	5/10/89	5/11/89		
CASING DEPTH				

BORING NO. SA-4

SHEET 1 OF 3

DRILLING	START	FINISH
TIME	0745	1800
DATE	5/10/89	5/10/89

DRILLING CONTRACTOR WAYNE DRILLING

DRILLING METHOD ODEX 190 System with 8 5/8" L.H. drive casing over 9"

SAMPLING METHOD 5 3/8" Tubing (T)

N/S | E/W | ELEV. TOC = 4,499.48'

SURFACE CONDITIONS Asphalt

WELL CONST. CASING	WELL CONST. ANNULUS	SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	BLOWS/6" SAMPLER	DEPTH IN FEET	SOIL CALLOUT	MATERIALS ENCOUNTERED AND DRILLING CONDITIONS (*)
	CMI concrete					0	Asphalt	0.0 - 0.75 ft.; Asphalt
	seal	HA				1	ML	0.75 - 3.0 ft.; ~~Sandy clayey~~ Sandy silt; 70% non-plastic fines; 20% high plastic fines; 10% v. fine to medium sand, rounded, contains quartz ~~well graded~~ poorly sorted, moist; loose, light olive brown to light grayish brown (5Y 5/6) to (5YR 3/2) rep. No HC odor observed from borehole cuttings.
casing	grout					2		
						3		
						4		
						5		3.0 - 6.0 ft.; Same as above at 0.75-3.0 feet below grade.
blank	cement					6	GP	6.0 - 8.0 ft.; ~~Sandy~~ cobbly boulders; 50% ~~large~~ medium boulder, rounded, consisting of fine grained volcanics that are 1.0-1.5 ft in diameter; 40% cobble; rounded, black minerals; 10% coarse sand, rounded, poorly graded ~~well sorted~~; moist; firm, v. hard drilling; Moderate brown (5YR 4/4). No HC odors noted from b.h. cuttings.
						7		
						8		
						9		
PVC	neat					10	GC	
40						11	GP	8.0 - 9.5 feet; ~~Clayey~~ gravelly cobbles; 70% cobble, rounded consisting volcanics; 15% ~~med~~ medium ~~coarse~~ gravel, rounded, ~~moderately graded poorly sorted~~ consists of fine grained matrix volcanics; 10% plastic fines; 5% v. fine sand; moist, firm to slightly hard, Dusky Brown (5YR 2/2). No HC odors detected or observed from b.h. cuttings.
Sch						12		
						13		
4" ID		ODEX				14		
	bentonite					15		9.5 - 10.5 ft.; ~~Clayey~~ sandy gravels; 70% medium ~~to coarse~~ gravel, rounded ~~subangular poorly graded~~ consists of dark fine grained volcanics; 15% v. fine to medium sand, rounded, moderately well graded ~~subangular~~, contains quartz; 15% plastic fines; moist, loose easily drilled, Moderate brown (5YR 4/4). No HC odors observed in b.h. cuttings.
						16		
						17		
						18		
						19		
.020" Slotted casing	#3 Monterey Sand					20		10.5 - 12.0 ft.; Boulders; Boulder rounded consisting of dark fine grained volcanics 1-2 ft in diameter, v. hard drilling. No HC odors noted in b.h. cuttings.

(*) Estimated percentage from cyclone discharge

DRILLER Tilton - Schramm RIG 7650

BY Tim Hayes DATE 5/10/89 CHK'D BY

BROWN AND CALDWELL – BOREHOLE LOG

Log # 32054

LOCATION OF BORING

See pg. #1

CLIENT	ARCO PRODUCTS COMPANY
LOCATION	2240 B ST, SPARKS, NV.
JOB NO.	4165
BORING NO.	SA-4
SHEET	2 OF 3
WATER LEVEL	
TIME	
DATE	
CASING DEPTH	
DRILLING START TIME	0745
DRILLING FINISH TIME	1800
DRILLING CONTRACTOR	WAYNE DRILLING
DRILLING METHOD	ODEX
DATE	5/10/89
DATE	5/10/89
SAMPLING METHOD	5 3/8" Tubing (T)
N/S	
E/W	
ELEV.	TOC 4,499.48'
SURFACE CONDITIONS	Asphalt

WELL CONST.: CASING / ANNULUS — SAMPLER TYPE — INCHES DRIVEN / INCHES RECOVERED — SAMPLE NO. / SAMPLE DEPTH — BLOWS/6" SAMPLER — DEPTH IN FEET — SOIL CALLOUT

Depth in feet	Soil callout
20–22	GC
22–31	GP
31–36	GC
36–40	CL

MATERIALS ENCOUNTERED AND DRILLING CONDITIONS (*)

12.0-16.0 ft.; ~~Clayey~~ Sandy gravels; 70% medium ~~[illegible]~~ gravel, rounded, ~~well graded, poorly sorted~~, consisting of dark fine grained volcanics; 15% v. fine to medium sand, rounded, well to moderately graded, ~~poorly sorted~~, contains quartz, 10% plastic fines; 5% cobbles; moist; firm to slightly hard; Dark yellowish brown (10YR 4/2); No HC odors were noted from borehole cuttings.

16.0-20.0 ft.; Gravelly boulders; 70% ~~medium~~ boulders, 1.0-1.5 ft in diameter, consisting of rounded boulders of fine grained mafic volcanics, 20% medium ~~[illegible]~~ gravel, rounded, ~~[illegible]~~ contains granitics & volcanics; 10% cobbles; moist; very hard drilling; Black (N1) with Dark Moderate brown matrix (5YR 3/4). No HC odors noted in b.h. cuttings.

20-22.0 ft. -> ~~[illegible]~~ sandy gravel; 50% fine to medium ~~[illegible]~~ gravel, rounded, ~~well graded, poorly sorted~~ consisting of dark fine grained volcanics, 25% v. fine to medium sand, rounded, well graded, poorly sorted, quartz present; 20% plastic fines; 5% non plastic fines; lt pale yellowish brow (10YR 6/2) some cobbles present at 22.0 ft; moist; firm to hard; No HC odors noted from b.h. cuttings.

22.0-29.0 ft.; ~~Clayey~~ gravelly cobbles; 60% cobbles, rounded, consisting of mafic fine grained volcanics & pumice frags.; 20% fine to medium gravel, rounded, ~~well graded, moderately poor sorted~~ contains volcanics, granitics & quartz, 10% plastic fines; moist; firm to hard; lt Olive gray (5Y 5/2) to Pale brown (5YR 5/2); Samples collected from 26.5' (SA-4-1), 27.0' (SA-4-2), 27.5' (SA-4-3) and 28.5 ft (SA-4-4). No HC odors detected or identified from b.h. cuttings.

CASING: 4" ID Sch 40 PVC .020" Slotted Casing
ANNULUS: #3 Monterey Sand
SAMPLER TYPE: ODEX; Tubing; ODEX

BY TIM HAVEN DATE 5/1/89 CHK'D BY ____ RIG 7660-Schramm

(*) Estimated lithologic percentage — Cyclone discharge during drilling

BROWN AND CALDWELL — BOREHOLE LOG

Log # 32050

LOCATION OF BORING

See pg. #1

CLIENT	ARCO PRODUCTS COMPANY	BORING NO.	SA-4
LOCATION	2240 B ST, SPARKS, NV.	JOB NO.	4165
WATER LEVEL		SHEET	3 OF 3
TIME		DRILLING START TIME	0745
DATE		DRILLING FINISH TIME	1800
CASING DEPTH		DATE	5/10/89
DRILLING CONTRACTOR	WAYNE DRILLING	DATE	5/10/89
DRILLING METHOD	ODEX		
SAMPLING METHOD	5 3/8" Tubing (T)		

N/S | E/W | TOC ELEV. 4,4,99.48'

SURFACE CONDITIONS Asphalt

WELL CONST. CASING	WELL CONST. ANNULUS	SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	BLOWS/6" SAMPLER	DEPTH IN FEET	SOIL CALLOUT
4" ID Sch 40 PVC .020" Slotted casing	#3 Monterey Sand	ODEX				40	CL
						41	
						42	GC
						43	
						44	
						45	
						46	
						47	
						48	
						49	
						50	
						51	
						52	
						53	
						54	
						55	
						56	
						57	
						58	
						59	
						60	

MATERIALS ENCOUNTERED AND DRILLING CONDITIONS ⊛

29.0-31.0 ft.; ~~[illegible]~~ gravelly cobbles; 50% cobbles; 30% medium gravel, rounded, ~~[illegible]~~ ~~[illegible]~~ consisting of volcanics & granitics; 15% medium fine to coarse sand, rounded, well graded, ~~[illegible]~~, contains quartz; 5% plastic fines; moist to very moist; light olive gray (5Y 5/2), hard drilling; No HC odors were detected in borehole cuttings.

31.0-36.5 ft. ~~[illegible]~~ sandy gravel; 70% medium ~~[illegible]~~ gravel, rounded, ~~[illegible]~~ ~~[illegible]~~, consisting of mafic volcanics that are fine grained; 15% v. fine to medium sand, rounded grains, well graded, ~~[illegible]~~ contains quartz; 15% plastic fines; moist to saturated at 37 ft, loose heaving clays & sands, easily drilled; Moderate brn (5YR 4/4); No HC odors identified from borehole cuttings.

36.5-38.0 ft.; Gravelly Clay; 60% plastic fines, 25% fine to medium ~~[illegible]~~ gravel, rounded, ~~[illegible]~~; 5% med. sand rounded, poorly graded ~~[illegible]~~; saturated, loose, easily drilled, Moderate brn (5YR 4/4). No HC odors observed from b.h. cuttings

38.0-42.0 ft; same as above at 29.0-31.0 ft below grade.

42.0-45.0 ft. ~~[illegible]~~ gravelly cobbles; 60% cobbles, rounded, consisting of mafic fine grained volcanics & granitics; 20% medium gravel, rounded, ~~[illegible]~~ ~~[illegible]~~, volcanic rocks present; 15% plastic fines; 5% v. fine sand; saturated; Moderate brown (5YR 4/4), No HC odors noted from b.h. cuttings.

45.0-50.0 ft. same as above at 31.0-36.5 ft. below grade.

Total depth = 50.0' bg.

⊛ Estimated lithology percentage from discharge of cyclone during drilling.

BY Tim Hawes DATE 5/10/89 CHK'D BY ____ RIG 7660-Schramm DRILLER ____