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16. KEY

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1	1	Cog.Eng. S. J. Trent		4/16/92	H4-56						
1	1	Cog. Mgr. R. A. Carlson		4/16/92	H4-55						
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		Env.									
1	1	C. D. Wittreich			H4-55						

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7. Abstract

WHC, 1992, *Unconfined Aquifer Hydrologic Test Data Package for the 200 West Groundwater Aggregate Area Management Study*, WHC-SD-EN-DP-029, Rev. 0, prepared by D. R. Newcomer, S. S. Teel, A. W. Pearson, K. R. O. Barton, B. N. Bjornstad, and T. J. Gilmore, Pacific Northwest Laboratory, for Westinghouse Hanford Company, Richland, Washington.

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INTRODUCTION

This report includes hydrologic test data, well construction, and geologic information from wells completed in the unconfined aquifer in and around the perimeter of the 200-West Area at the hanford Site as of December 1991. This information was requested by Westinghouse Hanford Company (WHC) as part of the 200 West Ground-water Aggregate Area Management study. Table 1 consists of a list of all known tests for which aquifer property values were determined or data were not analyzed, but for which aquifer property values could possibly be determined. For some tests included in this list, specific capacity data is available for estimating transmissivity. Table 2 consists of a list of other tests conducted, but because of poor data quality, aquifer property values cannot be determined. This list is only intended to show where other hydrologic tests were attempted. Appendix A includes well construction and geologic information are also included for each of the wells in these two tables.

Coverage Area

The perimeter around the 200-West Area predominantly covers an area between Gable Butte to the north and the Yakima basalt ridge to the south, and between Highway 240 to the west and just west of the 200-East Area to the east.

Information Included in the Inventory

The hydrologic data inventory includes the Hanford well designation, current depth, depth of the test interval, current screen or perforated interval, current depth to water, date of test, type of test, values for transmissivity and storage coefficient, references, and any notable comments pertaining to the tests. The recovery tests, listed under the column heading "Type of Hydrologic Test", are recovery from constant discharge tests unless otherwise noted. "PNL Files" listed in the reference column refer primarily to the cabinet file in Room 2521 in the Sigma V building. "WHC Files" listed in the reference column refer to the RCRA and/or CERCLA files at Westinghouse's 450 Hills building. This file contains most of the original hydrologic test data and analyses.

Clarifications

For several tests, the depth of the test interval is not the same as the current screen or perforated interval. This is because 1) the well was tested before final completion, 2) the well was completed again since the test was conducted, or 3) the screen or perforations extend above the water table. The references indicate that conventional analysis techniques (e.g., Jacob 1946; Theis 1935) were applied to the data to calculate the aquifer properties. The more recent test data from WHC Files are awaiting analyses for estimates of aquifer hydraulic properties.

Wells 299-W11-2P and 299-W15-5R are completed in what was referred to as the Upper Beverly member. Data on these wells are kept in PNL Files. This member is in contact with the overlying Ringold Formation nd amy be under confining conditions. However, this member is not confined by basalt at these well locations and was therefore included in the inventory.

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There was some confusion as to whether well 699-43-88 or 699-43-89 was the pumping well or the observation well. However, it appears that well 699-43-89 was the pumping well and well 699-43-88 was the observation well for all tests that were conducted at this well cluster site.

The current depth and current screen or perforation interval is not given for the following piezometers because these piezometers have been removed since the tests were conducted: 299-W22-14P, 699-32-72Q, 699-32-72R, 699-32-72S, 699-34-88P, 699-34-88Q, 699-34-88R, 699-34-88S, 699-38-70P, 699-57-83AP, 699-57-83AQ, and 699-57-83AR.

Data Quality

No attempt was made to objectively distinguish between good and poor data quality. However, after briefly reviewing the data, some initial conclusions can be made regarding the data quality.

The aquifer property values were taken from the references listed or from unpublished PNL files. Data from some tests analyzed by Kipp and Mudd (1973) were reanalyzed by PNL several years ago. Values calculated from the reanalyses are considered more reliable. No analyses were applied to any of the hydrologic test data during this inventory study.

Performance of slug displacement tests in the last few years may not have stressed the wells sufficiently and, consequently, may have some bearing on the values estimated for transmissivity. Also, some of the slug tests were conducted prior to well development.

Tests conducted in clustered piezometers in the same borehole, designated by P, Q, R, S, or T, may or may not represent true aquifer responses. This is because sandpack material was used to isolate each open interval and may have caused hydraulic intercommunication between each of the tested zones through the annulus.

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TABLE 1. UNCONFINED AQUIFER TEST DATA FOR THE 200-WEST AREA

Hanford Well Designation	Current Depth (a) (ft)	Test Design	Depth of Test Interval (ft)	Current Screen/ Perforation Interval (a) (ft)	Current Depth to Water (d) (ft)	Pre-Test Depth to Water (d) (ft)	Date of Test	Type of Hydrologic Test	Transmissivity (ft^2/d)	Storage Coefficient	Data Quality	References	Data Location	Comments
299-W6-2	245	S	227-245	225-245	233	227	11/05/87	Constant Discharge	350		2	Last (1989)	Lst	
"	245	S	227-245	225-245	233	227	11/03/87	Recovery	500		2	Last (1989)	Lst	
299-W6-4	256	S	239-256	235-256	239	239	12/09/91	Slug Injection and Withdrawal	--		1	WHC Files	RCRA Files, 450 Hills, WHC	Analyses Pending
299-W6-7	267	S	251-267	246-267	251	251	10/08/91	Slug Injection and Withdrawal	--		1	WHC Files	RCRA Files, 450 Hills, WHC	Analyses Pending
299-W7-1	244	MP	226-244	224-244	231	226	07/15/87	Constant Discharge	1000		2	Last (1989)	Lst	
"	244	MP	226-244	224-244	231	226	07/15/87	Recovery	1400		2	Last (1989)	Lst	
299-W7-2	222	MP	211-222	202-222	217	211	09/16/87	Constant Discharge	430		2	Last (1989)	Lst	
"	222	MP	211-222	202-222	217	211	09/16/87	Recovery	740		2	Last (1989)	Lst	
299-W7-3	470	MP	449-470	449-470	218	213	10/30-31/87	Constant Discharge	--		3	Last (1989)	Lst	151' of Drawdown at 1680 min; 2.8 gpm
299-W7-4	233	S	205-233	203-233	211	205	11/12/87	Constant Discharge	3300		2	Last (1989)	Lst	
"	233	S	205-233	203-233	211	205	11/12/87	Recovery	2800		2	Last (1989)	Lst	
299-W7-5	228	S	208-228	206-228	214	208	11/21/87	Constant Discharge	170		1	Last (1989)	Lst	
299-W7-6	229	S	215-229	209-229	220	215	10/14/87	Constant Discharge	14		2	Last (1989)	Lst	
"	229	S	215-229	209-229	220	215	10/14/87	Recovery	40		2	Last (1989)	Lst	
299-W7-7	228	S	211-228	207-228	216	211	12/05/89	Slug Withdrawal	45 (e)		1	Borghese et al. (1990)	Byh	
299-W7-9	241	S	228-241	220-241	232	228	03/01/90	Slug Withdrawal	26 (e)		1	Barton (1990)	Bin, Jane's files	
299-W7-10	241	S	225-241	220-241	231	225	02/13/90	Slug Withdrawal	18 (e)		1	Barton (1990)	Bin, Jane's files	
299-W7-11	233	S	218-233	212-233	216	218	07/29/91	Slug Injection and Withdrawal	--		1	WHC Files	RCRA Files, 450 Hills, WHC	Analyses Pending
299-W7-12	241	S	225-241	220-241	225	225	08/09/91	Slug Injection and Withdrawal	--		1	WHC Files	RCRA Files, 450 Hills, WHC	Analyses Pending
299-W8-1	258	S	236-258	236-258	241	236	07/11/87	Recovery	80		2	Last (1989)	Lst	
299-W9-1	286	S	269-286	266-286	275	269	10/23/87	Slug Withdrawal	43-65 (e)		2	Last (1989)	Lst	
"	286	S	269-286	266-286	275	269	10/23/87	Slug Injection	55 (e)		2	Last (1989)	Lst	
299-W10-13	247	S	229-247	227-247	235	229	09/11/87	Step Drawdown	--		3	PNL Files		Data Not Analyzed; 2-Hr Test
"	247	MP	229-247	227-247	235	229	09/14/87	Recovery	7000		2	Last (1989)	Lst	
299-W10-14	447	MP	427-447	427-447	235	231	10/26/87	Recovery	900		2	Last (1989)	Lst	
"	447	MO	240 (Oil)	427-447	235	?	09/14/87	Recovery	3500		2	Last (1989)	Lst	Pumping Well is 299-W10-13
299-W10-15	222	S	206-222	201-222	212	206	11/03/89	Slug Withdrawal	510 (e)		1	Newcomer et al. (1990)	Newc90	
"	222	S	206-222	201-222	212	206	11/03/89	Slug Withdrawal	540 (e)		1	Newcomer et al. (1990)	Newc90	
299-W10-16	220	S	203-219	198-219	209	203	10/30/89	Slug Injection	670 (e)		2	Newcomer et al. (1990)	Newc90	
"	220	S	203-219	198-219	209	203	10/30/89	Slug Withdrawal	540 (e)		1	Newcomer et al. (1990)	Newc90	
299-W10-17	224	S	204-224	204-224	203	203	01/10/91	Slug Injection and Withdrawal	--		1	WHC Files	RCRA Files, 450 Hills, WHC	Analyses Pending
299-W10-18	224	S	204-224	204-224	202	202	01/16/91	Slug Injection and Withdrawal	--		1	WHC Files	RCRA Files, 450 Hills, WHC	Analyses Pending
299-W11-2P	498	MP	486-508	486-508	215	195	04/24/70	Recovery	104		1	PNL Files, Deju (1974)	PNL2521BF	
299-W11-27	234	S	219-234	214-234	218	219	12/11/91	Slug Injection and Withdrawal	--		1	WHC Files	RCRA Files, 450 Hills, WHC	Analyses Pending
299-W15-5H	448	MO	435-460	435-460	202	200?	04/27/70	Constant Discharge	--		3	PNL Files	PNL2521BF	85 ft of drawdown, 2.7 gpm Pumped from Well 299-W15-5P
299-W15-5S	395	MO	375-400	375-400	202	215	04/27/70	Constant Discharge	--		3	PNL Files	PNL2521BF	20 ft of drawdown; 2.7 gpm Pumped from Well 299-W15-5P
299-W15-15	253	S	243-253 (b)	223-253	231	226	08/21/87	Constant Discharge	10,000		2	Last (1989)	Lst	
299-W15-16	238	MP	228-238	208-238	218	212	08/20/87	Constant Discharge	5000		3	Last (1989)	Lst	
"	238	MP	228-238 (b)	208-238	218	212	08/20/87	Recovery	12,000		2	Last (1989)	Lst	
299-W15-17	432	MP	422-432	422-432	218	213	09/28/87	Constant Discharge	--		3	Last (1989)	Lst	19 ft of Drawdown at 360 min; 6 gpm
W15-17 (cont)	432	MO	220 (Oil)	422-432	216	212	08/20/87	Constant Discharge	12,000		2	Last (1989)	Lst	Pumping Well is 299-W15-16
"	432	MO	220 (Oil)	422-432	218	212	08/20/87	Recovery	12,000		2	Last (1989)	Lst	Pumping Well is 299-W15-16
299-W15-18	238	MP	232-242 (b)	208-238	218	212	07/21/87	Recovery	14,000		3	Last (1989)	Lst	
299-W15-19	235	S	219-235	214-235	225	219	10/30/89	Slug Withdrawal	20 (e)		1	Borghese et al. (1990)	Byh	
299-W15-20	241	S	226-241	220-241	232	226	11/03/89	Slug Withdrawal	75-250 (e)		1	Borghese et al. (1990)	Byh	2 Tests Conducted
299-W15-22	219	S	200-219	199-219	200	200	01/15/91	Slug Injection and Withdrawal	--		1	WHC Files	RCRA Files, 450 Hills, WHC	Analyses Pending
299-W15-23	239	S	228-239	219-239	233	228	03/01/90	Slug Withdrawal	240-330 (e)		1	Barton (1990)	Bin, Jane's files	2 Tests Conducted
299-W15-24	241	S	230-241	222-241	233	230	12/18/89	Slug Withdrawal	600 (e)		1	Borghese et al. (1990)	Byh	
299-W18-2	244	MO	210-244	205-255	213	210	07/17/87	Recovery	17,000		2	Last (1989)	Lst	Pumping Well is 299-W18-24
299-W18-21	225.5	MP	215.5-225.5	215.5-225.5	202	195	07/14/87	Constant Discharge	1300		2	Last (1989)	Lst	
"	225.5	MP	215.5-225.5	215.5-225.5	202	195	07/14/87	Recovery	51,000		2	Last (1989)	Lst	
299-W18-22	447.5	MP	437.5-447.5	437.5-447.5	202	197	08/26/87	Recovery	420		1	Last (1989)	Lst	

TABLE 1. UNCONFINED AQUIFER TEST DATA FOR THE 200-WEST AREA

Hanford Well Designation	Current Depth (a) (ft)	Test Design	Depth of Test Interval (ft)	Current Screen/ Perforation Interval (a) (ft)	Current Depth to Water (d) (ft)	Pre-Test Depth to Water (b) (ft)	Date of Test	Type of Hydraulic Test	Transmissivity (ft^2/d)	Storage Coefficient	Data Quality	References	Data Location	Comments
299-W18-23	251	S	241-251	241-251	230	224	06/22/87	Constant Discharge	27,000		2	Last (1989)	Lst	
"	251	S	241-251	241-251	230	224	06/22/87	Recovery	23,000		2	Last (1989)	Lst	
299-W18-24	240	MP	230-240	230-240	217	210	07/17/87	Recovery	44,000		2	Last (1989)	Lst	
299-W18-25	215	S	191-215	194-215	191	191	12/12/90	Slug Injection and Withdrawal	--		1	WHC Files	RCRA Files, 450 Bldg, WHC	Analyses Pending
299-W18-26	243	S	227-243	222-243	232	227	11/22/89	Slug Withdrawal	200 (v)		1	Burgbeie et al. (1990)	Byh	2 Tests Conducted
299-W18-27	238	S	220-238	217-238	220	220	07/18/91	Slug Injection and Withdrawal	--		1	WHC Files	RCRA Files, 450 Bldg, WHC	Analyses Pending
299-W18-28	229	S	210-229	208-229	210	210	07/17/91	Slug Injection and Withdrawal	--		1	WHC Files	RCRA Files, 450 Bldg, WHC	Analyses Pending
299-W18-29	136	S	123-136	120-136	123	123	07/15/91	Slug Injection and Withdrawal	--		1	WHC Files	RCRA Files, 450 Bldg, WHC	Analyses Pending
299-W18-30	234	S	202-234	198-234	202	202	12/19/91	Slug Injection and Withdrawal	--			WHC Files	?	Analyses Pending, Data Not In File
299-W18-31	222	S	193-222	187-222	193	193	12/14/91	Slug Injection and Withdrawal	--		1	WHC Files	RCRA Files, 450 Bldg, WHC	Analyses Pending
299-W19-31	223	S	203-223	201-223	203	203	01/17/91	Slug Injection and Withdrawal	--		1	WHC Files	RCRA Files, 450 Bldg, WHC	Analyses Pending
299-W19-32	223	S	203-223	202-223	203	203	01/14/91	Slug Injection and Withdrawal	--		1	WHC Files	RCRA Files, 450 Bldg, WHC	Analyses Pending
299-W21-1	253	S	239-2537	220-290	244	239	07/28/69	Constant Discharge	5400		1	Kipp & Mudd (1973), Graham (1981)	PNL2521, BF	
"	253	S	239-2537	220-290	244	239	07/28/69	Recovery	29,000		1	Kipp & Mudd (1973)	PNL2521, BF	
299-W22-24Q	476	S	475-497	475-497	245	245	04/30/63	Development w/ Al	--		3	PNL Files	ACB	165 ft of Drawdown at 80 min; 17 gpm
299-W22-39	222	S	203-222	201-222	203	203	04/09/91	Slug Injection and Withdrawal	--		1	WHC Files	RCRA Files, 450 Bldg, WHC	Analyses Pending
299-W22-40	244	S	228-244	224-244	234	228	04/23/90	Slug Withdrawal	600 (v)			Goodwin (1990)		
299-W22-41	245	S	229-245	224-245	233	229	04/23/90	Slug Withdrawal	140 (v)			Goodwin (1990)		
299-W22-42	243	S	228-243	223-243	233	228	04/30/90	Slug Withdrawal	190 (v)			Goodwin (1990)		
299-W22-43	244	S	228-244	224-244	232	228	04/23/90	Slug Withdrawal	790 (v)			Goodwin (1990)		
299-W22-44	242	S	210-242	205-242	210	210	12/17/91	Slug Injection and Withdrawal	--		1	WHC Files	RCRA Files, 450 Bldg, WHC	Analyses Pending
299-W22-46	229	S	207-229	193-229	207	207	12/03/91	Slug Injection and Withdrawal	--		1	WHC Files	RCRA Files, 450 Bldg, WHC	Analyses Pending
299-W23-13	218	S	197-218	197-218	197	197	12/12/90	Slug Injection and Withdrawal	--		1	WHC Files	RCRA Files, 450 Bldg, WHC	Analyses Pending
299-W23-14	216	S	197-216	195-216	197	197	04/12/91	Slug Injection and Withdrawal	--		1	WHC Files	RCRA Files, 450 Bldg, WHC	Analyses Pending
299-W23-15	223	S	190-223	186-223	190	190	12/03/91	Slug Injection and Withdrawal	--		1	WHC Files	RCRA Files, 450 Bldg, WHC	Analyses Pending
299-W26-7	206	S	189-206	185-206	189	189	05/09/91	Slug Injection and Withdrawal	--		1	WHC Files	RCRA Files, 450 Bldg, WHC	Analyses Pending
299-W26-8	219	S	200-219	199-219	205	200	05/31/90	Slug Withdrawal	--		17	Airhart (1990)	Airht90	Data Not Analyzed
299-W26-9	208	S	190-208	188-208	194	190	05/31/90	Slug Withdrawal	--		17	Airhart (1990)	Airht90	Data Not Analyzed
299-W26-10	222	S	207-222	202-222	207	207	05/03/91	Slug Injection and Withdrawal	--		1	WHC Files	RCRA Files, 450 Bldg, WHC	Analyses Pending
299-W26-11	139	S	123-139	119-139	123	123	05/31-06/01/90	Slug Withdrawal	--		3	Airhart (1990)	Airht90	Data Not Analyzed; Lack Recovery; Tested Perched Water
299-W26-12	229	S	211-229	208-229	211	211	05/10/91	Slug Injection and Withdrawal	--		1	WHC Files	RCRA Files, 450 Bldg, WHC	Analyses Pending
699-26-89	254	S	198-488, 492-500 (c)*	165-488	181	176	06/27/69	Constant Discharge	620		2	Dojo (1974), Kipp & Mudd (1973)	PNL2521	Well Penetrates 3 Aquifers, Sand Filled In During Test
"	254	S	198-488, 492-500 (c)*	165-488	181	176	06/27/69	Recovery	430		2	Dojo (1974), Kipp & Mudd (1973)	PNL2521	Well Penetrates 3 Aquifers, Sand Filled In During Test
699-32-70B	280	S	212-330	207-330	218	212	06/20/74	Constant Discharge	--		3	PNL Files	PNL2521-General	Data Not Analyzed; 3.17 ft of Drawdown at 180 min, 100 gpm
699-32-72Q	--	MD	460-480	--	215	216	09/19/68	Constant Discharge	--		3	PNL Files	ACB	18 ft of Drawdown at >100 min; 5 gpm Pumped from Well 699-32-72P
699-32-77	220	S	179-2207	175-290	193	179	08/25/69	Constant Discharge	4500		1	Kipp & Mudd (1973), Graham (1981)	PNL2521	
"	220	S	179-2207	175-290	193	179	08/25/69	Recovery	57,000		1	Kipp & Mudd (1973)	PNL2521	
699-34-88P	--	MP	668-688	--	164	187	04/29/70	Recovery	1		3	PNL Files	PNL2521BF, ACB	2.5 gpm; Poor Test; U Bev

TABLE 1. UNCONFINED AQUIFER TEST DATA FOR THE 200-WEST AREA

Hanford Well Designation	Current Depth (a) (ft)	Test Design	Depth of Test Interval (ft)	Current Screen/ Perforation Interval (a) (ft)	Current Depth to Water (d) (ft)	Pre-Test Depth to Water (b) (ft)	Date of Test	Type of Hydrologic Test	Transmissivity (ft^2/d)	Storage Coefficient	Data Quality	References	Data Location	Comments
699-34-88D	--	MP	590-600	--	164	162	05/04/70	Recovery	4.3		3	PNL Files	PNL2521BF, ACB	8.5 gpm; 12.7 ft Drawdown in P Tube
"	--	M	590-600	--	164	?	05/11/70	Recovery	24		3	PNL Files	PNL2521BF, ACB	13 gpm
699-36-61A	363	MP	358-389*	330-389	340	339	07/22/69	Step Drawdown and Recovery	2800		2	Dept (1974), Graham (1981)	PNL2521	Average Transmissivity
"	363	MP	358-389*	330-389	340	339	07/22/69	Step Drawdown	970		2	Kipp & Mudd (1973)	PNL2521	
"	363	MP	358-389*	330-389	340	339	07/22/69	Step Drawdown	730		2	PNL Files		Data Reanalyzed
"	363	MP	358-389*	330-389	340	339	07/22/69	Step Test Recovery	40,000		2	Kipp & Mudd (1973)	PNL2521	
"	363	MP	358-389*	330-389	340	339	07/22/69	Step Test Recovery	4300			PNL Files		Data Reanalyzed
699-36-61B	363	MD	339-505?	330-505	340	339?	07/22/69	Step Drawdown	400		2	Kipp & Mudd (1973)	PNL2521	Pumping Well is 699-36-61A
"	363	MD	339-505?	330-505	340	339?	07/22/69	Step Drawdown	5000		2	PNL Files		Data Reanalyzed
"	363	MD	339-505?	330-505	340	339?	07/22/69	Step Test Recovery	53,000		2	Kipp & Mudd (1973)	PNL2521	Pumping Well is 699-36-61A
"	363	MD	339-505?	330-505	340	339?	07/22/69	Step Test Recovery	4200		2	PNL Files		Data Reanalyzed
699-37-82A	175	MD	163-175	155-410	170	163	08/15-17/79	Constant Discharge	T(early) = 270	0.02	1	Graham (1981)	Ghm81	Pumping Well is 699-37-82B
"	175	MD	163-175	155-410	170	163	08/15-17/79	Constant Discharge	T(late) = 370	0.16 (I)	1	Graham (1981)		Pumping Well is 699-37-82B
"	175	MD	163-175	155-410	170	163	08/15-17/79	Constant Discharge	T(early) = 350	0.016	1	Hall (1981)	H	Pumping Well is 699-37-82B
"	175	MD	163-175	155-410	170	163	08/15-17/79	Constant Discharge	T(late) = 400	0.15 (I)	1	Hall (1981)	H	Pumping Well is 699-37-82B
699-43-88	191	MD	178-198	177-198	170	178	09/10/69	Constant Discharge	2000	0.01-0.021	1	Kipp & Mudd (1973), Hall (1981)	PNL2521	Pumping Well is 699-43-89
"	191	MD	178-198	177-198	170	178	09/10/69	Constant Discharge	1300	0.009	1	PNL Files		Data Reanalyzed
"	191	MD	178-198	177-198	170	178	09/10-13/69	Recovery	19,000		2	Kipp & Mudd (1973)	PNL2521	
"	191	MD	178-198	177-198	170	178	09/10-13/69	Recovery	700		2	PNL Files		Data Reanalyzed
"	191	MD	178-198	177-198	170	178	10/23/69	Constant Discharge	--		1	PNL Files	PNL2521	Data Not Analyzed; Pumping Well is 699-43-89
"	191	MD	178-198	177-198	170	178	10/23/69	Recovery	--		1	PNL Files	PNL2521	Data Not Analyzed
"	191	MD	178-198	177-198	170	178	10/28-29/69	Constant Discharge	--		1	PNL Files	PNL2521	Data Not Analyzed; Pumping Well is 699-43-89
"	191	MD	178-198	177-198	170	178	10/29/69	Recovery	--		1	PNL Files	PNL2521	Data Not Analyzed
"	191	MD	178-198	177-198	170	179	10/30/69	Constant Discharge	--		2	PNL Files	PNL2521	Data Not Analyzed; Pumping Well is 699-43-89
"	191	MD	178-198	177-198	170	179	10/30-31/69	Recovery	--		2	PNL Files	PNL2521	Data Not Analyzed
"	191	MD	177-198	177-198	170	177	11/06-07/69	Constant Discharge	--		1	PNL Files	PNL2521	Data Not Analyzed; Pumping Well is 699-43-89
"	191	MD	177-198	177-198	170	177	11/07/69	Recovery	--		1	PNL Files	PNL2521	Data Not Analyzed
"	191	MD	178-198	177-198	170	178	11/10-11/69	Constant Discharge	--		1	PNL Files	PNL2521	Data Not Analyzed; Pumping Well is 699-43-89
"	191	MD	178-198	177-198	170	178	11/11/69	Recovery	--		1	PNL Files	PNL2521	Data Not Analyzed
"	191	MD	178-198	177-198	170	178	11/13-14/69	Constant Discharge	--		1	PNL Files	PNL2521	Data Not Analyzed; Pumping Well is 699-43-89
"	191	MD	178-198	177-198	170	178	11/14/69	Recovery	--		1	PNL Files	PNL2521	Data Not Analyzed
"	191	MD	177-198	177-198	170	?	09/25/79	Constant Discharge	970	0.05	2	Graham (1981), Hall (1981)	Ghm81	Pumping Well is 699-43-89
"	191	MD	177-198	177-198	170	?	09/11/80	Constant Discharge	800	0.04	2	Graham (1981), Hall (1981)	Ghm81	Pumping Well is 699-43-89
"	191	MD	177-198	177-198	170	?	09/11/80	Constant Discharge	800	0.03	2	Hall (1981)	H	Pumping Well is 699-43-89
699-43-89	300	MP	178-247	175-247	176	178	1969	Constant Discharge	1400		1	Kipp & Mudd (1973)	PNL2521	Exact Date of Test Unknown
"	300	MP	178-247	175-247	176	178	1969	Recovery	18,000		1	Kipp & Mudd (1973)	PNL2521	Exact Date of Test Unknown
"	300	MP	178-247	175-247	176	178	09/10/69	Constant Discharge	850		1	PNL Files	PNL2521	10-hr Test
"	300	MP	178-247	175-247	176	178	09/10-11/69	Recovery	1100		1	PNL Files	PNL2521	
"	300	MP?	178-247	175-247	176	178	10/23/69	Constant Discharge	--		1	PNL Files	PNL2521	Data Not Analyzed; 14 hr Test
"	300	MP?	178-247	175-247	176	178	10/23/69	Recovery	--		1	PNL Files	PNL2521	Data Not Analyzed
"	300	MP?	178-247	175-247	176	178	10/28-29/69	Constant Discharge	--		1	PNL Files	PNL2521	Data Not Analyzed; 25 hr Test
"	300	MP?	178-247	175-247	176	178	10/29/69	Recovery	--		1	PNL Files	PNL2521	Data Not Analyzed
"	300	MP?	178-247	175-247	176	178	10/30/69	Constant Discharge	--		2	PNL Files	PNL2521	Data Not Analyzed; Test Stopped at 6.33 Hours Due to Engine Trouble
"	300	MP?	178-247	175-247	176	178	10/30-31/69	Recovery	--		2	PNL Files	PNL2521	Data Not Analyzed
"	300	MP?	178-247	175-247	176	178	11/06-07/69	Constant Discharge	--		1	PNL Files	PNL2521	Data Not Analyzed; 21-hr Test
"	300	MP?	178-247	175-247	176	178	11/07/69	Recovery	--		1	PNL Files	PNL2521	Data Not Analyzed
"	300	MP?	178-247	175-247	176	178	11/10-11/69	Constant Discharge	--		1	PNL Files	PNL2521	Data Not Analyzed; 24 hr Test
"	300	MP?	178-247	175-247	176	178	11/11/69	Recovery	--		1	PNL Files	PNL2521	Data Not Analyzed
"	300	MP?	178-247	175-247	176	178	11/13-14/69	Constant Discharge	--		1	PNL Files	PNL2521	Data Not Analyzed; 23 hr Test
"	300	MP?	178-247	175-247	176	178	11/14/69	Recovery	--		1	PNL Files	PNL2521	Data Not Analyzed

TABLE 1. UNCONFINED AQUIFER TEST DATA FOR THE 200-WEST AREA

* Well Recompleted Since Test Was Conducted
(a) Taken From Hanford Ground Water Data Base
(b) Temporary Screen Installed Prior to Final Well Completion
(c) Interval Completed In Confined Basalt Aquifer
(d) Measured or Estimated As of June, 1991
(e) Transmissivity Calculated by Multiplying Equivalent Hydraulic Conductivity by Thickness of the Test Interval
(f) Specific Yield
OH = Open Hole

TABLE 2. OTHER UNCONFINED AQUIFER HYDROLOGIC TEST DATA FOR THE 200-WEST AREA

Hanford Well Designation	Current Depth (a) (ft)	Test Design	Depth of Test Interval (ft)	Current Screen/ Perforation Interval (a) (ft)	Current Depth to Water (d) (ft)	Pre-Test Depth to Water bls (ft)	Date of Test	Type of Hydrologic Test	Data Quality	References	Data Location	Comments
299-W11-2Q	434	MD	409-434	409-434	215	194	04/24/70	Constant Discharge and Recovery	4	PNL Files, Deju (1974)	PNL2521BF	No Drawdown; Pumping Well Is 299-W11-2P
299-W11-4	310	S	278-312	257-312	279	279	1950's	Bail Test	4	Newcomb & Strand (1953)	?	20 gpm
299-W11-13P	466	S	443-468	443-468	232	232	11/19/63	Development w/ Air	4		ACB	250 Total Gallons Pumped
299 W15-5P	418	MP	524-594	524-594	202	195	04/27/70	Const Disch/Recov	4	PNL Files	PNL2521BF	2 7 gpm, Pumping Well, Poor Test
299 W15-5Q	336	MD	495-520	495-520	202	194	04/27/70	Constant Discharge	4	PNL Files	PNL2521BF	No Drawdown, 2 7 gpm Pumped from Well 299 W15-5P
"	336	MP	495-520	495-520	202	194	04/27/70	Constant Discharge	4	PNL Files	PNL2521BF	No Drawdown, Poor Test; 5 5 gpm
299 W15 5R	448	MD	435-460	435-460	202	200?	04/27/70	Constant Discharge	4	PNL Files	PNL2521BF	No Drawdown, 5 5 gpm Pumped from Well 299-W15-5Q
299-W15-16	238	MD	215-238	208-238	218	215	09/28/87	Constant Discharge	4	Last (1989)	Lst	Pumping Well Is 299-W15-17
299 W15-18	238	MD	232-242 (b)	208-238	218	212	07/17/87	Constant Discharge	4	Last (1989)	Lst	Pumping Well Is 299 W18-24; No Drawdown
299-W15-19	235	S	219-235	214-235	225	219	10/30/89	Slug Injection	4	Burghese et al. (1990)	Bgh	Poor Test
299-W18-4	246	MD	212-246	194-254	212	212	07/21/87	Constant Discharge and Recovery	4	Last (1989)	Lst	Pumping Well Is 299-W15-18; Negligible Drawdown
299-W18-18	?	S(2)	1837-204	183-204	188	?	1984	Constant Discharge	4		PNL2606	Sand Filled In During 2 Tests
299 W18-21	225 5	MD	196-225 5	195.5-225 5	202	196	08/26/87	Constant Discharge	4	Last (1989)	Lst	Pumping Well Is 299 W18-22; No Drawdown
299-W18 22	205	MD	205 (OH)	437.5-447 5	202	196	07/14/87	Constant Discharge	4	Last (1989)	Lst	Pumping Well Is 299-W18-21; No
299-W18-8	284	S	268-302*	214-244	224	?	11/25/44	Injection Test	4		PNL2606	
299-W22-14P	--	MP	293-308	--	--	205	10/28/68	Development w/ Air	4	PNL Files	ACB	No Drawdown at 150 min; 4 gpm
299 W22-24P	296	S	537-561	537-561	245	245	04/64, 09/68	Development w/ Air	4	PNL Files	ACB	Flow Rate Not Sustained
299-W22-27P	240	S	550-570	550-570	230	230	10/23/64	Development w/ Air	4	PNL Files	ACB	200 Total Gallons Pumped; 0 5 gpm
299-W22 27Q	451	S	470-490	470-490	218	218	10/23/64	Development w/ Air	4	PNL Files	ACB	150 Total Gallons Pumped; 7 gpm
299-W22-27R	398	S	400-420	400-420	214	214	10/23/64	Development w/ Air	4	PNL Files	ACB	
299-W22-27S	356	S	330-350	330-350	214	214	10/23/64	Development w/ Air	4	PNL Files	ACB	10 gpm for 20 min
699 31-65P	353	S	410-430	410-430	242	100	06/24/64	Development w/ Air	4	PNL Files	ACB	
699 31-65Q	371	S	370-390	370-390	242	126	06/24/64	Development w/ Air	4	PNL Files	ACB	
699-31-65R	322	S	310-330	310-330	242	217	06/24/64	Development w/ Air	4	PNL Files	ACB	
699-32-72P	470	S	465-470	465-470	215	?	06/22/64	Development w/ Air	4	PNL Files	ACB	50 Total Gallons Pumped; < 0 5 gpm
"	470	MP	465-470	465-470	215	216	09/19/68	Constant Discharge	4	PNL Files	ACB	>500 Total Gallons Pumped, 5 gpm
699-32-72Q	--	S	460-480	--	--	?	06/22/64	Development w/ Air	4	PNL Files	ACB	350 Total Gallons Pumped, 6 gpm
699-32-72R	--	S	390-410	--	--	?	06/22/64	Development w/ Air	4	PNL Files	ACB	50 Total Gallons Pumped, 5 gpm
699-32-72S	--	S	340-360	--	--	?	06/22/64	Development w/ Air	4	PNL Files	ACB	200 Total Gallons Pumped; 4 gpm
699-34-88Q	--	M	590-600	--	--	?	05/14/70	Recovery	4	PNL Files	PNL2521BF	19 gpm; Poor Test
699-34-88R	--	S	510-520	--	--	?	05/12/70	Constant Discharge	4	PNL Files	ACB	10 gpm
699-34-88S	--	S	430-440	--	--	?	05/12/70	Constant Discharge	4	PNL Files	ACB	5 gpm
699-34-88T	--	S	350-360	--	--	?	05/12/70	Constant Discharge	4	PNL Files	ACB	7 gpm
699-37-82BP	344	S	540-560	540-560	170	119	11/02/64	Development w/ Air	4	PNL Files	ACB	157 ft of Drawdown at 30 min
"	344	S	540-560	540 560	170	119	11/03/64	Development w/ Air	4	PNL Files	ACB	49 ft of Drawdown, 1 gpm
699 37 82BS	414	S	230-250	230-250	170	170	10/16/64	Development w/ Air	4	PNL Files	ACB	75 Total Gallons Pumped, 2 gpm
699-38-65	395	S	330-520	220-520	323	330	12/59	Bail Test?	4	Haney (1959)	Unknown	Tested by Bach Drilling Co
699-38-65P	510	S	500-510	500-510	323	330	10/27/64	Development w/ Air	4	PNL Files	ACB	100 Total Gallons Pumped, 2 gpm
699-38-70P	--	S	390-410	--	--	260	10/27/64	Development w/ Air	4	PNL Files	ACB	200 Total Gallons Pumped, 4 gpm
699-40-62	384	S	359-374*	335-374	342	340	12/11/68	Constant Discharge	4	Kipp & Mudd (1973)	PNL2521	Poor Test
699-49-100B	?	M	326-401	?	316	316	06/15/77	Constant Discharge	4	PNL Files	PNL2521-General	380 gpm, No Water-Level Measurements
699 51-75P	375	S	370-375	370-375	192	202	09/04/63	Development w/ Air	4	PNL Files	ACB	250 Total Gallons Pumped, 1 gpm
699-57-83AP	--	S	335-355	--	--	154	08/04/64	Development w/ Air	4	PNL Files	ACB	200 Total Gallons Pumped; 7 gpm
699-57-83AQ	--	S	270-290	--	--	154	08/04/64	Development w/ Air	4	PNL Files	ACB	200 Total Gallons Pumped; 6 gpm
699-57-83AR	--	S	210-230	--	--	154	08/04/64	Development w/ Air	4	PNL Files	ACB	120 Total Gallons Pumped, 3 gpm

* Well Recompleted Since Test Was Conducted
(a) Taken From Hanford Ground Water Data Base
(b) Temporary Screen Installed Prior to Final Well Completion
(c) Interval Completed In Confined Basalt Aquifer
(d) Measured or Estimated As of June, 1991
OH = Open Hole

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APPENDIX A

WELL CONSTRUCTION AND GEOLOGIC DATA FOR WELLS LISTED IN TABLES 1 AND 2

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Well Completion Report/Title III Inspection List

Project KEH-1914
Location 200 WEST AREA - HANFORD
Driller KELLY OLSON
Drilling Co. ONWEGO
Geologist AIRHART, WILBUR, WLMCEE

Well Number 299-W6-2
Temporary Well Number —
Coordinates N.45,571 W.75,302
Casing Elevation 692.45
Ground Elevation 690.17

DRILLING METHOD

Rotary Air — Mud —
Cable Tool D — H 10' - 248'
Drilling Fluid — H2O
Other BACKHOE 0-10'

COMPLETION DATA

Drilled Depth 248'
Completion Depth 245'
Date Started 9/30/87 Completed 11/13/87
Static Water Level/Date 227.8' BELOW LAND SURFACE 10/29/87

CASING DATA

Type	Size	
TYPE 304 STAINLESS STEEL CASING	4' DIAMETER	to 224'
		to
		to

Approved By S.P. Airhart Date 11/30/87

PERFORATIONS

Type —

Depth	Schedule

App. By ____ Date ____

SCREEN

	4" dia. Type 304 SS	6" dia. Type 304 SS
Type	CONTINUOUS WRAP	CONTINUOUS WRAP
Length	21'	10'
Slot Size	20-SLOT	30-SLOT
Depths	224' to 245'	238' to 248'

App. By S.P. Airhart Date 11/30/87

ANNULAR SEAL

Type	Interval	Volume
COLORADO SILICA SAND	226'-248'	16.33 ft3
DRY BENTONITE	3.5'-26' 47'-217'	166.91 ft3
BENTONITE SLURRY	26'-47'	40.11 ft3
CONCRETE	0'-3.5'	17 ft3
VOLCLAY PELLETS	217'-226'	2.87 ft3

App. By S.P. Airhart Date 11/30/87

GEOPHYSICAL LOGGING

Sondes	Interval	Date
NATURAL GAMMA	0' - 248'	10/29/87
NEUTRON	0' - 248'	10/29/87
DENSITY	0' - 248'	10/29/87
	-	
	-	
	-	
	-	

Approved By S.P. Airhart Date 11/16/87

AQUIFER TESTING

Type of Test CONSTANT DISCHARGE
Length of Test 5 HOURS
Volume Pumped 8300 GALS.
Drawdown 13.76 ft.

Approved By S.P. Airhart Date 11/30/87

OTHER APPLICABLE ITEMS

- SPA Steam Cleaning
- SPA Storage of Const. Material
- SPA Tool Lubricants
- SPA Concrete Pad
- SPA Protective Steel Posts
- SPA Safety Paint
- SPA Straightness Test
- SPA Well Development
- TV Downhole TV Inspection
- — Well Abandonment
- SPA Complete As-Built Diagram, Driller's and Geologist's Logs

Approved By S.P. Airhart Date 11/30/87

Reviewed By V.L. McGhan Date 1-8-88

A-1800-187 (3/87)

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AS-BUILT DIAGRAM

Well Number 299-W6-2 Geologist WILBUR GILMORE AIRHART Page 1 of 2

Reviewed by J. L. McClean Date 1-8-88

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Diagram Litho.	Lithologic Description
Concrete surface seal (0'-3.5')		5'		SLIGHTLY SILTY GRAVEL
-10+100 mesh Big Horn bentonite (3.5'-20')		10'		
0'-20' 16" CARBON STEEL CASING		15		SLIGHTLY SANDY GRAVEL
0'-40'6" 12" CARBON STEEL CASING		20		SANDY GRAVEL
0'-148'2" 10" CARBON STEEL CASING		25		
0'-252' 8" CARBON STEEL CASING		30		
+2'-245' 4" STAINLESS STEEL CASING (PERMANENT)		35		
NOTE: ALL CARBON STEEL CASING REMOVED.		40		
		45		
Bentonite slurry 1 lb. bentonite : 1 gal. H_2O mixture (20'-47')		50		
		55		
		60		CLAYEY SANDY GRAVEL
		65		SANDY CLAY
		70		CLAYEY SAND
		75		SAND
		80		
		85		
-10+100 mesh Big Horn bentonite (dry) (47'-217')		90		SILTY SAND
		95		SLIGHTLY GRAVELLY SILTY SAND
		100		SILTY SANDY GRAVEL
		105		SANDY GRAVEL
		110		
		115		SLIGHTLY SILTY GRAVELLY SAND
		120		SILTY SANDY GRAVEL
		125		SANDY GRAVEL
		130		SILTY SANDY GRAVEL

▭ - CONCRETE

A-1800-186 (3/87)

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Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W6-2 Geologist AIRHART Page 2 of 2

Reviewed by W.L. McThom Date 1-8-88

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Diagram Litho.	Lithologic Description
		135'		SILTY SANDY GRAVEL
		140'		
		145'		
		150'		
		155		
		160		GRAVELLY SAND
		165		
		170		
		175		
		180		
		185		
10-100 mesh Big Horn bentonite (dry) (47'-217')		190		
		195		SILTY/CLAYEY SANDY GRAVEL
		200		
		205		SILTY SANDY GRAVEL
		210		
centralizers		215		
½" Volclay tablets (217'-220')		220		
Top of screen @ 224'		225		
10-20 mesh Colorado Silica Sand (220'-248')	227'10"	230		
		235		
8" telescoping screen 238'-248'		240		
Bottom of screen @ 245'		245		
Depth Drilled = 248'		250		248' SILTY GRAVELLY SAND

A-1800-186 (3/87)

9413205.0244

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Pacific Northwest Laboratories

Well Completion Report/Title III Inspection List

Project: 200 West Area RCRA Well Drilling
Location: Hanford Site 200 West Area
Driller: Bill Moomaw
Drilling Co.: Onweso Drilling
Geologist: JS Wilbur, SS Teel, SP Airhart, T Gilmore

Well Number: 299-W7-1
Temporary Well Number: none
Coordinates: N.46,551 W.78,601
Casing Elevation: 690.71
Ground Elevation: 688.55

DRILLING METHOD

Rotary Air ____ Mud ____
Cable Tool D 0'-15' H 15'-244'9"
Drilling Fluid: Water
Other ____

COMPLETION DATA

Drilled Depth: 244'9"
Completion Depth: 243'9"
Date Started: 6/1/87 Completed: 7/30/87
Static Water Level/Date: 226' 7/13/87

CASING DATA

Type	Size	
Type 304 Stainless Steel Casing	4" diameter	to 225'
		to
		to

Approved By: ASW Date: 7/30/87

PERFORATIONS

Type: NA

Depth	Schedule
-	
-	
-	

App. By ____ Date ____

SCREEN

Telescoping

	8" dia. type 304 S.S.	4" dia. type 304 S.S.
Type	Continuous Wrap	Continuous Wrap
Length	10'	20'
Slot Size	30	20
Depths	243' -	245'
	233' -	224'

App. By: ASW Date: 7/30/87

ANNULAR SEAL

Type	Interval	Volume
Sand	217'-243'9"	23.33 ft³
Volclay Pellets	212'-217'	3.59 ft³
Volclay Grout	3-212'	203.38 ft³
Concrete	0-3'	8.67 ft³

App. By: ASW Date: 7/30/87

GEOPHYSICAL LOGGING

Sondes	Interval	Date
Neutron	0'-244'	7/10/87
Density	0'-244'	7/10/87
Natural Gamma	0'-244'	7/10/87
	-	
	-	
	-	
	-	

Approved By: AS Wilbur Date: 7/10/87

AQUIFER TESTING

Type of Test: Constant Discharge Test
Length of Test: 8 hrs
Volume Pumped: 8,400 gals.
Drawdown: 3.96'

Approved By: ASW Date: 7/15/87

OTHER APPLICABLE ITEMS

- ASW Steam Cleaning
- ASW Storage of Const. Material
- ASW Tool Lubricants
- ASW Concrete Pad
- ASW Protective Steel Posts
- ASW Safety Paint
- ASW Straightness Test
- ASW Well Development
- ASW Downhole TV Inspection
- Well Abandonment
- ASW Complete As-Built Diagram, Driller's and Geologist's Logs

Approved By: ASW Date: 7/30/87

Reviewed By: D.R. McKibben Date: 1-7-88

A-1800-187 (3/87)

9413275.0745

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Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W07-01 Geologist WILSON, TEEL, JENSEN, BISHOP, AIRHART Page 1 of 2

Reviewed by J.L. McElhaney Date 1-7-88

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Diagram Litho.	Lithologic Description
Concrete Surface Seal (0'-3')		5		SLIGHTLY SILTY GRAVELLY SAND
		10		SLIGHTLY SILTY SANDY GRAVEL
0'-65'5" 12" dia. Carbon Steel Casing		15		SILTY SANDY GRAVEL
0'-157'1" 10" dia. Carbon Steel Casing		20		
0'-245' 8" dia. Carbon Steel Casing		25		
		30		SANDY GRAVEL
0'-225' 4" dia. Stainless Steel Casing		35		
		40		
		45		
		50		
		55		
Volclay Grout (3'-212')		60		
		65		SILTY SAND
		70		
		75		SILTY SAND W/ CALICHE
		80		CALICHE & SAND
		85		SILTY SAND
		90		
		95		
		100		SAND (COARSE)
		105		
		110		
		115		
		120		
		125		
		130		SLIGHTLY GRAVELLY SAND

A-1800-188 (3/87)

9413205.0246

9413205.0247

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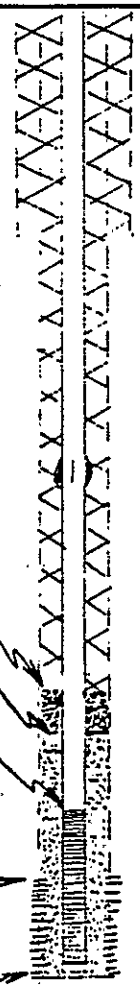
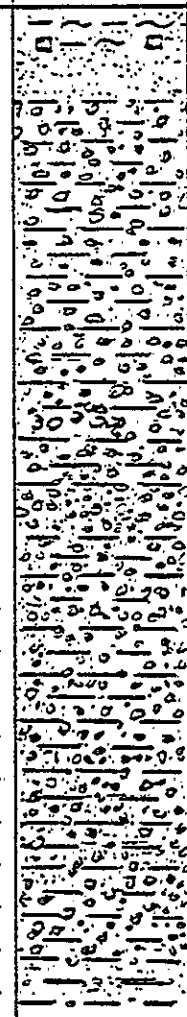
AS-BUILT DIAGRAM

Well Number 299-W07-1 Geologist WILBUR, TEEL, JENSEN BISHOP AIRHART Page 2 of 2

Reviewed by V.L. McGhan Date 1-7-87

Construction Data: Description	Construction Data: Diagram	Depth in Feet	Geologic/Hydrologic Data: Diagram Litho.	Geologic/Hydrologic Data: Lithologic Description
		135		SAND (Silt w/ CaCO3 & CLAYS)
		140		SAND
		145		SILTY SANDY GRAVEL
		150		
		155		
		160		
		165		
		170		
		175		
		180		
		185		
		190		GRAVELLY SAND
		195		SILTY SANDY GRAVEL
D/T of volcan pellets @ 212'		200		
D/T of 20-30 sand @ 217		205		
		210		
D/T of 4" SS screen @ 225'		215		
D/B of 4" SS screen @ 245'		220		
		225		
		230		
D/T of telescoping screen @ 233'		235		
		240		
D/B of telescoping screen @ 243'		245		GRAVELLY SILTY SAND

A-1800-186 (3/87)

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Pacific Northwest Laboratories

Well Completion Report/Title III Inspection List

Project 200 West RCRA Drilling
Location 200 West
Driller Homer Jay
Drilling Co. Onwego Drilling Co
Geologist CW Bishop / T Gilmore, JS Wilbur

Well Number 299 W7 2
Temporary Well Number NA
Coordinates Unavailable
Casing Elevation Unavailable
Ground Elevation Unavailable

DRILLING METHOD

Rotary Air NA Mud NA
Cable Tool D NA H 10'-236'
Drilling Fluid Water
Other Backhoe 0-10'

COMPLETION DATA

Drilled Depth 236
Completion Depth 222'
Date Started 8/4/87 Completed 9/30/87
Static Water Level/Date 212.5' 9/4; 217.9' 9/9

CASING DATA

Type	Size	
8" 304 Stainless Steel Telescoping 30 slot screen	222' to 212'	
4" 304 Stainless Steel Casing	202' to Surface	
	to	

Approved By [illegible] Date 9/17

PERFORATIONS

Type NA

Depth	Schedule

App. By ____ Date ____

SCREEN

Type 304 Stainless Steel 4"
Length 20' 4"
Slot Size 20 slot
Depths 222' - 202'
App. By [illegible] Date 9/17/87

ANNULAR SEAL

Type	Interval	Volume
10-20 Sand	222'-199.3'	2900 lbs
Volclay pellets	199.3'-194.3'	25 gal
Grout	194.3'-4'	5300 lbs
Cement	0'-4'	~6 ft³

App. By [illegible] Date 11/3/87

GEOPHYSICAL LOGGING

Sondes	Interval	Date
Nat Gamma	0 - 221'	9/18/87
Nuetron	0 - 221'	9/18/87
Density	0 - 221'	9/18/87

Approved By [illegible] Date 9/18/87

AQUIFER TESTING

Type of Test Constant Discharge / Recharge
Length of Test 7 hr
Volume Pumped 4900 gal
Drawdown 5.41'

Approved By [illegible] Date 9/16/87

OTHER APPLICABLE ITEMS

- [illegible] Steam Cleaning
- [illegible] Storage of Const. Material
- [illegible] Tool Lubricants
- [illegible] Concrete Pad
- [illegible] Protective Steel Posts
- [illegible] Safety Paint
- [illegible] Straightness Test
- [illegible] Well Development
- [illegible] Downhole TV Inspection
- NA Well Abandonment
- NA Complete As-Built Diagram,
- [illegible] Driller's and Geologist's Logs

Approved By [illegible] Date 11/3/87

Reviewed By [illegible] Date 1-7-88

A-1800-187 (3/87)

9413205.0248

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Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W7-2 Geologist C. W. Bishop Page 1 of 2

Reviewed by D. L. McGhan Date 1-7-88

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Diagram Litho.	Lithologic Description
16" Carbon Steel Casing		5		SILTY SANDY GRAVEL
12" Carbon Steel Casing		10		" " "
10" Carbon Steel Casing 152' 5"		15		" " "
8" Carbon Steel Casing 249' 5"		20		SANDY GRAVEL
4" Stainless Steel Casing		25		SILTY SANDY GRAVEL
		30		GRAVELY SAND
		35		SILTY SANDY GRAVEL
		40		SILT
		45		GRAVELY SANDY SILT
		50		SILTY SANDY GRAVEL
		55		" " "
		60		" " "
		65		" " "
		70		" " "
		75		SILTY GRAVELY SAND
		80		SILTY SAND
		85		" "
		90		" "
		95		SILTY SANDY GRAVEL
		100		GRAVELY SILTY SAND
		105		SILTY SANDY GRAVEL
		110		" " "
		115		" " "
		120		" " "
		125		" " "
		130		" " "

A-1800-188 (3/87)

9413205.0219

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Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299 W7 2 Geologist T. Gilmore Page 2 of 2

Reviewed by W.L. McGhan Date 1-7-88

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Diagram Litho.	Lithologic Description
		135		
		140		
		145		GRAVELY SAND
		150		SILTY SANDY GRAVEL
		155		
		160		
		165		
		170		
		175		
Centralizers 20' above screen		180		
		185		
Enviro-Gel Bentonite Grout		190		
Volclay pellets to 194.3' (25 gal)		195		
Sand Pack to 198.3'		200		
		205		SANDY GRAVEL
	211.26'	210		SILTY SANDY GRAVEL (CL)
	9/15/86	215		SANDY GRAVEL
10' of Telescoping Screen @ 221'		220		GRAVELY SAND
		225		
		230		GRAVEL
10-20 Colo. Silica Sand		235		SILTY GRAVELY SAND
Total Depth 236'		240		TD 236'
		245		
		250		
		255		

A-1800-186 (3/87)

9413205.0250

9413205.0251

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Pacific Northwest Laboratories

Well Completion Report/Title III Inspection List

Project 200 West RCRA Drilling Project
Location 200 West
Driller Bill Moomaw
Drilling Co. Onwego Drilling Co
Geologist C.W. Bishops / T Gilmore / Steve Tool

Well Number 299-W7-3
Temporary Well Number NA
Coordinates N. 46,520 W. 77,420
Casing Elevation 676.14
Ground Elevation 673.71

DRILLING METHOD

Rotary Air NA Mud NA
Cable Tool D NA H 8'-475'
Drilling Fluid Water
Other BACKHOE 0'-8'

COMPLETION DATA

Drilled Depth 475'
Completion Depth 470'
Date Started 7/27/87 Completed 11/23/87
Static Water Level/Date 210.2' 9/9; 212.4' 9/10; 211.7' 9/15

CASING DATA

Type	Size		
TYPE 304 STAINLESS STEEL CASING	4" DIAMETER	to	470'
		to	
		to	

Approved By SP Ambert Date 11-8-87

PERFORATIONS

Type ——

Depth	Schedule
-	
-	
-	

App. By ____ Date ____

SCREEN

	4" dia Type 304 s.s.	8" dia Type 304 s.s.
Type	continuous wrap	continuous wrap
Length	21'	10'
Slot Size	20-slot	30-slot
Depths	449' to 470'	~470' to 476'8"

App. By SP Ambert Date 11-8-87

ANNULAR SEAL

Type	Interval	Volume
Col. Silica Sand	476'-427'	17.89 ft³
Volclay Grout	427'-196'	213.90 ft³
Bentonite Slurry	196'-20	~~668.45 ft³~~ 748.66 SPA
Dry Bentonite	20-5	93.66 ft³
Concrete	5-0	7.33 ft³

App. By S.P. Ambert Date 11/30/87

GEOPHYSICAL LOGGING

Sondes	Interval	Date
NATURAL GAMMA	0' - 476'	10/28/87
NEUTRON	0' - 476'	10/28/87
DENSITY	0' - 476'	10/28/87
	-	
	-	
	-	
	-	

Approved By S.P. Ambert Date 10/29/87

AQUIFER TESTING

Type of Test CONSTANT DISCHARGE
Length of Test 28.25 hrs.
Volume Pumped 4 779 gallons
Drawdown 154.78'

Approved By S.P. Ambert Date 10/31/87

OTHER APPLICABLE ITEMS

- TB Steam Cleaning
- TB Storage of Const. Material
- TB Tool Lubricants
- SPA Concrete Pad
- SPA Protective Steel Posts
- SPA Safety Paint
- TB Straightness Test
- TB Well Development
- VPMH Downhole TV Inspection
- — Well Abandonment
- SPA Complete As-Built Diagram, Driller's and Geologist's Logs

Approved By SP Ambert Date 11-30-87

Reviewed By V.L. McGhan Date 1-7-88

A-1800-187 (3/87)

Battelle
Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W7-3 Geologist C. W. BISHOP Page 1 of 4

Reviewed by D. L. McElhaney Date 1-7-88

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Diagram Litho.	Lithologic Description
concrete surface seal				
20" Carbon Steel Casing 20'11"		5		GRAVEL
16" Carbon Steel Casing 145'6½"		10		SILTY SANDY GRAVEL
12" Temporary Carbon Steel Casing 232'0"		15		" " "
10" Temporary Carbon Steel Casing 314'6"		20		" " "
8" Temporary Carbon Steel Casing 377'		25		" " "
		30		" " "
		35		GRAVELY SILTY CLAY
		40		SILT
		45		GRAVELY SANDY SILT
Dry bentonite		50		SILTY SANDY GRAVEL
		55		" " "
		60		" " "
		65		GRAVELY SILTY SAND
		70		" " "
		75		" " "
Dry bentonite		80		" " "
		85		GRAVELY SAND
		90		" "
Dry bentonite		95		SAND
		100		GRAVELY SAND
		105		" "
		110		SILTY SANDY GRAVEL
		115		" " "
		120		" " "
		125		" " "
		130		" " "

A-1800-188 (3/87)

9413205.0252

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Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W7-3 Geologist T Gilmore Page 2 of 4

Reviewed by D.L. McKhan Date 1-7-88

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Diagram Litho.	Lithologic Description
		125		SILTY SANDY GRAVEL
		130		
		135		
Dry bentonite		140		
		145		
		150		
Bentonite slurry (196')		155		Trace Clay
		160		
		165		
		170		SANDY GRAVEL
		175		GRAVELY SAND
		180		< Lith change
		185		SANDY GRAVEL
		190		
		195		SILTY GRAVELY SAND
Volclay Grout (196'-477')		200		Tr Clay
		205		▼ Water level 210.2' *
		210		SANDY GRAVEL
		215		
		220		SILTY SAND
		225		
		230		Tr Clay
		235		
		240		SAND
		245		

A-1800-186 (3/87)

9413205.0253

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AS-BUILT DIAGRAM

Well Number 299 W7 3 Geologist T. Gilmore Page 3 of 4

Reviewed by V.L. McGhan Date 1-7-88

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Diagram Litho.	Lithologic Description
		245		Clay (Bentonite?) 259'-261'
		250		SANDY GRAVEL @ 262'
		255		Sandy Gravel
		260		Gravely Sand
		265		Sandy gravel
		270		" "
		275		" "
		280		" "
		285		" "
		290		Gravel
		295		Gravely sand
Volclay Grout		300		Silty sandy gravel
		305		" " "
		310		" " "
		315		Sandy gravel
		320		" "
		325		Gravelly sand
		330		Silty sandy gravel
		335		Gravelly silty sand
		340		" " "
		345		Gravely sand
		350		Sand
		355		"
		360		Silty sandy gravel
		365		Sandy gravel
		370		Gravely sand

A-1800-188 (3/87)

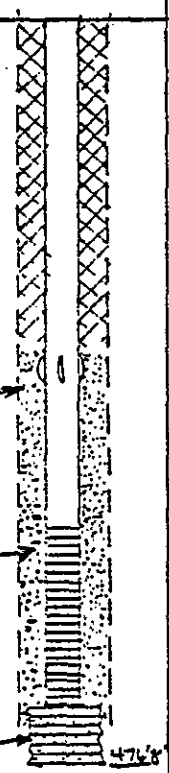
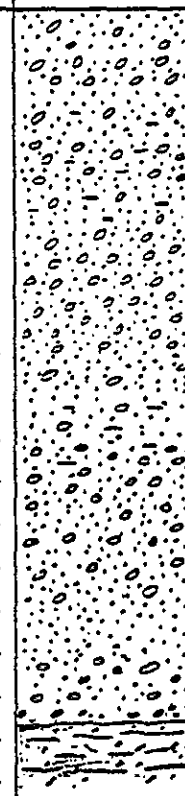
9413205.0254

Battelle
Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W7-3 Geologist S. Teel Page 4 of 4

Reviewed by V.L. McGhan Date 1-7-88

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Diagram Litho.	Lithologic Description
		395		Gravely sand
		400		Sandy gravel
		405		Gravely silty sand
		410		Silty sandy gravel
		415		Gravely silty sand
		420		Sandy gravel
		425		" "
		430		" "
20-30 mesh Colorado to inhibit migration of Volclay grout into sandpack.		435		Gravely sand
		440		Gravely silty sand
		445		Silty sandy gravel
		450		Sandy gravel
10-20 mesh Colorado silica sand (427'-476')		455		" "
		460		" "
		465		Sand
		470		Sandy gravel
8" telescoping screen was damaged while re-drilling hole to re-insert 4" s.s. casing & screen. Inside of telescoping screen was filled w/ silica sand.	476'8"	475		BASALT CONTACT @ ~473'

A-1800-186 (3/87)

9413205.0255

9413205.0256

Battelle
Pacific Northwest Laboratories

Well Completion Report/Title III Inspection List

Project KEH-1914
Location 200 WEST AREA - HANFORD
Driller RUSS VANCE
Drilling Co. ONWEGO
Geologist TEEL; GILMORE; WILBUR; AIRHART

Well Number 299-W7-4
Temporary Well Number —
Coordinates N. 45,435 W. 77,040
Casing Elevation 671.69
Ground Elevation 669.02

DRILLING METHOD

Rotary Air — Mud —
Cable Tool D — H 5'-235'
Drilling Fluid H_2O
Other BACKHOE 0'-5'

COMPLETION DATA

Drilled Depth 235'
Completion Depth 233'
Date Started 9/29/87 Completed 11/19/87
Static Water Level/Date 205' / 11-2-87

CASING DATA

Type	Size		
TYPE 304 STAINLESS STEEL CASING	4" DIAMETER	to	233'
		to	
		to	

Approved By S.P. Ambert Date 11/8/87

PERFORATIONS

Type —

Depth	Schedule
-	
-	
-	

App. By _____ Date _____

SCREEN

	4" dia Type 304 S.S.	8" dia Type 304 S.S.
Type	continuous wind	continuous wind
Length	30'	10'
Slot Size	10-slot	30-slot
Depths	203' to 233'	223' to 233'

App. By S.P. Ambert Date 11/8/87

ANNULAR SEAL

Type	Interval	Volume
COLORADO SILICA SAND	194'-233'	22.94 ft³
VOLCLAY PELLETS	190'-194'	2.87 ft³
BENTONITE SLURRY	12'-194'	267 ft³
DRY BENTONITE	3'-12' 50'-60'	26.08 ft³
CONCRETE	0'-3'	4 ft³

App. By S.P. Ambert Date 11/10/87

GEOPHYSICAL LOGGING

Sondes	Interval	Date
NATURAL GAMMA	0' - 231'	11/5/87
DENSITY	0' - 231'	11/5/87
NEUTRON	0' - 231'	11/5/87
	-	
	-	
	-	
	-	

Approved By S.P. Ambert Date 11/5/87

AQUIFER TESTING

Type of Test CONSTANT - DISCHARGE
Length of Test 7 hrs.
Volume Pumped 20160 gallons
Drawdown 7.7'

Approved By S.P. Ambert Date 11/12/87

OTHER APPLICABLE ITEMS

SPA Steam Cleaning
SPA Storage of Const. Material
SPA Tool Lubricants
SPA Concrete Pad
SPA Protective Steel Posts
SPA Safety Paint
SPA Straightness Test
SPA Well Development
Downhole TV Inspection
— Well Abandonment
SPA Complete As-Built Diagram, Driller's and Geologist's Logs

Approved By S.P. Ambert Date 11/30/87

Reviewed By W.L. McGhan Date 1-7-88

A-1800-187 (3/87)

Battelle
Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W7-4 Geologist TEEL; GILMORE; WILSUE; AIRHART Page 1 of 2

Reviewed by H.L. McGhan Date 1-7-88

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Diagram Litho.	Lithologic Description
concrete surface seal 0'-3'		5		GRAVEL
Dry bentonite		10		SANDY GRAVEL
16" Carbon Steel Casing (0'-50')		15		GRAVEL
12" Carbon Steel Casing (0'-50.8')		20		SANDY GRAVEL
10" Carbon Steel Casing (0'-50.4')		25		GRAVEL
8" Carbon Steel Casing (0'-73.2')		30		
4" Stainless Steel Casing (0'-103')		35		SANDY GRAVEL
		40		
NOTE: All Carbon Steel Casing was removed		45		
		50		
Dry Bentonite.		55		SILTY SANDY GRAVEL
		60		GRAVELLY SILT/CLAY
		65		GRAVELLY SANDY SILT
		70		GRAVELLY SILTY SAND
		75		GRAVELLY SAND
		80		SAND
		85		
Bentonite slurry (12'-104')		90		
		95		
		100		
		105		GRAVELLY SAND
		110		
		115		SANDY GRAVEL
		120		
		125		SILTY SANDY GRAVEL
		130		SANDY GRAVEL

A-1800-185 (3/87)

9413205.0257

Battelle
Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 199-W7-4 Geologist TEEL; GILMORE; WILBUR; AIRHART Page 2 of 2

Reviewed by V.L. McGhan Date 1-7-88

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Diagram Litho.	Lithologic Description
		135		SANDY GRAVEL
		140		
		145		SILTY SANDY GRAVEL
		150		
		155		
Bentonite slurry		160		
		165		SANDY GRAVEL
		170		SILTY SANDY GRAVEL
		175		CAYEY SANDY GRAVEL
		180		SILTY SANDY GRAVEL
		185		
		190		
Volclay pellets (190'-194')		195		
		200		
Top of 4" screen @ 203'		205		
	205' 11/28	210		
centralizers		215		SILTY GRAVELLY SAND
10-20 mesh Colorado Silica sand (194' - 233')		220		SLIGHTLY SILTY GRAVELLY SAND
Top of telescoping screen 223'		225		SILTY SANDY GRAVEL
		230		
Bottom of 8" & 4" screens @ 233'.		235		
DRILL DEPTH = 235'		240		

A-1800-186 (3/87)

9413205.0258

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Well Completion Report/Title III Inspection List

Project KEH-1914
Location 200 WEST AREA ; HANFORD
Driller HOMER JOY, DAVE GARCIA
Drilling Co. ONWEGO DRILLING
Geologist

Well Number 299-W7-5
Temporary Well Number —
Coordinates N.46,509 W.76,816
Casing Elevation 671.14
Ground Elevation 670.41

DRILLING METHOD

Rotary Air — Mud —
Cable Tool D — H 10'-229'
Drilling Fluid H_2O
Other BACKHOE 0'-10'

COMPLETION DATA

Drilled Depth 229'
Completion Depth 227.7'
Date Started 9/30/87 Completed 11/19/87
Static Water Level/Date 211' ~~[illegible]~~ SPA 11/7/87

CASING DATA

Type	Size		
TYPE 304 STAINLESS STEEL CASING	4" DIAMETER	to	207'
		to	
		to	

Approved By S.P. [signature] Date 11/16/87

PERFORATIONS

Type —

Depth	Schedule
-	
-	
-	

App. By Date

SCREEN

Type 4" dia. TYPE 304 S.S. continuous wrap
Length 20' (2 x 10' lengths)
Slot Size 20 slot
Depths 227.7' - 207.7'
App. By S.P. [signature] Date 11/16/87

ANNULAR SEAL

Type	Interval	Volume
COLORADO SILICA SAND	200'-208'	18.28 ft³
VOLCLAY PELLETS	197'-200'	4.31 ft³
DRY BENTONITE	100'-197'; 2'-5'	10.14 ft³
BENTONITE SLURRY	5'-190'	360.96 ft³
CONCRETE	0'-2'	

App. By S.P. [signature] Date 11/30/87

GEOPHYSICAL LOGGING

Sondes	Interval	Date
NATURAL GAMMA	0' - 224'	11/14/87
NEUTRON	0' - 224'	11/14/87
DENSITY	0' - 224'	11/14/87
	-	
	-	
	-	
	-	

Approved By S.P. [signature] Date 11/15/87

AQUIFER TESTING

Type of Test Constant discharge test
Length of Test 6 hrs
Volume Pumped 1800 gal
Drawdown 5.02

Approved By A.S. Will Date 11/23/87

OTHER APPLICABLE ITEMS

SPA Steam Cleaning
SPA Storage of Const. Material
SPA Tool Lubricants
SPA Concrete Pad
SPA Protective Steel Posts
SPA Safety Paint
SPA Straightness Test
SPA Well Development
[illegible] Downhole TV Inspection
— Well Abandonment
SPA Complete As-Built Diagram, Driller's and Geologist's Logs

Approved By S.P. [signature] Date 11/30/87

Reviewed By V.L. McGhan Date 1-7-88

A-1800-187 (3/87)

9413205.0259

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AS-BUILT DIAGRAM

Well Number 299-W7-5 Geologist Dave Waisman Page 1 of 2

Reviewed by Y.L. McGhan Date 1-7-88

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Diagram Litho.	Lithologic Description
Concrete surface seal.		5		GRAVEL
Dry bentonite		10		"
(0'-10') 16" dia. carbon steel casing		15		SANDY GRAVEL
(0'-50'9") 12" dia. carbon steel casing		20		" "
(0'-154'7") 10" dia. carbon steel casing		25		" "
(0'- 8" dia. carbon steel casing		30		SILTY SANDY GRAVEL
All carbon steel casing removed.		35		" " "
		40		" " "
		45		" " "
		50		SILTY GRAVELLY SAND
		55		" " "
		60		GRAVELLY SILTY SAND
		65		SILTY GRAVELLY SAND
		70		" " "
		75		" " "
		80		SANDY GRAVEL
		85		" "
Bentonite slurry		90		" "
(5'-190')		95		" "
		100		" "
		105		" "
		110		SILTY SANDY GRAVEL
		115		" " "
		120		" " "
		125		" " "
		130		Sandy gravel

A-1800-186 (3/87)

9413205.0260

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AS-BUILT DIAGRAM

Well Number 299-W 7-5 Geologist [illegible] Page 2 of 2

Reviewed by [illegible] Date 1-7-88

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Diagram Litho.	Lithologic Description
		135		SANDY GRAVEL
		140		
		145		
		150		
		155		SILTY SANDY GRAVEL
Bentonite slurry		160		
		165		
		170		
		175		
		180		
		185		
		190		SILTY GRAVELLY SAND
Dry bentonite (190'-197')		195		
Volclay Pellets (197'-200')		200		
		205		SILTY SANDY GRAVEL
20-30 mesh Colorado Silica Sand (200'-205')		210		SILTY GRAVELLY SAND
	211'	215		GRAVELLY SAND
70 slot S.S. screen (207'-227.7')		220		SANDY GRAVEL
		225		SILTY/CLAYEY SAND
		230		
Depth Drilled: 229'				

A-1800-186 (3/87)

9413205.0261

9413205.0262

Battelle Pacific Northwest Laboratories

Well Completion Report/Title III Inspection List

Project KEH-1914	Well Number 299-W7-6
Location 200 WEST AREA - HANFORD	Temporary Well Number —
Driller BLAINE BOLEY	Coordinates N.46,509 W.76,219
Drilling Co. ONWEGO DRILLING	Casing Elevation 678.64
Geologist WAISMAN, GANDY, TEEL, AIRHART	Ground Elevation 676.25

DRILLING METHOD

Rotary Air — Mud —
Cable Tool D _____ H 10'-242.8'
Drilling Fluid WATER
Other BACKHOE 0'-10'

COMPLETION DATA

Drilled Depth 242.8'
Completion Depth 229'
Date Started 9/2/87 Completed 11/2/87
Static Water Level/Date 218' / 10/9/87

CASING DATA

Type	Size	
TYPE 304 STAINLESS STEEL CASING	4" DIAMETER	to 229'
		to
		to

Approved By S.P. Airhart Date 10/23/87

PERFORATIONS

Type —

Depth	Schedule
-	
-	
-	

App. By _____ Date _____

SCREEN

	4" dia. TYPE 304 SS.	8" DIA. TYPE 304 SS.
Type	CONTINUOUS WRAP	CONTINUOUS WRAP
Length	20'	10'
Slot Size	20 slot	80 slot
Depths	209' to 229'	231' to 241'

App. By S.P. Airhart Date 10/29/87

ANNULAR SEAL

Type	Interval	Volume
COLORADO SILICA SAND	(205.5'-240')	12.06 ft³
VOLCLAY PELLETS	205.5-205.5	2.88 ft³
BENTONITE SLURRY	3'-200.5'	387.70 ft³ SPA
DRY BENTONITE	2'-3'	1.43 ft³
CONCRETE	0'-2'	2.0 ft³

App. By S.P. Airhart Date 11/2/87

GEOPHYSICAL LOGGING

Sondes	Interval	Date
NATURAL GAMMA	0'-241'	10/9/87
DENSITY	0'-241'	10/9/87
NEUTRON	0'-241'	10/9/87
	-	
	-	
	-	
	-	

Approved By S.P. Airhart Date 10/9/87

AQUIFER TESTING

Type of Test Constant discharge test
Length of Test 8 hrs
Volume Pumped 3,400 gals
Drawdown 21.42

Approved By [signature] Date 10/15/87

OTHER APPLICABLE ITEMS

- SPA Steam Cleaning
- SPA Storage of Const. Material
- SPA Tool Lubricants
- SPA Concrete Pad
- SPA Protective Steel Posts
- SPA Safety Paint
- SPA Straightness Test
- SPA Well Development
- NOT Downhole TV Inspection
- — Well Abandonment
- SPA Complete As-Built Diagram, Driller's and Geologist's Logs

Approved By S.P. Airhart Date 11/12/87

Reviewed By D.L. McKhann Date 1-8-95

A-1800-187 (2/87)

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Pacific Northwest Laboratories

AS-BUILT DIAGRAM

LYNNETTE GANDL

Well Number 299-W7-6 Geologist Dave Waisman Page 1 of 2

Reviewed by [illegible] Date 1-8-88

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Diagram Litho.	Lithologic Description
CONCRETE SURFACE SEAL		5		Sandy gravel
DRY BENTONITE		10		Gravely sand
		15		Sandy gravel
(0'-51'3") 12" DIA. CARBON STEEL CASING		20		SILTY SANDY GRAVEL
(0'-152') 10" DIA. CARBON STEEL CASING		25		" " "
(0'-241'9") 8" DIA. CARBON STEEL CASING		30		" " "
ALL CARBON STEEL CASING REMOVED.		35		SLIGHTLY SILTY
		40		" GRAVELLY SAND
		45		GRAVELLY SANDS
		50		" "
4" DIA. STAINLESS STEEL CASING		55		SLIGHTLY GRAV. SAND
		60		" " "
		65		" " "
		70		" " "
		75		GRAVELLY SAND
BENTONITE SLURRY (3'-200.5')		80		GRAVELLY SILTY SAND
		85		" " "
		90		" " "
		95		" " "
		100		SILTY GRAVELLY SAND
		105		SILTY SANDY GRAVEL
		110		Sandy Gravel
		115		" "
		120		" "
		125		" "

□ = caliche

A-1800-188 (3/87)

9413205.0263

9413205.0264

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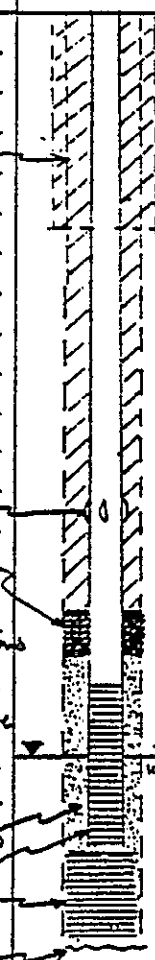
AS-BUILT DIAGRAM

Well Number 299 W7-6 Geologist Dave Waisman Page 2 of 2

Reviewed by [illegible] Date 1-8-88

Construction Data: Description	Construction Data: Diagram	Depth in Feet	Geologic/Hydrologic Data: Diagram Litho.	Geologic/Hydrologic Data: Lithologic Description
		130		Sandy Gravel
		135		" "
		140		" "
BENTONITE SLURRY		145		" "
		150		" "
		155		" "
		160		" "
		165		" "
		170		" "
		175		Silty sandy Gravel
		180		" " "
		185		" " "
CENTRALIZERS		190		Silty gravely sand
VOLCLAY PELLETS (200.5'-205.5')		195		Silty sandy gravel
NOTE: 4" S.S. casing & screen		200		" " "
were re-set after complications		205		Sandy gravel
w/ initial completion efforts		210		Silty sandy gravel
It was impossible to conserve		215		Sandy Gravel
original depth since 8"	218' 10/8/87	220		" "
screen had filled w/ sand.		225		" "
10-20 MESH COLORADO SILICA SAND (205.5'-240')		230		Silty gravely sand
4" dia 20-SLOT S.S. SCREEN (208'-229')		235		Silty sandy gravel
8" TELESCOPING SCREEN (231'-241')		240		" " "
DEPTH DRILLED = 242.8'		245		
		250		

A-1800-188 (3/87)

WELL COMPLETION/INSPECTION REPORT (governing procedure DO-1, RO)

Specification No. WHC-5-OT4 Rev. No. 3
Project W017-LLBG
Location 200 West Area
Drilling Co. Basin and Range Drilling Co.
Driller Lin Cordon
Other (companies) NONE
Geologist(s) B.N. Bjornstad, J.V. Woznipwicz, T. Gilmore, S.M. Goodwin, M.A. Chamness, R. Miller

Well No. 299-W7-7 Temp. Well No. W3-MW2
Coordinates N 46,509.3' W 76,518.7'
Casing Elev. 674.94' ~~Ground~~ Brass Cap Elev. 671.96'

DRILLING METHOD

Rotary Air N/A Mud N/A
Cable Tool D 40'-65' H 0'-40' 65'-230'
Drilling Fluid 200 West Raw Water Supply
Other None

GEOPHYSICAL LOGGING

Sondes	Interval	Date
Gamma Ray	229 - 3	11-17-89
	-	
	-	
	-	
	-	

COMPLETION DATA

Drilled Depth 230.83' (11/16/89)
Completed Depth 227.8'
Date Started 10/23/89
Date Completed 11/27/89
Static Water Level/Date 211.8' (11/17/89)

AQUIFER TESTING

Type /
Length of Test NA
Volume Pumped /
Drawdown /
Date of Test /

INSPECTION RESULTS

CLEANING

Inspection Method Visual
Acceptance Criteria Sect. 7.6

	Accept	Reject	Date
Drilling Tools/Rig	BNB		10/27/89
Temporary Materials	BNB		11/16/89
Permanent Materials	JB		11/27/89

MATERIAL STORAGE/PACKING

Inspection Method Visual
Acceptance Criteria Sect. 4.2.2

	Accept	Reject	Date
Mtl. Handling/Storage	BNB		11/27/89
Material Packing	BNB		11/27/89

SCREEN

Type	Length	Slot Size
4" st. steel channel pack	20.24	10

Depth(s) 227.8' - 207.06'
Inspection Method Verify with Steel Tape
Acceptance Criteria Sect. 4.2.3
Accept JB Reject Date 11/17/89

LUBRICANTS/ADDITIVES

Inspection Method Visual
Acceptance Criteria Sect. 7.2

	Identify	Accept	Reject	Date
Additives	None	BNB		11/27/89
Lubricants	Food Grade Oil	BNB		11/27/89

STRAIGHTNESS TEST

Inspection Method Run Bailer to Bottom
Acceptance Criteria Sect. 8.3
Accept BNB Reject Date 11/16/89

CASING (permanent)

Type	Size	Placement
4" Stainless Steel	4"	207.06' - +1.99'

Inspection Method Measured w/ Steel Tape
Acceptance Criteria Sect. 4.2.4
Accept JB Reject Date 11/17/89

WELL PROTECTION

Inspection Method Visual
Acceptance Criteria Sect. 4.2.10

	Accept	Reject	Date
Protective Posts	BNB		1/24/90
Locks			

ANNULAR SEAL

Inspection Method Measured w/ Steel Tape
Acceptance Criteria Sect. 4.2.6 - 4.2.9.1

Type	Interval	Volume	Accept	Reject	Date
silica sand 20-40 mesh	229.55' - 202.7'	25 3/4-100 lb bags	JB		11/21/89
bentonite pellets 3/8" Volclay	202.7' - 198'	3-5 gal. buckets	JB		11/21/89
bentonite crumbles 8-20 mesh	198' - 17.4'	(103)-50 lb bags	MAC		11/27/89
cement grout Portland cement w/ gypsum	17.4' - 1.5'	(12) 94 lb bags	MAC		11/27/89
[illegible]	1.5' - +.5'	top	BNB		1/24/90

OTHER (initial if performed)

N/A Well Abandonment
VLM Downhole TV Inspection
____ Complete As-Built Diagram, Driller's/Geologist's Logs
DRN Well Development

Reviewed by V.L. McGhan 1-23-90

For all blanks mark N/A if not applicable.

9413205.0265

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AS-BUILT DIAGRAM

Well Number 299-W7-7 Geologist J. Wozniewicz, B. Bjornstad, R. Miller, S. Goodwin, M. Chamness, T. Gilmore Page 1 of 2

Reviewed by V. L. McGhan Date Well Started: 10/23/89 Well Completed: 11/27/89

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Sample Type (○ Drive Barrel, ● Hard Tool, ▲ Split Spoon)	Lithologic Description
Cement Pad (+0.5' - 2.0')		5	●	Muddy Sandy Gravel
12" dia. carbon steel casing (0' - 20.25') - removed		10	●	" " "
		15	●	" " "
Cement Grout - Portland cement with gypsum (2.0' - 17.4')		20	●	" " "
	HT	25	●	" " "
		30	●	Gravelly Sandy Mud
		35	●	Gravelly Muddy Sand
		40	●	" " "
Casing Centralizer		45	○	Muddy Sandy Gravel
Casing Joint		50	○	Slightly Gravelly Slightly Muddy Sand
	DB	55	○	Sand
8" dia. carbon steel casing (0' - 231.2') - removed		60	○	Slightly Gravelly Sand
		65	○	Slightly Gravelly Slightly Muddy Sand
		70	●	Gravelly Sand
4" dia. stainless steel final casing (+1.99' - 207.06')		75	●	Sandy Gravel
		80	●	" "
		85	●	Muddy Sandy Gravel
		90	●	" " "
		95	●	" " "
8 - 20 mesh bentonite crumbles (17.4' - 198.0')	HT	100	●	" " "
		105	●	Slightly Muddy Gravelly Sand
		110	●	Sandy Gravel
		115	●	" "
		120	●	" "
DB = Drive Barrel HT = Hard Tool		125	●	" "
		130	●	" "

A-1800-186 (3/87)

9413205.0266

Battelle
Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W7-7 Geologist J. Wozniewicz, B. Bjornstad, R. Miller, S. Goodwin, M. Chamness, T. Gilmore Page 2 of 2

Reviewed by V. L. McGhan Date Well Started: 10/23/89 Well Completed: 11/27/89

Construction Data

Description

8" dia. carbon steel casing (0' - 231.2') - removed

4" dia. stainless steel final casing (+1.99' - 207.06')

8 - 20 mesh bentonite crumbles (17.4' - 198')

HT = Hard Tool

3/8" Voiclay pellets (198' - 202.7')

20 - 40 mesh Silica sand (202.7' - 229.55')

4" dia. stainless steel Johnson Channel Pack screen (207.06'-227.80')

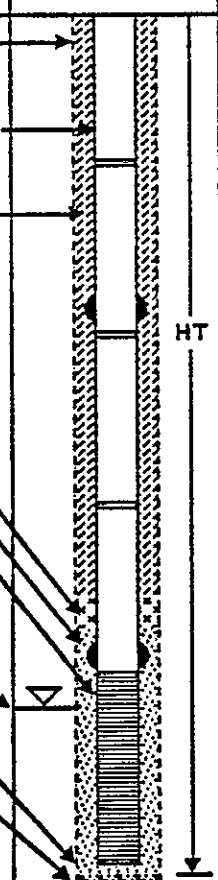
Static Water Table (211.8') - 11/17/89 -

Bottom of well = 227.8'
Backfill (229.55' - 230.83')

Well Completion Symbols (as per PNL-6392)

- Cement Grout
- Granular Bentonite
- Bentonite Pellets
- Sand Pack
- Backfill

Diagram



Geologic/Hydrologic Data

Depth in Feet	Sample Type (○ Drive Barrel, ● Hard Tool, ▲ Split Spoon)	Lithologic Description
135	●	Muddy Sandy Gravel
140	●	" " "
145	●	Sandy Gravel
150	●	" "
155	●	Muddy Sandy Gravel
160	●	" " "
165	●	" " "
170	●	" " "
175	●	" " "
180	●	" " "
185	●	" " "
190	●	" " "
195	●	" " "
200	●	" " "
205	●	" " "
210	●	" " "
215	●	" " "
220	●	" " "
225	●	" " "
230	●	" " "
	TD=230.83'	

A-1800-186 (3/87)

9413205.0267

WELL COMPLETION/INSPECTION REPORT (governing procedure DO-1, RO)

Specification No. WHC-S-014 Rev. No. 3
Project LLBG
Location 200 West Area
Drilling Co. Basin & Range
Driller L. Cordon Jr.
Other (companies) NONE
Geologist(s) R. Miller / Stone Airlmut / Tyler Gilmore
John Woziewicz, I Kennedy
B. Bjornstad

Well No. 299-W7-8 Temp. Well No. 299-W3-3
Coordinates N 46,509.3' W 75,880.1
Casing Elev. 687.35' ~~Ground~~ Brass Cap Elev. 684.40'

DRILLING METHOD

Rotary Air n/a Mud n/a
Cable Tool D 0.0 - 135' H 135' - 244.5'
Drilling Fluid 200 West Raw Water Supply
Other Split Spoon 0.0' - 73.0'

GEOPHYSICAL LOGGING

Sondes	Interval	Date
Natural Gamma	243 - 3'	11/12/89
	-	
	-	
	-	
	-	

COMPLETION DATA

Drilled Depth 244.5'
Completed Depth 240.6'
Date Started 10/19/89
Date Completed 12/13/89
Static Water Level/Date 229.2' 11/17/89

AQUIFER TESTING

Type N/A
Length of Test
Volume Pumped
Drawdown
Date of Test

INSPECTION RESULTS

CLEANING

Inspection Method Visual
Acceptance Criteria Section 7.6

	Accept	Reject	Date
Drilling Tools/Rig	RDM		10/19/89
Temporary Materials	RDM		10/19/89
Permanent Materials	JK		11/12/89

MATERIAL STORAGE/PACKING

Inspection Method Visual
Acceptance Criteria Section 7.3

	Accept	Reject	Date
Mtl. Handling/Storage	JK		11/12/89
Material Packing	JK		11/12/89

SCREEN

Type	Length	Slot Size
Johnson Channel Pack 4" ID	20.34'	10 Slot
	—	—

Depth(s) 240.6 - 219.8'
— - —

Inspection Method Visual
Acceptance Criteria Section 4.2.3
Accept JK Reject Date 11/12/89

LUBRICANTS/ADDITIVES

Inspection Method Visual
Acceptance Criteria Section 7.2

	Identify	Accept	Reject	Date
Additives	none	RDM	n/a	10/19/89
Lubricants	Chevron Poly FM-2	RDM	n/a	10/19/89

STRAIGHTNESS TEST

Inspection Method 20' long, 7" dia. boiler
Acceptance Criteria Section 8.3
Accept JK in JVW Reject Date 11/30/89

CASING (permanent)

Type	Size	Placement
Stainless Steel	4" dia	219.8' - +3'
		-

Inspection Method Visual
Acceptance Criteria Section 4.2.4
Accept JK Reject Date 11/12/89

WELL PROTECTION

Inspection Method Visual
Acceptance Criteria Section 4.2.9 - 4.2.10

	Accept	Reject	Date
Protective Posts	BNB		1/24/90
Locks			

ANNULAR SEAL

Inspection Method visual / steel tape
Acceptance Criteria Section 4.2.6 - 4.2.9

Type	Interval	Volume	Accept	Reject	Date
20-40 Mesh Col. Silica Sand	217.3' - 243.4'	14.6 ft³	JK		11/28/89
1/4" Volclay Tablets	215' - 217.3'	1.2 ft³	JK		11/28/89
8-20 Mesh Bentonite	18.3' - 215'	96.6 ft³	SPA		11-29-89
Cement Grout	2.0' - 18.7'	21.8 ft³	BNB		12/1/89
~~Cement Pad~~	~~0.5' - 2.0'~~	~~1 yd³~~	BNB		1/24/90

OTHER (initial if performed)

N/A Well Abandonment
C.R.H. Well Development
VRM Downhole TV Inspection
____ Complete As-Built Diagram, Driller's/Geologist's Logs

Reviewed by [illegible] 1-26-90

 For all blanks mark N/A if not applicable.

9413205.0268

Battelle
Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W7-8 Geologist R. Miller, S. Airhart, T. Gilmore, J. Wozniewicz, I. Kennedy, B. Bjornstad Page 1 of 2

Reviewed by V. L. McGhan Date Well Started: 10/19/89 Well Completed: 12/13/89

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Sample Type: ○ Drive Barrel ● Hard Tool ▲ Split Spoon	Lithologic Description
Cement Pad (0' - 2.0')		5	▲	Sandy Gravel (trace cobbles)
		10	▲	" " " "
12" dia. carbon steel casing (0' - 18.61') - removed		15	▲	" " " "
		20	▲	Muddy Sandy Gravel
Cement Grout (2.0' - 18.7')		25	▲	" " "
		30	▲	Sandy Mud - 28.5'
8" dia. carbon steel casing (0' - 243.0') - removed		35	▲	Muddy Sand (trace caliche)
	SS	40	▲	Sandy Gravel - 39.5' (trace caliche)
		45	▲	Sandy Gravel (fines 47.0 - 48.0')
4" dia. stainless steel final casing (+3.0' - 240.6')		50	▲	Sand (fines - 47.0'-48.0') Slightly Gravelly Sand (48.0'-51.0')
		55	▲	Muddy Sandy Gravel
Casing Centralizer		60	▲	Gravelly Sand (to 59.0')
Casing Joint		65	▲	Sand
		70	▲	"
		75	○	"
		80	○	Gravelly Sand (@78.0')
		85	○	Sandy Gravel (trace cobbles)
		90	○	" "
8-20 mesh Bentonite (18.7' - 215.0')		95	○	" "
	DB	100	○	" "
		105	○	" "
		110	○	" "
DB = Drive Barrel		115	○	" "
SS = Split Spoon		120	○	Sand
		125	○	Sandy Gravel
		130	○	Muddy Sandy Gravel

A-1800-196 (3/8

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Battelle
Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W7-8 Geologist R. Miller, S. Airhart, T. Gilmore, J. Wozniewicz, I. Kennedy, B. Bjornstad Page 2 of 2

Reviewed by V. L. McGhan Date Well Started: 10/19/89 Well Completed: 12/13/89

Construction Data

Description

8" dia. carbon steel casing (0' - 243.0') - removed

4" dia. stainless steel final casing (+3.0' - 219.8')

8-20 mesh Bentonite (18.7' - 215.0')

Well Completion Symbols (as per PNL-6392)

- Cement Grout
- Granular Bentonite
- Bentonite Pellets
- Sand Pack
- Backfill

DB = Drive Barrel
HT = Hard Tool

1/4" Volclay Tablets (215.0 - 217.3')

Static Water Table (225.2') - 11/17/89 -

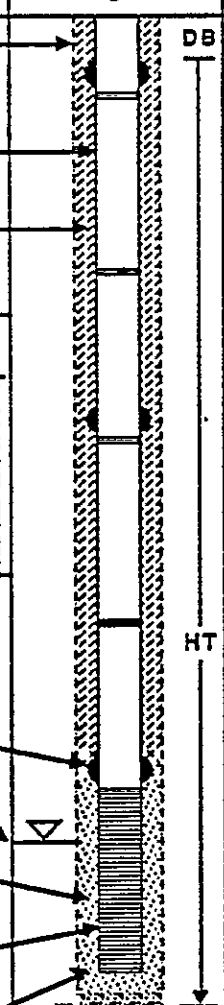
20-40 mesh Colorado Silica Sand (217.3' - 243.4')

4" dia. stainless steel Johnson Channel Pack screen (219.8' - 240.6')

Bottom of well = 240.6'

Backfill (243.4' - 244.5')

Diagram



Geologic/Hydrologic Data

Depth in Feet	Sample Type (○ Drive Barrel, ● Hard Tool, ▲ Split Spoon)	Lithologic Description
135	○	Muddy Sandy Gravel
140	●	" " "
145	●	" " "
150	●	" " "
155	●	" " "
160	●	" " "
165	●	" " "
170	●	" " "
175	●	" " "
180	●	" " "
185	●	" " "
190	●	" " "
195	●	" " "
200	●	" " "
205	●	" " "
210	●	" " "
215	●	" " "
220	●	" " "
225	●	" " "
230	●	" " "
235	●	Slightly Muddy Gravelly Sand
240	●	Muddy Sandy Gravel
245		
		TD= 244.5'

A-1800-186 (3/87)

9413205.0270

Page 1 of 2

WELL COMPLETION/INSPECTION REPORT (governing procedure DO-1, RO)

Specification No. WHC-S-014 Rev. No. 3
Project W-017 Low Level Burial Grounds
Location 200 West Area
Drilling Co. Kaiser
Driller M. Thorsen
Other (companies) None
Geologist(s) B.N. Bjornstad, S. Goodwin, T. Gilmore, R.P. Blegen, M. Chamness, A. Pearson, S. Airhart, T. Kennedy, K.E.O. Barton

Well No. 299-W7-9 Temp. Well No. W5-MW1
Coordinates
Casing Elev. _____ Ground Elev. _____

DRILLING METHOD
Rotary Air N/A Mud N/A
Cable Tool D 0'-144' H 144'-244'
Drilling Fluid 200 West Drill Supply H_2O
Other Split Spoon during drive barrel sampling when possible

GEOPHYSICAL LOGGING

Sondes	Interval	Date
Gamma Ray	243'-3'	11/10/89
Gamma Ray	242-1'	1-4-90
N/A		

COMPLETION DATA
Drilled Depth 252.2'
Completed Depth 241.14'
Date Started 10/13/89
Date Completed 4/11/90
Static Water Level/Date 22.00' 11/9/89

AQUIFER TESTING
Type SLUG TEST N/A
Length of Test N/A
Volume Pumped N/A
Drawdown N/A
Date of Test 3/1/90

INSPECTION RESULTS

CLEANING
Inspection Method visual
Acceptance Criteria Sect. 7.1

	Accept	Reject	Date
Drilling Tools/Rig	BNB	N/A	10/13/89
Temporary Materials	BNB	N/A	11/9/89
Permanent Materials	AWP	N/A	12/15/89

MATERIAL STORAGE/PACKING
Inspection Method visual
Acceptance Criteria Sec. 7.3

	Accept	Reject	Date
Mtl. Handling/Storage	AWP	N/A	12/15/89
Material Packing	AWP	N/A	12/15/89

SCREEN

Type	Length	Slot Size
Johnson Div. Type 304 Continuous Wrap Channel Pack 4" S.S.	20.8'	10

Depth(s) 220.34' - 241.14'
Inspection Method verify using steel tape
Acceptance Criteria Sec. 4.2.3
Accept AWP Reject N/A Date 12/13/89

LUBRICANTS/ADDITIVES
Inspection Method visual
Acceptance Criteria Section 7.2

	Identify	Accept	Reject	Date
Additives	None	BNB	N/A	11/9/89
Lubricants	Food oil	BNB	N/A	11/9/89

STRAIGHTNESS TEST
Inspection Method 20' 0-6" casing Down Hole
Acceptance Criteria Sec. 5.3
Accept BNB Reject N/A Date 11/9/89

CASING (permanent)

Type	Size	Placement
Johnson Div. Type 304 Schedule 5 Stainless Steel	4"	220.34' + 1.02'

Inspection Method visual
Acceptance Criteria Sec. 4.2.4
Accept AWP Reject N/A Date 12/13/89

WELL PROTECTION
Inspection Method visual
Acceptance Criteria Sec. 4.2.9 - 4.2.10

	Accept	Reject	Date
Protective Posts	JD	N/A	3/2/90
Locks	JD	N/A	3/2/90

ANNULAR SEAL
Inspection Method verify using steel tape
Acceptance Criteria Sec. 4.2.6-4.2.9

Type	Interval	Volume	Accept	Reject	Date
Volclay Tablets (1/4" dia)	248.4' - 242.8'	0.78 ft^3	AWP	N/A	12/13/89
Colorado Silica Sand (20-40 mesh)	242.8' - 214.3'	79.04 ft^3	AWP	N/A	12/14/89
Volclay Tablets (1/4" dia)	214.3' - 209.8'	1.86 ft^3	AWP	N/A	12/14/89
Bentonite (8-20 mesh)	209.8' - 20.2'	211.64 ft^3	AWP	N/A	12/15/89

~~Continued on Page 2 of 2~~

OTHER (initial if performed)
N/A Well Abandonment
DRN Well Development
VXM Downhole TV Inspection
CROB Complete As-Built Diagram, Driller's/Geologist's Logs

Reviewed by J.R. McKlam 1-26-90

 For all blanks mark N/A if not applicable.

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 WELL COMPLETION/INSPECTION REPORT(governing procedure DO-1, RO).

Well 299-W7-9 continued...

ANNULAR SEAL

Inspection Method verify using steel tape Acceptance Criteria Sec. 4.2.6-4.2.9

Type	Interval	Volume	Accept	Reject	Date
Portland Cement Type I & II Grout	20.2' - 2.5'	21.12 ft^3	AWP		12/15/89
Concrete Pad	2.5' - +.5'	1 yd^3	AWP		2/22/90
	-				
	-				

for all blanks mark N/A if not applicable.

Reviewed by V.L. McClam 1-26-90

9413205.0272

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Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W7-9

Geologist B. Bjornstad, S. Goodwin, T. Gilmore, R. Biegen, M. Chamness, A. Pearson, S. Airhart, I. Kennedy

Page 1 of 2

Reviewed by V.L. McGhan

Date Well Started: 10/03/89 Well Completed: 04/11/90

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Sample Type: ○ Drive Barrel ● Hard Tool ▲ Split Spoon	Lithologic Description
Concrete Pad (+0.5' - 2.5')		5	▲	Gravelly Muddy Sand
Cement Grout - Portland cement Type I & II Grout (2.5' - 20.2')	SS	10	▲	Muddy Sandy Gravel
		15	○	▪ ▪ ▪
		20	○	Sandy Gravel
		25	○	Muddy Sandy Gravel
		30	○	▪ ▪ ▪
Casing Centralizer	DB	35	○	▪ ▪ ▪
		40	○	▪ ▪ ▪
		45	○	▪ ▪ ▪
Casing Joint		50	○	▪ ▪ ▪
		55	○	▪ ▪ ▪
		60	○	▪ ▪ ▪
10" dia. carbon steel casing (0' - 143.5') - removed		65	○	Slightly Gravelly Slightly Muddy Sand
8" dia. carbon steel casing (0' - 251.1') - removed		70	○	Muddy Sand
		75	○	Muddy Sandy Gravel
		80	○	▪ ▪ ▪
4" dia. stainless steel final casing (+ 1.02' - 220.34')	SS	85	○	Sand
		90	○	Gravelly Sand
		95	○	Slightly Gravelly Slightly Muddy Sand
		100	○	▪ ▪ ▪ ▪ ▪
		105	○	Sand
8 - 20 mesh bentonite crumbles (20.2' - 209.8')	DB	110	○	▪
		115	○	▪
	SS	120	○	▪
DB = Drive Barrel	DB	125	○	▪
		130	○	Gravelly Sand

A-1800-186 (3/

9413205.0273

Battelle
Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W7-9

Geologist B. Bjornstad, S. Goodwin, T. Gilmore, R. Biegen, M. Charnness, A. Pearson, S. Airhart, I. Kennedy

Page 2 of 2

Reviewed by

Date Well Started: 10/03/89
Well Completed: 04/1189

Construction Data

Description

10" dia. carbon steel casing (0' - 143.5') - removed

8" dia. carbon steel casing (0' - 251.1') - removed

4" dia. stainless steel final casing (+1.02' - 220.34')

8-20 mesh bentonite crumbles (20.2' - 209.8')

Well Completion Symbols (as per PNL-6392)

- Cement Grout
- Granular Bentonite
- Bentonite Pellets
- Sand Pack
- Backfill

DB = Drive Barrel
HT = Hard Tool

1/4" Volclay Tablets (209.8 - 214.3')

20-40 mesh Colorado Silica Sand (214.3' - 242.8')

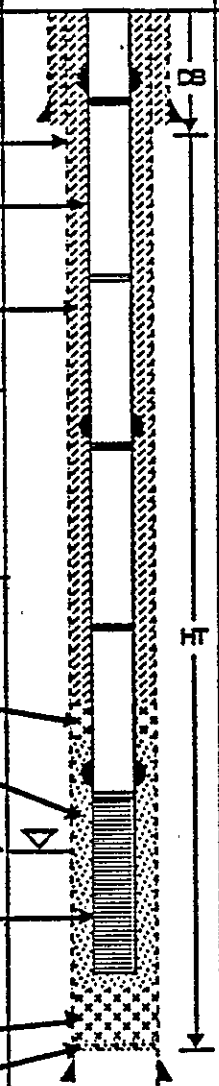
Static Water Table (227.0') - 11/09/89 -

4" dia. Johnson stainless steel 10 slot Channel Pack screen (220.34' - 241.14')

1/4" Volclay Tablets (242.8' - 248.6')

Backfill (248.6' - 252.2')

Diagram



Geologic/Hydrologic Data

Depth in Feet	Sample Type (○ Drive Barrel, ● Hard Tool, ▲ Split Spoon)	Lithologic Description
135	○	Sand
140	○	Slightly Muddy Sand
145	○	Sandy Gravel
150	●	Muddy Sandy Gravel
155	●	Gravelly Sand
160	●	Sandy Gravel
165	●	
170	●	
175	●	
180	●	
185	●	
190	●	
195	●	
200	●	Muddy Sandy Gravel
205	●	
210	●	
215	●	
220	●	
225	●	
230	●	
235	●	Sandy Gravel
240	●	Muddy Sandy Gravel
245		
250		No sample taken
		TD= 252.2'

A-1800-186 (3/87)

9413205.0274

WHC-SD-EN-DP-029, Rev. 0

WELL COMPLETION/INSPECTION REPORT (governing procedure DO-1, R0)

Specification No. WHC-S-0111 Rev. No. 2
Project W-017 LLBG
Location 200-W WMA-3, LLBG
Drilling Co. Basin and Range
Driller Lenny Cordon, Len Cordan Sr.
Other (companies) N/A
Geologist(s) S.S. Teel, C.D. Condit, AW Pearson, TJ Gilmore

Well No. 299-W7-10 Temp. Well No. W3-MW4
Coordinates
Casing Elev. Ground Elev.

DRILLING METHOD
Rotary Air N/A Mud N/A
Cable Tool D 0-10' H 10'-244'
Drilling Fluid Water From 200 West Raw Water Supply
Other

GEOPHYSICAL LOGGING

Sondes	Interval	Date
Nat. Gamma	4 - 141	1/9/90
Nat Gamma	110' - 244'	1/25/90
	N/A	

COMPLETION DATA
Drilled Depth 244.2'
Completed Depth 240.86
Date Started 12/18/89
Date Completed 4/17/90
Static Water Level/Date 225.42' / 2/12/90

AQUIFER TESTING
Type SLUG TEST N/A
Length of Test N/A
Volume Pumped N/A
Drawdown N/A
Date of Test 2/27/90

INSPECTION RESULTS

CLEANING
Inspection Method Visual
Acceptance Criteria Section 7.6

	Accept	Reject	Date
Drilling Tools/Rig	SST	N/A	12/18/89
Temporary Materials	CDC	N/A	1/24/90
Permanent Materials	AWP	N/A	2/5/90

MATERIAL STORAGE/PACKING
Inspection Method Visual
Acceptance Criteria Section 7.3

	Accept	Reject	Date
Mtl. Handling/Storage	AWP	N/A	2/12/90
Material Packing	AWP	N/A	2/12/90

SCREEN

Type (304)	Length	Slot Size
(2) Johnson Division Stainless	10.35	10
Steel Passified Channel Packs	10.00'	10

Depth(s) 240.86' - 230.51'
230.51' - 220.51'
Inspection Method Visual
Acceptance Criteria Section 4.2.3
Accept AWP Reject N/A Date 2/5/90

LUBRICANTS/ADDITIVES
Inspection Method Visual
Acceptance Criteria Section 7.2

	Identify	Accept	Reject	Date
Additives	Drilling Water	CDC	N/A	1/24/90
Lubricants	Chevron Pow Fm	CDC	N/A	1/24/90

STRAIGHTNESS TEST
Inspection Method 20.2' Long 7" Dia Dart Bailer
Acceptance Criteria Section 8.3
Accept CDC Reject N/A Date 1/24/90

CASING (permanent)

Type	Size	Placement
Johnson Division	4"	220.51' - +1.16'
Stainless Steel Type 304		N/A

Inspection Method Visual
Acceptance Criteria Section 4.2.4
Accept AWP Reject N/A Date 2/5/90

WELL PROTECTION
Inspection Method Visual
Acceptance Criteria Section 4.2.9-4.2.10

	Accept	Reject	Date
Protective Posts	AWP		4/3/90
Locks	AWP		4/3/90

ANNULAR SEAL
Inspection Method Visual / Steel Tape Acceptance Criteria Section 4.2.6-4.2.9

Type	Interval	Volume	Accept	Reject	Date
CSSI 20-40 Mesh Sand	244.1' - 217.2'	11.34 ft³	AWP	N/A	2/6/90
3/8" Volclay Tablets	217.2' - 214.1'	1.24 ft³	AWP	N/A	2/6/90
8-20 Mesh Bentonite Crumbles	214.1' - 19.5'	103.66 ft³	AWP	N/A	2/9/90
Portland Cement Grout	18.5' - 2.4'	11.88 ft³	AWP	N/A	2/12/90
Cement Pad	2.4' - +0.5'	1 yd³	[illegible]	N/A	2/13/90

OTHER (initial if performed)
Well Abandonment
VLM Downhole TV Inspection
KROB Complete As-Built Diagram, Driller's/Geologist's Logs
EAM Well Development

Reviewed by [signature] 5-16-90

For all blanks mark N/A if not applicable.

9413205.0275

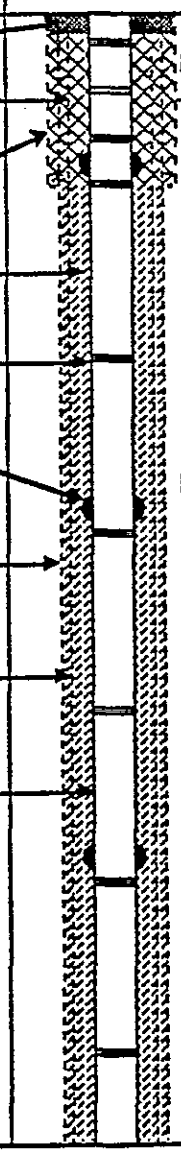
Battelle
Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W7-10 Geologist A.W. Pearson, C.D. Condit, T.J. Gilmore, S.S. Teel Page 1 of 2

Reviewed by V. L. McGhan Date Well Started: 12/18/89 Well Completed: 04/17/90

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Sample Type: ○ Drive Barrel ● Hard Tool △ Split Spoon	Lithologic Description
Cement Pad (+0.5' - 2.4')		5	○	Sandy Gravel
Cement Grout (2.4' - 18.5')		10	○	
		15	●	
12" dia. carbon steel casing (0' - 20.3')		20	●	Gravel
		25	●	Sandy Gravel
8-20 mesh bentonite crumbles (18.5' - 214.1')		30	●	Muddy Sandy Gravel
		35	●	
Casing Joint		40	●	Sandy Gravel
		45	●	
Casing Centralizer		50	●	
		55	●	Muddy Gravel
		60	●	Muddy Sand
10" dia. carbon steel casing (0' - 143.0') - removed		65	●	
		70	●	Slightly Muddy Sand
		75	●	
8" dia. carbon steel casing (0' - 244.1') - removed		80	●	
		85	●	Muddy Sand
		90	●	Slightly Muddy Sand
4" dia. stainless steel final casing (+1.16 - 220.51')		95	●	Sandy Gravel
		100	●	
		105	●	
DB = Drive Barrel		110	●	Muddy Sandy Gravel
HT = Hard Tool		115	●	
		120	●	Sandy Gravel
		125	●	
		130	●	Muddy Sandy Gravel



A-1800-188 (3/87)

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Battelle
Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W7-10 Geologist T.J. Gilmore, A.W. Pearson, C.D. Condit, S.S. Teel Page 2 of 2

Reviewed by _____ Date Well Started: 12/18/89 Well Completed: 04/17/90

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Sample Type: ○ Drive Barrel ● Hard Tool ▲ Split Spoon	Lithologic Description
10" dia. carbon steel casing (0' - 143.0') - removed		135	●	Sandy Gravel
		140	●	
		145	●	
8" dia. carbon steel casing (0' - 244.1') - removed		150	●	Muddy Sandy Gravel
		155	●	
4" dia. stainless steel final casing (+1.16' - 220.51')		160	●	
		165	●	Sandy Gravel
Well Completion Symbols (as per PNL-6392)		170	●	Muddy Sandy Gravel
Cement Grout		175	●	
Granular Bentonite		180	●	
Bentonite Pellets		185	●	
Sand Pack	HT	190	●	Sandy Gravel
Backfill		195	●	Muddy Sandy Gravel
		200	●	
8 - 20 mesh bentonite crumbles (18.5' - 214.1')		205	●	Sandy Gravel
		210	●	
3/8" Volclay tablets (214.1' - 217.2')		215	●	
		220	●	
20-40 mesh silica sand (217.2' - 244.1')		225	●	
		230	●	
Static Water Level 225.42' -2/12/90-		235	●	
		240	●	
4" dia. Johnson stainless steel 10 slot Passivated Channel Pack Screen (220.51' - 240.86')		245	●	
		250	TD= 244.2	
Backfill (244.1' - 244.2')		255		
		260		

A-1800-196 (3/87)

Battelle
Pacific Northwest Laboratories

Well Completion Report/Title III Inspection List

Project: 200 West RCRA Well Drilling
Location: Hanford Site 200 West Area
Driller: Lenny Bultena
Drilling Co.: Onwego Drilling
Geologist: GV Lost, EF Jenson, CW Bishop, SP Airhart, JS Wilbur

Well Number: 299-W8-1
Temporary Well Number: none
Coordinates: N.46,551 W.79,200
Casing Elevation: 701.33
Ground Elevation: 699.45

DRILLING METHOD

Rotary Air: — Mud: —
Cable Tool: D ____ H 0'-270.5'
Drilling Fluid: H_2O
Other: ____

COMPLETION DATA

Drilled Depth: 270.5'
Completion Depth: 256.5'
Date Started: 6/9/81 Completed: 7/23/87
Static Water Level/Date: ____

CASING DATA

Type	Size	
Type 304 Stainless Steel Casing	4" Diameter	to 236.2'
		to ____
		to ____

Approved By ____ Date ____

PERFORATIONS

Type: —

Depth	Schedule
____ - ____	____
____ - ____	____
____ - ____	____

App. By ____ Date ____

SCREEN

Telescoping

	8" dia type 304 SS.	4" dia type 304 SS.
Type	Continuous Wrap	Continuous Wrap
Length	10.8½'	20.3'
Slot Size	30	20
Depths	267' 8½"	256.5'
	257'	236.2'

App. By ____ Date ____

ANNULAR SEAL

Type	Interval	Volume
Sand	210.5'-270.5'	48.22 ft³
Volclay pellets	206'-210.5'	4.32 ft³
Volclay Grout	3'-206'	772.06 ft³
Concrete	0-3'	12 ft³

App. By JSW Date 12/31/87

GEOPHYSICAL LOGGING

Sondes	Interval	Date
Neutron	0'-270.5'	7/1/87
Density	0'-270.5'	7/1/87
Natural Gamma	0'-270.5'	7/1/87
	____ - ____	____
	____ - ____	____
	____ - ____	____
	____ - ____	____

Approved By JSW Date 7/1/87

AQUIFER TESTING

Type of Test: Constant Discharge Test
Length of Test: 6 hrs.
Volume Pumped: 3,100 gals
Drawdown: 24.14'

Approved By JSW Date 7/11/87

OTHER APPLICABLE ITEMS

- (NA) Steam Cleaning
- (NA) Storage of Const. Material
- (NA) Tool Lubricants
- (NA) Concrete Pad
- (NA) Protective Steel Posts
- (NA) Safety Paint
- (NA) Straightness Test
- (NA) Well Development
- (NA) Downhole TV Inspection
- (NA) Well Abandonment
- (NA) Complete As-Built Diagram, Driller's and Geologist's Logs

Approved By JSW Date 7/30/87

Reviewed By D.L. McKhann Date 1-9-95

A-1800-187 (3/87)

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Battelle
Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W8-1 Geologist EJ Jensen Page 1 of 3

Reviewed by D.L. McGhan Date 1-8-88

Construction Data: Description	Construction Data: Diagram	Depth in Feet	Geologic/Hydrologic Data: Diagram Litho.	Geologic/Hydrologic Data: Lithologic Description
Concrete Surface Seal		5		Backfill
		10		Sandy Gravel
0'-62'8" 12" dia. Carbon Steel Casing		15		" "
0'-156'9" 10" dia. Carbon Steel Casing		20'		" "
0'-270'11½" 8" dia. Carbon Steel Casing		25'		" "
		30'		" "
0'-236.2' 4" dia. Stainless Steel Casing		35'		" "
		40'		" "
		45'		" "
		50'		" "
		55'		" "
		60'		" "
		65'		GRAVELY SAND
Volclay Grout (3'-200')		70'		
		75'		
		80'		GRAVELY SANDY SILT
		85'		
		90'		SILTY SANDY GRAVEL
		95'		SANDY GRAVEL
		100'		
		105'		SLIGHTLY SILTY GRAVELY SAND
		110'		SLIGHTLY GRAVELY SAND
		115'		SLIGHTLY GRAVELY SILTY SAND
		120'		
		125'		
		130'		

☐ Caliche

A-1800-188 (3/

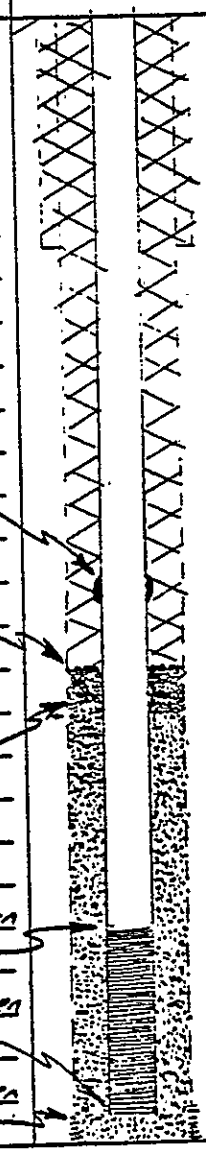
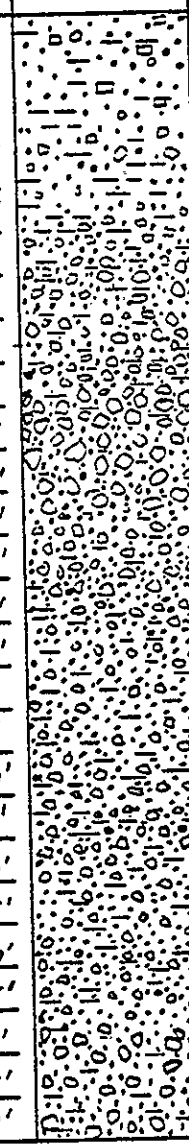
9413205.0280

Battelle
Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W8-1 Geologist C W Bishop Page 2 of 3

Reviewed by V.L. McGlean Date 1-8-88

Construction Data: Description	Construction Data: Diagram	Depth in Feet	Geologic/Hydrologic Data: Diagram Litho.	Geologic/Hydrologic Data: Lithologic Description
		135'		SILTY SAND
		140'		
		145'		SLIGHTLY GRAVELY SILTY SAND
		150'		
		155'		SILTY GRAVELY SAND
		160'		
		165'		SILTY SANDY GRAVEL
		170'		
		175'		
		180'		SANDY GRAVEL
Centeralizer @ 296'		185'		
		190'		
D/T of volclay pellets @ 206'		195'		SILTY SANDY GRAVEL
		200'		SILTY/CLAYEY GRAVEL
		205'		GRAVELY SILTY SAND
D/T of 20-30 Colorado Silica Sand @ 210.5'		210'		SILTY SANDY GRAVEL
		215'		
		220'		
		225'		
		230'		
D/T 4" S.S. 20 slot screen @ 236.2'		235'		
		240'		
D/T of 4" SS 20 slot screen @ 256.5		245'		
		250'		
D/T of telescoping screen @ 257'		255'		
		260'		

□ Caliche

A-1800-186 (3/87)

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AS-BUILT DIAGRAM

Well Number 299-W8-1 Geologist C. W. Bishop Page 3 of 3

Reviewed by V. L. McGhan Date 1-8-88

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Diagram Litho.	Lithologic Description
1 bucket of bolclay pellets		265'		
D/B of telescoping screen		270'		
@ 267' 8½"				
a sack of sand at				
the bottom of the well				

A-1900-186 (3/87)

9413205.0281

9413205.0282

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Well Completion Report/Title III Inspection List

Project 200 West RCRA Well drilling
Location 200 West Area
Driller Darrel Ludtke
Drilling Co. Onwego Drilling Co
Geologist Tyler Gilmore

Well Number 299-W9-1
Temporary Well Number NA
Coordinates ~~Not available~~ N.44,508 W.79,507
Casing Elevation ~~Not available~~ 737.73
Ground Elevation ~~Not available~~ 735.36

DRILLING METHOD

Rotary Air NA Mud NA
Cable Tool D 10'-55' H 55'-295'
Drilling Fluid Water
Other Backhoe 0-10'

COMPLETION DATA

Drilled Depth 295'
Completion Depth 286'
Date Started 9/3/87 Completed 10/22/87
Static Water Level/Date 269' 4" 10/11, 10/12

CASING DATA

Type	Size		
Telescoping Screen; 30 Slot	7 5/8 OD	292'	to 282'
4" Stainless Steel	4" OD	286'	to Surface
			to

Approved By TB Date 11/2/87

PERFORATIONS

Type NA

Depth	Schedule
-	
-	
-	

App. By _____ Date _____

SCREEN

Type Stainless Steel
Length 20' 4"
Slot Size 20 (.02")
Depths 286' - 266'
App. By TB Date 10/13/87

ANNULAR SEAL

Type	Interval	Volume
10-20 Sand	292'-263.5'	2400 lbs
Volclay Pellets	263.5'-259.5'	20 gal
Bentonite Grout	295.5'-70'	2600 lbs
Dry Bentonite	70'-3.5'	4200 lbs

App. By TB Date 10/22/87

GEOPHYSICAL LOGGING

Sondes	Interval	Date
Nat Gamma	292' - Surface	10/12/87
Density	292' - Surface	10/12/87
Nuetron	292' - Surface	10/12/87

Approved By TB Date 10/12/87

AQUIFER TESTING

Type of Test Slug Test
Length of Test 8hr
Volume Pumped NA
Drawdown NA

Slug test was performed because well did not produce enough water at 1.6 gal, for a constant drawdown aquifer test

Approved By TB Date 10/23/87

OTHER APPLICABLE ITEMS

- TB Steam Cleaning
- TB Storage of Const. Material
- TB Tool Lubricants
- TB Concrete Pad
- TB Protective Steel Posts
- TB Safety Paint
- TB Straightness Test
- TB Well Development
- ~~NA~~ BM Downhole TV Inspection
- NA Well Abandonment
- TB Complete As-Built Diagram, Driller's and Geologist's Logs

Approved By T. Gilmore Date 11/2/87

Reviewed By V.L. McGhan Date 1-8-88

A-1800-187 (3/87)

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AS-BUILT DIAGRAM

Well Number 299-W9-1 Geologist T. Gilmore Page 1 of 3

Reviewed by V.L. McThane Date 1-8-88

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Diagram Litho.	Lithologic Description
Cement Surface - 3.5'		5		SAND
16" Temporary Casing 15'		10		
12" Temporary Casing 51'		15		SILTY SAND
10" Temporary Casing 151'3"		20		GRAVELY SAND
9" Temporary Casing 297'9"		25		
		30		SAND
4" Stainless Steel Casing 296'		35		
		40		SILTY SAND
		45		SAND
		50		
		55		GRAVELY SAND
		60		SILTY GRAVELY SAND
Dry Bentonite 3.5'-70'		65		
		70		
Bentonite Grout 70'-259.5'		75		
		80		
		85		SILTY SAND
		90		SILTY GRAVELY SAND
		95		SAND
		100		
		105		GRAVELY SAND
		110		SAND
		115		
		120		
		125		GRAVELY SAND

A-1800-186 (3/87)

9413275.0283

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AS-BUILT DIAGRAM

Well Number 299 - W9 - 1 Geologist T Gilmore Page 2 of 3

Reviewed by V.L. McGhan Date 1-8-88

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Diagram Litho.	Lithologic Description
		135		SANDY GRAVEL
		140		
		145		
		150		
		155		SILTY SANDY GRAVEL
		160		SLIGHTLY GRAVELY SILTY SAND
		165		
		170		
		175		
		180		SAND
		185		
		190		SLIGHTLY SILTY GRAVELY SAND
		195		
		200		
		205		
		210		SANDY GRAVEL
		215		
		220		
		225		GRAVELY SAND
		230		GRAVEL
		235		SANDY GRAVEL chloritized zone 235'
		240		Ringold Top ~238' Clay/Silt ~238'
Centralizers 245'		245		incr in consolidation/Stringers
		250		SILTY/CLAYEY SANDY GRAVEL
		255		
Volcanic pebbles 263.5'-259.5'				SANDY GRAVEL

A-1800-186 (3/87)

9413205.0284

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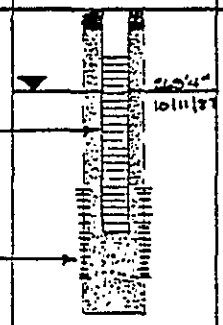
AS-BUILT DIAGRAM

Well Number 299 - W9 - 1 Geologist T Gilmore Page 3 of 3

Reviewed by D.L. McGhan Date 1-8-88

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Diagram Litho.	Lithologic Description
Top of Sand 267.5'		165		
		170		GRAVELY SAND
4" Stainless Steel Screen 286'-266'		175		SILTY GRAVELY SAND Tr Clay
		180		SANDY GRAVEL
		185		GRAVELY SAND
Telescoping screen @ 292'-282'		190		
		195		TD 196

A-1800-186 (3/87)

9413205.0285

9413205.0286

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Well Completion Report/Title III Inspection List

Project 200 West RCRA Well Drilling
Location 200 West
Driller Russ Vance
Drilling Co. Onwego
Geologist Tyler Gilmore

Well Number 299 W10 13
Temporary Well Number NA
Coordinates ~~unavailable~~ N. 43,137 W 78,297
Casing Elevation ~~unavailable~~ 699.04
Ground Elevation ~~unavailable~~ 696.58

DRILLING METHOD

Rotary Air NA Mud NA
Cable Tool D 10'-80' H 80'-250'
Drilling Fluid Water
Other Backhoe 0-10'

COMPLETION DATA

Drilled Depth 250'
Completion Depth 247.5'
Date Started 8/11/87 Completed 9/25/87
Static Water Level/Date 227.9' 9/10/87

CASING DATA

Type	Size	
6" 10slot 304 Stainless Steel Telescoping Screen	247.5'	to 237.5'
6" 40slot 304 Stainless Steel Telescoping Screen	237.5'	to 227.5'
6" 304 Stainless Steel Blank	227.5'	to 222.2'
4" 304 Stainless Steel Casing	227'	Surface

Approved By JB Date 9/15/87

PERFORATIONS

Type NA

Depth	Schedule
-	
-	
-	

App. By _____ Date _____

SCREEN

Type 4" 304 Stainless Steel
Length 20' 4"
Slot Size 30 Slot
Depths 247' - 227'
App. By JB Date 9/15/87

ANNULAR SEAL

Type	Interval	Volume
10-20 Sand	247.5'-220.5'	1100 lbs
Volclay Pellets	220.5'-217.5'	15 gal
Enviroagel grout	217.5'-6'	2150 gal
Cement	6'-Surface	1100 lbs

App. By JB Date 8/26/87

GEOPHYSICAL LOGGING

Sondes	Interval	Date
Not Gamma	0 - 247'	9/15/87
	0 - 246'	9/15/87
	0 - 246'	9/15/87
	-	
	-	
	-	
	-	

Approved By JB Date 9/15/87

AQUIFER TESTING

Type of Test Constant Discharge / Recharge
Length of Test 8 hr
Volume Pumped 14,400 gal
Drawdown 11.89'

Approved By JB Date 9/14/87

OTHER APPLICABLE ITEMS

JB Steam Cleaning
JB Storage of Const. Material
JB Tool Lubricants
JB Concrete Pad
JB Protective Steel Posts
JB Safety Paint
JB Straightness Test
JB Well Development
NA Downhole TV Inspection
NA Well Abandonment
JB Complete As-Built Diagram, Driller's and Geologist's Logs

Approved By Tyler Gilmore Date 11/3/87

Reviewed By D.L. McGhan Date 1-3-88

A-1800-187 (3/87)

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AS-BUILT DIAGRAM

Well Number 299 W10 13 Geologist T Gilmore Page 1 of 2

Reviewed by W.L. McGhan Date 1-8-88

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Diagram Litho.	Lithologic Description
Concrete Surface Seal		5		SAND Core Barrel
		10		
		15		
		20		GRAVELY SAND
4" Stainless Steel Casing 250'		25		
		30		
		35		SAND
Temporary Carbon Steel Casing 42' 3" to 12"		40		
		45		
		50		
Temporary Carbon Steel Casing 142' 5" to 12"		55		
		60		
		65		
Temporary Carbon Steel Casing 252' to 5"		70		GRAVELY SAND
		75		
		80		SANDY GRAVEL
Environ Gel Grout		85		Hard Trail
		90		SILTY GRAVELY SAND
		95		
		100		
		105		
		110		
		115		SILTY SAND
		120		(Caliche)
		125		SANDY SILT

A-1800-186 (3/87)

9413205.0287

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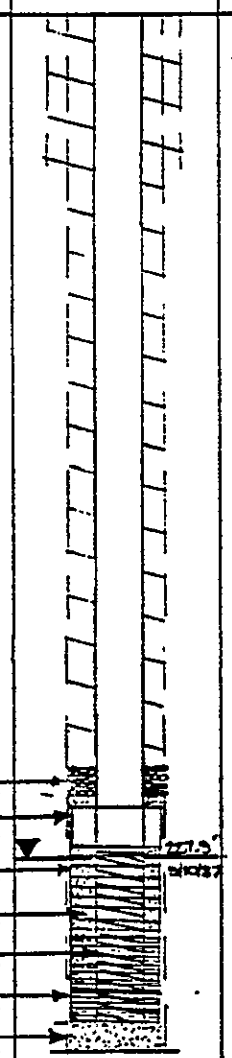
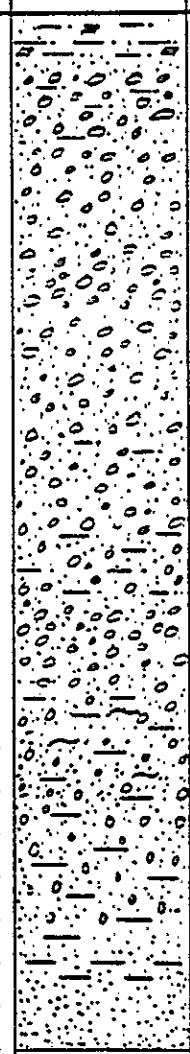
AS-BUILT DIAGRAM

Well Number 299 W10 13 Geologist T Gilmore Page 2 of 2

Reviewed by V.L. McThan Date 1-8-88

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Diagram Litho.	Lithologic Description
		135		
		140		SILTY SANDY GRAVEL
		145		GRAVELY SAND
		150		
		155		
		160		SANDY GRAVEL
		165		GRAVELY SAND
		170		
		175		
		180		
		185		
		190		SILTY GRAVELY SAND Lith clay gravel
		195		incr in Si + & Silica-rich gr
		200		SANDY GRAVEL
		205		
		210		SILTY GRAVELY SAND Tr Clay
		215		
15 gal Volclay pellets to 217'		220		
6" Stainless Blank 5'4"		225		
6" 40 slot Screen 10'	227.5'	230		
10-20 Silica Sand to 230'		235		
4" 30 slot Stainless Screen 20'		240		SILTY SAND
6" 10 slot screen 10'		245		SAND
Formation Cave-in		250		TD 250'





A-1800-186 (3/87)

9413205.0288

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Well Completion Report/Title III Inspection List

Project KEH-1914
Location 200 WEST AREA - HANFORD
Driller RUSTY BOLEY
Drilling Co. ONWEGO DRILLING CO.
Geologist WILBUR; GLAMEE; TEEL; AIGHART

Well Number 299-W10-14
Temporary Well Number —
Coordinates N. 43,137 W. 78,297
Casing Elevation 699.04
Ground Elevation 696.58

DRILLING METHOD

Rotary Air — Mud —
Cable Tool D 10'-20' H 20'-462'
Drilling Fluid WATER
Other 0'-10' W/ BACKHOE

COMPLETION DATA

Drilled Depth 462'
Completion Depth 447'
Date Started 7/29/87 Completed 11/18/87
Static Water Level/Date 229.5'/8/28/87

CASING DATA

Type	Size		
TYPE 304 STAINLESS STEEL CASING	4" dia.	+ 2.5'	to 427'
			to
			to

Approved By TB Date 10/30/87

PERFORATIONS

Type NA

Depth	Schedule
-	
-	
-	

App. By ____ Date ____

SCREEN

	4" dia continuous wrap stainless steel	6" dia continuous wrap stainless steel
Type		
Length	20'4"	10'
Slot Size	20	30
Depths	427'- 447'	437'- 447'

App. By TB Date 10/30/87

ANNULAR SEAL

Type	Interval	Volume
COLORADO SILICA SAND	416'-462'	12.45 ft³
VOLCLAY GROUT	210'-416'	203.88 ft³
BENTONITE SLURRY	6'-210'	949.20 ft³
DRY BENTONITE	3'-6'	6.78 ft³
CONCRETE	0'-3'	8.66 ft³

App. By [illegible] Date 11/18/87

GEOPHYSICAL LOGGING

Sondes	Interval	Date
NATURAL GAMMA	0'-462'	10/16/87
NEUTRON	0'-462'	10/16/87
DENSITY	0'-462'	10/16/87
	-	
	-	
	-	
	-	

Approved By TB Date 10/16/87

AQUIFER TESTING

Type of Test CONSTANT DISCHARGE
Length of Test 8 HRS.
Volume Pumped 14,400 GALS
Drawdown 27.55'

Approved By [illegible] Date 12/30/87

OTHER APPLICABLE ITEMS

- TB Steam Cleaning
- TB Storage of Const. Material
- TB Tool Lubricants
- — Concrete Pad
- [illegible] Protective Steel Posts
- [illegible] Safety Paint
- TB Straightness Test
- TB Well Development
- [illegible] Downhole TV Inspection
- N/A Well Abandonment
- [illegible] Complete As-Built Diagram, Driller's and Geologist's Logs

Approved By [illegible] Date 12/30/87

Reviewed By [illegible] Date 1-8-88

A-1800-187 (3/87)

9413205.0289

Battelle
Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W18-14 Geologist J.S. Wilbur Page 1 of 4

Reviewed by V.L. McKhann Date 1-8-88

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Diagram Litho.	Lithologic Description
CONCRETE SURFACE SEAL (0'-2')		5'		SAND
DRY BENTONITE (3'-6')		10'		"
20" Temporary Casing 50'		15'		"
16" Temporary Casing 147'		20'		GRAVELLY SAND
12" Temporary Casing 244'		25'		SAND
10" Temporary Casing 351'		30'		"
8" Temporary Casing 455'		35'		"
		40'		"
		45'		"
4" stainless steel casing		50'		"
		55'		"
BENTONITE SLURRY (6' - 210')		60'		"
		65'		"
		70'		"
		75'		"
		80'		SLIGHTLY GRAVELLY SAND
		85'		SILTY SANDY GRAVEL
		90'		" " "
		95'		" " "
		100'		SANDY GRAVEL
		105'		SILTY SANDY GRAVEL
		110'		" " "
		115'		GRAVELLY SAND
		120'		"
		125'		SLIGHTLY GRAVEL SLIGHTLY SILTY SAND
		130'		

A-1800-186 (3/87)

9413205.0291

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AS-BUILT DIAGRAM

Well Number 299 WD 14 Geologist T Gilmore Page 2 of 4

Reviewed by V.K. McGhan Date 1-8-88

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Diagram Litho.	Lithologic Description
		135		SILTY SAND (Caliche)
		140		Change @ 137'
		145		SANDY GRAVEL
		150		GRAVELY SAND
		155		SILTY SAND (154-155')
		160		SANDY GRAVEL
		165		SILTY SAND (164-165')
		170		SANDY GRAVEL
		175		SILTY SANDY GRAVEL
		180		
		185		SILTY GRAVELY SAND Chlorinated zone
		190		
		195		Ringold Top ~195'
		200		
		205		GRAVELY SAND
		210		
		215		SANDY GRAVEL
		220		GRAVELY SAND
VOLCLAY GROUT (210'-216')	229.5' 8/28/87	225		Depth to water ~225'
		230		SILTY GRAVELY SAND (Clay)
		235		
		240		SILTY SAND
		245		SILTY SANDY GRAVEL
		250		
		255		GRAVELY SAND

A-1800-186 (3/87)

9413205.0290

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Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299 W10 14 Geologist T Gilmore Page 3 of 4

Reviewed by V.R. McKhan Date 1-8-88

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Diagram Litho.	Lithologic Description
		265		SILTY GRAVELY SAND
		270		SILTY SANDY GRAVEL
		275		
		280		SAND
		285		
		290		
		295		
		300		GRAVELY SAND
		305		SILTY SANDY GRAVEL
		310		SANDY GRAVEL
		315		
		320		
		325		SAND
		330		SILTY GRAVELY SAND
		335		
		340		GRAVELY SAND
		345		
		350		
		355		SAND
		360		GRAVELY SAND
		365		SAND
		370		SILTY SAND
		375		CLAYEY SAND Clay @ 371'
		380		
		385		SAND

A-1800-186 (3/87)

9413205.0292

Battelle
Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299 W10 14 Geologist T Gilmore Page 4 of 4

Reviewed by D.L. McGhan Date 1-8-88

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Diagram Litho.	Lithologic Description
		395		
		400		
		405		
Centralizers @ 412'		410		GRAVELY SAND
		415		Clay layer @ 415'
Sand to 416'		420		SAND
		425		CLAYEY GRAVELY SAND
		430		
		435		GRAVELY SAND
4" Stainless Steel screen 0.05 slot 447'-427'		440		SAND
8" Telescoping screen 437'-447'		445		SILTY GRAVELY SAND
		450		CLAYEY GRAVELY SAND @ 449'
		455		SANDY CLAY
		460		CLAY
Total Depth 462'		465		TD 462'

A-1900-186 (3/87)

9413205.0293

page 1 of 2

WELL COMPLETION/INSPECTION REPORT (governing procedure DO-1, R0)

Specification No. WHC-S-~~[illegible]~~014 Rev. No. 3
Project W-017
Location Single Shell Tanks
Drilling Co. Kaiser Engineers Hanford
Driller Craig Wamsley
Other (companies) N/A
Geologist(s) Bruce Bjornstad, Tyler Gilmore, Steve Teel, Seth Brandenberger, Ian Kennedy, Steve Airhart, Eric Jensen, M. Chamness, S. Goodwin, Ron Bloem

Well No. 299-W10-15 Temp. Well No. N/A
Coordinates
Casing Elev. Ground Elev.

DRILLING METHOD
Rotary Air N/A Mud N/A
Cable Tool D 0'-96' H 96'-~~[illegible]~~ 222.34'
Drilling Fluid 200 E Raw Water Supply
Other N/A

GEOPHYSICAL LOGGING

Sondes	Interval	Date
Nat Gamma	139' - 3'	10-2-89
Nat Gamma	221' - 110'	10-16-89
	-	
	-	
	-	

COMPLETION DATA
Drilled Depth 222.34'
Completed Depth 221.95'
Date Started 9-20-89
Date Completed 11-7-89
Static Water Level/Date 206.2' 11/7/89

AQUIFER TESTING
Type
Length of Test
Volume Pumped
Drawdown
Date of Test

INSPECTION RESULTS

CLEANING
Inspection Method Visual
Acceptance Criteria Section 7.6

	Accept	Reject	Date
Drilling Tools/Rig	BNB		9-20-89
Temporary Materials	BNB		9-20-89
Permanent Materials			

MATERIAL STORAGE/PACKING
Inspection Method Visual
Acceptance Criteria Section 4.2.2

	Accept	Reject	Date
Mtl. Handling/Storage			
Material Packing			

SCREEN

Type	Length	Slot Size
Continuous Wrap Stainless Steel Channel Pack	21'	10

Depth(s) 200.95' - 221.95'
Inspection Method Visual
Acceptance Criteria Section 4.2.9
Accept SPA Reject Date 10/27/89

LUBRICANTS/ADDITIVES
Inspection Method Visual
Acceptance Criteria Section 7.2

	Identify	Accept	Reject	Date
Additives	None			10-16-89
Lubricants	Food Grade Oil	BNB		10-16-89

STRAIGHTNESS TEST
Inspection Method 20' Section of 6" SS casing down hole
Acceptance Criteria Section 8.3
Accept MAC Reject Date 10-16-89

CASING (permanent)

Type	Size	Placement
Johnson Division type 304 stainless steel casing	4"	+2.3' - 200.95'

Inspection Method Visual
Acceptance Criteria Section 4.2.4
Accept SPA Reject Date 10/27/89

WELL PROTECTION
Inspection Method Visual
Acceptance Criteria Section 4.2.10

	Accept	Reject	Date
Protective Posts			
Locks			

ANNULAR SEAL
Inspection Method Measured With Steel tape Acceptance Criteria Section 4.2.6 to 4.2.9.1

Type	Interval	Volume	Accept	Reject	Date
20-40 ~~16-30~~ mesh Cola Silica Sand	197.1' - 222.3'	17.9 ft³	SPA		10-27-89
~~3/8~~ Volclay Pellets	193.3' - 197.1'	1.9 ft³	SPA		10-30-89
8-20 Bentonite Crumbles	140.8' - 193.3'	25.6 ft³	SPA		10-30-89
Volclay Pure Gold Slurry	72.3' - 140.8'	52.8 ft³	SPA		11-6-89

OTHER (initial if performed)
N/A Well Abandonment
Well Development
N/A Downhole TV Inspection
~~[illegible]~~ Complete As-Built Diagram, Driller's/Geologist's Logs

A-55 For all blanks mark N/A if not applicable.

PNL MA567 DO-1, rev. 0

Reviewed by D. L. McGhan 12-7-89

9413205.0294

 WELL COMPLETION/INSPECTION REPORT(governing procedure DO-1, R0)

Well 299-W10-15 continued...

ANNULAR SEAL

Inspection Method Measured with Steel Tape Acceptance Criteria Sec. 4.2.6 to 4.2.9.1

Type	Interval	Volume	Accept	Reject	Date
8-20 Bentonite Crumbles	19.6' - 72.3'	35.5 ft³	SPL		11-6-89
Cement Grout	2' - 19.6'	9.2 ft³	SPL		11-7-89
	-				
	-				

Reference NCR # PNL-89-071 for more details on this completion.

for all blanks mark N/A if not applicable.

Reviewed by [illegible] 12-7-89

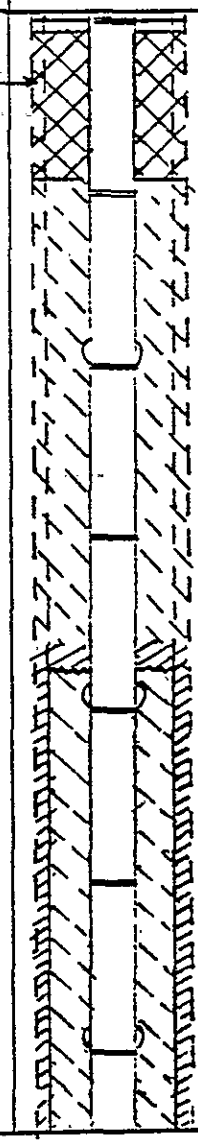
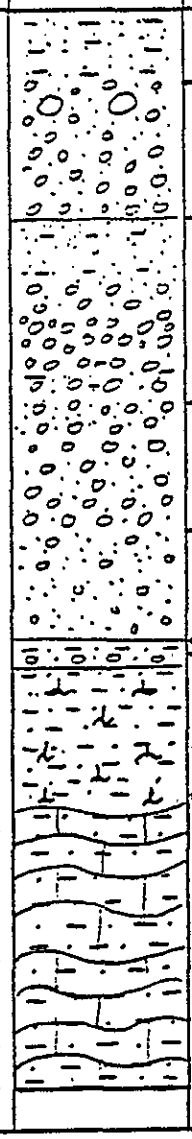
9413205.0295

Battelle
Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W 10-15 Geologist BJORNSTAD, GILMORE, TEEL, MIGHALT, GOODWIN, ETC. Page 1 of 2

Reviewed by [illegible] Date 12-7-89

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Diagram Litho.	Lithologic Description
10" temporary carbon-steel casing to 140'		5		Muddy sand D3 drilling
		10		
		15		
		20		Sandy gravel
		25		
		30		Sand w/mud layers
		35		Sandy gravel
		40		Gravel
		45		Muddy sandy gravel
		50		
		55		Sandy gravel
		60		
		65		
		70		Gravelly sand
		75		Silty fn sand, laminated
		80		Muddy sand, calcareous dark brown
		85		
		90		
		95		96' switch to HT
		100		Caliche - calcareous cemented muddy sand
		105		
		110		
		115		
		120		
		125		

A-1800-188 (3/87)

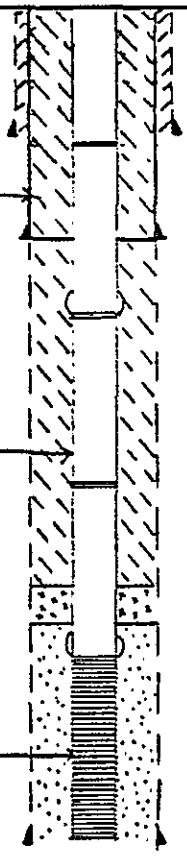
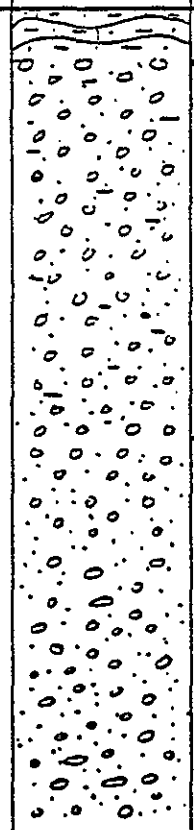
9413205.0296

Battelle
Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W10-15 Geologist BJORNSTAD, GILMORE, TEEL, MARTART, GOODWIN, ETC. Page 2 of 2

Reviewed by V.L. McGlown Date 12-7-89

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Diagram Litho.	Lithologic Description
		130		Caliche
				gravels @ 132'
8" temporary carbon-steel casing to 222'				
		~~150~~		Muddy Sandy Gravel
203.25' of type 304 4" stainless steel casing		~~175~~		Sandy Gravel
				GRAVELLY SAND
				SANDY GRAVEL
		~~200~~		
21' of 10 slot continuous wrap stainless steel channel pack screen		220		
				DRILL DEPTH = 222.34'
16-20 Mesh Col. Silica Sand				COMPLETION DEPTH = 221.95'
Volclay Pellets				
8-20 bentonite crumbles				
Volclay Pure Gold Slurry				
Cement				

A-1800-186 (3/87)

9413205.0297

WELL COMPLETION/INSPECTION REPORT (governing procedure DO-1, R0)

Specification No. WHC-S-014 Rev. No. 3
Project W-017
Location 200 West Single Shell Tanks
Drilling Co. Kaiser Engineers Hanford
Driller Dave Garcia, Gary Lylin
Other (companies) N/A
Geologist(s) Ron Bergen, Mark Birch, Bruce Bjornstad, Tyler Gilmore, Steve Teel, Steve Archart, Eric Jensen, Shannon Goodwin, M. Chamness

Well No. 299-W10-16 Temp. Well No. N/A
Coordinates
Casing Elev. Ground Elev.

DRILLING METHOD
Rotary - Air N/A Mud N/A
Cable Tool D 0.0'-43', 50'-120 H 43'-50', 120-219.04'
Drilling Fluid 200 E Raw Water Supply ~ 141 gal.
Other N/A

GEOPHYSICAL LOGGING

Sondes	Interval	Date
Nat. Gamma	130.9'-3.8'	9-22-89
NAT. GAMMA	219'-100'	10-11-89

COMPLETION DATA
Drilled Depth 219.04'
Completed Depth 219.8'
Date Started 9-7-89
Date Completed 10-25-89
Static Water Level/Date 202.9'

AQUIFER TESTING
Type
Length of Test
Volume Pumped
Drawdown
Date of Test

INSPECTION RESULTS

CLEANING
Inspection Method Visual
Acceptance Criteria Section 7.6

	Accept	Reject	Date
Drilling Tools/Rig	BNB		9-7-89
Temporary Materials	BNB		9-7-89
Permanent Materials			

MATERIAL STORAGE/PACKING
Inspection Method Visual
Acceptance Criteria Section 4.2.2

	Accept	Reject	Date
Mtl. Handling/Storage	SWB		10/25/89
Material Packing	SWB		10/25/89

SCREEN

Type	Length	Slot Size
Old Johnson Division Wrap channel pack 4"	21.0	10

Depth(s) 198.3' - 219.3'
Inspection Method Visual
Acceptance Criteria Section 4.2.3
Accept SWB Reject Date 10/25/89

LUBRICANTS/ADDITIVES
Inspection Method Visual
Acceptance Criteria Section 7.2

	Identify	Accept	Reject	Date
Additives	None	BNB		10-9-89
Lubricants	Food Grade Oil	BNB		10-9-89

STRAIGHTNESS TEST
Inspection Method 20' section of 6" SS casing downhole
Acceptance Criteria Section 8.3
Accept WAC Reject Date 10-9-89

CASING (permanent)

Type	Size	Placement
304 Sch.5 Stainless Steel casing	4"	+1.6' - 199.3'

Inspection Method Visual
Acceptance Criteria Section 4.2.4
Accept SWB Reject Date 10/25/89

WELL PROTECTION
Inspection Method Visual
Acceptance Criteria Section 4.2.10

	Accept	Reject	Date
Protective Posts			
Locks			

ANNULAR SEAL
Inspection Method Measured with Steel tape Acceptance Criteria Section 4.2.6 to 4.2.9.1

Type	Interval	Volume	Accept	Reject	Date
20-40 mesh Colorado Silica Sand	195.45'-219.8'	16 bags = 17.9 ft³	SWB		10/24/89
3/8" - bentonite pellets	191.35'-195.45'	2 buckets = 1.34 ft³	SWB		10/24/89
8-20 granular bentonite crumbles	18.1'-191.35'	155 bags = 110.05 ft³	SWB		10/25/89
Portland Cement grout	2.1'-18.1'	16.88 ft³	SWB		10/25/89

OTHER (initial if performed)
____ Well Abandonment
____ Well Development
DLM Downhole TV Inspection
SWB Complete As-Built Diagram, Driller's/Geologist's Logs

A-59 For all blanks mark N/A if not applicable.

PNL MA567 DO-1, Rev. 0
Reviewed by D.L. Mathison 12-4-89

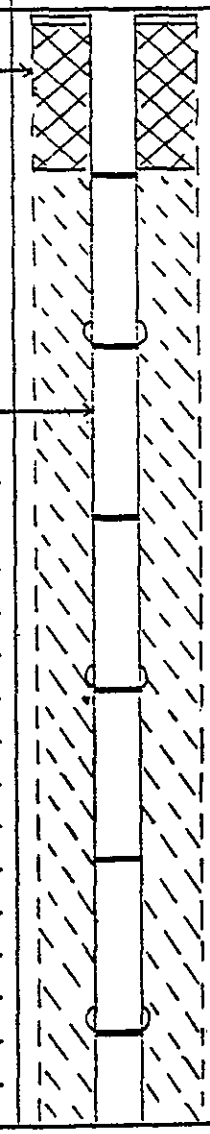
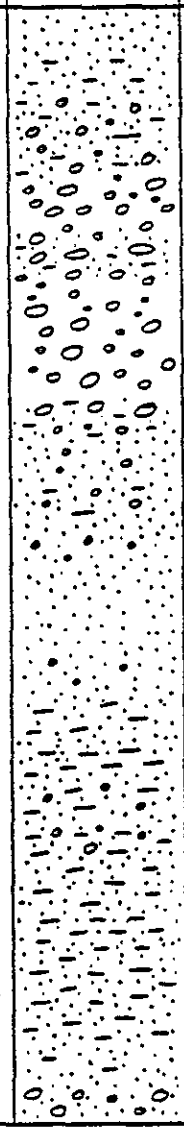
9413205.0298

Battelle
Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W10-16 Geologist BLEGEN, BIRCH, TEEL, BJORNSTAD, GILMORE, GOODWIN Page 1 of 2

Reviewed by [illegible] Date 12-4-89

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Diagram Litho.	Lithologic Description
132'11" of 10" CARBON STEEL CASING		5		SAND
		10		MUDDY SAND
		15		MUDDY SANDY GRAVEL
		20		" " "
		25		GRAVEL
		30		MUDDY SANDY GRAVEL
		35		GRAVEL
		40		"
200.4' of 4" STAINLESS STEEL CASING		45		"
		50		MUDDY SANDY GRAVEL
		55		SLIGHTLY GRAVELLY SAND
		60		GRAVELLY MUDDY SAND
		65		SLIGHTLY GRAVELLY SAND
		70		SAND
		75		"
		80		SLIGHTLY GRAVELLY SAND
		85		MUDDY SAND
		90		SANDY MUD
		95		SLIGHTLY GRAVELLY MUDDY SAND
		100		GRAVELLY MUDDY SAND
		105		" " "
		110		SANDY MUD
		115		" "
		120		" "
		125		SLIGHTLY MUDDY SAND
		130		SANDY GRAVEL

A-1800-185 (3/87)

9413205.0299

Battelle
Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W10-16 Geologist BLEGEN, BIRCH, TEEL, BJORNSTAD, GILMORE, GOODWIN Page 2 of 2

Reviewed by D.L. McGhan Date 12-4-89

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Diagram Litho.	Lithologic Description
132' 11" OF 10" CARBON STEEL CASING		135		MUDDY SANDY GRAVEL
		140		SANDY GRAVEL
		145		MUDDY SANDY GRAVEL
223' 0" OF 8" CARBON STEEL CASING		150		" " "
		155		" " "
		160		SANDY GRAVEL
200.4' OF 4" STAINLESS STEEL CASING		165		" "
		170		MUDDY SANDY GRAVEL
		175		SANDY GRAVEL
		180		" "
		185		" "
		190		MUDDY SANDY GRAVEL
		195		" " "
		200		SANDY GRAVEL
				D/W = 202.9' 10/25/89
21' OF 10 SLOT CONTINUOUS WRAP STAINLESS STEEL CHANNEL PACK SCREEN		205		" "
		210		" "
		215		" "
		219		" "
COMPLETION SYMBOLS:				DRILLED DEPTH = 219.4'
CEMENT GROUT				COMPLETION DEPTH = 219.3'
GRANULAR BENTONITE				
BENTONITE PELLETS				
SILICA SAND				
CASING JOINT				
CASING CENTRALIZER				

A-1800-186 (3/87)

9413205.0300

PAGE 1 OF 5

WHC-SD-EN-DP-029, Rev. 0

WELL CONSTRUCTION REPORT

VALIDATED 1/17/92 SIGNATURE/DATE

Specification No. WHC-S-014 Rev No. 5

ECNs 144240, 144241

Project 111-N12 SST

Location NW corner TY tank farm

Drilling Company KEH

Driller Daniel Ludtke

Other (Companies) N/A

Geologist(s) MA Chambers, SS Teel, AW Pearson, NA Cadoret, C. Delaney, G. Kelty, K. Reynolds

Well No. 299-W10-17 Temp. Well No N/A

Coordinates N: 136,491.46; E: 566,775.74 (LAMBERT)

Casing Elev. 670.84 (K) Ground Elev. 667.91 BRASS CAP

Drilling Method

Verification Method Visual observation - WHC-S-014 Rev 5

Criteria spec 5.2, 5.3, 7.5 EI 6.7 Sec. 6.2

			Initials	Date
Rotary	Air NA	Mud NA	N/A	N/A
Cable Tool	D 0'-137'	H 137-222.9'	SST	12/14/90
Drilling Fluid	Raw water	311 GAL	KDR	12/18/90
Other	N/A			

Geophysical Logging

Sondes	Interval	Date
Gross Gamma	124.2'-4.2'	11/29/90
Gross Gamma	222.2'-120'	12/13/90

Completion Data

Drilled Depth 222.85 12/14/90

Completed Depth 222.7

Date Started AWP 11/28/90 ~~11/15/90~~ 11/16/90

Date Completed 1/17/91

Static Water Level/Date 202.6 12/13/90

Aquifer Testing

Type SLUG INJECTION / WITHDRAWAL

Flow Meter I.D. No N/A

Cal Due Date N/A

Length of Test 24 MIN. TOTAL

Volume Pumped N/A

Drawdown N/A

Date of Test 1/15/91

Completion Results

Cleaning

Verification Method Visual inspection + observation of rig cleaning

Criteria spec 7.6, 4.2.2 WHC-S-014

	Initials	Date
Document Review Drilling Tools/Rig	KDR	11/21/90
Temporary Materials	AWP	11/28/90
Permanent Materials	GK	12/17/90

Material Storage/Packing

Verification Method Visual observation

Criteria spec. 4.2.2, 7.2 WHC-S-014

	Initials	Date
Mtl. Handling/Storage	GK	12/17/90
Material Packing	GK	12/17/90

Screen

Type	Length	Slot Size
Johnson channel	21.00'	10'

Depth(s) 222.7 - 201.4

Verification Method steel tape measurement

Criteria spec 4.2.1, 4.2.2, 4.2.5, 12.2.1 WHC-S-014

Initials GK Date 12/17/90

Lubricants/Additives

Verification Method Visual observation

Criteria spec. 7.2 WHC-S-014

	Identify	Initials	Date
Additives	200 E Raw water	KDR	12/18/90
Lubricants	Well Guard	AWP	11/26/90

Straightness Test

Verification Method visual observation

Criteria spec 8.2 WHC-S-014

Initials SST Date 12/14/90

9413205.0301

A-6000-436 (09/90)

WELL CONSTRUCTION REPORT well # 299 · W10-17
(continuation sheet)

W10-17

Page 2 of 2

Casing (permanent)

Type	Size	Placement
Wesco, T-304 Sch 5.	4.5"	201.4 - +1'

Verification Method: Verify using steel tape WHC-S-014

Criteria: Spec. 4.2.1 4.2.4 4.2.5 12.2.1 WHC-S-014

Initials: [signature] Date: 12/17/90

Well Protection

Verification Method: Visual, measure w/ tape

Criteria: ~~WHC~~ MAC 11/16/90 Spec 4.2.10 WHC-S-014

	Initials	Date
Protective Posts	[signature]	12/18/91
Protective Casing	[signature]	12/18/91
Site Restored	[signature]	12/18/91
Cap, Hasp and Lock	[signature]	12/18/91
Surface Pad	[signature]	12/18/91

Annular Seal/Filter Pack

Verification Method: measure using steel tape

Criteria: WHC-S-014 Spec. 4.2.6, 4.2.7, 4.2.8, 4.2.9, 5.3.1, 5.3.2

Type	Interval	Volume	Initials	Date
8-12 Sand MESH [signature] 12/14/90	222.7 - 197.4	20 sacks 100#	[signature]	~~12~~ 12/17/90 GK 12/17/90
Bentonite Pellets	197.4 - 193.0'	5 buckets 50#	[signature]	12/17/90
GK 12/17/90 ~~[illegible]~~ Bentonite Crumbles	193.0' - 20'	139.5 sacks 50#	CDD	1/02/91
Type II Portland Cement	20 - 2.9'	31 sacks 50#	CDD	1/04/91

Well Survey/Labeling

Verification Method: review of report (survey)

Criteria: Spec. 3.4 WHC-S-014

	Initials	Date
Measurement Point/Surveyed	[signature]	12/18/91
Protective Casing/Brass Cap Surveyed	[signature]	12/18/91
Well Number Stenciled	[signature]	12/18/91
Brass Cap Labeled	[signature]	12/18/91

Pump Installation

Verification Method: Visual observation WHC-S-014

Criteria: Spec. 4.2.11 4.2.2

	Initials	Date
Pump Decon/Prep	[signature]	12/20/91
Installed	[signature]	12/20/91
Pump Tested	[signature]	12/20/91

Other (initial if performed)

N/A Well Abandonment AWP Downhole TV Inspection [signature] Complete As-Built Diagram, Driller's/Geologist's Logs

[signature] Well Development

Comments/Remarks

9413205.0302

Reviewed By (Sign/Print Name) [signature] Date 12/20/91

A-6000-436 (09/90)

PA623 045

KAISER ENGINEERS HANFORD

SURVEY DATA REPORT

Request No. —9121—0655

Project/W.O. No. W-017H

Title 200W WELLS

File No. WELL-11

KEH Job No. CR9114

Prepared By N. P. FASTABEND

Date 4/1/91

Reviewed ① LH 1 2

DESCRIPTION OF WORK	ACCEPTABILITY (Within Plan Tolerance)	DISTRIBUTION	
Locate nine wells for horizontal and vertical position.	Yes ☐	Survey File	08
Horz: Lambert (NAD'83) & Plant (200W)	No ☐	Field Project File	1
Vert: NGVD'29 & Plant (200W)	NA ☒	D. Foucault	1
	TBD by Requestor ☐	D. Weekes	1
		J. Rieger	1

SURVEY RESULTS AND COMMENTS

Control Monuments: 2W-30 N: 135,347.25 E: 566,365.20; 2W-35 N: 135,351.96 E: 568,254.68

NOTE: A) Horizontal control points used to locate wells were part of a traverse with a linear closure of 1:40,000.

B) Vertical control used to locate wells were based on a 3.3 mile level loop with a closure of (-)0.037 FT. holding monument 2W-1 in the N.W. corner of 200W Area.

WELL NO.	COORDINATES (C/L CASING) PLANT 200W (FEET)	LAMBERT NAD'83 (METERS)	VERT. DATUM	ELEVATIONS (FEET) TOP BRASS CAP IN CONC.	TOP HYDRO-STAR BASE-PLATE, N. SIDE	TOP OUTER CASING, N. SIDE STAMPED "X"	TOP INNER CASING N. SIDE
* 299-W10-17	N: 42,751 W: 75,844	N:136,491.46 E:566,775.74	PLANT (200W)	667.55	670.59	670.57	N/A
			NGVD'29	667.91	670.95	670.94	N/A
299-W10-18	N: 42,439 W: 75,510	N:136,396.52 E:566,847.18	PLANT (200W)	667.82	670.68	670.66	N/A
			NGVD'29	668.08	670.94	670.93	N/A
299-W15-22	N: 47,604 W: 76,150	N:136,111.19 E:566,683.32	PLANT (200W)	667.45	670.52	670.51	N/A
			NGVD'29	667.71	670.78	670.77	N/A
299-W18-25	N: 37,786 W: 76,034	N:134,978.22 W:566,721.48	PLANT (200W)	662.77	665.80	665.78	N/A
			NGVD'29	663.03	666.06	666.04	N/A

KEH-159-1 (5-

9413205.0303

WELL SUMMARY SHEET

Boring or Well No. 24C-W10-17

Sheet 1 of 2

Location NW corner of TV tank farm
Elevation 667.91 Brass Cap NGVD 29
Driller Daniel Luttke
Prepared By W.D. Chamness, G.W. Pearson, N.A. Cardwell (Sign/Print Name) SS Teal
Date 1/8 - 12/7
Project W-017 CST
Drilling Contractor KEH
Drilling Method and Equipment cable tool
Reviewed By R.J. Dillard (Sign/Print Name)
Date 8/4/10

CONSTRUCTION DATA: Description	Depth in Feet	GEOLOGIC/HYDROLOGIC DATA: Lithologic Description
	5	SILTY SAND
Temporary	10	SANDY GRAVEL
12" Carbon Steel casing	15	SILTY SANDY GRAVEL
at 20.69'	20	GRAVEL
	25	"
	30	"
Temporary	35	SANDY GRAVEL
6" Carbon Steel Casing	40	" "
(w/ drive shoe) @ 123.67'	45	SAND
	50	"
	55	"
Permanent 4½" O.D.	60	"
Stainless steel casing	65	Gravelly SAND
	70	SAND
	75	"
	80	"
Granular Bentonite #6-20	85	"
Mesh	90	SLIGHTLY SILTY SAND
	95	SILTY SAND
	100	" "
	105	" "
	110	GRAVELLY SILTY SAND
	115	SANDY SILT
	120	SAND
	125	SANDY SILT
	130	GRAVELLY SAND @ 128'. GRAVEL
Temporary	135	SILTY SANDY GRAVEL
3" Carbon Steel Casing	140	"
@ 222.9'	145	"
	150	"
	155	"
Permanent 4½" O.D.	160	"
Stainless Steel Casing	165	"

9413205.0304

WELL SUMMARY SHEET

Boring or Well No. 299-W15-17

Sheet 2 of 2

Location NW Corner of TY Tank Farm

Elevation 667.91 Brass Cap NGVD 29

Driller Darrel Ludtke, Dave Garcia

Prepared By SS Teel (Sign/Print Name) Date

Project W-017 SST

Drilling Contractor KGH

Drilling Method and Equipment 3E-22W Cable Tool

Reviewed By JW / DA Williams (Sign/Print Name) Date 5/21/91

CONSTRUCTION DATA		Depth in Feet	GEOLOGIC/HYDROLOGIC DATA	
Description	Diagram		Graphic Log	Lithologic Description
4" Carbon Steel Casing		170		SILTY SANDY GRAVEL
		175		" " "
4.5" O.D. STAINLESS STEEL		180		" " "
CASING		185		" " "
GRANULAR BENTONITE #5-8 MESH		190		" " "
		195		" " "
		200		" " "
Depth to water 202.6'		205		" " "
		210		SLIGHTLY SILTY GRAVELLY SAND
SILICA SAND PACK #8-12 MESH		215		"
		220		"
4" Ø STAINLESS STEEL .010"				Total depth 222.25'
SLOT CHANNEL PACK SCREEN				on 12/14/90

A-6000-184 04/90

9413205.0305

Incorporated into Rev. 5

WELL CONSTRUCTION REPORT

after KROK 11/6/90

VALIDATED 12/12/91 SIGNATURE/DATE

Specification No. WHC-S-014 Rev No. 4 or 5 (1/6/90)

ECNs 176188, 144255, 176189, 144256, 144257, 144258, 144259, 144260, 124393, 184425, 144232, 122261, 124427, 112823, 144229, 144231, 144240, 144241

Project W-017-SST

Location 200 W Area TY Tank Farm

Drilling Company KEH

Driller Gary Lydin, W. Peters

Other (Companies)

Geologist(s) AW Pearson, K.R.C. Barton HA Chamness, Ken Hoffmann, C Delaney, Ss. Teel, N. Cadoret, D Lanigan, S. Airhart, D.C. Weekes, K. Reynolds

Well No. 299-W10-18 Temp. Well No. N/A

Coordinates N: 136,396.52, E: 566,847.18 (Lambert)

Casing Elev. 670.93 (x) Ground Elev. 668.08 NGVD'29

Drilling Method

Verification Method Visual Observation

Criteria WHC-S-014 5.2.5.3.7.5 EI 6.7 sec 6.2

			Initials	Date
Rotary	Air N/A	Mud N/A	N/A	N/A
Cable Tool	D 0-43' 43-213' 150'-162'	H 43-43' 118'-150' 162'-222'	MAC	12/11/90
Drilling Fluid	Raw H2O	310 GAL @ 1/6/92	MAC	12/11/90
Other	N/A			

Geophysical Logging

Sondes	Interval	Date
Gross Gamma	143.7' - 1.4'	11/30/90
Gross Gamma	221.6' - 140.0'	12/12/90

Completion Data

Drilled Depth 222.6'

Completed Depth 221.05

Date Started 11/1/90

Date Completed 12/12/90

Static Water Level/Date 202.15'/12/12/90

Aquifer Testing

Type Instantaneous Injection Withdrawal

Flow Meter I.D. No. NA

Cal. Due Date NA

Length of Test 21 min.

Volume Pumped NA

Drawdown NA

Date of Test 1/16/91 AWP 4/26/91

Completion Results

Cleaning

Verification Method Visual Inspection and direct observation of drilling cleaning

Criteria WHC-S-014 7.6 4.2.2.

	Initials	Date
Drilling Tools/Rig	K.H.	10/26/90
Temporary Materials	K.H.	10/30/90
Permanent Materials	VCW	12/17/90

Material Storage/Packing

Verification Method Visual Observation

Criteria WHC-S-014 4.2.2, 7.3

	Initials	Date
Mtl. Handling/Storage	VCW	12/12/90
Material Packing	VCW	12/12/90

Screen

Type	Length	Slot Size
1" Schd 80 SS continuous wire wrap channel pack	21.3'	0.010"

Depth(s) 221.05 - 199.75

Verification Method Verify Using Steel Tape

Criteria WHC-S-014 4.2.3, 4.2.5, 12.2.1, 4.2.1

Initials VCW Date 12/12/90

Lubricants/Additives

Verification Method Visual Observation

Criteria WHC-S-014 7.2

	Identify	Initials	Date
Additives	Raw Water	MAC	12/11/90
Lubricants	WellGuard Jet Lube	MAC	12/11/90

Straightness Test

Verification Method Visual Observation

Criteria WHC-S-014 8.2

Initials MAC Date 12/11/90

A-6000-436 (09/90)

9113205.0306

WELL CONSTRUCTION REPORT
(continuation sheet) well # 299-W10-18

Casing (permanent)

Type	Size	Placement
Type 304L SS sch 5	4"ø	199.75 - 3.9
"		-
		-
		-

Verification Method: Verify Using Steel Tape

Criteria: WHC-S-014 4.2.1, 4.2.4, 4.2.5, 12.2.1

Initials: XCU Date: 12/12/90

Well Protection

Verification Method: Visual / Measure w/Tape

Criteria: WHC-S-014 4.2.10

	Initials	Date
Protective Posts		12/18/91
Protective Casing		12/18/91
Site Restored		12/18/91
Cap, Hasp and Lock		12/18/91
Surface Pad		12/18/91

Annular Seal/Filter Pack

Verification Method: Measure with Steel Tape Criteria: WHC-S-014 4.2.6, 4.2.7, 4.2.8, 4.2.9, 5.3.1 or 5.3.2

Type	Interval	Volume		Initials	Date
8-12 mesh Colorado Silica Sand	222.1' - 197.3'	14½ - 100# buckets	(14.65 ft³)	XCU	12/14/90
Bentonite Pellets	197.3' - 193.5'	3 - 50# buckets	(1.86 ft³)	XCU	12/14/90
8-20 mesh Bentonite Crumbles	193.5' - 15.6	148 sks	(105.08 ft³)	KDR	1/10/91*
Portland Cement	15.6 - 2.0	21 bags		KDR	1/10/91

Well Survey/Labeling

Verification Method: Review of Survey Report

Criteria: WHC-S-014 3.4

	Initials	Date
Measurement Point/Surveyed		12/18/91
Protective Casing/Brass Cap Surveyed		12/18/91
Well Number Stenciled		12/18/91
Brass Cap Labeled		12/18/91

Pump Installation

Verification Method: Visual Observation

Criteria: WHC-S-014 4.2.11, 4.2.2

	Initials	Date
Pump Decon/Prep		12/20/91
Installed		12/20/91
Pump Tested		12/20/91

Other (initial if performed)

NA Well Abandonment AWP Downhole TV Inspection Complete As-Built Diagram, Driller's/Geologist's Logs

Well Development

Comments/Remarks: * Signed 2 Dec document review

Reviewed By (Sign/Print Name) Date 12/20/91

A-6000-436 (09/90)

9413205.0307

WELL SUMMARY SHEET

Boring or Well No. 299-W10-15

Sheet 1 of 2

Location: TY TANK FARM
Project: W-017-SST
Elevation: 668.08 Brass Cap NGVD29
Drilling Contractor: KEH
Driller: Gary Lydin
Drilling Method and Equipment: Cable tool, Bacyrus Erie 22-w
Prepared By: [illegible] (Sign/Print Name) Date: 12/10/90 27
Reviewed By: [illegible] (Sign/Print Name) Date: 3/21/91

CONSTRUCTION DATA: Description	Diagram	Depth in Feet	GEOLOGIC/HYDROLOGIC DATA: Graphic Log	Lithologic Description
		5'		Backfill
Dry Hand Grout		10		SILTY SANDY GRAVEL
from 18.6'-2.0'		15'		" " "
12" C.S. CASING SET at		20		" " "
20.25' (Temporary)		25'		" " "
		30		SANDY GRAVEL
		35'		" "
		40		SILTY SANDY GRAVEL (Boulder @ 42')
		45'		SLIGHTLY GRAVELLY SAND (@ 43')
		50		" " "
		55'		SAND
		60		"
		65'		GRAVELLY SAND
8-20 Mesh Bentonite		70		" "
Crumbles		75'		" "
		80		SLIGHTLY GRAVELLY SAND
		85'		" " "
		90		SAND
1" Ø SS 304		95'		SLIGHTLY SILTY SAND
		100		SILTY SANDY GRAVEL (CALICHE) @ 92'
		105'		GRAVELLY SILTY SAND (Caliche & GZS @ 101')
		110'		" " " (GZS & Caliche @ 111')
		115'		GRAVELLY SAND
		120		GRAVELLY SILTY SAND
		125'		SILTY SAND
		130'		SILTY SANDY GRAVEL (shift @ 129')
		135'		" " "
		140'		" " "
Temporary		145'		" " "
6" C.S. casing set at 146.38'		150'		" " "
Temporary		155'		SAND
3" C.S. casing		160'		SILTY SANDY GRAVEL
		165'		

A-6000-384 04/90

9413205.0308

PAGE 4 OF 5

WELL SUMMARY SHEET

Boring or Well No. 299-W10-18

Sheet 2 of 2

Location: TY Tank Farm
Project: W-017 SST
Elevation: 668.08 Brass Cap NGVD'29
Drilling Contractor: KEH
Driller: Gary Ludin (KEH)
Drilling Method and Equipment: Cable Tool / BE 220
Prepared By: SP Dirhart MA Chamness (Sign/Print Name) Date: 12/10/90
Reviewed By: RA Williams (Sign/Print Name) Date: 8/2/9

CONSTRUCTION DATA: Description	Diagram	Depth in Feet	GEOLOGIC/HYDROLOGIC DATA: Graphic Log	Lithologic Description
5-20 Mesh Bentonite Crumble		170		Silty Sandy Gravel
		175		Sandy Gravel
Top Bentonite 193.5 pellets		180		" "
~~[illegible]~~ 3/19/91		185		" "
Top Sand 199.3' (8-12 mesh)		190		(Silty, Clayey) Muddy Sandy Gravel
Top Screen at		195		" "
199.75'		200		Silty Sandy Gravel
Dline 202.1'		205		" "
4" ø 304 SS pipe		210		Silty Sandy Gravel
Continuous Wire Wrap Screen Deck		215		" "
8" Carbon steel		220		" "
Casing to 222.01' (Temporary)				
			TD 222.1	
Screen Set @ 221.05'				

A-6000-384 (04/90)

9413205.0309

WELL COMPLETION SUMMARY

Project USGS
Location [illegible]
Drilling Co.
Driller [illegible]
Other (companies)
Geologist(s)

Well No. [illegible] Temp. Well No. [illegible]
Coordinates PN43335 PW73772
Elevation: Casing 714.51 Brass Marker

DRILLING METHOD

Drilling Method(s) [illegible]
Drilling Fluid [illegible]
Other

COMPLETION DATA

Drilled Depth [illegible] (545'?)
Completed Depth [illegible]
Date Started [illegible]
Date Completed 11-15-52
Static Water Level/Date [illegible]

OTHER (check if performed)

- ___ Well Abandonment
- ___ Well Development
- ___ Aquifer Testing
- ___ Geophysical Log(s)
- ___ Lock and Cap
- ___ Downhole TV Inspection
- ___ Driller's Logs
- ___ Pad
- ___ Guardposts
- ___ Protective Casing

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Perforations (11/15/52)	8"		4 holes/ft	275 - 325
" (10/30/52)	8"		6 holes/ft	250' - 275'
" (6/1/61)	8"		4 holes/ft	325 - 508'

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
			-
			-
			-
			-

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
[illegible]	8"		0 - 5[illegible]
			-

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
Sand Pack	259' - 508'		
	-		
	-		
	-		
	-		
	-		

PUMP

Type _____ Depth to Inlet _____ Date Set _____

ACCEPTANCE

Completed Well: Accept _____ Conditionally Accept _____
Reject _____

COMMENTS

[illegible] 11-13-52.

Reviewed by _____ Date _____ Depths are below land surface unless noted.

9413275.0310

WELL COMPLETION SUMMARY

Project USGS
Location T-Plant, 200W
Drilling Co.
Driller Row
Other (companies)
Geologist(s)

Well No. 299-W11-2 "O" Temp. well No. 361-T
Coordinates PN 43335 PW 73772
Elevation: Casing 714.75 Brass Marker

DRILLING METHOD

Drilling Method(s) Cable Tool
Hard Tool, 0'-530'
Drilling Fluid Water
Other

COMPLETION DATA

Drilled Depth 530' (545'?)
Completed Depth 239'
Date Started 9/18/50
Date Completed 11/62
Static Water Level/Date

OTHER (check if performed)

- ___ Well Abandonment
- ___ Well Development
- ___ Aquifer Testing
- ___ Geophysical Log(s)
- ___ Lock and Cap
- ___ Downhole TV Inspection
- ___ Driller's Logs
- ___ Pad
- ___ Guardposts
- ___ Protective Casing

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Unknown	1.5"		?	239 - 259'

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
			-
			-
			-
			-

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Unknown	1.5"		0 - 239'

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
See well 299-W11-2	-		
	-		
	-		
	-		
	-		
	-		

PUMP

Type Depth to Inlet Date Set

ACCEPTANCE

Completed Well: Accept Conditionally Accept
Reject

COMMENTS

Piezometer tube within well 299-W11-2

Reviewed by Date Depths are below land surface unless noted.

9413205.0311

WELL COMPLETION SUMMARY

Project: USGS
Location: T-Plant, 200W
Drilling Co.:
Driller: Row
Other (companies):
Geologist(s):

Well No. 299-W11-2"P" Temp. Well No. 361-T-14
Coordinates: PN 43335 PW 73772
Elevation: Casing 714.75 Brass Marker:

DRILLING METHOD

Drilling Method(s): Cable Tool
Hard Tool, 0'-530'
Drilling Fluid: Water
Other:

COMPLETION DATA

Drilled Depth: 530' (545'?)
Completed Depth: 508'
Date Started: 9/18/50
Date Completed: 11/62
Static Water Level/Date:

OTHER (check if performed)

___ Well Abandonment	___ Downhole TV Inspection
___ Well Development	___ Driller's Logs
___ Aquifer Testing	___ Pad
___ Geophysical Log(s)	___ Guardposts
___ Lock and Cap	___ Protective Casing

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Unknown	1.5"		?	486 - 508'

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
			-
			-
			-
			-

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Unknown	1.5"		0 - 486'

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
See well 299-W11-2	-		
	-		
	-		
	-		
	-		
	-		

PUMP

Type: Depth to Inlet: Date Set:

ACCEPTANCE

Completed Well: Accept Conditionally Accept
Reject

COMMENTS

Piezometer tube within well 299-W11-2

Reviewed by: Date: Depths are below land surface unless noted.

9413205.0312

WELL COMPLETION SUMMARY

Project: USGS
Location: T-Plant, 200W
Drilling Co.:
Driller: Row
Other (companies):
Geologist(s):

Well No. 299-W11-2 "Q" Temp. Well No. 361-T
Coordinates: PN 43335 PW 73772
Elevation: Casing 714.75 Brass Marker:

DRILLING METHOD

Drilling Method(s): Cable Tool
Hard Tool, 0'-530'
Drilling Fluid: Water
Other:

COMPLETION DATA

Drilled Depth: 530' (545'?)
Completed Depth: 434'
Date Started: 9/18/50
Date Completed: 11/62
Static Water Level/Date:

OTHER (check if performed)

___ Well Abandonment	___ Downhole TV Inspection
___ Well Development	___ Driller's Logs
___ Aquifer Testing	___ Pad
___ Geophysical Log(s)	___ Guardposts
___ Lock and Cap	___ Protective Casing

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Unknown	1.5"		?	409 - 434'

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
			-
			-
			-
			-

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Unknown	1.5"		0 - 409'

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
See well 299-W11-2	-		
	-		
	-		
	-		
	-		
	-		

PUMP

Type: Depth to Inlet: Date Set:

ACCEPTANCE

Completed Well: Accept: Conditionally Accept:
Reject:

COMMENTS

Piezometer tube within well 299-W11-2

Reviewed by: Date: Depths are below land surface unless noted.

9413205.0313

WELL COMPLETION SUMMARY

Project: USGS
Location: T-Plant, 200W
Drilling Co.:
Driller: Row
Other (companies):
Geologist(s):

Well No. 299-W11-2"R" Temp. Well No. 361-T-14
Coordinates: PN 43335 PW 73772
Elevation: Casing 714.75 Brass Marker:

DRILLING METHOD

Drilling Method(s): Cable Tool
Hard Tool, 0'-530'
Drilling Fluid: Water
Other:

COMPLETION DATA

Drilled Depth: 530' (545'?)
Completed Depth: 380'
Date Started: 9/18/50
Date Completed: 11/62
Static Water Level/Date:

OTHER (check if performed)

- ___ Well Abandonment
- ___ Well Development
- ___ Aquifer Testing
- ___ Geophysical Log(s)
- ___ Lock and Cap
- ___ Downhole TV Inspection
- ___ Driller's Logs
- ___ Pad
- ___ Guardposts
- ___ Protective Casing

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Unknown	1.5"		?	358' - 380'

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
			-
			-
			-
			-

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Unknown	1.5"		0 - 358'

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
See well 299-W11-2	-		
	-		
	-		
	-		
	-		
	-		

PUMP

Type: Depth to Inlet: Date Set:

ACCEPTANCE

Completed Well: Accept: Conditionally Accept:
Reject:

COMMENTS

Piezometer tube within well 299-W11-2

Reviewed by: Date: Depths are below land surface unless noted.

9413205.0314

WELL COMPLETION SUMMARY

Project USGS
Location T-Plant, 200W
Drilling Co.
Driller Row
Other (companies)
Geologist(s)

Well No. 299-W11-2 "S" Temp. Well No. 361-T-14
Coordinates PN 43335 PW 73772
Elevation: Casing 714.75 Brass Marker

DRILLING METHOD
Drilling Method(s) Cable Tool
Hard Tool, 0'-530'
Drilling Fluid Water
Other

COMPLETION DATA
Drilled Depth 530' (545'?)
Completed Depth 300'
Date Started 9/18/50
Date Completed 11/62
Static Water Level/Date

OTHER (check if performed)
- ___ Well Abandonment
- ___ Well Development
- ___ Aquifer Testing
- ___ Geophysical Log(s)
- ___ Lock and Cap
- ___ Downhole TV Inspection
- ___ Driller's Logs
- ___ Pad
- ___ Guardposts
- ___ Protective Casing

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Unknown	1.5"		?	300' - 322'

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
			-
			-
			-
			-

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Unknown	1.5"		0 - 300'

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
See well 299-W11-2	-		
	-		
	-		
	-		
	-		
	-		

PUMP
Type _____ Depth to Inlet _____ Date Set _____

ACCEPTANCE
Completed Well: Accept _____ Conditionally Accept _____
Reject _____

COMMENTS
Piezometer tube within well 299-W11-2

Reviewed by _____ Date _____ Depths are below land surface unless noted.

9413205.0315

WELL COMPLETION SUMMARY

Project: USGS
Location: T-Plant, 200W
Drilling Co.:
Driller: Row
Other (companies):
Geologist(s):

Well No. 299-W11-2 "T" Temp. Well No. 361-T-14
Coordinates: PN 43335 PW 73772
Elevation: Casing 714.75 Brass Marker:

DRILLING METHOD

Drilling Method(s): Cable Tool
Hard Tool, 0'-530'
Drilling Fluid: Water
Other:

COMPLETION DATA

Drilled Depth: 530' (545'?)
Completed Depth: 264'
Date Started: 9/18/50
Date Completed: 11/62
Static Water Level/Date:

OTHER (check if performed)

___ Well Abandonment	___ Downhole TV Inspection
___ Well Development	___ Driller's Logs
___ Aquifer Testing	___ Pad
___ Geophysical Log(s)	___ Guardposts
___ Lock and Cap	___ Protective Casing

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Unknown	1.5"		?	242 - 264'

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
			-
			-
			-
			-

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Unknown	1.5"		0 - 242'

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
See well 299-W11-2	-		
	-		
	-		
	-		
	-		
	-		

PUMP

Type: Depth to Inlet: Date Set:

ACCEPTANCE

Completed Well: Accept: Conditionally Accept:
Reject:

COMMENTS

Piezometer tube within well 299-W11-2

Reviewed by: Date: Depths are below land surface unless noted.

9413205.0316

AS-BUILT DIAGRAM

Boring or Well Number 2699-W11-2 Sheet 1 of 4

Location _____ Project _____

Logged by _____ Date Well Started _____

Reviewed by _____ Date _____ Date Well Completed _____

Well Construction Data: Description	Construction Diagram (Drill Bit)	Depth in Feet	Geologic/Hydrologic Data: Lithologic Diagram (Sample Method)	Lith from Geologist's Log: Lithologic Description
		0		
		5		Silty Sandy Gravel
3" dia. Carbon steel (?)		10		Gravelly Silty Sand
casing containing 6		15		Silty Sandy Gravel
1.5" dia piezometer		20		Sandy Gravel
tubes ("O" "P", "Q"		25		" "
"R" "S" + "T")		30		" "
		35		" "
		40		Silty Sandy Gravel
		45		" " "
		50		" " "
		55		" " "
		60		" " "
		65		" " "
		70		" " " (some caliche)
		75		" " " "
		80		" " " "
		85		" " " "
		90		" " " "
		95		" " " "
		100		" " " "
		105		" " " "
		110		" " "
		115		111' Silty Clay, very calcareous 115' Sl. Gravelly, Silty, Clayey Sand w/ caliche
		120		" " " " "
		125		Sandy, Sl. Clayey Silt + caliche
		130		Sl. Gravelly, V. Silty, Sand + Caliche
		135		" " " "
		140		Caliche w/ some sand + basalt granules
		145		Sandy Gravel w/ caliche
		150		Silty, Sandy Gravel, no caliche
		155		Sand
		160		Gravelly Silty Sand w/ caliche
		165		" " " "

Drill Bit/Sample Method Used: O P Q R S T

☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hand Tool ⊖ Split-Barrel

A-1800-186 (05/90)

9413275.0317

AS-BUILT DIAGRAM

Boring or Well Number 299-W11-2 Sheet 2 of 4

Location _____ Project _____

Logged by _____ Date Well Started _____

Reviewed by _____ Date _____ Date Well Completed _____

Well Construction Data: Description	Depth in Feet	Geologic/Hydrologic Data: Lithologic Description
This well contains 6, 1.5" dia piezometer tubes. These tubes are designated by letter and have the following monitoring intervals:	170	Silty Sandy Gravel
"O" 239-259'	175	" " "
"P" 486-508'	180	" " "
"Q" 409-434'	185	" " "
"R" 358-320'	190	" " "
"S" 300-322'	195	" " "
"T" 242-264'	200	" " "
These tubes were installed 11/62.	205	" " "
	210	" " "
	215	" " "
	220	" " "
	225	" " "
	230	" " "
	235	" " "
	240	" " "
	245	" " " w/clay
	250	" " " (no clay)
8" Carbon steel casing, 0-509',	255	" " "
perforated 275-508' →	260	" " "
	265	" " " w/clay
	270	" " " "
	275	" " " "
Sand Pack 259'-508'	280	" " " "
	285	" " " "
	290	" " " "
	295	" " " (no clay)
	300	" " "
	305	" " "
	310	" " "
	315	Sandy Gravel
	320	" "
	325	" " (trace of clay)
	330	" "

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413205.0318

AS-BUILT DIAGRAM

Boring or Well Number 299-W11-2 Sheet 3 of 4

Location _____ Project _____

Logged by _____ Date Well Started _____

Reviewed by _____ Date _____ Date Well Completed _____

Well Construction Data: Description	Construction Diagram (Drill Bit)	Depth in Feet	Geologic/Hydrologic Data: Lithologic Diagram (Sample Method)	Lithologic Description
		335		Sandy Gravel
"P" tube monitoring		340		" "
interval 426-508'		345		" "
cement grout 349 - 355.5'		350		" "
"Q" tube monitoring		355		" "
interval 409.434'		360		" "
		365		" "
"R" tube monitoring		370		" "
interval 388-390'		375		" "
		380		" "
Perforations in 8" casing		385		" "
(275-508')		390		" "
		395		Silty Sandy Gravel
		400		" " "
		405		" " "
		410		" " "
		415		" " "
		420		" " "
		425		" " "
		430		" " "
		435		" " " (slightly clay)
Sand pack 508'-259'		440		" " " (no clay)
		445		" " "
		450		" " "
		455		" " "
		460		" " "
		465		" " "
		470		" " "
		475		" " "
		480		" " "
		485		" " "
		490		" " "
		495		" " "

P Q R

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ◆ Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413205.0319

AS-BUILT DIAGRAM

Boring or Well Number 299-W11-2 Sheet 4 of 4

Location _____ Project _____

Logged by _____ Date Well Started _____

Reviewed by _____ Date _____ Date Well Completed _____

Well Construction Data			Depth in Feet	Geologic/Hydrologic Data		
	Drill Bit			Sample Method		
Description	Construction Diagram	▼		▼	Lithologic Diagram	Lithologic Description
Sack pack 508-259'			500			Silty Sandy Gravel
"P" tube monitoring interval,			505			" " " w/wood pieces
426-508'			510			Vessicular basalt, mud, ash (509-515')
			515			" " " "
508'-530' → hole filled with			520			Solid Basalt (515-520')
"silt" (bentonite?) →			525			Ground basalt w/silt, mud + qtz sand
2" Borehole (509-530') →			530			Ground basalt and qtz sand
						(Assume basalt starts at 509'. Qtz sand seen from 525' on maybe carry-down)
						Drillers log 8/29/56 notes that P/Bottom is 545 instead of 534'. Not sure which is correct. Only have sample info to 530'.

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413205.0320

WELL COMPLETION SUMMARY

Project
Location
Drilling Co.
Driller Row
Other (companies)
Geologist(s)

Well No. 299-W11-4 Temp. Well No. 361-T-16
Coordinates N43060 W73904
Elevation: Casing 713.37 Brass Marker

DRILLING METHOD

Drilling Method(s) Cable Tool
Hand Tool 0-310
Drilling Fluid water
Other

COMPLETION DATA

Drilled Depth 310'
Completed Depth 310'
Date Started 4/18/51
Date Completed 5/17/51
Static Water Level/Date 277 5/17/51

OTHER (check if performed)

___ Well Abandonment	___ Downhole TV Inspection
___ Well Development	___ Driller's Logs
___ Aquifer Testing	___ Pad
___ Geophysical Log(s)	___ Guardposts
___ Lock and Cap	___ Protective Casing

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Perforated Carbon Steel	8"	50'		250' - 300'

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
			-
			-
			-
			-

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon Steel	8"		0' - 250'
Carbon Steel	8"		300' - 303

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
	-		
	-		
	-		
	-		
	-		
	-		

PUMP

Type Depth to Inlet Date Set

ACCEPTANCE

Completed Well: Accept Conditionally Accept
Reject

COMMENTS

Reviewed by Date Depths are below land surface unless noted.

9413205.0321

AS-BUILT DIAGRAM

Boring or Well Number 299-W11-4 Sheet 1 of 2
Location _____ Project _____

Logged by _____ Date Well Started 4/18/51
Reviewed by _____ Date _____ Date Well Completed 5/17/51

Well Construction Data: Description	Construction Diagram (Drill Bit)	Depth in Feet	Geologic/Hydrologic Data: Lithologic Diagram (Sample Method)	Lithologic Description (Data from Driller's Log)
8" Carbon Steel Casing 0'-303'		5		Blow Sand & Top Soil
		10		Gravel & Sand
		15		" "
		20		" "
		25		Gravel
		30		"
		35		Gravel, Sand & Silt
		40		" " "
		45		" " "
		50		" " "
		55		" " "
		60		Sand & 10% Silt
		65		" " "
		70		" " "
		75		" " "
		80		" " "
		85		" " "
		90		" " "
		95		" " "
		100		" " "
		105		" " "
		110		" " "
		115		4 ft. Sand & 1 ft. Silt
		120		Heavy Silt Bed
		125		Heavy Silt Bed & Caliche'
		130		" " " "
		135		Fine White Sand, Silt & Caliche
		140		" " " " "
		145		" " " " "
		150		Gravel & Sand
		155		Sandy Clay
		160		" "
		165		" "

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ● Split-Barrel

A-1800-186 (05/90)

9413205.0322

AS-BUILT DIAGRAM

Boring or Well Number 299-W11-4 Sheet 2 of 2
Location _____ Project _____

Logged by _____
Reviewed by _____ Date _____

Date Well Started 4/18/51
Date Well Completed 5/17/51

Well Construction Data			Depth in Feet	Geologic/Hydrologic Data		
	Drill Bit			Sample Method		Data from Driller's Log
Description	Construction Diagram				Lithologic Diagram	Lithologic Description
			170			Sandy Clay
8" Carbon Steel Casing			175			Gravel & Sand
0'-303'			180			" "
			185			" "
			190			" "
			195			" "
			200			" "
			205			Coarse Sand & Gravel
			210			Gravel & Silt
			215			" "
			220			" "
			225			Gravel, Fine Sand & 5% Silt
			230			" " " " "
			235			" " " " "
			240			Sand & Some Gravel
			245			Gravel & Sand
			250			Gravel, Sand & Some Silt
			255			" " " "
			260			" " " "
Perforations			265			" " " "
250'-300'			270			Gravel, Sand & Tan Silt
			275			" " " "
			280			Gravel, Sand & Silt
			285			" " "
			290			" " "
			295			" " "
			300			" " "
			305			" " "
			310			" " "

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ● Split-Barrel

A-1800-186 (05/90)

9413205.0323

WELL COMPLETION SUMMARY

Project
Location
Drilling Co. Jansen Drilling Co.
Driller Grant & Trantham
Other (companies)
Geologist(s)

Well No. 299-W11-13 Temp. Well No.
Coordinates N42529 W74781
Elevation: Casing 692.01 Brass Marker

DRILLING METHOD

Drilling Method(s) Cable Tool
Drive Barrel 0'-146', 240'-245' Hard Tool 146'-240', 245'-4
Drilling Fluid Water
Other

COMPLETION DATA

Drilled Depth 498'
Completed Depth 498'
Date Started 4/26/61
Date Completed 7/17/61
Static Water Level/Date 233/4/63

OTHER (check if performed)

___ Well Abandonment	___ Downhole TV Inspection
___ Well Development	___ Driller's Logs
___ Aquifer Testing	___ Pad
___ Geophysical Log(s)	___ Guardposts
___ Lock and Cap	___ Protective Casing

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Perforated Carbon Steel	8"	254'		218' - 472'

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
			-
			-
			-
			-

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon Steel	8"		0' - 218'
			-

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
Sand Pack	297' - 468'		
Backfill / Slough	468' - 498'		
	-		
	-		
	-		
	-		

PUMP

Type Depth to Inlet Date Set

ACCEPTANCE

Completed Well: Accept Conditionally Accept
Reject

COMMENTS

Piezometers added 4/63 & 5/65

Reviewed by Date Depths are below land surface unless noted.

9413205.0324

WELL COMPLETION SUMMARY

Project
Location
Drilling Co. Jansen Drilling Co.
Driller Gaunt & Trantham
Other (companies)
Geologist(s)

Well No. 299-W11-130 Temp. Well No.
Coordinates N42529 W74781
Elevation: Casing 692.01 Brass Marker

DRILLING METHOD

Drilling Method(s) Cable Tool
Drive Barrel 0'-146' 240'-245' Hard Tool 146'-240' 245'-49
Drilling Fluid Water
Other

COMPLETION DATA

Drilled Depth 498'
Completed Depth 250
Date Started 4/26/61
Date Completed 5/12/65
Static Water Level/Date

OTHER (check if performed)

- ___ Well Abandonment
- ___ Well Development
- ___ Aquifer Testing
- ___ Geophysical Log(s)
- ___ Lock and Cap
- ___ Downhole TV Inspection
- ___ Driller's Logs
- ___ Pad
- ___ Guardposts
- ___ Protective Casing

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Perforated Carbon Steel	8"	254'		218' - 472'
Plastic	1½"	10'	T	250' - 240'
Perforated Polyethelene	1½"	10'		240 - 230'

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
			-
			-
			-
			-

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon Steel	8"		0' - 218'
Polyethelene	1½"		0' - 230'

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
Sand Pack	297' - 468'		
Backfill/Slough	468' - 498'		
	-		
	-		
	-		
	-		

PUMP

Type Depth to Inlet Date Set

ACCEPTANCE

Completed Well: Accept Conditionally Accept
Reject

COMMENTS

Reviewed by Date Depths are below land surface unless noted.

9413205.0325

WELL COMPLETION SUMMARY

Project
Location
Drilling Co. Jansen Drilling Co.
Driller Gaunt & Trantham
Other (companies)
Geologist(s)

Well No. 299-W11-13P Temp. Well No.
Coordinates N42529 W74781
Elevation: Casing 692.01 Brass Marker

DRILLING METHOD

Drilling Method(s) Cable Tool
Drive Barrel 0'-146', 240'-245' Hard Tool 146'-240', 245'-498'
Drilling Fluid Water
Other

COMPLETION DATA

Drilled Depth 498'
Completed Depth 468
Date Started 4/26/61
Date Completed 4/63
Static Water Level/Date

OTHER (check if performed)

- ___ Well Abandonment
- ___ Well Development
- ___ Aquifer Testing
- ___ Geophysical Log(s)
- ___ Lock and Cap
- ___ Downhole TV Inspection
- ___ Driller's Logs
- ___ Pad
- ___ Guardposts
- ___ Protective Casing

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Perforated Carbon Steel	8"	254'		218' - 472'
Perforated Polyethelene	1½"	25'		443' - 468'

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
			-
			-
			-
			-

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon Steel	8"		0' - 218'
Polyethelene	1½"		0' - 443'

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
Sand Pack	297' - 468'		
Backfill/Slough	468' - 498'		
	-		
	-		
	-		
	-		

PUMP

Type Depth to Inlet Date Set

ACCEPTANCE

Completed Well: Accept Conditionally Accept
Reject

COMMENTS

Reviewed by Date

Depths are below land surface unless noted.

9413205.0326

WELL COMPLETION SUMMARY

Project
Location
Drilling Co. Jannsen Drilling Co.
Driller Gaunt & Trantham
Other (companies)
Geologist(s)

Well No. 299-W11-13Q Temp. Well No.
Coordinates N42529 W74781
Elevation: Casing 692.01 Brass Marker

DRILLING METHOD

Drilling Method(s) Cable Tool
Drive Barrel 0'-146' 240'-245' Hard Tool 146'-240' 245'-40
Drilling Fluid Water
Other

COMPLETION DATA

Drilled Depth 498'
Completed Depth 401'
Date Started 4/26/61
Date Completed 4/63
Static Water Level/Date

OTHER (check if performed)

___ Well Abandonment	___ Downhole TV Inspection
___ Well Development	___ Driller's Logs
___ Aquifer Testing	___ Pad
___ Geophysical Log(s)	___ Guardposts
___ Lock and Cap	___ Protective Casing

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Perforated Carbon Steel	8"	254'		218' - 472'
Perforated Polyethelene	1½"	25'		376' - 401'

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
			-
			-
			-
			-

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon Steel	8"		0' - 218'
Polyethelene	1½"		0' - 376'

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
Sand Pack	297' - 468'		
Backfill/Slough	468' - 498'		
	-		
	-		
	-		
	-		

PUMP

Type Depth to Inlet Date Set

ACCEPTANCE

Completed Well: Accept Conditionally Accept
Reject

COMMENTS

Reviewed by Date

Depths are below land surface unless noted.

9413206.0327

AS-BUILT DIAGRAM

Boring or Well Number 299-W11-13 Sheet 1 of 4
Location _____ Project _____

Logged by _____
Reviewed by _____ Date _____

Date Well Started 4/26/61
Date Well Completed 5/12/65

Well Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Construction Diagram (Drill Bit)		Lithologic Diagram (Sample Method)	Lithologic Description (Data from Driller's Log)
8" Carbon Steel Casing 0'-218'		5		Sand & Gravel
		10		" "
		15		Sand & Gravel to 3"
		20		" " " "
1½" Polyethelene Q-Tube 0'-250'		25		Sand & Gravel to 5"
		30		" " " "
		35		Silty Sand
		40		" "
1½" Polyethelene Q-Tube 0'-401'		45		" "
		50		Brown Sand
		55		Brown Silty Sand
		60		" " "
1½" Polyethelene P-Tube 0'-468'		65		" " "
		70		" " "
		75		Silty Sand & Pea Gravel
		80		" " " "
		85		Brown Sand
		90		Coarse Sand
		95		" "
		100		" "
		105		Silty Sand
		110		90% Silt, 10% Sand
		115		" "
		120		Silt
		125		Silt, Sand & Gravel
		130		Brown Silt & Sand
		135		Interbedded Fine Sand & Silt
		140		Silt, Sand & Gravel to 6"
		145		Big Cobbles
		150		Sand, Gravel & Cobbles
		155		" " "
		160		Loose Sand, Gravel & Cobbles
		165		" " " "

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413205.0328

AS-BUILT DIAGRAM

Boring or Well Number 299-W11-13 Sheet 2 of 4

Location _____ Project _____

Logged by _____

Reviewed by _____ Date _____

Date Well Started 4/26/61

Date Well Completed 5/12/65

Well Construction Data			Depth in Feet	Geologic/Hydrologic Data		
		Drill Bit		Sample Method		Data from Drillers Logs
Description	Construction Diagram				Lithologic Diagram	Lithologic Description
8" Carbon Steel Casing		●	170	●		Loose Sand, Gravel & Cobbles
0'-218'			175			Loose Sand & Gravel
			180			" " "
1½" Polyethelene			185			Cemented Gravel
Q-Tube 0'-401'			190			Silt, Sand, Gravel & Cobble to 5"
			195			Silt, Sand, Gravel & Cobbles
1½" Polyethelene			200			Loose Silt, Sand & Gravel
P-Tube 0'-468'			205			Cemented Gravel
			210			" "
			215			" "
			220			" "
			225			" "
Perforated 8" Carbon			230			" "
Steel Casing 218'-472'			235			Sand & Gravel
			240			Loose Sand & Gravel
O-Tube Perforated		○	245	○		Sand, Silt & Gravel to 5"
from 230'-240'		●	250	●		Sand, Silt & Cobbles
1½" Plastic Screen			255			Sand, Gravel & Cobbles to 5"
240'-250'			260			Sand, Gravel & Cobbles
			265			Sand, Silt, Gravel & Cobbles to 5"
			270			Sand & Gravel
			275			Sand, Gravel & Cobbles
			280			Cemented Gravel
			285			Cemented Gravel w/Cobbles
			290			Cemented Gravel
			295			" "
			300			" "
			305			" "
Sand Pack			310			" "
297'-468'			315			" "
			320			" "
			325			" "
			330			" "

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413205.0329

AS-BUILT DIAGRAM

Boring or Well Number 299-W11-13 Sheet 3 of 4

Location _____ Project _____

Logged by _____ Date Well Started 4/26/61

Reviewed by _____ Date _____ Date Well Completed 5/2/65

Well Construction Data		Depth in Feet	Geologic/Hydrologic Data	
	Drill Bit		Sample Method	Data from Driller's Log
Description	Construction Diagram		Lithologic Diagram	Lithologic Description
		335		Cemented Gravel
		340		" "
		345		" "
		350		" "
		355		" "
		360		" "
		365		" "
		370		" "
Perforated 8" Carbon		375		" "
Steel Casing 218'-472'		380		" "
		385		" "
Q-Tube Perforated		390		" "
from 376'-401'		395		" "
		400		" "
		405		" "
		410		" "
		415		" "
Sand Pack		420		Silty Sand & Clay
297'-468'		425		Brown Silty Sandy Clay
		430		Brown Silty Clay
		435		Red Silty Clay
		440		Brown Silty Clay
		445		" " "
P-Tube Perforated		450		Cemented Gravel
from 443'-468'		455		" "
		460		" "
		465		" "
		470		Clay & Gravel
		475		" "
		480		Cemented Gravel
Backfill/Slough		485		" "
468'-498'		490		Basalt
		495		"

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413205.0330

AS-BUILT DIAGRAM

Boring or Well Number 299-W11-13 Sheet 4 of 4

Location _____ Project _____

Logged by _____

Reviewed by _____ Date _____

Date Well Started 4/26/61

Date Well Completed 5/12/65

Well Construction Data			Depth in Feet	Geologic/Hydrologic Data		
	Drill Bit			Sample Method	Data from Drillers Log	
Description	Construction Diagram	▼		▼	Lithologic Diagram	Lithologic Description
Backfill/Slough		●	500	●		Basalt
468'-498'						TD=498'

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413205.0331

WELL COMPLETION SUMMARY

Project
Location
Drilling Co.
Driller Row - Roberts
Other (companies)
Geologist(s)

Well No. 299-W15-5 Temp. Well No.
Coordinates N39537 W75984
Elevation: Casing 670.68 Brass Marker

DRILLING METHOD

Drilling Method(s) Cable Tool
Hard Tool 0'-599'
Drilling Fluid Water
Other

COMPLETION DATA

Drilled Depth 599'
Completed Depth 599'
Date Started 2/21/57
Date Completed 4/12/57
Static Water Level/Date 199'/10/21/64

OTHER (check if performed)

___ Well Abandonment	___ Downhole TV Inspection
___ Well Development	___ Driller's Logs
___ Aquifer Testing	___ Pad
___ Geophysical Log(s)	___ Guardposts
___ Lock and Cap	___ Protective Casing

*See Back

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Perforated Carbon Steel	8"	44'		173' - 217'
Perforated Carbon Steel	8"	20'		230' - 250'

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
			-
			-
			-
			-

*See Back

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon Steel	8"		0' - 173'
Carbon Steel	8"		217' - 230'

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
Sand Pack	334' - 599'		
	-		
	-		
	-		
	-		
	-		

PUMP

Type Depth to Inlet Date Set

ACCEPTANCE

Completed Well: Accept Conditionally Accept
Reject

COMMENTS

Piezometers added 10/64

Reviewed by Date Depths are below land surface unless noted.

9413205.0432

299-W15-5 WELL COMPLETION SUMMARY (CONTINUED)

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Perforated Carbon Steel	8"	20'	—	385' - 405'
" " "	"	20'	—	445' - 465'
" " "	"	44'		480' - 524'
				-
				-
				-

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon Steel	8"		250' - 385'
" "	"		405' - 445'
" "	"		465' - 480'
			-
			-
			-

9413205.0333

WELL COMPLETION SUMMARY

Project
Location
Drilling Co.
Driller - Row - Roberts
Other (companies)
Geologist(s)

Well No. 299-W15-5P Temp. Well No.
Coordinates N39537 W75984
Elevation: Casing 670.68 Brass Marker

DRILLING METHOD
Drilling Method(s) Cable Tool
Hard Tool 0'-599'
Drilling Fluid Water
Other

COMPLETION DATA
Drilled Depth 599'
Completed Depth 594
Date Started 2/21/57
Date Completed 10/21/64
Static Water Level/Date

OTHER (check if performed)
- ___ Well Abandonment
- ___ Well Development
- ___ Aquifer Testing
- ___ Geophysical Log(s)
- ___ Lock and Cap
- ___ Downhole TV Inspection
- ___ Driller's Logs
- ___ Pad
- ___ Guardposts
- ___ Protective Casing

SCREEN *See Back

Type	Outer Diameter	Length	Slot Size	Interval
Perforated Carbon Steel	8"	44'		173' - 217'
Perforated Carbon Steel	8"	20'		230' - 250'

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
			-
			-
			-
			-

PERMANENT CASING * See Back

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon Steel	8"		0' - 173'
Carbon Steel	8"		217' - 230'

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
Sand Pack	334' - 599'		
	-		
	-		
	-		
	-		
	-		

PUMP
Type Depth to Inlet Date Set

ACCEPTANCE
Completed Well: Accept Conditionally Accept
Reject

COMMENTS
Piezometers added 10/64

Reviewed by Date Depths are below land surface unless noted.

9413205.0334

299-W15-5 "P" WELL COMPLETION SUMMARY (CONTINUED)

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Perforated Carbon Steel	8"	20'	—	385' - 405'
" " "	"	20'	—	445' - 465'
" " "	"	44'		480' - 524'
Perforated Polyethylene (?)	1.5"	70'		524' - 594'
				-
				-

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon Steel	8"		250' - 385'
" "	"		405' - 445'
" "	"		465' - 480'
Polyethylene (?)	1.5"		0 - 524'
			-
			-

9413205.0335

WELL COMPLETION SUMMARY

Project
Location
Drilling Co.
Driller Row-Roberts
Other (companies)
Geologist(s)

Well No. 299-W15-5Q Temp. Well No.
Coordinates N39537 W75984
Elevation: Casing 670.68 Brass Marker

DRILLING METHOD
Drilling Method(s) Cable Tool
Hard Tool 0'-599'
Drilling Fluid Water
Other

COMPLETION DATA
Drilled Depth 599'
Completed Depth 520'
Date Started 2/21/57
Date Completed 10/21/64
Static Water Level/Date

OTHER (check if performed)
- ___ Well Abandonment
- ___ Well Development
- ___ Aquifer Testing
- ___ Geophysical Log(s)
- ___ Lock and Cap
- ___ Downhole TV Inspection
- ___ Driller's Logs
- ___ Pad
- ___ Guardposts
- ___ Protective Casing

*See Back

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Perforated Carbon Steel	8"	44'		173' - 217'
Perforated Carbon Steel	8"	20'		230' - 250'

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
			-
			-
			-
			-

*See Back

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon Steel	8"		0' - 173'
Carbon Steel	8"		217' - 230'

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
Sand Pack	334' - 599'		
	-		
	-		
	-		
	-		
	-		

PUMP
Type Depth to Inlet Date Set

ACCEPTANCE
Completed Well: Accept Conditionally Accept
Reject

COMMENTS
Piezometers added 10/64

Reviewed by Date Depths are below land surface unless noted.

9413205.0336

299-W15-5 "a" WELL COMPLETION SUMMARY (CONTINUED)

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Perforated Carbon Steel	8"	20'	—	385' - 405'
" " "	"	20'	—	445' - 465'
" " "	"	44'		480' - 524'
Perforated Polyethylene (?)	1.5"	25'		495' - 520'
				-
				-

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon Steel	8"		250' - 385'
" "	"		405' - 445'
" "	"		465' - 480'
Polyethylene (?)	1.5"		0 - 495'
			-
			-

9413205.0337

WELL COMPLETION SUMMARY

Project
Location
Drilling Co.
Driller Row-Roberts
Other (companies)
Geologist(s)

Well No. 299-W15-5R Temp. Well No.
Coordinates N39537 W75984
Elevation: Casing 670.68 Brass Marker

DRILLING METHOD

Drilling Method(s) Cable Tool
Hard Tool 0'-599'
Drilling Fluid Water
Other

COMPLETION DATA

Drilled Depth 599'
Completed Depth 460'
Date Started 2/21/57
Date Completed 10/21/64
Static Water Level/Date

OTHER (check if performed)

- ___ Well Abandonment
- ___ Well Development
- ___ Aquifer Testing
- ___ Geophysical Log(s)
- ___ Lock and Cap
- ___ Downhole TV Inspection
- ___ Driller's Logs
- ___ Pad
- ___ Guardposts
- ___ Protective Casing

*See Back

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Perforated Carbon Steel	8"	44'		173' - 217'
Perforated Carbon Steel	8"	20'		230' - 250'

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
			-
			-
			-
			-

*See Back

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon Steel	8"		0' - 173'
Carbon Steel	8"		217' - 230'

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
Sand Pack	334' - 599'		
	-		
	-		
	-		
	-		
	-		

PUMP

Type Depth to Inlet Date Set

ACCEPTANCE

Completed Well: Accept Conditionally Accept
Reject

COMMENTS

Piezometers added 10/64

Reviewed by Date Depths are below land surface unless noted.

9413205.0330

299-W15-5 "R" WELL COMPLETION SUMMARY (CONTINUED)

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Perforated Carbon Steel	8"	20'	—	385' - 405'
" " "	"	20'	—	445' - 465'
" " "	"	44'		480' - 524'
Perforated Polyethylene (?)	1.5"	25'		435' - 460'
				-
				-

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon Steel	8"		250' - 385'
" "	"		405' - 445'
" "	"		465' - 480'
Polyethylene (?)	1.5"		0 - 435'
			-
			-

9413205.0339

WELL COMPLETION SUMMARY

Project
Location
Drilling Co.
Driller: Row - Roberts
Other (companies)
Geologist(s)

Well No. 299-W15-5S Temp. Well No.
Coordinates N39537 W75984
Elevation: Casing 670.68 Brass Marker

DRILLING METHOD

Drilling Method(s) Cable Tool
Hard Tool 0'-599'
Drilling Fluid Water
Other

COMPLETION DATA

Drilled Depth 599'
Completed Depth 400'
Date Started 2/21/57
Date Completed 10/21/64
Static Water Level/Date

OTHER (check if performed)

Well Abandonment	Downhole TV Inspection
Well Development	Driller's Logs
Aquifer Testing	Pad
Geophysical Log(s)	Guardposts
Lock and Cap	Protective Casing

SCREEN *See Back

Type	Outer Diameter	Length	Slot Size	Interval
Perforated Carbon Steel	8"	44'		173' - 217'
Perforated Carbon Steel	8"	20'		230' - 250'

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
			-
			-
			-
			-

PERMANENT CASING *See Back

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon Steel	8"		0' - 173'
Carbon Steel	8"		217' - 230'

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
Sand Pack	334' - 599'		
	-		
	-		
	-		
	-		
	-		

PUMP

Type Depth to Inlet Date Set

ACCEPTANCE

Completed Well: Accept Conditionally Accept
Reject

COMMENTS

Piezometers added 10/64

Reviewed by Date Depths are below land surface unless noted.

9413205.0340

299-W15-5 "S" WELL COMPLETION SUMMARY (CONTINUED)

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Perforated Carbon Steel	8"	20'	—	385' - 405'
" " "	"	20'	—	445' - 465'
" " "	"	44'		480' - 524'
Perforated Polyethylene (?)	1.5"	25'		375' - 400'
				-
				-

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon Steel	8"		250' - 385'
" "	"		405' - 445'
" "	"		465' - 480'
Polyethylene (?)	1.5"		0 - 375'
			-
			-

9413205.0341

AS-BUILT DIAGRAM

Boring or Well Number 299-W15-5 Sheet 1 of 4
Location _____ Project _____

Logged by _____
Reviewed by _____ Date _____

Date Well Started 2/21/57
Date Well Completed 10/64

Well Construction Data			Depth in Feet	Geologic/Hydrologic Data		
		Drill Bit		Sample Method		Data from Driller's Log
Description	Construction Diagram				Lithologic Diagram	Lithologic Description
8" Carbon Steel Casing		●	5	●		Sandy Top Soil
0'-173'			10			Sandy Silt
			15			" "
			20			" "
1½" Polyethelene			25			" "
S-Tube 0'-400'			30			Gravel & Sand
			35			Sand & Small Gravel
1½" Polyethelene			40			" " "
R-Tube 0'-460'			45			" " "
			50			" " "
1½" Polyethelene			55			Gravel & Loose Sand
Q-Tube 0'-520'			60			" " "
			65			Sandy Silt
1½" Polyethelene			70			" "
P-Tube 0'-594'			75			" "
			80			" "
			85			" "
			90			" "
			95			" "
			100			" "
			105			" "
			110			" "
			115			" "
			120			Heavy Silt & Sand
			125			" " "
			130			Caliche, Fine Gravel, Silt & Sand
			135			" " " " "
			140			Gravel & Less Silt
			145			" " "
			150			" " "
			155			Sand & Small Gravel
			160			Sand & Gravel
			165			" "

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ● Split-Barrel

A-1800-186 (05/90)

9413275.0342

AS-BUILT DIAGRAM

Boring or Well Number 299-W15-5 Sheet 2 of 4

Location _____ Project _____

Logged by _____

Reviewed by _____ Date _____

Date Well Started 2/21/57

Date Well Completed 10/64

Well Construction Data: Description	Depth in Feet	Geologic/Hydrologic Data: Lithologic Description (Data from Driller's Log)
	170	Gravel, Sand & Some Silt
	175	" " " "
Perforated 8" Carbon Steel Casing 173'-217'	180	" " " "
	185	" " " "
	190	" " " "
1½" Polyethelene S-Tube 0'-400'	195	" " " "
	200	" " " "
	205	" " " "
	210	Sand & Gravel
	215	Very Fine Sand & Gravel
8" Carbon Steel Casing 217'-230'	220	" " " "
	225	" " " "
	230	Fine Sand, Gravel & Some Silt
Perforated 8" Carbon Steel Casing 230'-250'	235	Sand, Gravel & Some Silt
	240	" " " "
	245	" " " "
1½" Polyethelene R-Tube 0'-460'	250	" " " "
	255	" " " "
	260	" " " "
1½" Polyethelene Q-Tube 0'-520'	265	Sand & Muck (Mud)
	270	" " "
	275	" " "
8" Carbon Steel Casing 250'-385'	280	Sand, Fine Gravel & Muck (Mud)
	285	Gravel, Sand & Less Silt
	290	Sand, Gravel & Muck (Mud)
1½" Polyethelene P-Tube 0'-594'	295	" " " "
	300	Gravel, Sand & Less Silt
	305	" " " "
	310	Gravel, Sand & Muck (Mud)
	315	" " " "
	320	Sand, Gravel & Muck (Mud)
	325	" " " "
	330	" " " "

Drill Bit/Sample Method Used: ☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ● Split-Barrel

A-1800-186 (05/90)

9413205.0343

AS-BUILT DIAGRAM

Boring or Well Number 299-W15-5 Sheet 3 of 4
Location _____ Project _____

Logged by _____ Date Well Started 2/21/57
Reviewed by _____ Date _____ Date Well Completed 10/64

Well Construction Data: Description	Depth in Feet	Geologic/Hydrologic Data: Lithologic Description (Data from Drillers Log)
8" Carbon Steel Casing 250'-385'	335	Sand, Gravel & Muck (Mud)
	340	" " " "
	345	" " " "
	350	" " " "
Sand Pack 334'-599'	355	" " " "
	360	" " " "
	365	Sand, Gravel, Muck, Conglomerate
	370	" " " "
S-Tube Perforated from 400'-375'	375	" " " "
	380	Sand & Gravel Conglomerate
	385	" " "
Perforated 8" Carbon Steel Casing 385'-405'	390	" " "
	395	" " "
	400	Gravel, Sand & White-Gray Silt
	405	Gravel, Sand & Less Silt
	410	Gravel & Sand Conglomerate
	415	Sand & Gravel Conglomerate
8" Carbon Steel Casing 405'-445'	420	" " "
	425	" " "
	430	Heavy White-Gray Silt, Gravel
R-Tube Perforated from 460'-435'	435	" " " " "
	440	" " " " "
	445	Shale, Volcanic Ash w/Small Gravel
Perforated 8" Carbon Steel Casing 445'-465'	450	Rotten Sand, Gravel, Silt & Gas
	455	White-Gray-Green & Black Mud Shale
	460	White-Gray Shale & Clay w/Gravel
	465	" " " " "
	470	Shale, Clay, White Ash, Gravel Combo.
8" Carbon Steel Casing 465'-480'	475	Blue Silt, Shale, Basalt Mud, Gravel, Sand
	480	" " " " " " "
	485	Sand, Gravel & Some Silt
	490	Sand, Gravel, Green Silt, Black Mud
	495	Sand, Gravel, Sandstone, Ash

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413205.0344

AS-BUILT DIAGRAM

Boring or Well Number 299-W15-5 Sheet 4 of 4
Location _____ Project _____

Logged by _____ Date Well Started 2/21/91
Reviewed by _____ Date _____ Date Well Completed 10/64

Well Construction Data		Depth in Feet	Geologic/Hydrologic Data	
	Drill Bit		Sample Method	Data from Driller's Log
Description	Construction Diagram		Lithologic Diagram	Lithologic Description
Perforated 8" Carbon Steel Casing 480'-524'		500		Sand, Gravel, Green & Black Silt
		505		" " " " "
		510		Sand, Gravel & Gray-Black Silt
Q-Tube Perforated from 520'-495'		515		" " " " "
		520		Sand, More Gravel & Gray-Green Silt
		525		Sand Gravel & Black Mud
		530		Honey Combed Rotten Basalt
		535		Basalt (More Dense)
P-Tube Perforated from 594'-524'		540		"
		545		Basalt (Soft)
		550		" "
Sand Pack 334'-599'		555		Basalt (Dense)
		560		Basalt (Soft)
		565		Basalt (Layers of Soft & D
Open Hole 526'-599'		570		" " " " "
		575		Basalt w/Sand Gravel & Mud
		580		Sand, Pea Gravel & Volcanic Mud
		585		Layers of Basalt & Gravel
		590		" " "
		595		Rotten Basalt & Some Sand
				Basalt
				TD=599'

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413205.0345

Battelle
Pacific Northwest Laboratories

Well Completion Report/Title III Inspection List

Project 200 West RCRA Well Drilling KEH 1914
Location Hanford Site 200 West Area
Driller Blane Boyley
Drilling Co. Onwego Drilling
Geologist SS Teel, JS Wilbur, T Gilmore, SP Airhart

Well Number 299-W15-15
Temporary Well Number none
Coordinates N.40,330 W.78,103
Casing Elevation 697.96
Ground Elevation 695.74

DRILLING METHOD

Rotary Air — Mud —
Cable Tool D 0'-30' H 30'-255'
Drilling Fluid Water
Other

COMPLETION DATA

Drilled Depth 255'
Completion Depth 253'
Date Started 7/14/87 Completed 9/2/87
Static Water Level/Date 226' 8/18/87

CASING DATA

Type	Size	
Type 304 Stainless Steel Casing	4" diameter	to
		to
		to

Approved By _____ Date _____

PERFORATIONS

Type —

Depth	Schedule

App. By _____ Date _____

SCREEN

	8" dia. Type 304 S.S.	4" dia. Type 304 SS
Type	Continuous Wrap	Continuous Wrap
Length	10'	30'
Slot Size	30'	20'
Depths	255'-245'	253'-223'

App. By JSW Date 12/31/87

ANNULAR SEAL

Type	Interval	Volume
sand	213.7'-255	15.56 ft³
Vol Clay Pellets	253.7-208	2.88 ft³
Vol Clay Grout	208'-4'	528 ft³
Concrete	4'-0'	12 ft³

App. By JSW Date 12/31/87

GEOPHYSICAL LOGGING

Sondes	Interval	Date
Neutron	0'-255'	8/18/87
Density	0'-255'	8/18/87
Natural Gamma	0'-255'	8/18/87

Approved By JSWilb Date 8/18/87

AQUIFER TESTING

Type of Test Constant Discharge Test
Length of Test 6 hrs.
Volume Pumped 7,200 gals
Drawdown 18.7'

Approved By JS Wilb Date 8/21/87

OTHER APPLICABLE ITEMS

JSW Steam Cleaning
JSW Storage of Const. Material
JSW Tool Lubricants
JSW Concrete Pad
JSW Protective Steel Posts
JSW Safety Paint
JSW Straightness Test
JSW Well Development
JSW Downhole TV Inspection
Well Abandonment
JSW Complete As-Built Diagram, Driller's and Geologist's Logs

Approved By JSWilb Date 9/4/87

Reviewed By D.L. McGhan Date 1-8-88

A-1800-187 (3/87)

9413205.0346

Battelle
Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W15-15 Geologist _____ Page 1 of 2

Reviewed by [illegible] Date 1-8-87

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Diagram Litho.	Lithologic Description
		5		SILT/CLAY
		10		SAND
52' 1/2" of 12" casing		15		SANDY GRAVEL
		20		GRAVELLY SAND
		25		SAND
		30		
		35		
		40		GRAVELLY SAND
		45		SILTY SAND
		50		SAND
165' 1" of 10" casing		55		SLIGHTLY GRAVELLY SAND
		60		SILTY SANDY GRAVEL
		65		GRAVELLY SAND
		70		SILTY SANDY GRAVEL
255' of 8" casing		75		
		80		
		85		
		90		GRAVELLY SILTY SAND
		95		SL. GRAVELLY SL. SILTY SAND
		100		
		105		SILTY SAND
		110		SLIGHTY SILTY SAND
		115		SILTY SAND
		120		SAND
		125		SILTY SAND
		130		

9413205.0347

A-1800-186 (3/87)

Battelle
Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W15-15 Geologist J.S. Wilbur Page 2 of 2

Reviewed by V.L. McGhan Date 1-8-88

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Diagram Litho.	Lithologic Description
		135		SLIGHTLY SILTY SAND
165' 1" of 10" casing		140		
		145		SANDY SILT
		150		SILTY CLAY
		155		GRAVELLY SANDY SILT
		160		
		165		
255' of 8" casing		170		
		175		SL. GRAVELLY SILTY SAND
		180		SANDY GRAVEL
		185		SILTY SANDY GRAVEL
		190		
		195		
		200		
D/T of Volclay pellets @ 209'		205		SANDY GRAVEL
		210		SILTY SANDY GRAVEL
D/T of 10-12 sand @ 213.7'		215		
D/B of 10-12 sand @ 255'		220		
		225		SANDY GRAVEL
D/T of 4" stainless screen 223'	226	230		
D/B of 4" stainless screen 253'		235		SILTY SANDY GRAVEL
		240		
		245		
D/T of telescoping screen 243'		250		SANDY GRAVEL
D/B of telescoping screen @ 253' depth		255		

note: telescoping screen settled to 255'4" after the aquifer test.

A-1800-188 (3/87)

9413205.0348

9413205.0349

Battelle
Pacific Northwest Laboratories

Well Completion Report/Title III Inspection List

Project KEH-1914
Location 200 WEST AREA
Driller DARREL LUDTKE
Drilling Co. ONWEGO
Geologist AIRHART, TEEL, WILBUR, GILMORE

Well Number 299-W15-16
Temporary Well Number —
Coordinates N. 40,269 W. 77,387
Casing Elevation 684.89
Ground Elevation 682.62

DRILLING METHOD

Rotary Air _____ Mud _____
Cable Tool D 13'-110' H 110'-243.5'
Drilling Fluid _____
Other BACKHOE 0'-13'

COMPLETION DATA

Drilled Depth 243.5'
Completion Depth 238'
Date Started 7/29/87 Completed 9/2/87
Static Water Level/Date 214.51

CASING DATA

Type	Size		
TYPE 304 STAINLESS STEEL CASING	4" DIAMETER	to	238'
		to	
		to	

Approved By SP Airhart Date 8/25/87

PERFORATIONS

Type —

Depth	Schedule
-	
-	
-	

App. By _____ Date _____

SCREEN

Type	4" dia. Type 304 S.S. CONTINUOUS WRAP	8" dia. Type 304 S.S. CONTINUOUS WRAP
Length	30'	10'
Slot Size	20-SLOT	30-SLOT
Depths	208' to 238'	227.5' to 237.5'

App. By SP Airhart Date 8/25/87

ANNULAR SEAL

Type	Interval	Volume
COLORADO SILICA SAND	243.5'-202'	21.39 ft³
VOLCLAY PELLETS	202'-196.5'	2.88 ft³
BENTONITE	196.5'-2'	1194.20 ft³
PREMIX CONCRETE	0'-2'	18 ft³

App. By SP Airhart Date 11/3/87

GEOPHYSICAL LOGGING

Sondes	Interval	Date
NATURAL GAMMA	0' - 243.5'	8/18/87
DENSITY	0' - 243.5'	8/18/87
NEUTRON	0' - 243.5	8/18/87
	-	
	-	
	-	
	-	

Approved By SP Airhart Date 8/18/87

AQUIFER TESTING

Type of Test Constant Discharge Test
Length of Test 7 hrs
Volume Pumped 33,600 gals
Drawdown 12.77

Approved By J.S. Hill Date 8/20/87

OTHER APPLICABLE ITEMS

SPA Steam Cleaning
SPA Storage of Const. Material
SPA Tool Lubricants
SPA Concrete Pad
SPA Protective Steel Posts
SPA Safety Paint
SPA Straightness Test
SPA Well Development
VXW Downhole TV Inspection
JSW Well Abandonment
JSW Complete As-Built Diagram, Driller's and Geologist's Logs

Approved By JS Hill Date 9/4/87

Reviewed By V.L. McGlean Date 1-8-88

A-1800-187 (3/87)

Battelle
Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W15-16 Geologist ~~AIRHART, TEEL, WILBUR, GILMORE~~ Page 1 of 2

Reviewed by W. L. McGhan Date 1-8-88

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Diagram Litho.	Lithologic Description
Concrete Surface Seal		5		SLIGHTLY SILTY SAND
12" casing to 62'7"		10		SAND
		15		SAND GRAVEL
10" casing to 154'9"		20		SAND
		25		SANDY GRAVEL
		30		
		35		SAND
		40		
		45		
		50		
		55		
		60		
		65		
		70		
8" casing to 243.5'		75		SANDY GRAVEL
		80		GRAVELLY SAND
		85		SANDY GRAVEL
		90		
		95		
		100		
		105		
		110		GRAVELLY SAND
		115		SAND
		120		SANDY GRAVEL
		125		
		130		

A-1800-186 (3/87)

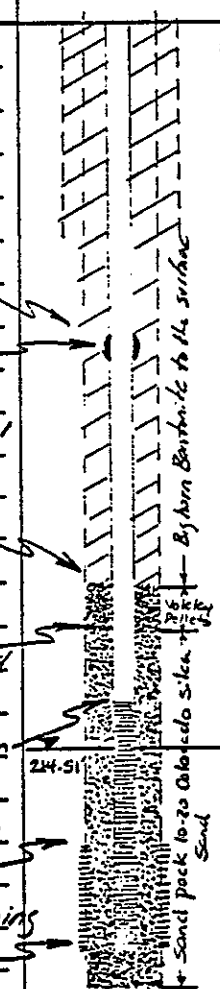
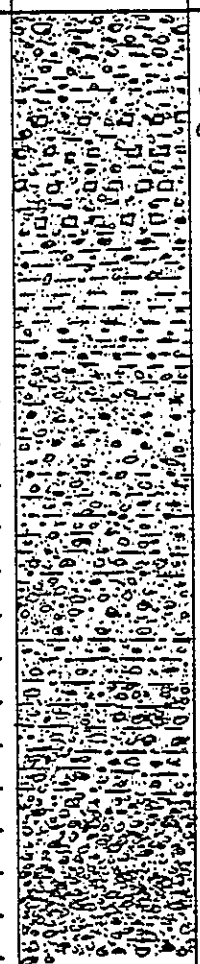
9413205.0350

Battelle
Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W15-16 Geologist ~~AIRHART, TEEL, WILBUR, GILMORE~~ Page 2 of 2

Reviewed by V.R. McGhan Date 1-8-88

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Diagram Litho.	Lithologic Description
10" casing to 154'9"		135		SANDY CLAYEY GRAVEL
		140		SLIGHTY GRAVELLEY SANDY SILT
		145		GRAVELLEY SILTY SAND w/ CALCHIP
		150		
		155		
8" casing to 243.5'		160		GRAVELLEY SILTY SAND
		165		SILTY SAND
centralizers @ 168'		170		SLIGHTY GRAVELLEY SILTY SAND
		175		SILTY SANDY GRAVEL
Volclay pellets from 202'		180		SLIGHTY GRAVELLEY SAND
to 196.5' depths		185		SILTY SAND GRAVEL
D/T of at 196.5'		190		
Sand pack of 10-20		195		
Colorado Silica Sand from		200		SANDY GRAVEL
238.5' to 202' - D/T of sand		205		SILTY SANDY GRAVEL
20 slot screen @ 238.5' to		210		
208.5' depths; D/T of screen		215		
		220		
D/T telescoping screen @		225		SANDY GRAVEL
227.5'		230		
D/B inside the telescoping		235		SLIGHTY SANDY GRAVEL
screen of 237.5'		240		SANDY GRAVEL
After pump test D/B of				
telescoping @ 238.5'				
below ground surface:				

A-1800-188 (3/87)

9413205.0351

Battelle
Pacific Northwest Laboratories

Well Completion Report/Title III Inspection List

Project KEH-1914
Location 200 WEST AREA
Driller DAVE GARCIA
Drilling Co. ONWEGO
Geologist ~~GILMORE, TEEL~~, BISHOP, WILBUR, AIRHART

Well Number 299-W15-17
Temporary Well Number —
Coordinates N.40,227 W.77,387
Casing Elevation 684.64
Ground Elevation 682.85

DRILLING METHOD

Rotary Air _____ Mud _____
Cable Tool D _____ H 0'-450'
Drilling Fluid _____
Other _____

COMPLETION DATA

Drilled Depth 450'
Completion Depth 432.5'
Date Started 7/8/87 Completed 10/28/87
Static Water Level/Date 211.58' below land surface 8/20/87

CASING DATA

Type	Size	
TYPE 304 STAINLESS STEEL CASING	4" DIAMETER	+2' to 432.5'
		to
		to

Approved By SPAirhart Date 10/2/87

PERFORATIONS

Type —

Depth	Schedule

App. By _____ Date _____

SCREEN

	4" dia. Type 304 S.S.	6" dia. Type 304 S.S.
Type	~~CONTINUOUS WRAP~~	~~CONTINUOUS WRAP~~
Length	10'	10'
Slot Size	20-SLOT	30-SLOT
Depths	422.5' to 432.5'	422.5' to 432.5'

App. By SPAirhart Date 10/2/87

ANNULAR SEAL

Type	Interval	Volume
~~COLORADO~~ ~~SILICA SAND~~	410.5'-450'	91.60 ft³
YELLAY GROUT	190'-410.5'	360 ft³
~~BENTONITE~~	3'-190'	
~~CONCRETE~~	0'-3'	18

App. By SPAirhart Date 11/3/87

GEOPHYSICAL LOGGING

Sondes	Interval	Date
NATURAL GAMMA	0' - 447'	9/17/87
NEUTRON	0' - 447'	9/17/87
DENSITY	0' - 447'	9/17/87
	-	
	-	
	-	
	-	

Approved By JS Hill Date 9/17/87

AQUIFER TESTING

Type of Test CONSTANT DISCHARGE
Length of Test 5 HOURS
Volume Pumped 1800 GALLONS
Drawdown 19.23 FEET

Approved By JS Hill Date 5/28/87

OTHER APPLICABLE ITEMS

SPA Steam Cleaning
SPA Storage of Const. Material
SPA Tool Lubricants
JSH Concrete Pad
JSH Protective Steel Posts
JSH Safety Paint
SPA Straightness Test
SPA Well Development
TVI Downhole TV Inspection
— Well Abandonment
JSH Complete As-Built Diagram, Driller's and Geologist's Logs

Approved By JS Hill Date 11/3

Reviewed By [illegible] Date 1-8-88

A-1800-187 (3/87)

9413205.0352

Battelle
Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W15-17 Geologist T Gilmore Page 1 of 4

Reviewed by D.L. McGhan Date 1-8-88

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Diagram Litho.	Lithologic Description
Premix Concrete Surface Seal	3' 7'	5		GRAVELY SAND (Hand Tool)
		10		SAND
		15		GRAVELY SAND
		20		SAND
		25		
(0-47') 20" CARBON STEEL CASING (0'-140'6")		30		SANDY GRAVEL
16" CARBON STEEL CASING (0'-220'10")		35		SAND
12" CARBON STEEL CASING (0'-323')		40		
10" CARBON STEEL CASING (0'-435'11")		45		
8" CARBON STEEL CASING		50		
		55		
4" STAINLESS STEEL CASING (42'-432.5')		60		
		65		
		70		
Bentonite Slurry		75		
		80		SANDY GRAVEL
	82'	85		
		90		
		95		
		100		SILTY SANDY GRAVEL
Dry Bentonite		105		SANDY GRAVEL
		110		
		115		
		120		GRAVEL
	125'	125		SANDY GRAVEL
		130		

A-1800-188 (3/87)

9413205.0353

Battelle
Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W15-17 Geologist T Gilmore Page 2 of 4

Reviewed by W.R. McGlam Date 1-8-88

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Diagram Litho.	Lithologic Description
		135		
	136'	140		SILT @ 136'
8-mesh Enviro gel Bentonite (dry)		145		SILTY SAND
		150		Caliche & Clay
		155		
		160		
		165		
	170'	170		SILTY CLAYEY SAND
		175		
200 mesh Big Horn Bentonite & ~10-100 mesh Big Horn Bentonite mixed w/ water to form slurry (100 lbs Bent : 100 gals H_2O)		180		SILTY GRAVELY SAND
		185		SANDY GRAVEL
	190'	190		GRAVELY SAND
		200		
		205		
		210		
		215		
		220		
		225		SILTY GRAVELY SAND
		230		
		235		
Volclay Grout		240		
		245		
		250		
		255		
		260		

A-1800-186 (3/87)

9413205.0291

Battelle
Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299 - W15 - 17 Geologist T Gilmore Page 3 of 4

Reviewed by V.L. McGhan Date 1-8-88

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Diagram Litho.	Lithologic Description
		265		SILTY GRAVELY SAND Cont.
		270		
		275		
		280		
		285		
		290		
		295		
		300		
		305		
		310		
		315		
Volclay Grout		320		
		325		
		330		
		335		
		340		
		345		SILTY SAND
		350		SILTY GRAVELY SAND
		355		
		360		
		365		
		370		
		375		GRAVELY SILTY SAND
		380		
		385		GRAVELY CLAYEY SAND
		390		(CLAY LAYER)
		395		SILTY GRAVELY SAND
		400		

A-1800-186 (3/87)

9413205.0355

Battelle
Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W15-17 Geologist _____ Page 4 of 4

Reviewed by W. L. McGlam Date 1-8-88

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Diagram Litho.	Lithologic Description
		405		
		410		SILTY/CLAYEY SANDY GRAVEL
1 bag 20-30 mesh Colorado Silica Sand		415		SILTY GRAVELY SAND
		420		
10' section of 4" 20-slot stainless steel screen	425'	425		
10' section of 8" stainless steel telescoping screen	435'	430		
		435		
10-20 mesh Colorado Silica Sand		440		SANDY CLAY
		445		
SPLIT-TUBE SAMPLE TAKEN @ 448-450' INTERVAL	450'	450		CLAY TD 450'
		455		
		460		

A-1800-196 (3/87)

9413205.1359

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Well Completion Report/Title III Inspection List

Project KEH-1914 200 West RCRA Drilling
Location 200 West
Driller Bill Moore / Homer Joy
Drilling Co. Onwego Drilling Co
Geologist RA Hagen / T Gilmore

Well Number 299-W15-18
Temporary Well Number None
Coordinates ~~not available~~ N.39,705 W. 77,383
Casing Elevation ~~not available~~ 685.71
Ground Elevation not available 683.55

DRILLING METHOD

Rotary Air NA Mud NA
Cable Tool D 0'-126' H 126'-242.5'
Drilling Fluid Water
Other

COMPLETION DATA

Drilled Depth 242'6"
Completion Depth 238'
Date Started 5/27/87 Completed 8/4/87
Static Water Level/Date 212'3" 7/9 ; 212'6" 7/9

CASING DATA

Type	Size	
30 Slot 304 8" Stainless Steel Telescoping Screen	242'2"	to 232'2"
304 4" Stainless Steel casing	238'	to Surface
		to

Approved By JB Date 7/22/87

PERFORATIONS

Type NA

Depth	Schedule
-	
-	
-	

App. By Date

SCREEN

Type 4" 304 Stainless Steel

Length	20'4"	10' 8" telescope
Slot Size	20 slot	30 slot
Depths	238'	~~[illegible]~~ 240'
	208'	230'

App. By JB Date 7/22/87

ANNULAR SEAL

Type	Interval	Volume
20-30 Sand	242'-205'	4000 lbs
Volclay Pellets	205'-202'9"	20 gal
Volclay Grout	202'9"-4'	4465.5 lbs
Cement	4'-Surface	400 lbs

App. By JB Date 7/24/87

GEOPHYSICAL LOGGING

Sondes	Interval	Date
Nat Gamma	0 - 242'	7/8/87
Nuetron	0 - 242'	7/8/87
Density	0 - 242'	7/8/87
	-	
	-	
	-	
	-	

Approved By JB Date 7/8/87

AQUIFER TESTING

Type of Test Continuous Drawdown / Recovery
Length of Test 7 1/2 Hrs
Volume Pumped 39,300 gal
Drawdown 7.05'

Approved By JB Date 7/21/87

OTHER APPLICABLE ITEMS

RAH Steam Cleaning
JB Storage of Const. Material
JB Tool Lubricants
JB Concrete Pad
JB Protective Steel Posts
JB Safety Paint
JB Straightness Test
JB Well Development
[illegible] Downhole TV Inspection
NA Well Abandonment
JB Complete As-Built Diagram, Driller's and Geologist's Logs

Approved By JB Date 11/2/87

Reviewed By D.L. McGhan Date 1-8-88

A-1800-187 (3/87)

9413205.0357

Battelle
Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W15-18 Geologist R.A. Hagen Page 1 of 2

Reviewed by W.L. McGhan Date 1-8-88

Construction Data: Description	Construction Data: Diagram	Depth in Feet	Geologic/Hydrologic Data: Diagram Litho.	Geologic/Hydrologic Data: Lithologic Description	(ft) Dri sat
16" (O.D.) TEMPORARY SURFACE CASING (CARBON STEEL)		5	NO DATA	Slightly silty (10) sand (90)	50
12" (I.D.) TEMPORARY CASING (63' 1/2" of 12" diam carbon steel casing)		10		gravelly (15) sand (80) (5% silt)	3
		15		Slightly silty (10) slight. gravelly (5) sand (85)	
		20		Slightly silty (10) sand (90)	1
		25		Sand (95) (5 silt)	1
		30		Sand (95) (<5 silt <5 gravel)	5
		35		gravelly (20) sand (80)	11
4" Stainless Steel casing		40		silty (20) sand (80)	7.5
Bentonite Grout		45		silty (20) sand (80)	11.
		50		silty (20) sand (80)	8.
10" diam carbon steel temporary casing (160' 9 1/2" long).		55		Sand (95) (5 silt)	17.
		60		Sand (95) (5 silt)	9
		65		Slightly silty (15) sand (85)	17.
		70		Sand (95) (5 silt)	1
		75		slightly silty (10) sand (90)	16
		80		Sand (95) (5 silt)	15
8" diam carbon steel temporary casing		85		silty (25) sand (75)	10
		90		slightly silty (10) sand (90)	15
		95		Sand (95) (5 silt)	15
		100		Sand (95) (5 silt)	12
		105		gravelly (15) sand (80) (≤5 silt)	20
		110		gravelly (15) sand (85)	6
		115		gravelly (15) sand (80) (≤5 silt)	~2.
		120		slightly gravelly (7) sand (85) (5 silt)	?
Change to hard tool @ 126'		125		slightly sandy (15) gravel (85)	8.
		130		gravelly (20) silty (10) sand (52)	?

A-1900-186 (3/87)

9413205.0358

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Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W15-18 Geologist R. A. Hagen Page 2 of 2

Reviewed by V.L. McGhan Date 1-8-88

Construction Data: Description	Diagram	Depth in Feet	Geologic/Hydrologic Data: Diagram Litho.	Lithologic Description	dri ret (ft/h
		135		slightly gravelly (2) sandy (43) silt (50)	15
		140		gravelly (10) silty (30) clayey sand (60)	?
		145		silty (20) sandy (45) gravel (35)	5
Temporary 8" Casing		150		slightly silty (10) gravelly (25) sand (65)	?
		155		slightly gravelly (7) silty (18) sand (75)	10
		160		slightly gravelly (7) silty (18) sand (75)	1.7
		165		slightly silty (10) gravelly (20) sand (70)	?
4" Stainless Steel Casing		170		slightly silty (10) gravelly (20) sand (70)	6
		175		silty (25) sandy (20) gravel (55)	[illegible]
		180		silty (10) sandy (40) gravel (50)	?
		185		silty (10) sandy (60) gravel (30)	?
		190		silty (10) sandy (60) gravel (30)	2
Volclay Grout		195		Silty Sandy Gravel	
Top Volclay seal 202'		200			
Top of Sand 204'		205		Silty Sandy layer @ 202	
		210		Sandy Gravel	
	212'6" 7/8/87	215		Gravely Silty Sand	
20 Slot 4" Stainless Steel Screen		220			
		225		Gravely Sand	
		230		Sand	
30 Slot 8" Telescoping Screen		235			
2' of 20-30 Sand		240		Silty Gravelly Sand	
Total Depth 242'6"		245			

A-1800-186 (3/87)

9413205.0359

Page 1 of 2

WELL COMPLETION/INSPECTION REPORT (governing procedure DO-1, R0)

Specification No. WHC-S-014 Rev. No. 3
Project W-017 LOW LEVEL BURIAL GROUNDS
Location 200 WEST AREA
Drilling Co. KAISER ENGINEERS / HANFORD
Driller DAVE GARCIA
Other (companies) NONE
Geologist(s) R. BLEGEN, M. LUBRECHT, S. AIRHART, S. GOODWIN

Well No. 299-W15-19 Temp. Well No. W4-MW1
Coordinates N: 41,041.4 W: 77,771.8
Casing Elev. 691.60' ~~Ground~~ BRASS CAP Elev. 688.48'

DRILLING METHOD
Rotary Air N/A Mud N/A
Cable Tool D 0-71' 110'-135' H 71'-110' 135'-245'
Drilling Fluid 200 W DRILL SUPPLY H_2O
Other NONE

GEOPHYSICAL LOGGING

Sondes	Interval	Date
NAT. GAMMA	144' - 4'	8/21/89
" "	244' - 115'	9/5/89
	-	
	-	
	-	

COMPLETION DATA
Drilled Depth 245.69'
Completed Depth 234.83'
Date Started 8/9/89
Date Completed 11/10/89
Static Water Level/Date 219.68' (10/18/89)

AQUIFER TESTING
Type SLUG WITHDRAWAL
Length of Test
Volume Pumped
Drawdown
Date of Test 10/30/89

INSPECTION RESULTS

CLEANING
Inspection Method VISUAL
Acceptance Criteria SECT. 7.6

	Accept	Reject	Date
Drilling Tools/Rig	BNB		8/9/89
Temporary Materials	BNB		9/1/89
Permanent Materials	SML		10/20/89

MATERIAL STORAGE/PACKING
Inspection Method VISUAL
Acceptance Criteria SECT. 7.3

	Accept	Reject	Date
Mtl. Handling/Storage	SML		10/20/89
Material Packing	SML		10/20/89

SCREEN

Type	Length	Slot Size
JOHNSON DIV. TYPE 304 CONT.	21'	10
INVOUS WRAP CHANNEL PACK 4"	—	—

Depth(s) 234.83' - 213.83'
— - —
Inspection Method VISUAL
Acceptance Criteria SECT. 4.2.3
Accept SML Reject Date 10/18/89

LUBRICANTS/ADDITIVES
Inspection Method VISUAL
Acceptance Criteria SEC 7.2

	Identify	Accept	Reject	Date
Additives	NONE	BNB		9/1/89
Lubricants	FOOD OIL	BNB		9/1/89

STRAIGHTNESS TEST
Inspection Method 20' of 6" S.S. CASING DOWN HOLE
Acceptance Criteria SECT. 8.3
Accept BNB Reject Date 9/1/89

CASING (permanent)

Type	Size	Placement
JOHNSON DIV. TYPE 304	4"	213.83 - +1.57'
STAINLESS STEEL	—	— - —

Inspection Method VISUAL
Acceptance Criteria SECT. 4.2.4
Accept SML Reject Date 10/18/89

WELL PROTECTION
Inspection Method VISUAL
Acceptance Criteria SECT. 4.2.9 - 4.2.10

	Accept	Reject	Date
Protective Posts	BNB		1/24/90
Locks			

ANNULAR SEAL
Inspection Method MEASURED w/ STEEL TAPE
Acceptance Criteria SECT. 4.2.6 - 4.2.9

Type	Interval	Volume	Accept	Reject	Date
20-40 COLORADO SILICA SAND	236.5' - 211.15'	11.48 FT³	SML		10/18/89
3/8" VOLCLAY TABLETS	211.15' - 207.8'	1.24 FT³	SPA		10/19/89
8-20 BENTONITE CRUMBLES	207.8' - 19.0'	123.54 FT³	SML		10/20/89
CEMENT GROUT	19.0' - 2.0'	7.92 FT³	SML		10/20/89
~~CEMENT PAD~~	~~2.0' - +0.5'~~	~~1.40 FT³~~	BNB		~~1/24/90~~

OTHER (initial if performed)
N/A Well Abandonment
DLM Downhole TV Inspection
____ Complete As-Built Diagram, Driller's/Geologist's Logs
DLM Well Development

Reviewed by D. L. McGhan 1-25-90

 For all blanks mark N/A if not applicable.

9413205.0360

 WELL COMPLETION/INSPECTION REPORT(governing procedure DO-1, RO)

Well 299-W15-19 continued...

ANNULAR SEAL

Inspection Method Measured w/Steel Tape Acceptance Criteria Sect. 4.2.6 - 4.2.9

Type	Interval	Volume	Accept	Reject	Date
Volclay Tablets (1/4"-3/8" dia) (2 buckets each size)	245.0' - 236.5'	2.48 ft³	SW		10/18/89
	-				
	-				
	-				

for all blanks mark N/A if not applicable.

9413205.0361

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AS-BUILT DIAGRAM

Well Number 299-W15-19 Geologist R. Biegen, M. Lubrecht, S. Airhart S. Goodwin, B. Bjornstad Page 1 of 2

Reviewed by V. L. McGhan Date Well Started: 08/09/89 Well Completed: 11/10/89

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Sample Type (○ Drive Barrel, ● Hard Tool, ▲ Split Spoon)	Lithologic Description
Cement Grout (+0.5' - 2.0')		5	○	Sand (backfill)
10" dia. carbon steel casing (0' - 144.5') - removed		10	○	" "
		15	○	" "
Cement Grout (2.0' - 19.0')		20	○	" "
		25	○	" "
		30	○	Gravelly Sand
	DB	35	○	Sandy Gravel
8" dia. carbon steel casing (0' - 247.2') - removed		40	○	Gravelly Sand
		45	○	Slightly Muddy Sand
Casing Centralizer		50	○	" " "
Casing Joint		55	○	Slightly Gravelly Sand
		60	○	" " "
4" dia. stainless steel final casing (+1.57' - 213.83')		65	○	Sandy Gravel
		70	○	" "
		75	●	Muddy Sandy Gravel
		80	●	Gravelly Sand
8 - 20 mesh bentonite crumbles (19.0' - 207.8')		85	●	" "
	HT	90	●	" "
		95	●	" "
		100	●	Slightly Gravelly Sand
		105	●	" " "
DB = Drive Barrel HT = Hard Tool		110	●	" " "
		115	○	Sand
	DB	120	○	"
		125	○	"
		130	○	"

A-1800-166 (3/87)

9413205.0362

Battelle
Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W15-19 Geologist R. Biegen, M. Lubrecht, S. Airhart S. Goodwin, B. Biornstad Page 2 of 2

Reviewed by V. L. McGhan Date Well Started: 08/09/89 Well Completed: 11/10/89

Construction Data

Description

10" dia. carbon steel casing (0' - 144.5') - removed

8" dia. carbon steel casing (0' - 247.2') - removed

4" dia. stainless steel final casing (+1.57' - 213.83')

8 - 20 mesh bentonite crumbles (19.0' - 207.8')

DB = Drive Barrel
HT = Hard Tool

Well Completion Symbols (as per PNL-6392)

- Cement Grout
- Granular Bentonite
- Bentonite Pellets
- Sand Pack
- Backfill

3/8" Volclay tablets (207.8 - 211.15')

Static Water Table (219.68') - 10/18/89 -

20 - 40 mesh Silica sand (211.15 - 236.5')

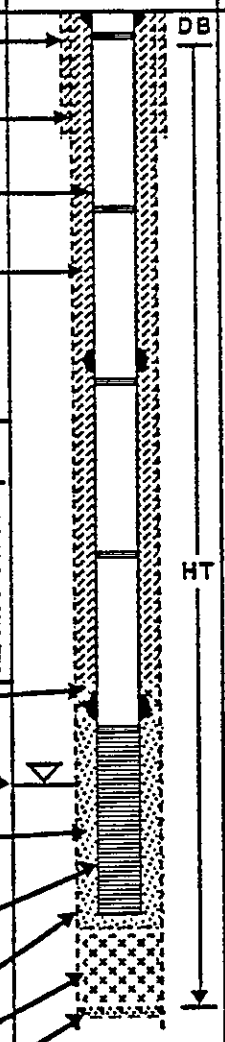
4" dia. stainless steel Johnson Channel Pack screen (213.83 - 234.83')

Bottom of well = 234.83'

3/8" Volclay Tablets (236.5 - 245.0')

Backfill (245.0' - 245.69')

Diagram



Geologic/Hydrologic Data

Depth in Feet	Sample Type (○ Drive Barrel, ● Hard Tool, ▲ Split Spoon)	Lithologic Description
135	○	Sandy Mud
140	●	" "
145	●	Sandy Mud w/caliche @ ~143'
150	●	Muddy Sandy Gravel w/caliche
155	●	" " "
160	●	" " "
165	●	Slightly Muddy Gravelly Sand
170	●	Muddy Sandy Gravel
175	●	" " "
180	●	" " "
185	●	Sandy Gravel
190	●	" "
195	●	Gravelly Sand
200	●	Slightly Gravelly Sand
205	●	" " "
210	●	Muddy Sandy Gravel
215	●	" " "
220	●	Sandy Gravel
225	●	Gravelly Sand
230	●	" "
235	●	Muddy Sandy Gravel
240	●	" " "
245	●	" " "
		TD=245.69'

A-1800-196 (3/5)

WELL COMPLETION/INSPECTION REPORT (governing procedure DO-1, R0)

Specification No. WHC-S-014 Rev. No. 3
Project LLBG
Location 200 West Area
Drilling Co. Basin & Range
Driller Lenny Cordon
Other (companies) N/A
Geologist(s) S. Brandenberger, R. Bliegen, B. Bjornstad, M. Chamness, T. Gilmore

Well No. 299-W15-20 Temp. Well No. W4-MW2
Coordinates N 41,027.5' W 78,120.2'
Casing Elev. 698.36' Ground Elev. 695.43' Brass Cap

DRILLING METHOD

Rotary Air N/A Mud N/A
Cable Tool D 0'-70', 80'-138' H 70'-80', 138'-245'
Drilling Fluid 200 West Water Supply
Other N/A

GEOPHYSICAL LOGGING

Sondes	Interval	Date
Nat. Gamma	241 - 4.5'	10-12-89
	-	
	-	
	-	
	-	

COMPLETION DATA

Drilled Depth 245.0'
Completed Depth 241.1'
Date Started 9/27/89
Date Completed 11/13/89
Static Water Level/Date 227.9' (1/24/90)

AQUIFER TESTING

Type Slug Withdrawal
Length of Test
Volume Pumped
Drawdown
Date of Test 11/3/89

INSPECTION RESULTS

CLEANING

Inspection Method Visual
Acceptance Criteria Section 7.6

	Accept	Reject	Date
Drilling Tools/Rig	[illegible]		9/27/89
Temporary Materials	[illegible]		10/12/89
Permanent Materials	[illegible]		11/3/89

MATERIAL STORAGE/PACKING

Inspection Method Visual
Acceptance Criteria Section 7.3

	Accept	Reject	Date
Mtl. Handling/Storage	SPA		11/3/89
Material Packing	SPA		11/3/89

SCREEN

Type	Length	Slot Size
Type 304 st. steel channel pack	21.0'	10
—	—	—

Depth(s) 241.1 - 220.1
— - —

Inspection Method Visual
Acceptance Criteria Section 4.2.3
Accept MAC Reject Date 10/16/89

LUBRICANTS/ADDITIVES

Inspection Method Visual
Acceptance Criteria Section 7.2

	Identify	Accept	Reject	Date
Additives	N/A			
Lubricants	Chevron Poly FM-2	BNB		9/27/89

STRAIGHTNESS TEST

Inspection Method
Acceptance Criteria Section 8.3
Accept BNB Reject Date 10/12/89

CASING (permanent)

Type	Size	Placement
Type 304 Stainless Steel	4"	220.1 - +3.1
—	—	— - —

Inspection Method Visual
Acceptance Criteria Section 4.2.4
Accept MAC Reject Date 10/16/89

WELL PROTECTION

Inspection Method Visual
Acceptance Criteria Section 4.2.9 - 4.2.10

	Accept	Reject	Date
Protective Posts	[illegible]		11/3/89
Locks	[illegible]		11/3/89

ANNULAR SEAL

Inspection Method Visual / Steel Tape Acceptance Criteria Section 4.2.6 - 4.2.9

Type	Interval	Volume	Accept	Reject	Date
20-40 Colorado Silica Sand	241.3' - 216.5	16.8 ft³	SPA		10/17/89
1/4"-3/8" Volclay Tablets	216.5 - 211.9	1.86 ft³	SPA		10/17/89
8-20 Bentonite Crumbles	211.9 - 18.2	95.85 ft³	SPA		10/18/89
Portland Cement & Gypsum Grout	18.2 - 2.0	9.57 ft³	[illegible]		10/20/89
Cement Pad	2.0' - 10.5'	1 yd³			11/3/89

OTHER (initial if performed)

N/A Well Abandonment
[illegible] Well Development
[illegible] Downhole TV Inspection
____ Complete As-Built Diagram, Driller's/Geologist's Logs

Reviewed by [illegible] 1-23-90

A-125 For all blanks mark N/A if not applicable.

9413205.0364

Battelle
Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W15-20 Geologist S. Brandenberger, R. Blegen, B. Biornstad, M. Chamness, T. Gilmore Page 1 of 2

Reviewed by V. L. McGhan Date Well Started: 09/27/89 Well Completed: 11/13/89

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Sample Type (○ Drive Barrel, ● Hard Tool, ▲ Split Spoon)	Lithologic Description
Cement Pad (+0.5 - 2.0)		5	○	Sand
		10	○	"
12" dia. carbon steel casing (0' - 20') - removed		15	○	Slightly Gravelly Sand
		20	○	Sand
Cement Grout (2.0' - 18.2')		25	○	Slightly Muddy Sand
		30	○	Slightly Gravelly Sand
8" dia. carbon steel casing (0' - 244.3') - removed	DB	35	○	" " "
		40	○	Gravelly Sand
		45	○	Sand
		50	○	" (with laminated silt lenses)
		55	○	Muddy Sandy Gravel
~2' of 8" casing and drive shoe @~60'		60	○	Sandy Gravel
		65	○	Muddy Sandy Gravel
		70	○	" " "
4" dia. stainless steel final casing (+3.1' - 220.1')	HT	75	●	" " " (to 77')
		80	●	Slightly Muddy Sand
		85	○	" " "
8-20 mesh bentonite crumbles (18.2' - 211.9')		90	○	Sand
		95	○	"
Casing Centralizer		100	○	"
Casing Joint	DB	105	○	"
		110	○	"
		115	○	"
		120	○	"
DB = Drive Barrel HT = Hard Tool		125	○	Slightly Gravelly Sand
		130	○	Slightly Gravelly Slightly Muddy Sand

A-1800-188 (3/87)

Battelle
Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W15-20 Geologist S. Brandenberger, R. Biegen, B. Bjornstad, M. Chamness, T. Gilmore Page 2 of 2

Reviewed by V. L. McGhan Date Well Started: 09/27/89 Well Completed: 11/13/89

Construction Data

Description

8" dia. carbon steel casing (0' - 244.3') - removed

4" dia. stainless steel final casing (+3.1' - 220.1')

8-20 mesh bentonite crumbles (18.2' - 211.9')

DB = Drive Barrel
HT = Hard Tool

Well Completion Symbols (as per PNL-6392)

- Cement Grout
- Granular Bentonite
- Bentonite Pellets
- Sand Pack
- Backfill

1/4"-3/8" Volclay Tablets (211.9 - 216.5')

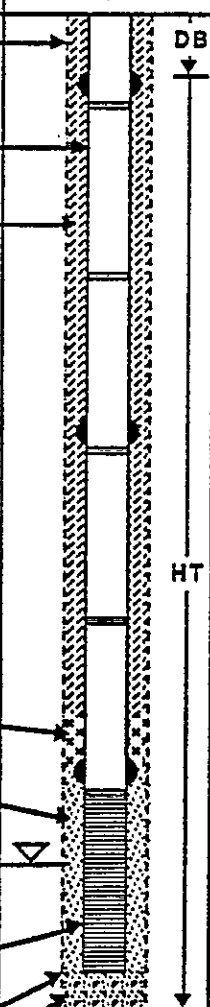
20 - 40 mesh Colorado silica sand (216.5' - 241.3')

Static Water Table (227.9') - 01/24/90 -

4" dia. stainless steel Johnson Channel Pack screen (220.1' - 241.1')

Bottom of well = 241.1'
Backfill (241.3' - 245.0')

Diagram



Geologic/Hydrologic Data

Sample Type: ○ Drive Barrel ● Hard Tool ▲ Split Spoon

Depth In Feet	Sample Type	Lithologic Description
135	○	Slightly Gravelly Muddy Sand
140	●	Muddy Sand [possibly caliche @ 138']
145	●	" "
150	●	" "
155	●	Slightly Gravelly Muddy Sand
160	●	Muddy Sand
165	●	" "
170	●	Slightly Gravelly Muddy Sand
175	●	Muddy Sandy Gravel
180	●	" " "
185	●	" " "
190	●	" " "
195	●	" " "
200	●	" " "
205	●	Sandy Gravel
210	●	" "
215	●	" "
220	●	" "
225	●	" "
230	●	Muddy Sandy Gravel
235	●	" " "
240	●	" " "
245	●	" " "

TD=245.0'

A-1800-186 (3/87)

9413205.0367

VALIDATED 1/17/92 SIGNATURE/DATE

WELL CONSTRUCTION REPORT

Page 1 of 2

Specification No. WHC-S-014 Rev No. 5

ECNs 144240, 144241

Project W017-SST

Location 200 West TY Tank Farm

Drilling Company Kaiser

Driller B Strode, Louis Watkins, G. Thomas, C. Wamsley

Other (Companies) N/A

Geologist(s) AW Pearson, Karen R.O. Barton, LA Doremus, SP Airhart, R.D. Miller, G. Kelty, B. Bjornstad, C. Delaney, D.C. Weekes

Well No. 299-W15-22 Temp. Well No. N/A

Coordinates N 136,111.19m, N E566,683.32m NAD 83

Casing Elev. 670.51 Ground Elev. 667.71 NGVD 29

Drilling Method

Verification Method Visual Observation

Criteria WHC-S-014 5.2, 5.3, 7.5 EII 6.7 sec 6.2

			Initials	Date
Rotary	Air N/A	Mud N/A	N/A	N/A
Cable Tool	D 0'-137'	H 137'-221.9'	KDR	1/6/92*
Drilling Fluid	Raw H_2O	725 GAL	AWP	12-1-90
Other	N/A			

Geophysical Logging

Sondes	Interval	Date
Gross Gamma	152.7'-3.8'	12/5/90
Gross Gamma	221.5'-0.4	12/17/90

Completion Data

Drilled Depth 221.9'

Completed Depth 221.6' 4/23/91

Date Started 11/15/90

Date Completed 1/16/91 4/22/91

Static Water Level/Date 193.1 12/17/90

Aquifer Testing

Type SLUG WITHDRAWAL / INJECTION

Flow Meter I.D. No. N/A

Cal. Due Date N/A

Length of Test 24 MIN. TOTAL

Volume Pumped N/A

Drawdown N/A

Date of Test 1/15/91 4/23/91

Completion Results

Cleaning

Verification Method visual inspection

Criteria WHC-S-014 7.6, 4.2.2

	Initials	Date
Drilling Tools/Rig	AWP	11/15/90
Temporary Materials	AWP	12/3/90
Permanent Materials	KDR	1/6/92*

Material Storage/Packing

Verification Method Visual observation

Criteria WHC-S-014 4.2.2, 7.3

	Initials	Date
Mtl. Handling/Storage	[signature]	12/18/91
Material Packing	[signature]	12/18/91

Screen

Type	Length	Slot Size
4" dia slot stainless steel	10.52	10 channel pack
4" dia stainless steel	10.50	10 channel pack

Depth(s) 219.8 - ~~197.5~~ 198.5 1/11/91

Note: Includes 0.30 end cap

Verification Method Steel Tape

Criteria WHC-S-014 4.2.2, 4.2.5, 12.2.1, 4.2.1

Initials [initials] Date 12-19-90

Lubricants/Additives

Verification Method Visual Observation

Criteria WHC-S-014 7.2

	Identify	Initials	Date
Additives	Raw Water	AWP	12-1-90
Lubricants	Well Guard	LAD	11-16-90

Straightness Test

Verification Method Visual Observation

Criteria WHC-S-014 5.2

Initials [initials] SPA (acceptant) Date 12/15/90 12/15/90

A-6000-435 (09/90)

9413205.0366

WELL CONSTRUCTION REPORT
(continuation sheet)

WAI # 299-W15-22

Casing (permanent)

Type	Size	Placement
T-304 4" dia stainless	199.28	1935 / 214.5 - 198.5

Verification Method: Verify using steel tape

Criteria: WHC-S-014 4.2.4.2.4.4.2.5 12.2.1

Initials: N/A Date: 12/18/91

Well Protection

Verification Method: VISUAL / MEASURED TAPE

Criteria: WHC-S-014 4.2.10

	Initials	Date
Protective Posts		12/18/91
Protective Casing		12/18/91
Site Restored		12/18/91
Cap, Hasp and Lock		12/18/91
Surface Pad		12/18/91

Annular Seal/Filter Pack

Verification Method: Measure with steel tape Criteria: WHC-S-014 4.2.6, 4.2.7, 4.2.8, 4.2.9, 5.3.1 or 5.3.2

Type	Interval	Volume	Initials	Date
8-12 silica sand	221.6 - 192.3	17 sacks, 100#		12/21/90
bentonite pellets	192.3 - 186.1'	8 bkts	RDU	12/31/90
#3-20 bentonite crumbles	186.1 - 19.0'	N/A		1/9/91
Portland cement	19.0 - 2.9	42 sacks, 100#		1/9/91

Well Survey/Labeling

Verification Method: REVIEW OF SURVEY / VISUAL

Criteria: WHC-S-014 3.4

	Initials	Date
Measurement Point/Surveyed		12/18/91
Protective Casing/Brass Cap Surveyed		12/18/91
Well Number Stenciled		12/18/91
Brass Cap Labeled		12/18/91

Pump Installation

Verification Method: VISUAL OBSERVATION

Criteria: WHC-S-014 4.2.11, 4.2.2

	Initials	Date
Pump Decon/Prep		12/20/91
Installed		12/20/91
Pump Tested		12/20/91

Other (initial if performed)

N/A Well Abandonment AWP Downhole TV Inspection Complete As-Built Diagram, Driller's/Geologist's Logs

Well Development

Comments/Remarks: * Signed after document received

Reviewed By (Sign/Print Name) Date 12/23/91

A-6000-425 (09/90)

9413205.0368

WELL SUMMARY SHEET

Boring or Well No. 299-W15-22

Sheet 1 of 2

Location 200 West Area TY Tank Farm
Project W-017-SST
Elevation 667.71 Brass Cap NGVD'29
Drilling Contractor KEH
Driller L. WATKINS
Drilling Method and Equipment Cable Tool
Prepared By AW Pearson (Sign/Print Name) Date 12/10/90
Reviewed By [illegible] / DA Williams (Sign/Print Name) Date 8/21/91

CONSTRUCTION DATA Description	Diagram	Depth in Feet	GEOLOGIC/HYDROLOGIC DATA Graphic Log	Lithologic Description
19.7' of 12" carbon steel Casing		5		SILTY SANDY GRAVEL
151.9' of 10" Carbon Steel Casing		10		" " "
of 8" Carbon Steel Casing		15		" " "
2" stick-up = 0.85'; Set @ 17.91'		20		" " "
CEMENT GROUT		25		" " "
All 12", 10" and 8" temporary		30		SANDY GRAVEL
casings removed from		35		" "
borehole by 1/9/91 except		40		" "
12" temporary set at 2 ft bgs.		45		" " SGΔS @ 47'
		50		SAND
		55		"
		60		"
		65		"
4" Ø STAINLESS STEEL CASING		70		" 4" Ø lens @ ≈ 69.7'-70'
		75		"
		80		"
		85		"
		90		"
GRANULAR BENTONITE #8-20 MESH		95		"
		100		" SΔES @ 103.5'
		105		SILT
		110		GRAVELLY SILTY SAND w/ Cavities
		115		" " " "
		120		SILTY SAND w/ Cavities ESΔSF @ 123'
		125		" " SFΔ & ES @ 124.5'
		130		SILTY SANDY GRAVEL ESΔESG @ 126'
		135		" " "
		140		" " " Cemented @ 137'
		145		" " "
10" Stick-up = 1.3'; Set @ 150.61'		150		" " "
		155		" " "
		160		" " "
		165		" " "

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A-6000-384 (04/90)

WELL SUMMARY SHEET

Boring or Well No. 299-W15-22

Sheet 2 of 2

Location 200 West Area TY Tank Farm

Project W-017-SST

Elevation 667.71 Brass Cap NGVD '29

Drilling Contractor KEH

Driller Louis Watkins

Drilling Method and Equipment Cable Tool

Prepared By Alan Pearson/Alan Pearson (Sign/Print Name) Date 12/19/90

Reviewed By RD / BA Williams (Sign/Print Name) Date 8/21/91

CONSTRUCTION DATA		Depth in Feet	GEOLOGIC/HYDROLOGIC DATA	
Description	Diagram		Graphic Log	Lithologic Description
Granular Bentonite #8-20 mesh		170'		SILTY SANDY GRAVEL
		175'		" " "
8" dia. carbon steel casing (temporary) 226.8'		180'		" " "
		185'		" " "
Bentonite Pellets		190'		" " "
4" stainless steel casing		195'		" " "
		200		" " "
		205'		" " "
		210'		" " "
Silica Sand Pack #8-12 mesh		215'		" " "
		220'		" " "
			TD: 221.9'	
4" stainless steel screen (0.010-in channel pack) 219.8'-198.5'				
8-12 sand 221.6'-192.3'				
Bentonite pellets 192.3'-186.1'				
8-20 mesh Bentonite crumbles from 186.1'-19.0'				
Portland cement 19.0'-2.9'				

A-6000-384 04/90

9413205.0370

WELL COMPLETION/INSPECTION REPORT (governing procedure DO-1, RO)

Specification No. WHC-S-014 Rev. No. 3
Project W-017-LLBG
Location 200 WEST
Drilling Co. BASIN AND RANGE
Driller LENI CORDON JR
Other (companies) N/A
Geologist(s) T. GILMORE, J.V. WOZNIEWICZ, D. CRAWFORD, P. INNIS, C. CONDIT, AW Pearson,

Well No. 299-W15-23 Temp. Well No. W4-MW3
Coordinates
Casing Elev. Ground Elev.

DRILLING METHOD

Rotary Air N/A Mud N/A
Cable Tool D 0-42', 95'-125' H 42'-95', 125'-240'
Drilling Fluid WATER FROM 200 WEST RAW WATER SUPPLY
Other N/A

GEOPHYSICAL LOGGING

Sondes	Interval	Date
Natural Gamma	237' - 3'	12/22/89
NATURAL GAMMA	239.5 3'	1-16-90
	N/A	

COMPLETION DATA

Drilled Depth 240'
Completed Depth 239.4'
Date Started 11/21/89
Date Completed 4/11/90
Static Water Level/Date 227.55' 1/2/90

AQUIFER TESTING

Type SLUG TEST
N/A
Length of Test N/A
Volume Pumped N/A
Drawdown N/A
Date of Test 3/1/90

INSPECTION RESULTS

CLEANING

Inspection Method Visual
Acceptance Criteria Section 7.1

	Accept	Reject	Date
Drilling Tools/Rig	[illegible]	N/A	1/2/90
Temporary Materials	[illegible]	N/A	1/2/90
Permanent Materials	[illegible]	N/A	1/2/90

MATERIAL STORAGE/PACKING

Inspection Method Visual
Acceptance Criteria Section 7.3

	Accept	Reject	Date
Mtl. Handling/Storage	[illegible]	N/A	1/2/90
Material Packing	[illegible]	N/A	1/2/90

SCREEN

Type	Length	Slot Size
Johnson Channel Pack Stainless Steel	(2) 10.37	10 Slot
4" DIA non-passivated	N/A	N/A

Depth(s) 239.4' - 218.66'
N/A - N/A

Inspection Method Visual
Acceptance Criteria Section 4.2.3
Accept [illegible] Reject N/A Date 1/2/90

LUBRICANTS/ADDITIVES

Inspection Method Visual
Acceptance Criteria Section 7.2

	Identify	Accept	Reject	Date
Additives	Drill water	[illegible]	N/A	1/2/90
Lubricants	Chevron Poly F	[illegible]	N/A	1/2/90

STRAIGHTNESS TEST

Inspection Method 20' long 7" DIA BAILER
Acceptance Criteria Pass [illegible] no snags Sec. 8.3
Accept [illegible] Reject N/A Date 1/2/90

CASING (permanent)

Type	Size	Placement
Stainless Steel Type 304	4" dia	218.66 - +4.67'
(non-passivated)	N/A	N/A - N/A

Inspection Method Visual
Acceptance Criteria Section 4.2.4
Accept [illegible] Reject N/A Date 1/2/90

WELL PROTECTION

Inspection Method Visual
Acceptance Criteria Section 4.2.9 - 4.2.10

	Accept	Reject	Date
Protective Posts	[illegible]	N/A	2/13/90
Locks	AWP	N/A	4/3/90

ANNULAR SEAL

Inspection Method Visual Steel Tape
Acceptance Criteria Section 4.2.6 - 4.2.9

Type	Interval	Volume	Accept	Reject	Date
20-40 Colorado Silica Sand	239.7' - 214.4'	7.56 ft³	[illegible]	N/A	1/4/90
3/8" Volclay Tablets	214.4 - 208.0'	1.56 ft³	[illegible]	N/A	1/4/90
8-20 Bentonite crumbles	208.0' - 19.0'	107.92 ft³	SST	N/A	1/5/90
Cement Grout Seal	19.0' - 2.0'	10.56 ft³	SST	N/A	1/5/90
Cement Pad	2.0' - +0.5'	1 yd³	[illegible]	N/A	2/13/90

OTHER (initial if performed)

N/A Well Abandonment
VLM Downhole TV Inspection
CRDR Complete As-Built Diagram, Driller's/Geologist's Logs
IAM Well Development

Reviewed by VLM [illegible] 5-16-90

For all blanks mark N/A if not applicable.

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Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W15-23

Geologist A.W. Pearson, C.D. Condit, T.J. Gilmore, J.V. Wozniewicz, P. Innis, D. Crawford

Page 1 of 2

Reviewed by V. L. McGhan

Date Well Started: 11/21/89
Well Completed: 04/11/90

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Sample Type (○ Drive Barrel, ● Hard Tool, △ Split Spoon)	Lithologic Description
Cement Pad (+0.5' - 2.0')		5	○	Sand
Cement Grout (2.0' - 19.0')		10	○	
		15	○	SightlyGravelly Sand
12" dia. carbon steel casing (0' - 19.58') - removed	DB	20	○	
		25	○	
		30	○	
10" dia. carbon steel casing (0' - 152.5') - removed		35	○	Sand (clay lens @ 33')
		40	○	Sandy Gravel
8" dia. carbon steel casing (0' - 239.78') - removed		45	●	
		50	●	Slightly Gravelly Sand
4' dia. stainless steel final casing (+4.67 - 218.66')	HT	55	●	Gravelly Sand
		60	●	Sandy Gravel
		65	●	
8-20 mesh bentonite crumbles (19.0' - 208.0')		70	●	Muddy Sandy Gravel
		75	●	Sandy Gravel
		80	●	
Casing Joint		85	●	Gravelly Sand
		90	●	
Casing Centralizer		95	●	Slightly Gravelly Sand
		100	○	Sand
		105	○	
DB = Drive Barrel	DB	110	○	
HT = Hard Tool		115	○	
		120	○	Slightly Muddy Sand
		125	○	
		130	○	

A-1800-186 (3/87)

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Battelle
Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W15-23 Geologist T.J. Gilmore, A.W. Pearson, C.D. Condit, J.V. Wozniewicz, P. Innis, D. Crawford Page 2 of 2

Reviewed by V.L. McGhan Date Well Started: 11/21/89 Well Completed: 04/11/90

Construction Data: Description	Construction Data: Diagram	Depth in Feet	Geologic/Hydrologic Data: Sample Type (○ Drive Barrel, ● Hard Tool, ▲ Split Spoon)	Geologic/Hydrologic Data: Lithologic Description
10" dia. carbon steel casing (0' - 152.5') - removed	DB	135	○	Slightly Muddy Sand
		140	●	
8" dia. carbon steel casing (0' - 241.1') - removed		145	●	
		150	●	Muddy Sand
4" dia. stainless steel final casing (+4.67' - 218.66')		155	●	
		160	●	Slightly Gravelly Muddy Sand (contains Caliche)
		165	●	
		170	●	Gravelly Muddy Sand
		175	●	Slightly Muddy Sand
		180	●	Sandy Gravel
		185	●	
	HT	190	●	
		195	●	
8 - 20 mesh bentonite crumbles (19.0' - 208.0')		200	●	
		205	●	
3/8" Volclay tablets (208.0' - 214.4')		210	●	Muddy Sandy Gravel
		215	●	
20--40 mesh silica sand (214.4' - 239.7')		220	●	Sandy Gravel
		225	●	Muddy Sandy Gravel
static water level 227.55' -1/3/90-		230	●	Sandy Gravel
		235	●	
4" dia.Johnson stainless steel 10 slot channel pack screen (218.66' - 239.4')		240	●	
		245	TD= 240	
		250		
backfill (239.7' - 240')		255		
		260		

A-1800-186 (3/87)

WELL COMPLETION/INSPECTION REPORT (governing procedure DO-1, RO)

Specification No. WHC-S-014 Rev. No. 3
Project W-017-LLBG
Location 200 West
Drilling Co. Basin & Range
Driller Lenny Cordan
Other (companies)
Geologist(s) AW Pearson, Tyler Gilmore, Steve Airhart, John Woziewiez, Eric Jensen, Steve Teel, C.D. Condit.

Well No. 299-W15-24 Temp. Well No. W4-MW4A
Coordinates N 39,851.3' W 78,096.1'
Casing Elev. 699.37' ~~Ground~~ Brass Cap Elev. 696.25'

DRILLING METHOD

Rotary Air N/A Mud N/A
Cable Tool D 0-55' H 56'-241.8'
Drilling Fluid H_2O from 200 West Raw Water Supply
Other None

GEOPHYSICAL LOGGING

Sondes	Interval	Date
Mt. Gamma	3' - 237	12-3-89
	-	
	-	
	-	
	-	

COMPLETION DATA

Drilled Depth 241.8'
Completed Depth 241'
Date Started 11/21/89
Date Completed 1/9/90
Static Water Level/Date 221.3' 12/5/89

AQUIFER TESTING

Type Slug Withdrawal
Length of Test
Volume Pumped
Drawdown
Date of Test 12/15/89

INSPECTION RESULTS

CLEANING

Inspection Method Visual
Acceptance Criteria Section 7.6

	Accept	Reject	Date
Drilling Tools/Rig	BNB		11/21/89
Temporary Materials	[illegible]		12/7/89
Permanent Materials	[illegible]		12/14/89

MATERIAL STORAGE/PACKING

Inspection Method Visual
Acceptance Criteria Section 7.2

	Accept	Reject	Date
Mtl. Handling/Storage	[illegible]		12/14/89
Material Packing	[illegible]		12/14/89

SCREEN

Type	Length	Slot Size
Johnson Div Type 304 Continous	21'	10
Wrap Channel Pack 4" S.S.	—	—

Depth(s) 220.0' - 241.0'
— - —

Inspection Method Visual
Acceptance Criteria Section 4.2.3
Accept [illegible] Reject Date 12/12/89

LUBRICANTS/ADDITIVES

Inspection Method Visual
Acceptance Criteria Section 7.2

	Identify	Accept	Reject	Date
Additives	N/A	BNB		12/7/89
Lubricants	Chevron Poly FM-7	BNB		12/7/89

STRAIGHTNESS TEST

Inspection Method 21' long 7" dia. boiler
Acceptance Criteria Section 8.3
Accept [illegible] Reject Date 12/5/89

CASING (permanent)

Type	Size	Placement
Johnson Div. Type 304	4"	220.0'-+3.3
Stainless Steel	—	- - —

Inspection Method Visual
Acceptance Criteria Section 4.2.4
Accept [illegible] Reject Date 12/12/89

WELL PROTECTION

Inspection Method Visual
Acceptance Criteria Section 4.2.9-4.2.10

	Accept	Reject	Date
Protective Posts	BNB		1/24/90
Locks			

ANNULAR SEAL

Inspection Method Visual / Steel Tape
Acceptance Criteria Section 4.2.6-4.2.9

Type	Interval	Volume	Accept	Reject	Date
Colorado Silica Sand (8-12 mesh)	241.8' - 216.7'	25.25 ft³	SPA		12/13/89
Volclay Tablets (1/4" and 3/8" dia)	216.7' - 212.5'	2.48 ft³	SPA		12/13/89
Dry Bentonite (8-20 mesh)	212.5' - 19'	132.77 ft³	[illegible]		12/14/89
Cement w/Gypsum	19' - 2'	12.54 ft³	[illegible]		12/14/89
Cement Pad	2' - +0.5'	1 yd³	[illegible]		1/9/90

OTHER (initial if performed)

N/A Well Abandonment
DRN Well Development
DLM Downhole TV Inspection
____ Complete As-Built Diagram, Driller's/Geologist's Logs

 For all blanks mark N/A if not applicable.

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9413205.0375

Battelle
Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W15-24 Geologist A. Pearson, T. Gilmore, S. Airhart, J. Woziewiez, E. Jensen, S. Teel, C. Condit, B. Bjornstad Page 1 of 2

Reviewed by V. L. McGhan Date Well Started: 11/21/89 Well Completed: 01/09/90

Construction Data

Description

Cement Pad (+0.5'- 2.0')

12" dia. carbon steel casing (0' - 20.08') - removed

Cement Grout (2.0' - 19.0')

10" dia. carbon steel casing (0' - 156.08 ') - removed

8" dia. carbon steel casing (0' - 241.2') - removed

Casing Centralizer

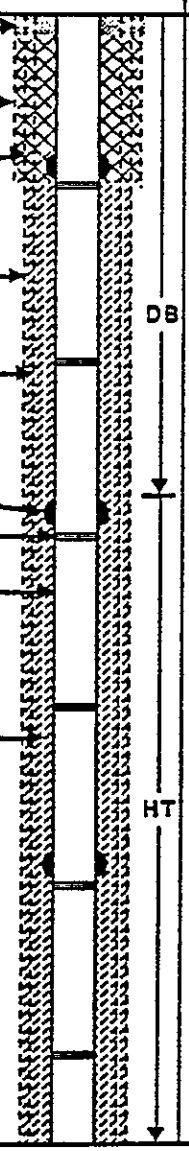
Casing Joint

4" dia. stainless steel final casing (+3.3' - 223.3')

8-20 mesh Dry Bentonite (19.0' - 212.5')

DB = Drive Barrel
HT = Hard Tool

Diagram



Geologic/Hydrologic Data

Depth in Feet	Sample Type (○ Drive Barrel, ● Hard Tool, ▲ Split Spoon)	Lithologic Description
5	○	(Samples not taken)
10	○	(" " ")
15	○	Gravelly Sand
20	○	" "
25	○	Sand
30	○	"
35	○	" (Silt Interbeds)
40	○	" (Silt/Clay Interbeds)
45	○	Slightly Gravelly Sand (Silt/Clay Interbeds)
50	○	Gravelly Sand
55	○	Muddy Sandy Gravel
60	●	Sandy Gravel (trace Caliche)
65	●	" "
70	●	" "
75	●	" "
80	●	" "
85	●	" "
90	●	" "
95	●	" "
100	●	" "
105	●	Muddy Sandy Gravel
110	●	Slightly Muddy Sand
115	●	" " "
120	●	" " "
125	●	" " "
130	●	Muddy Sand

A-1800-186 (3/87)

Battelle
Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W15-24 Geologist A. Pearson, T. Gilmore, S. Airhart, J. Woziewiez, E. Jensen, S. Teel, C. Condit, B. Bjornstad Page 2 of 2

Reviewed by V. L. McGhan Date Well Started: 11/21/89 Well Completed: 01/09/90

Construction Data

Description

10" dia. carbon steel casing (0' - 156.08') - removed

8" dia. carbon steel casing (0' - 240.8') - removed

4" dia. stainless steel final casing (+3.3' - 223.3')

8-20 mesh Dry Bentonite (19.0' - 212.5')

Well Completion Symbols (as per PNL-6392)

- Cement Grout
- Granular Bentonite
- Bentonite Pellets
- Sand Pack
- Backfill

DB = Drive Barrel
HT = Hard Tool

1/4"-3/8" Voiclay Tablets (212.5 - 216.7')

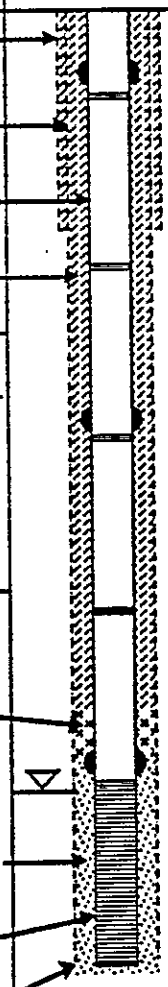
Static Water Table (221.3') - 12/05/89 -

8-12 mesh Colorado Silica Sand (216.7' - 241.8')

4" dia. stainless steel Johnson Channel Pack screen (220.0' - 241.0')

Bottom of well = 241.0'

Diagram



Geologic/Hydrologic Data

Depth in Feet	Sample Type (○ Drive Barrel, ● Hard Tool, ▲ Split Spoon)	Lithologic Description
135	●	Muddy Sand
140	●	" "
145	●	" "
150	●	Sandy Mud
155	●	" "
160	●	" "
165	●	" " (Contacted top of caliche' @ 165')
170	●	Muddy Sand
175	●	" "
180	●	" "
185	●	Gravelly Sand
190	●	Sandy Gravel
195	●	" "
200	●	" "
205	●	Slightly Gravelly Sand
210	●	Sandy Gravel
215	●	" "
220	●	Gravelly Sand
225	●	" "
230	●	Muddy Sandy Gravel
235	●	Gravelly Sand
240	●	Sandy Gravel
		TD= 241.8'

A-1800-186 (3/

9413205.0376

WELL COMPLETION SUMMARY

Project CAC -798 AT (45-1) 1406 Midland
Location
Drilling Co.
Driller H.E. Osborn; Foreman, C.E. Davis
Other (companies)
Geologist(s)

Well No. 299-W18-2 Temp. Well No.
Coordinates
Elevation: Casing Brass Marker

DRILLING METHOD
Drilling Method(s) Cable Tool
probably hard tool, 0-280
Drilling Fluid WATER
Other

COMPLETION DATA
Drilled Depth 280
Completed Depth 280
Date Started 10-16-58
Date Completed 11-14-58
Static Water Level/Date 210'/11-13-58

OTHER (check if performed)
___ Well Abandonment
___ Well Development
___ Aquifer Testing
___ Geophysical Log(s)
___ Lock and Cap
___ Downhole TV Inspection
___ Driller's Logs
___ Pad
___ Guardposts
___ Protective Casing

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Perforated	8'	78'	6 holes/ft	200'-278'
6" SCREEN	6"	50'		205-255

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
			-
			-
			-
			-

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon Steel	8"		0 - 280'
			-

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
	-		
	-		
	-		
	-		
	-		
	-		

PUMP
Type Depth to Inlet Date Set

ACCEPTANCE
Completed Well: Accept Conditionally Accept
Reject

COMMENTS
Total 8" casing = 283', bottom set at 280'

Reviewed by Date Depths are below land surface unless noted.

9413205.0377

AS-BUILT DIAGRAM

Boring or Well Number 299-W18-2 Sheet 1 of 2

Location _____ Project _____

Logged by _____

Reviewed by _____ Date _____

Date Well Started 10-16-58

Date Well Completed 11-14-58

Well Construction Data — Geologic/Hydrologic Data

Drill Bit — Sample Method Lithologs from Rockson

Description	Construction Diagram	Depth in Feet	Lithologic Diagram	Lithologic Description
		0		
CaCO3 data ✓		5		Sand
		10		"
12" casing, carbon steel		15		Sandy Gravel
0'-10' (?)		20		slightly gravelly Sand
		25		"
		30		Sand
		35		muddy sandy Gravel
8" carbon steel casing		40		"
0'-280'		45		"
		50		"
		55		muddy Sand
		60		
		65		slightly muddy gravelly Sand
		70		muddy sandy Gravel
		75		muddy Sand
		80		"
		85		"
		90		slightly muddy Sand
		95		"
		100		"
		105		muddy Sandy Gravel
		110		"
		115		sandy Gravel
		120		muddy sandy Gravel
		125		"
		130		muddy Sand
		135		sandy Mud
		140		muddy Sandy Gravel
		145		"
		150		"
		155		Sand
		160		slightly muddy Sand
		165		Sand

Drill Bit/Sample Method Used: ☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive-Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413205.0378

AS-BUILT DIAGRAM

Boring or Well Number 299-W18-2 Sheet 2 of 2

Location _____ Project _____

Logged by _____

Reviewed by _____ Date _____

Date Well Started 10-16-58

Date Well Completed 11-14-58

Well Construction Data		Depth in Feet	Geologic/Hydrologic Data
Drill Bit			Sample Method: Lithology from Eckson
Description	Construction Diagram		Lithologic Diagram / Lithologic Description
		165	
		170	slightly muddy gravelly Sand
8" Carbon steel casing (0-280')		175	muddy Sandy Gravel
		180	"
		185	"
		190	"
		195	muddy Sand
		200	muddy, sandy Gravel
Lead Packer		205	"
		207	slightly muddy Sand
		210	muddy, sandy Gravel
Static Water Table 210' (11/13/58)		215	"
		220	"
6" "Johnson" Screen		225	"
(205-255')		230	"
		235	"
		240	"
		245	driller's log: clay, sand + gravel
		250	" "
Cement Plug		255	" "
		260	" : Gravel & Sand
Perforations in 8" casing		265	muddy, sandy Gravel
200-278'		270	driller's log: clay, sand, boulders, gra
		275	" "
Sluff 255-280'		280	" Boulders, gravel, sand & cla
		285	
		290	
		295	
		300	
		305	
		310	
		315	
		320	
		325	
		330	

Drill Bit/Sample Method Used: ☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413205.0379

WELL COMPLETION SUMMARY

Project
Location
Drilling Co. Midland Drilling Co.
Driller K.G. Smith
Other (companies)
Geologist(s)

Well No. 299-W18-4 Temp. Well No.
Coordinates
Elevation: Casing Brass Marker

DRILLING METHOD
Drilling Method(s) Cable Tool
Drive Barrel 0-145', Hand Tool 145'-280'
Drilling Fluid Water
Other

COMPLETION DATA
Drilled Depth 280'
Completed Depth 280'
Date Started 1/13/59
Date Completed 2/9/59
Static Water Level/Date 211'/2/2/59

OTHER (check if performed)

___ Well Abandonment	___ Downhole TV Inspection
___ Well Development	___ Driller's Logs
___ Aquifer Testing	___ Pad
___ Geophysical Log(s)	___ Guardposts
___ Lock and Cap	___ Protective Casing

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Perforated Carbon Steel	8"	78'		200' - 278'
Johnson Screen w/ Packer (lead)	6"	57'		197' - 254'

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
			-
			-
			-
			-

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon Steel	10"		0' - 47'
Carbon Steel	8"		0' - 200'
" "	8"		278' - 280'

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
Cement Grout	252' - 254'		
Wood Plug	252' - 254'		
Backfill / Slough	254' - 280'		
	-		
	-		
	-		

PUMP
Type Depth to Inlet Date Set

ACCEPTANCE
Completed Well: Accept Conditionally Accept
Reject

COMMENTS
6" Screen w/ Lead Packer, Cement Grout & Wood Plug set 6/10/67

Reviewed by Date Depths are below land surface unless noted.

9413205.0380

AS-BUILT DIAGRAM

Boring or Well Number 299-W18-4 Sheet 1 of 2

Location _____ Project _____

Logged by _____

Reviewed by _____ Date _____

Date Well Started 1/13/59

Date Well Completed 2/9/59

Well Construction Data			Depth in Feet	Geologic/Hydrologic Data		
		Drill Bit		Sample Method		Data from Drillers Log
Description	Construction Diagram				Lithologic Diagram	Lithologic Description
10" Carbon Steel Casing 0'-43'			5			Sand
			10			"
			15			"
			20			"
			25			"
			30			"
			35			Gravel & Sand
			40			" "
			45			" "
			50			Sand
8" Carbon Steel Casing 0'-200'			55			"
			60			"
			65			"
			70			"
			75			"
			80			"
			85			"
			90			"
			95			"
			100			"
			105			Sandy Silt
			110			" "
			115			Silt
			120			Sand & Gravel
			125			" "
			130			Sand
			135			Sandy Silt
			140			" "
			145			Gravel & Sand
			150			" "
			155			" "
			160			" "
			165			" "

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ● Split-Barrel

A-1800-186 (05/90)

9413205.0381

AS-BUILT DIAGRAM

Boring or Well Number 299-W18-4 Sheet 2 of 2

Location _____ Project _____

Logged by _____ Date Well Started 1/13/59

Reviewed by _____ Date _____ Date Well Completed 2/9/59

Well Construction Data — Drill Bit

Geologic/Hydrologic Data — Sample Method: Data from Drillers Log

Description	Construction Diagram	Depth in Feet	Lithologic Diagram	Lithologic Description
8" Carbon Steel Casing 0'-200'		170		Sand
		175		Silt
		180		Sand
		185		Gravel & Sand
		190		Cobbles, Gravels & Sand
		195		" " "
Lead Packer		200		" " "
		205		" " "
		210		Sand
		215		"
Perforated 8" Carbon Steel Casing 200'-278'		220		Gravel & Sand
		225		Cobbles, Gravel & Sand
		230		" " "
6" Johnson Screen 197'-254'		235		" " "
		240		" " "
		245		Cobbles, Clay, Gravel & Sand
Wood Plug & Cement Grout 252'-254'		250		" " " "
		255		" " " "
Backfill/Slough 254'-280'		260		Cobbles, Gravel & Sand
		265		Clay, Cobbles, Gravel, & Sand
		270		" " " "
		275		" " " "
8" Carbon Steel Casing 278'-280'		280		" " " "
				TD=280'

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413205.0392

9413205.0383

WELL COMPLETION SUMMARY

Project CT-1809, JAJ1349
Location 216-Z-12
Drilling Co.
Driller John G., L. Bultena
Other (companies)
Geologist(s)

Well No. 299-W18-18 Temp. Well No.
Coordinates N38903 W76270
Elevation: Casing Brass Marker

DRILLING METHOD

Drilling Method(s) Cable Tool Rig
Hard Tool 0'-265'
Drilling Fluid
Other

COMPLETION DATA

Drilled Depth 265'
Completed Depth 204'
Date Started 8/3/81
Date Completed 9/11/81
Static Water Level/Date 205 / 9/28/81
188/ 2/14/84

OTHER (check if performed)

	Well Abandonment		Downhole TV Inspection
	Well Development	✓	Driller's Logs
	Aquifer Testing		Pad
	Geophysical Log(s)		Guardposts
	Lock and Cap		Protective Casing

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Perforations 2cuts/ft	8"	10'	—	215' - 225'
Perforations 4cuts/round/ft	8"	25'		185' - 210'
~~Telescoping stainless steel screen~~	~~8"~~	~~20'10"~~	~~10~~	~~185' - 204'~~

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon Steel	12"		0' - 20'
			-
			-
			-

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon Steel	8"		0' - 265'
			-

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
Cement Grout	0' - 20'	6 sacks	35 gals
Cement Grout	262' - 265'	2 sacks	15 gals
Backfill (Sand)	204' - 262'		
	-		
	-		
	-		

PUMP

Type submersible 3/4 hp Depth to Inlet 201' Date Set 2/15/84

ACCEPTANCE

Completed Well: Accept Conditionally Accept
Reject

COMMENTS

Lost Dart Bailer in Well 245'-260'

Reviewed by Date Depths are below land surface unless noted.

AS-BUILT DIAGRAM

Boring or Well Number 299-W18-18 Sheet 1 of 2
Location 216-Z-12 Project CT-1809, JAJ1349

Logged by Driller: John G., L. Bultena
Reviewed by _____ Date _____

Date Well Started 8/3/81 | Modified 2/10/84
Date Well Completed 9/11/81 | 2/15/84

Well Construction Data: Description	Construction Diagram	Drill Bit	Depth in Feet	Geologic/Hydrologic Data: Sample Method	Lithologic Diagram	Lithologic Description (Data from Drillers Logs)
20' of 12" Carbon Steel			5			Sand + Gravel
Casing (0'-20') temporary			10			" "
Cement Grout Surface Seal			15			" "
(0'-20')			20			Loose Gravel (@ 17')
265' of 8" Carbon Steel			25			" "
Casing (0'-265')			30			" "
			35			" "
			40			" "
			45			" " (Grey)
			50			Sand (45'-48') Gravel (Consolidated & Brown)
			55			" " "
			60			Boulders + Gravel
			65			" "
			70			" "
			75			Sand (@ 73')
			80			"
			85			"
			90			"
			95			"
			100			"
			105			"
			110			"
			115			"
			120			"
			125			"
			130			"
			135			"
			140			Clay (Brown)
			145			" (White)
			150			Rinsold (@ 46')
			155			"
			160			"
			165			Sand (heaving @ 153')

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ·O Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413205.0384

AS-BUILT DIAGRAM

Boring or Well Number 299-W18-18 Sheet 2 of 2
Location 216-Z-12 Project CT-1809 JAJ 1349

Logged by Driller: John G., L. Bultena
Reviewed by _____ Date _____

Date Well Started 8/3/81 Modified 2/10/84
Date Well Completed 9/12/81 2/15/84

Well Construction Data: Description	Construction Diagram	Drill Bit	Depth in Feet	Sample Method	Lithologic Diagram	Geologic/Hydrologic Data: Lithologic Description
			165			
265' of 8" Carbon Steel Casing (0'-265')			170			Sand & Gravel (heaving)
			175			Ringold
			180			"
			185			"
20'10" Telescoping Stainless Steel 10 slot Screen (153'-204')			190			Sand-gravel mix
			195			Ringold
			200			"
			205			" (f. sand)
Perforations 4 holes/rd/ft (185'-210')			210			" a f. sand layer
			215			Ringold sand mix (coarse)
Perforations 2 holes/ft (215'-225')			220			Sand & sm gravel (heaving)
			225			Gravel (1½" minus)
Backfill (Sand) (204'-262')			230			Sand (fine grained)
			235			" " "
			240			" " "
			245			" " "
4.5" x 15' Dart Bailer (lost in well) (245'-260')			250			"
			255			"
			260			Cobbles & Gravel
Cement Grout (262'-265')			265			" "
			270			Final Drilled Depth = 265'
			275			
Final Completion Depth = 204'			280			
			285			
			290			
			295			
			300			
			305			
			310			
			315			
			320			
			325			
			330			

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ◉ Split-Barrel

A-1800-186 (05/90)

9413205.0385

9413205.0386

Battelle
Pacific Northwest Laboratories

Well Completion Report/Title III Inspection List

Project 200 West Area RCRA Well Drilling
Location Hanford Site 200 West Area
Driller Darrel Ludtek (Ludtke)
Drilling Co. Onwego Drilling
Geologist K Oster, SP Airhart, T Gilmore, SS Teel, JS Wilbur, GV Last

Well Number 299-W18-21
Temporary Well Number none
Coordinates N. 37,794 W. 78,080
Casing Elevation 668.62
Ground Elevation 666.50

DRILLING METHOD

Rotary Air _____ Mud _____
Cable Tool D 0'-40' H 40'-227'
Drilling Fluid Water
Other _____

COMPLETION DATA

Drilled Depth 227'
Completion Depth 226.3'
Date Started 6/2/87 Completed 7/29/87
Static Water Level/Date 197'6" 7/7/87

CASING DATA

Type	Size		
Type 304 Stainless Steel Casing	4" diameter	to	195.5'
		to	
		to	

Approved By SP Airhart Date 1/5/88

PERFORATIONS

Type —

Depth	Schedule
-	
-	
-	

App. By _____ Date _____

SCREEN

	Telescoping 8" dia type 304SS	4" dia type 304SS
Type	continuous Wrap	continuous Wrap
Length	10'	30'
Slot Size	30	20
Depths	215.5' - 225.5'	195.5' - 225.5'

App. By SP Airhart Date 1/5/88

ANNULAR SEAL

Type	Interval	Volume
Sand	187'4"-227'8"	11.86 ft³
Volclay pellets	185'9"-187'4"	1.44 ft³
Volclay grout	3'-185'9"	153.74 ft³
Concrete	0'-3'	4.08 ft³

App. By SP Airhart Date 1/5/88

GEOPHYSICAL LOGGING

Sondes	Interval	Date
Neutron	0' - 227'	7/8/87
Density	0' - 227'	7/8/87
Natural Gamma	0' - 227'	7/8/87
	-	
	-	
	-	
	-	

Approved By J.S. Wilbur Date 7/8/87

AQUIFER TESTING

Type of Test Constant Discharge Test
Length of Test 8 hrs
Volume Pumped 27,000 gals
Drawdown ~~205'~~ 17.89

Approved By J.S. Wilbur Date 7/14/87

OTHER APPLICABLE ITEMS

- [X] Steam Cleaning
- [X] Storage of Const. Material
- [X] Tool Lubricants
- [X] Concrete Pad
- [X] Protective Steel Posts
- [X] Safety Paint
- [X] Straightness Test
- [X] Well Development
- [X] Downhole TV Inspection
- [ ] Well Abandonment
- [X] Complete As-Built Diagram, Driller's and Geologist's Logs

Approved By JS Wilbur Date _____

Reviewed By [signature] Date 1-8-88

A-1800-187 (3/87)

Battelle
Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W18-21 Geologist OSTER; AIRHART; GILMORE; JEEL; WILBUR; LAST Page 1 of 2

Reviewed by [illegible] Date 1-8-88

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Diagram Litho.	Lithologic Description
		5		SAND
				SANDY SILT AND CLAY LENS @ 9'
		10		SAND
		15		(wood sample taken @ 15.5')
16" Temporary Carbon Steel Casing 19.5'		20		GRAVELLY SAND
12" Temporary Carbon Steel Casing				(silty sand lense @ 22')
		25	C.S.	SAND
10" Temporary Carbon Steel Casing			F.S.	contact between C.S. and F.S.
8" Temporary Carbon Steel Casing		30		
		35		GRAVELLY SAND
		40		SLIGHTLY GRAVELLY SAND
4" Stainless Steel Casing				(contact @ 42')
		45		SANDY GRAVEL
		50		SILTY SANDY GRAVEL
		55		GRAVEL
		60		SILTY SANDY GRAVEL
		65		(contact @ 66')
		70		SILTY SAND
		75		
		80		
85.5'		85		
		90		
		95		
		100		
		105		CLAYEY SILTY SAND
		110		
		115		SILTY SAND
		120		SLIGHTLY SILTY SAND
		125		CLAYEY SILTY SAND
		130		

A-1800-186 (3/87)

□ - caliche
● - gravel w/ weathering rind

9413205.0367

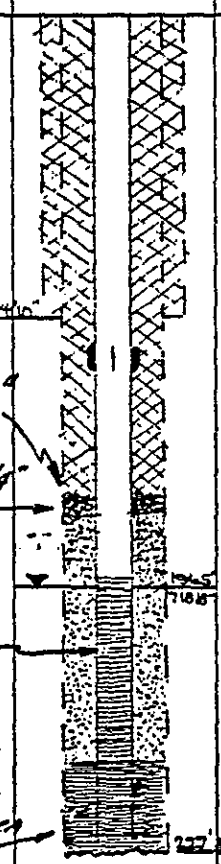
9413205.0388

Battelle
Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W18-21 Geologist OSTER; AIRHART; GILMORE TEEL; WILBUR; LAST Page 2 of 2

Reviewed by V.L. McGhan Date 1-8-88

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Diagram Litho.	Lithologic Description
		135		CLAYEY SILTY SAND
		140		
		145		SILTY SANDY GRAVEL
		150		
		155		
		160		
		165		SANDY GRAVEL
		170		SILTY SANDY GRAVEL
Top of volclay pellets 185'9"		175		SANDY GRAVEL
		180		
Top of 20/30 sand pack 187'4"		185		
		190		
		195		GRAVELLY SILTY SAND
		200		
30' of 4" 20-slot s.s.		205		SANDY GRAVEL
screen (195.5'-225.5')		210		GRAVELLY SAND
		215		SILTY GRAVELLY SAND
		220		
10' of 8" telescoping screen		225		
		230		

A-1800-186 (3/8)

9413205.0389

Battelle
Pacific Northwest Laboratories

Well Completion Report/Title III Inspection List

Project: 200 West RCRA Well Drilling
Location: Hanford Site 200 West
Driller: Kelly Olsen
Drilling Co.: Onwego Drilling
Geologist: K Oster, SP Airhart, SS Teel, K Bishop, T Gilmore, JS Wilbur

Well Number: 299-W18-22
Temporary Well Number: none
Coordinates: ~~N.38~~, N. 37,837 W. 78,109
Casing Elevation: 668.49
Ground Elevation: 666.49

DRILLING METHOD

Rotary Air _____ Mud _____
Cable Tool D _____ H 0'-455'
Drilling Fluid: Water
Other _____

COMPLETION DATA

Drilled Depth: 455
Completion Depth: 447'
Date Started: 6/12/87 Completed: 9/25/87
Static Water Level/Date: 198.99' 8/27/87

CASING DATA

Type	Size	
Type 304 Stainless Steel Casing	4" diameter +2.01'	to 416.5'
		to
		to

Approved By: S.P. Airhart Date: 10/1/87

PERFORATIONS

Type: —

Depth	Schedule

App. By _____ Date _____

SCREEN

Type	Telescoping 8" diameter type 304SS Continuous Wrap	4" dia type 304SS Continuous Wrap
Length	10'	31'
Slot Size	30	20
Depths	437.5'- 447.5'	416.5'- 447.5'

App. By: SP Airhart Date: 10/1/87

ANNULAR SEAL

Type	Interval	Volume
COLORADO SILICA SAND	410'-455'	15.84 ft³
VOLCLAY PELLETS	404'-410'	2.05 ft³
VOLCLAY GROUT	189'-404'	294.11 ft³
BENTONITE DRY + BENTONITE SLURRY	3'-189'	879.47 ~~788.77~~ ft³ SPA
CONCRETE	0'-3'	

App. By: SP Airhart Date: 10/1/87

GEOPHYSICAL LOGGING

Sondes	Interval	Date
Neutron	0'-455'	8/12/87
Density	0'-455'	"
Natural Gamma	0'-455'	"

Approved By: JS Wilbur Date: 8/12/87

AQUIFER TESTING

Type of Test: Constant Discharge Test
Length of Test: 8 hrs.
Volume Pumped: 24,500 gals
Drawdown: 74.62

Approved By: JS Wilbur Date: 8/26/87

OTHER APPLICABLE ITEMS

- [x] Steam Cleaning
- [x] Storage of Const. Material
- [x] Tool Lubricants
- [x] Concrete Pad
- [x] Protective Steel Posts
- [x] Safety Paint
- [x] Straightness Test
- [x] Well Development
- [x] Downhole TV Inspection
- [ ] Well Abandonment
- [x] Complete As-Built Diagram, Driller's and Geologist's Logs

Approved By: JS Wilbur Date: 9/5/87

Reviewed By: D.L. McGlean Date: 1-8-88

A-1800-187 (3/87)

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Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W18-22 Geologist K. Oster, S. Airhart, T. Gilmore, S. Teel, S. Wilbur Page 1 of 4

Reviewed by [illegible] Date 1-8-88

Construction Data: Description	Construction Data: Diagram	Depth in Feet	Geologic/Hydrologic Data: Diagram Litho.	Geologic/Hydrologic Data: Lithologic Description
Concrete Surface Seal (0'-3')		5'		Sand
Dry bentonite (3'-15')		10'		Sand
(0'-50'6") 20" dia. Carbon Steel Casing		15'		Sand
(0'-150'1") 16" dia. Carbon Steel Casing		20'		
(0'-250'11") 12" dia. Carbon Steel Casing		25'		Sandy Gravel
(0'-342'6") 10" dia. Carbon Steel Casing		30'		Slightly Silty Sand
(0'-453'1½") 8" dia. Carbon Steel Casing		35'		
NOTE: All Carbon Steel		40'		Slightly Gravelly Sand
Casing removed.		45'		Sandy Gravel
		50'		Silty Sandy Gravel
4" dia. Stainless Steel Casing		55'		Sandy Gravel
		60'		Gravel
		65'		Sandy Gravel
		70'		Slightly Silty Gravel
		75'		
		80'		Silty Sand
Bentonite Slurry (15'-185')		85		
		90'		
		95'		Sandy Silt
		100'		Sandy Silt/Clay
		105'		
		110'		
		115'		Silty/Clayey Sand
		120'		Sandy Silt
		125'		
		130		

A-1800-188 (3/87)

9413205.0390

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AS-BUILT DIAGRAM

Well Number 299-W18-22 Geologist K. Oster, S. Airhart, T. Gilmore, S. Teel, S. Wilbur Page 2 of 4

Reviewed by [illegible] Date 1-8-88

Construction Data: Description	Construction Data: Diagram	Depth in Feet	Geologic/Hydrologic Data: Diagram Litho.	Geologic/Hydrologic Data: Lithologic Description
		135'		Silt
		140'		Gravelly Sandy Silt/Clay
		145'		
		150'		Silty Sandy Gravel
		155'		Sandy Gravel
		160'		Silty Sandy Gravel
		165'		
		170'		
		175'		
		180'		Sandy Gravel
		185'		
		190'		
		195'		Gravelly Silty Sand
Volclay Grout (153'-404')		200'		Silty Sandy Gravel
	196.88	205'		Silty/Clayey Sandy Gravel
		210'		Silty Sandy Gravel
		215'		
		220'		
		225'		
		230'		
		235'		
		240'		Silty Gravelly Sand
		245'		
		250'		Gravelly Sand
		255'		Slightly Silty Gravelly Sand
		260'		Slightly Gravelly Silty Sand

A-1800-186 (3/87)

9413205.0391

Battelle
Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W18-22 Geologist K. Oster, S. Airhard, T. Gilmore, S. Teel, J.S. Wilbur Page 3 of 4

Reviewed by D.K. McElhan Date 1-8-88

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Diagram Litho.	Lithologic Description
		265'		Slightly Gravelly Silty Sand
		270'		slightly gravelly slightly silty sand
		275'		
		280'		Slightly Gravelly Sand
		255'		Gravelly Sand
		290'		Slightly Gravelly Silty Sand
		295'		Gravelly Silty/Clayey Sand
		300'		Silty Gravelly Sand
		305'		
		310'		Silty/Clayey Gravelly Sand
		315'		
		320'		
		325'		
		330'		
		335'		Gravelly Silty Sand
		340'		Gravelly Sand
		345'		Silty Gravelly Sand
		350'		
		355'		
		360'		Gravelly Silty Sand
		365'		
		370'		
		375'		
		380'		
		385'		
		390'		Silty Sand

A-1800-186 (3/87)

9413205.0392

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AS-BUILT DIAGRAM

Well Number 299-W18-22 Geologist K. Oster, S. Airhart, T. Gilmore, S. Teel, J.S. Kilbur Page 4 of 4

Reviewed by W.L. McKhan Date 1-8-88

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Diagram Litho.	Lithologic Description
		395'		Silty Sand
		400'		
		405'		
Volclay Pellets (404'-410')		410'		
		415'		
10-20 mesh Colorado Silica Sand (410'-455')		420'		Slightly Gravelly Silty Sand
		425'		
4" 20 slot s.s. screen (446.5-447.5')		430'		
		435'		Silty Gravelly Sand
		440'		
8" s.s. telescoping screen (439.5-449.5')		445'		Silty Gravelly Sand
		447'		Brownish/Gray Clay
		450'		Slightly Gravelly Sand Clay
Back filled w/ sand		455'		Clay
Depth to bottom of hole @ 455'				

A-1800-186 (3/87)

9413205.0393

Battelle
Pacific Northwest Laboratories

Well Completion Report/Title III Inspection List

Project KEH-1914
Location 200 WEST AREA
Driller DAVE GARCIA
Drilling Co. ONWEGO
Geologist S.P. AIRHART

Well Number 299-W18-23
Temporary Well Number NA
Coordinates N. 38,987 W. 78,120
Casing Elevation 696.81
Ground Elevation 694.75

DRILLING METHOD

Rotary Air NA Mud NA
Cable Tool D 0'-63' H 63'-255'
Drilling Fluid H_2O
Other ——

COMPLETION DATA

Drilled Depth 255'
Completion Depth 251'
Date Started 5-20-87 Completed 7-1-87
Static Water Level/Date 224' / 6-12-87

CASING DATA

Type	Size		
Schedule 40 Carbon Steel	12" diameter	to	62'4"
Schedule 40 Carbon Steel	10" diameter	to	145'6"
Schedule 40 Carbon Steel	8" diameter	to	255'
Schedule 5 Stainless Steel 4" diameter +2.1' - 220'4"			

Approved By J.S.W Date 12/30/87

PERFORATIONS

Type NA

Depth	Schedule
— - —	—
— - —	—
— - —	—

App. By ____ Date ____

SCREEN

	8" Continuous Wrap Telescoping	4" continuous wrap
Type		
Length	10'3"	30' & ½"
Slot Size	~~40~~ 30	20
Depths	241'-251'	220'4"-251'
	—	—

App. By J.S.W Date 12/30/87

ANNULAR SEAL

Type	Interval	Volume
20-30 silica sand	215'9"-255'	15 ft³
Volclay Tablets	210'-215'9"	4 ft³
Volclay Grout	3'-210'	185 ft³
Pre-mix Concrete	0'-3'	123 ft³

App. By J.S.W Date 12/30/87

GEOPHYSICAL LOGGING

Sondes	Interval	Date
Nat. gamma	-	6-15-87
gamma-gamma	-	6-15-87
neutron	-	6-15-87
	-	
	-	
	-	
	-	

Approved By J.S.W Date 6/15/87

AQUIFER TESTING

Type of Test Continuos drawdown / recovery
Length of Test 8 hr. drawdown / 1 hr. recovery
Volume Pumped 52,800 gals
Drawdown 2.62'

Approved By J.S.W Date 12/30/87

OTHER APPLICABLE ITEMS

- ✓ Steam Cleaning
- ✓ Storage of Const. Material
- ✓ Tool Lubricants
- ✓ Concrete Pad
- ✓ Protective Steel Posts
- — Safety Paint
- ✓ Straightness Test
- ✓ Well Development
- ~~NA~~ Downhole TV Inspection
- NA Well Abandonment
- ✓ Complete As-Built Diagram, Driller's and Geologist's Logs

Approved By J.S. Will Date ____

Reviewed By V.L. McGlean Date 1-8-88

A-1800-187 (3/87)

9413205.0394

Battelle
Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W18-23 Geologist S.P. AIRHART Page 1 of 2

Reviewed by [illegible] Date 1-8-88

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Diagram Litho.	Lithologic Description
2.1' STICKUP Above Pad				
Concrete Surface Seal 0'-3'		5		SILTY GRAVELLY SAND
		10		
12" Temporary Carbon Steel Casing		15		GRAVELLY SAND
10" Temporary Carbon Steel Casing		20		SLIGHTLY SILTY SAND
8" Temporary Carbon Steel Casing		25		SILTY SAND
4" Stainless Steel Casing		30		
		35		SLIGHTLY GRAVELLY SILTY SAND
		40		SILTY SAND
		45		SLIGHTLY GRAVELLY SILTY SAND
		50		SILTY SAND
		55		SILTY SANDY GRAVEL
		60		SILTY GRAVELLY SAND
62.4'		65		SILTY SANDY GRAVEL
		70		
		75		
Volclay Grout		80		
		85		
		90		
		95		
		100		
		105		
		110		GRAVELLY SILTY SAND
		115		
		120		SLIGHTLY GRAVELLY SILTY SAND
		125		
		130		SILTY SAND

A-1800-196 (3/87)

9413205.0395

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Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W18-23 Geologist S. P. AIRHART Page 2 of 2

Reviewed by W. E. McHan Date 1-8-88

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Diagram Litho.	Lithologic Description
		135		SILTY SAND
		140		
		145		
145'6"		150		SANDY SILT/CLAY
		155		
		160		SILT/CLAY W/ SAND
		165		SLIGHTLY GRAVELLY SILT/CLAY
		170		SLIGHTLY GRAVELLY SILTY/CLAYEY SAND
		175		SILTY SAND
		180		
		185		SILTY SANDY GRAVEL
Volclay Grout		190		SANDY GRAVEL
		195		
		200		
		205		
	210'	210		
Volclay Tablets	212'9"	215		
Centralizers	220'4"	220		
6-12-87 ▽		225		
20'8" of 4" 20-slot stainless steel screen		230		
		235		SILTY GRAVELLY SAND
		240		SILTY/CLAYEY SANDY GRAVEL
		245		SANDY GRAVEL
10'5" of 8" 40-slot stainless steel telescoping screen	251'	250		SILTY SANDY GRAVEL
	255'	255		SILTY GRAVELLY SAND
20-30 mesh Colorado Silica Sand		260		

□ → CALICHE

A-1800-186 (3/87)

9413205.0396

Battelle
Pacific Northwest Laboratories

Well Completion Report/Title III Inspection List

Project: Low Level Burial Ground RECRA Wells
Location: 200 West Area
Driller: Russ Vance
Drilling Co.: Onondaga Drilling
Geologist: J.S. Kilbur

Well Number: 299-W18-24
Temporary Well Number: NA
Coordinates: N38,998 W77,180
Casing Elevation: 684.35
Ground Elevation: 682.18

DRILLING METHOD

Rotary Air: NA Mud: NA
Cable Tool: D 0'-40'; 75'-112' H 45'-70'; 175'-240'
Drilling Fluid: H_2O
Other: —

COMPLETION DATA

Drilled Depth: 239' 11"
Completion Depth: 235.5'
Date Started: 5/20/87 Completed: 8/11/87
Static Water Level/Date: 211.8' 7/9/87

CASING DATA

Type	Size		
Schedule 40 Carbon Steel	16"	to	0-10.5'
Schedule 40 Carbon Steel	12"	to	0-70.2'
Schedule 40 Carbon Steel	10"	to	0-153.2'
Schedule 40 Carbon Steel	8"	to	0-240'

Approved By: _____ Date: _____

PERFORATIONS

Type: NA

Depth	Schedule
—	—
—	—
—	—

App. By: — Date: —

SCREEN

	4" diameter continuous wrap	8" dia. continuous wrap
Type	Stainless Steel	Stainless Steel
Length	30'	10'
Slot Size	20	30
Depths	205.5'	~~240~~ 230'
	235.5	~~235~~ 240'

App. By: J.S.K Date: 8/11/87

ANNULAR SEAL

Type	Interval	Volume
Sand	198'-240'	13.5 ft³
Volclay pellets	198'-191	4.5 ft³
Volclay grout	5'-191'	288.75 ft³
Cement seal	0-5'	15.0 ft³

App. By: J.S.K Date: 8/11/87

GEOPHYSICAL LOGGING

Sondes	Interval	Date
Neutron	0'-240'	7/9/87
Gamma-Gamma	0'-240'	7/9/87
Natural Gamma	0'-240'	7/9/87
	—	
	—	
	—	
	—	

Approved By: J.S.K Date: 7/9/87

AQUIFER TESTING

Type of Test: Constant Discharge
Length of Test: 7.5 hr
Volume Pumped: *45,000 gals. □ 48,300 gals.
Drawdown: 1.68 ft
* test discharge volume
□ total volume discharge test + development

Approved By: J.S.K Date: 7/17/87

OTHER APPLICABLE ITEMS

- ✓ Steam Cleaning
- ✓ Storage of Const. Material
- ✓ Tool Lubricants
- ✓ Concrete Pad
- ✓ Protective Steel Posts
- ✓ Safety Paint
- ✓ Straightness Test
- ✓ Well Development
- ~~✓~~ Downhole TV Inspection
- NA Well Abandonment
- ✓ Complete As-Built Diagram, Driller's and Geologist's Logs

Approved By: J.S.K Date: 8/15/87

Reviewed By: D.L. McKlem Date: 1-8-88

A-1800-187 (3/87)

9413205.0397

Battelle
Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W18-24 Geologist J.S. Wilbur Page 1 of 2

Reviewed by W.L. McGhan Date 1-8-88

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Diagram Litho.	Lithologic Description
Starter casing 10.5' Section of 16" carbon steel pipe		5		SLIGHTLY SILTY SAND
		10		SLIGHTLY SILTY SAND
		15		SLIGHTLY SILTY SAND
		17		SLIGHTLY GRAVELY SAND
		20		SAND
		25		SAND
		30		SAND
		35		SAND
		38		GRAVELY SAND
		40		GRAVELY SAND
		45		SLIGHTLY GRAVELY SAND
		50		SLIGHTLY SILTY SLIGHTY GRAVELY SAND
		55		SLIGHTLY SILTY GRAVELY SAND
		60		SLIGHTLY SILTY GRAVELY SAND
		66		SAND
70.2' of 12" carbon steel casing		70'		SAND
		75'		SAND
		80'		SLIGHT SILTY GRAVELLY SAND
		85'		SLIGHT SILTY SAND
		90'		SILTY SAND
		95'		SILTY SAND
		100'		SILTY SAND
		110'		SILTY SAND
		112'		SANDY GRAVEL
		115'		SANDY GRAVEL
		120'		GRAVEL

A-1800-166 (3/87)

9413205.0398

9413205.0399

Battelle
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AS-BUILT DIAGRAM

Well Number 299-W18-24 Geologist J.S. Wilbur Page 2 of 2

Reviewed by W.L. McGhan Date 1-8-88

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Diagram Litho.	Lithologic Description
		125'		SANDY GRAVEL
		130'		SANDY GRAVEL
		135'		SILTY SAND
		140'		SILTY SAND
		145'		SILTY SAND
		150'		SANDY GRAVEL
T/D of 10" - 153' 10"		155'		SANDY GRAVEL
		160'		SAND
		165'		SAND
		170'		SANDY GRAVEL
		175'		SLIGHTLY SILTY SANDY GRAVEL
		180'		SLIGHTLY SILTY SANDY GRAVEL
		185'		SLIGHTLY SILTY SANDY GRAVEL
		190'		SANDY GRAVEL
Top of bentonite pellets 191.6'	191.6'	195'		SILTY SANDY GRAVEL
Top of sand @ 198.2'	198.2'	200'		SILTY SANDY GRAVEL
Top of 4" SS screen 205.5'		205'		SANDY GRAVEL
H2O level @ 211.8' from		210'		GRAVELLY SILTY SAND
ground surface		215'		SLIGHTLY SANDY GRAVEL
		220'		SANDY GRAVEL
B/B of 4" SS casing @ 235.5'		225'		SANDY GRAVEL
8" telescoping screen 240'-230'		230'		SANDY GRAVEL
		235'		SANDY GRAVEL
T/B 240' of 8" Carbon Steel		240'		SANDY GRAVEL
casing				

A-1800-186 (3/87)

Incorporated into Rev. 5 11/12/13/90

WELL CONSTRUCTION REPORT

VALIDATED 1/14/92 SIGNATURE/DATE

Page 1 of 2

Specification No. WHC-S-014 Rev No. ~~3~~ 4 5

ECNs 146188 144232 146189 144236 144234 144231 144230 124363 144435 144232 122261 124427 113823, 144229, 144241, 144240

Project W-017 SST

Location U ~~tat~~ SST 11/17/90 tank farm, 200-W Area

Drilling Company KEH

Driller Gary Lydin, William Peters, Louis Watkins, Mel Thoresgh, Gene Thomas

Other (Companies) N/A

Geologist(s) SP Airhart, AW Pearson, SS Teel, G.R.C. Barton, MA Chamness, TJ Gilmore, CD Delaney, DC Weekes, J.A. Lomes

Well No. 299-W18-29 Temp. Well No. N/A

Coordinates N: 134,976.32 W: 566,721.48

Casing Elev. 666.04 Ground Elev. 667.02 Prevs CAD

Drilling Method

Verification Method Visual observation

Criteria WHC-S-014 5.2, 5.3, 7.5 ETI 7 sec 6.2

	Initials	Date
Rotary Air N/A Mud N/A	[illegible]	[illegible]
Cable Tool D 0-1373' HT 1373-2415'	KR	12/5/90
Drilling Fluid Raw water from 200E KR 4.8 GAL @ 1/6/92	KR	12/5/90
Other N/A		

Geophysical Logging

Sondes	Interval	Date
Gross Gamma	136.0'-3.4'	10/29/90
Gross Gamma	246-130.0'	11/29/90

Completion Data

Drilled Depth 215.35'

Completed Depth 214.8'

Date Started 11/5/90

Date Completed 12/11/90 E. 12/23/91

Static Water Level/Date Pre-completion: 193.37' 193.79' 12/12/90 SW 4/23/91

Aquifer Testing

Type SLUG INJECTION & WITHDRAWAL

Flow Meter I.D. No. N/A

Cal. Due Date N/A

Length of Test 21 MIN TOTAL

Volume Pumped N/A

Drawdown N/A

Date of Test 12/12/90 SW

Completion Results

Cleaning

Verification Method visual + direct observ. of drill rig cleaning

Criteria WHC-S-014: 7.6 ETI 5.1

	Initials	Date
Drilling Tools/Rig	RCM	11/7/89, 10/10/90
Temporary Materials	RCM	11/7/89, 10/10-
Permanent Materials	[illegible]	1-1/1/90

Material Storage/Packing

Verification Method Visual observation

Criteria WHC-S-014: 4.2.2 7.3

	Initials	Date
Mtl. Handling/Storage	[illegible]	12/1/90
Material Packing	[illegible]	12/1/90

Screen

Type	Length	Slot Size
[illegible]	21.30	0.010 in.

Depth(s) 214.8' - 193.5'

Verification Method visual using steel tape - 11/16/90

Criteria WHC-S-014 ETI 5.1 7.5

Initials [illegible] Date 12/1/90

Lubricants/Additives

Verification Method Visual observation

Criteria WHC-S-014: ETI 7.2

	Identify	Initials	Date
Additives	Raw water	KDR	12/5/90
Lubricants	Well Guard	DWP	10/30/90

Straightness Test

Verification Method Visual observation

Criteria WHC-S-014: ETI 5.1 11/16/90

Initials [illegible] Date 11/16/90

A-6000-405 (09.90)

WELL CONSTRUCTION REPORT
(continuation sheet)

Well # 299-W18-25

Page 2 of 2

Casing (permanent)

Type	Size	Placement
304 SS Sch 5 ATTB	[illegible]	193.5' - 1 AGS

Verification Method verify wire steel tape

Criteria WHC-S-014: 4.2.1 4.2.4 4.25

Initials [illegible] Date 12/1/90

Well Protection

Verification Method visual observation

Criteria WHC-S-014: ~~[illegible]~~ 4.2.10 CJ 11/16/90

	Initials	Date
Protective Posts	[illegible]	12/13/91
Protective Casing	[illegible]	12/13/91
Site Restored	[illegible]	12/13/91
Cap, Hasp and Lock	[illegible]	12/13/91
Surface Pad	[illegible]	12/18/91

Annular Seal/Filter Pack

Verification Method Steel tape

Criteria WHC-S-014: ~~[illegible]~~ 4.2.6, 4.2.2 4.2.8, 4.2.9 CJ 11/16/90

Type	Interval	Volume	Initials	Date
8-12 mesh Colorado Silica Sand	214.8' - 189.6'	8 5/8 (100# sacks of sand)	8.71 ft³ [illegible]	12/7/90
Bentonite Pellets (1/4" to 1/2" dia.)	189.6' - 185.8'	19 (50# buckets)	11.78 ft³ KDR 1/6/1924 [illegible]	12/7/90
*8-20 mesh Bentonite Crumbles	185.8' - 143.4'	55 (50# sacks)	39.05 ft³ [illegible]	12/11/90
Pure Gold Bentonite Grout	143.4' - 143.0'	2.2 sacks + 23 gallons of water	[illegible]	12/11/90

Well Survey/Labeling

Verification Method records inspection

Criteria WHC-S-014: 3.4

	Initials	Date
Measurement Point/Surveyed	[illegible]	12/13/91
Protective Casing/Brass Cap Surveyed	[illegible]	12/13/91
Well Number Stenciled	[illegible]	12/13/91
Brass Cap Labeled	[illegible]	12/13/91

Pump Installation

Verification Method VISUAL OBSERVATION

Criteria WHC-S-014: 4.2.11, 5.3.1

	Initials	Date
Pump Decon/Prep	[illegible]	12/20/91
Installed	[illegible]	12/20/91
Pump Tested	[illegible]	12/20/91

Other (initial if performed)

N/A Well Abandonment N/A Downhole TV Inspection [illegible] Complete As-Built Diagram, Driller's/Geologist's Logs

[illegible] Well Development

Comments/Remarks **Hole Plug Bentonite Chunks 143'-127.9' 10 (50# sacks) [illegible] 12/11/90

8-20 mesh Bentonite Crumbles 127.9'-19.9' 97 (50# sacks) [illegible] 12/11/90

Portland cement 19.9'-2.2' (23-94# sacks) [illegible] 12/11/90

Reviewed By (Sign/Print Name) [illegible] Date 12/13/91

A-6000-436 (09/90)

9413205.0401

WELL SUMMARY SHEET

Boring or Well No. 299-W18-25

Sheet 1 of 2

Location 299-W18-25, U Tank Farm
Project W-017 SST
Elevation 663.03 BRASS CAP (NAVD'29)
Drilling Contractor KGH
Driller Gary Lydin Lewis Watkins
Drilling Method and Equipment Cable Tool
Prepared By MA Chamness KO Barton AW Pearson, CD (Sign/Print Name) Date 11/16/90
Reviewed By [signature] (Sign/Print Name) Date 11/21/90

CONSTRUCTION DATA Description	Diagram	Depth in Feet	GEOLOGIC/HYDROLOGIC DATA Graphic Log	Lithologic Description
		2.2		Sand
10" Carbon Steel Casing		5		Sl. Gravelly Sand
136.86' - +1.7' (TEMPORARY)		10		Sandy Gravel
CEMENT GROUT		15		" "
		19.9 20		Sand
GRANULAR BENTONITE #9-20 MESH		25		"
		30		Sand
		35		"
		40		"
		45		"
		50		"
4" Ø STAINLESS STEEL CASING		55		"
		60		"
		65		"
		70		"
		75		"
		80		"
		85		"
		90		"
		95		"
		100		"
		105		"
		110		"
		115		SILT & SAND
		120		" "
10" Ø CS CSG		127.9 130		SANDY SILT
HOLE PLUG BENTONITE CHUNKS		135		SILT TO SANDY SILT [illegible]
PURE GOLD BENTONITE GROUT		140		SILTY SANDY GRAVEL
8" carbon steel casing		145		" " "
215.01 - +3.0		150		" " "
(TEMPORARY)		155		" " "
		160		" " "
GRANULAR BENTONITE #9-20 MESH		165 SST		

9413205.0402

A-6000-384 (04/90)

WELL SUMMARY SHEET

Boring or Well No. 299-W18-25

Sheet 2 of 2

Location West side of U Tank Farm
Project W-017 SST
Elevation 663.03 BRASS CAP (NGVD '79)
Drilling Contractor KEH
Driller Gary Lydin, Louis Watkins
Drilling Method and Equipment Cable tool
Prepared By NA Chamberlain, KD Burton, AW Pearson (Sign/Print Name) Date 11/16/90
Reviewed By [signature] (Sign/Print Name) Date 11/21/90

CONSTRUCTION DATA		Depth in Feet	GEOLOGIC/HYDROLOGIC DATA	
Description	Diagram		Graphic Log	Lithologic Description
8" Ø TEMPORARY CARBON STEEL		170		SILTY SANDY GRAVEL
CASING 215.01' -		175		" " "
-3.0' BLS		180		SILTY SANDY GRAVEL
BENTONITE PELLETS 1/4" TO 1/2"		185		" " "
		190		SANDY GRAVEL
8-12 MESH SILICA SAND PACK		193.79 WL 195		" "
		200		SILTY SANDY GRAVEL
		205		Silty Sandy Gravel
4" I.D. TYPE 304 STAINLESS		210		
STEEL CHANNEL PACK SCREEN		215		Silty Sandy Gravel

TD 215.25' 11/16/90

9413205.0403

A-6000-384 04/90

Page 1 of 2

WELL COMPLETION/INSPECTION REPORT (governing procedure DO-1, R0)

Specification No. WHC-S-014 Rev. No. 3
Project W-017 LLBG
Location 200 West Area
Drilling Co. Basin and Range
Driller Len Cordon
Other (companies) N/A
Geologist(s) S. Teel, M. Birch, B. Borlestad, T. Gilmore, E. Jensen, C. Chamness, S. Brandenberger, S. Airhart

Well No. 299-W18-26 Temp. Well No. W4-MW5
Coordinates N 39,477.1' W 78,096.6'
Casing Elev. 699.05' ~~Ground~~ Brass Cap Elev. 696.03'

DRILLING METHOD
Rotary - Air N/A Mud N/A
Cable Tool D 0-57', 112'-155', H 57-112', 155'-250'
Drilling Fluid 200 West Water Supply
Other N/A

GEOPHYSICAL LOGGING

Sondes	Interval	Date
Gamma Ray	245 - 2'	9-27-89
Caliper	232.7' - 1.9'	10/23/89
	-	
	-	
	-	

COMPLETION DATA
Drilled Depth 249.9'
Completed Depth 243.3'
Date Started 9/11/89
Date Completed 12/13/89
Static Water Level/Date 227.1' 11/1/89

AQUIFER TESTING
Type Slug Withdrawal
Length of Test
Volume Pumped
Drawdown
Date of Test 11/22/89

INSPECTION RESULTS

CLEANING
Inspection Method Visual
Acceptance Criteria Section 7.6

	Accept	Reject	Date
Drilling Tools/Rig	SGT		9/11/89
Temporary Materials	BNB		9/28/89
Permanent Materials	BNB		11/13/89

MATERIAL STORAGE/PACKING
Inspection Method Visual
Acceptance Criteria Section 7.3

	Accept	Reject	Date
Mtl. Handling/Storage	BNB		11/13/89
Material Packing	BNB		11/13/89

SCREEN

Type	Length	Slot Size
Type 304 Stainless Steel	10.7	10-Slot
Channel Pack	10.4	10-Slot

Depth(s) 243.3' - 222.2'
Inspection Method Visual
Acceptance Criteria Section 4.2.3
Accept BNB Reject Date 11/8/89

LUBRICANTS/ADDITIVES
Inspection Method Visual
Acceptance Criteria Section 7.2

	Identify	Accept	Reject	Date
Additives	N/A	BNB		
Lubricants	Chevron Rly EM-2	BNB		9/25/89

STRAIGHTNESS TEST
Inspection Method 7" Dia. Bailer
Acceptance Criteria Section 8.3
Accept [illegible] Reject Date 9/26/89

CASING (permanent)

Type	Size	Placement
Stainless Steel Type 304	4"	222.2' - +1.4'
		-

Inspection Method Visual
Acceptance Criteria Section 4.2.4
Accept BNB Reject Date 11/8/89

WELL PROTECTION
Inspection Method Visual
Acceptance Criteria Section 4.2.9 - 4.2.10

	Accept	Reject	Date
Protective Posts	BNB		1/24/90
Locks			

ANNULAR SEAL
Inspection Method Measured w/Steel Tape Acceptance Criteria Section 4.2.6 - 4.2.9

Type	Interval	Volume	Accept	Reject	Date
Volclay Tablets	249.2 - 247.2	0.8 ft³	BNB		11/8/89
20-40 Colorado Silica Sand	247.2 - 218.3	35.84 ft³	[illegible]		11/10/89
3/8" Volclay Tablets	218.3 - 213.8	1.24 ft³	[illegible]		11/10/89
8-20 Bentonite Chips	213.8 - 17.2	71.71 ft³	BNB		11/13/89

OTHER (initial if performed)
N/A Well Abandonment
N.R.R. Well Development
DXM Downhole TV Inspection
____ Complete As-Built Diagram, Driller's/Geologist's Logs

Reviewed by V.L. McAllister 1-26-90

 For all blanks mark N/A if not applicable.

9413205.0404

 WELL COMPLETION/INSPECTION REPORT(governing procedure DO-1, RO)

Well 299-W18-26 continued...

ANNULAR SEAL

Inspection Method Measured w/steel Tape Acceptance Criteria Sect. 4.2.6-4.2.9

Type	Interval	Volume	Accept	Reject	Date
Portland Cement & Gypsum	17.2' - 2.0'	8.58 ft^3	BNB		11/13/89
Cement Pad	2.0' - +0.5'	1 yd^3	BNB		1/24/90
	-				
	-				

for all blanks mark N/A if not applicable.

9413205.0405

Battelle
Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W18-26

Geologist S. Teel, M. Birch, B. Bjornstad, T. Gilmore, E. Jensen, S. Airhart, S. Brandenberger, M. Chamness

Page 1 of 2

Reviewed by V. L. McGhan

Date Well Started: 09/11/89
Well Completed: 12/13/89

Construction Data

Description

Cement Pad (0.5' - 2.0')

12" dia. carbon steel casing (0' - 20.0') - removed

Portland Cement & Gypsum (2.0' - 17.2')

8" dia. carbon steel casing (0' - 246.0') - removed

4" dia. stainless steel final casing (+1.4' - 222.0')

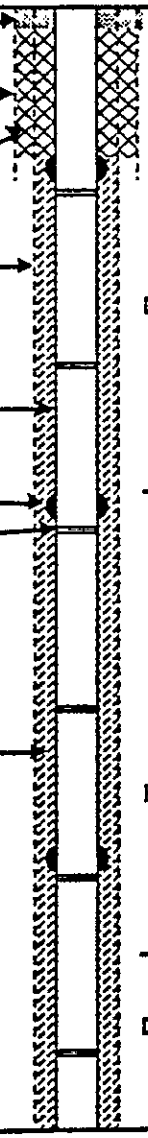
Casing Centralizer

Casing Joint

8-20 mesh Bentonite Crumbles (17.2' - 213.8')

DB = Drive Barrel
HT = Hard Tool

Diagram



Geologic/Hydrologic Data

Depth in Feet	Sample Type (○ Drive Barrel, ● Hard Tool, ▲ Split Spoon)	Lithologic Description
5	○	Sand
10	○	Gravelly Sand
15	○	Sand
20	○	Slightly Gravelly Sand
25	○	Gravelly Sand
30	○	Slightly Gravelly Sand (w/layers of FS-VFS)
35	○	" " "
40	○	Sand
45	○	" (trace cobbles @ 43')
50	○	Sandy Gravel
55	○	Muddy Sandy Gravel
60	●	Sandy Gravel
65	●	" "
70	●	" "
75	●	" "
80	●	" "
85	●	" "
90	●	Muddy Sandy Gravel
95	●	" " "
100	●	" "
105	●	Slightly Gravelly Sand
110	●	Slightly Muddy Sand
115	○	Sand
120	○	"
125	○	"
130	○	"

A-1800-186 (3/87)

9413205.0406

Battelle
Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W18-26 Geologist S. Teel, M. Birch, B. Bjornstad, T. Gilmore, E. Jensen, S. Airhart, S. Brandenberger, M. Chamness Page 2 of 2

Reviewed by V. L. McGhan Date Well Started: 09/11/89 Well Completed: 12/13/89

Construction Data

Description

8" dia. carbon steel casing (0' - 250') - removed

4" dia. stainless steel final casing (+1.4' - 222.2')

8-20 mesh Bentonite Crumbles (17.2' - 213.8')

Well Completion Symbols (as per PNL-6392)

- Cement Grout
- Granular Bentonite
- Bentonite Pellets
- Sand Pack
- Backfill

DB = Drive Barrel
HT = Hard Tool

3/8" Volclay Tablets (213.8 - 218.3')

8" Drive Shoe Broken off @222'

Static Water Table (227.1') - 11/01/89 -

20-40 mesh Colorado Silica Sand (218.3' - 247.2')

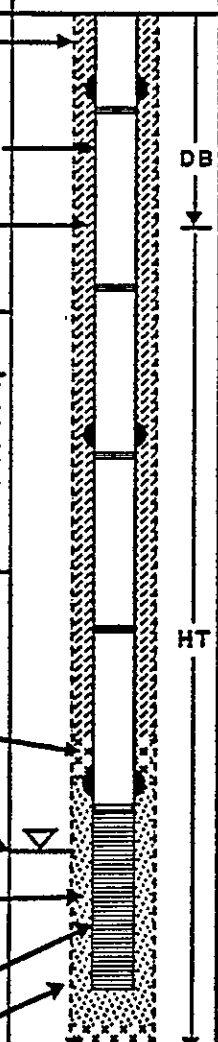
4" dia. stainless steel Johnson Channel Pack screen (222.2' - 243.3')

Bottom of well = 243.3'

Volclay Tablets (247.2' - 249.2')

Backfill (249.2'-249.9')

Diagram



Geologic/Hydrologic Data

Depth in Feet	Sample Type (○ Drive Barrel, ● Hard Tool, ▲ Split Spoon)	Lithologic Description
135	○	Sand
140	○	"
145	○	"
150	○	Slightly Muddy Sand
155	○	" " "
160	●	Slightly Gravelly Muddy Sand
165	●	Gravelly Muddy Sand (caliche')
170	●	" " " "
175	●	" " " "
180	●	Slightly Muddy Sand "
185	●	" " " "
190	●	Muddy Sandy Gravel
195	●	" "
200	●	" "
205	●	Sandy Gravel
210	●	Gravelly Sand
215	●	Sandy Gravel
220	●	" "
225	●	Muddy Sandy Gravel
230	●	" " "
235	●	" " "
240	●	" " "
245	●	" " "
250		
		TD= 249.9'

A-1800-186 (3/87)

9413275.0407

WELL COMPLETION SUMMARY

Project "Reverse Well"
Location
Drilling Co. Not Specified
Driller Not specified
Other (companies)
Geologist(s)

Well No. 299-W19-9 Temp. Well No. 241-U-361
Coordinates PN 37895 PW 74225
Elevation: Casing 693.77 Brass Marker

DRILLING METHOD

Drilling Method(s) Not specified - assume cable tool
Drilling Fluid
Other

COMPLETION DATA

Drilled Depth 302'
Completed Depth 302'
Date Started 7/19/44
Date Completed 8/26/44
Static Water Level/Date 218' (5/8/85)

OTHER (check if performed)

___ Well Abandonment	___ Downhole TV Inspection
___ Well Development	___ Driller's Logs
___ Aquifer Testing	___ Pad
___ Geophysical Log(s)	___ Guardposts
___ Lock and Cap	___ Protective Casing

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Stainless Steel (Johnson)	7"	30'	20	214' - 244'
Perforations in 6" casing	6"	39'		263 - 302'

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon Steel	16"		0 - 10'
" "	8"		0 - 205'
Carbon steel (installed 8/44)	6"		0 - 254'

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
See back page			

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
Cement	302' -	"1/2 sack"	
Cement grout (pressure grout in annulus)	0 - 208?	1630 gal	
Gravel (outside 6" casing)	210 - 208?	"5 gal"	

PUMP

Type SP8-21 Grunfos pump 7 1/2 HP Hitachi motor
Depth to Inlet 245'
Date Set 5/27/85

ACCEPTANCE

Completed Well: Accept
Reject
Conditionally Accept

COMMENTS

Injection inlets removed (cut off) 12/15/49 ; 20 slot screen added 5/24/85

Reviewed by _____ Date _____ Depths are below land surface unless noted.

9413205.0409

299-W19-9 WELL COMPLETION SUMMARY (CONTINUED)

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Carbon Steel	10"	28'	6 cuts/6"	175' - 203'
" "	"	35'	"	50' - 85'
" "	8"	25'	4 cuts/6"	215' - 240'
" "	6"	39'	*	263' - 302'
				-
				-

* 1/2 x 4" slots, 4 around on 6" centers

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval	
Carbon Steel	12"		0 - 45'	
" "	10"		0 - 211'	
" "	8"		205 - 262'	
" "	6"		0 - 214'	(added 5/85)
" "	"		244' - 254'	
" "	"		254 - 302'	

AS-BUILT DIAGRAM

Boring or Well Number 299-W19-9 Sheet 1 of 2

Location _____ Project "Reverse Well"

Logged by _____

Reviewed by _____ Date _____

Date Well Started 7/19/44

Date Well Completed 8/26/44

Well Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Construction Diagram (Drill Bit)		Lithologic Diagram (Sample Method: Lith from Drill Log)	Lithologic Description
		5		Sand + Basalt Gravel (0-18')
12" Carbon steel casing (0-45')		10		" " "
		15		" " "
		20		Fine Sand (18-32')
		25		" "
		30		" "
		35		Qtz, Basalt, + Sand (32-45')
		40		" " "
		45		" " "
Perforations in 10" casing		50		Sand (45-79')
50-85' (6 cuts/6")		55		"
		60		"
Cement grout in annulus between		65		"
12" + 10" + 6" casing		70		"
		75		"
8" carbon steel casing from		80		Sand + Gravel (79-103')
0 to 205' was removed		85		" "
		90		" "
10" Carbon steel casing		95		" "
(0-211')		100		" "
		105		Sand (103-111')
6" Carbon steel casing +		110		"
screen, 0-302'		115		Yellow clay + sand (111-117')
		120		Sand + Clay (117-150')
		125		" "
		130		" "
		135		" "
		140		" "
		145		" "
		150		" "
		155		Yellow clay (150-158')
		160		Sandy clay (158-184')
		165		" "

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ● Split-Barrel

A-1800-186 (05/90)

9413205.0410

AS-BUILT DIAGRAM

Boring or Well Number 299-W19-9 Sheet 2 of 2
Location _____ Project "Reverse Well"

Logged by _____
Reviewed by _____ Date _____

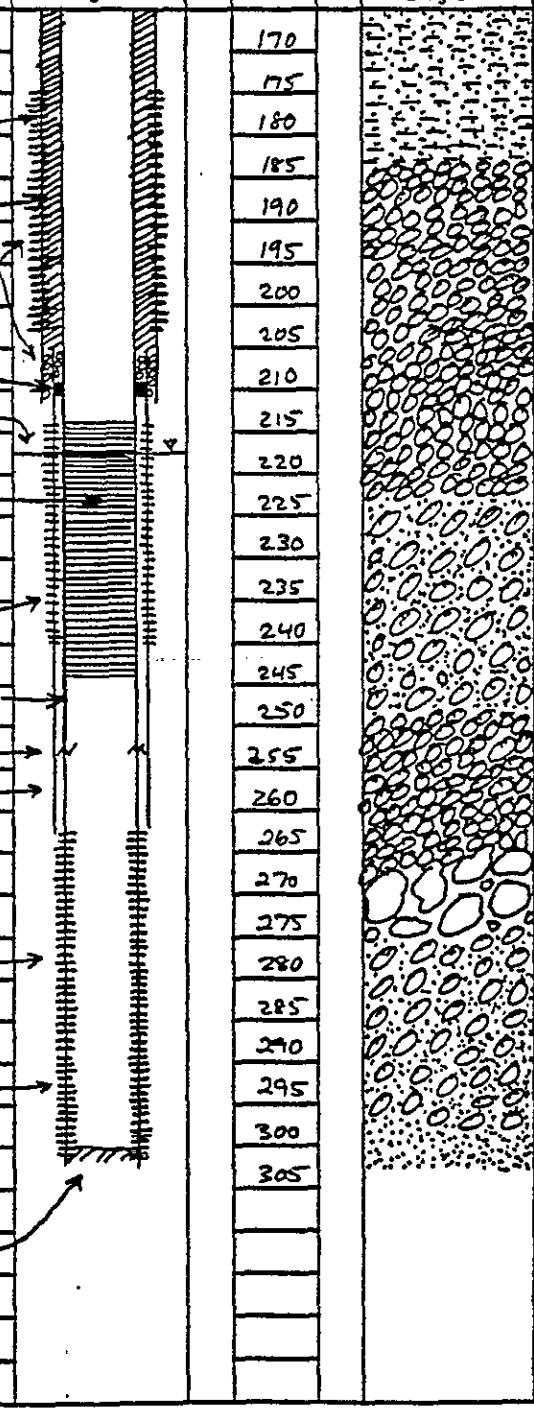
Date Well Started 7/14/44
Date Well Completed 8/26/44

Well Construction Data — Geologic/Hydrologic Data

Drill Bit — Sample Method L'th. from Drill Log

Description	Depth in Feet	Lithologic Description
6" Carbon steel casing (welded	170	Sandy Clay
to top of screen) 0-214'	175	" "
10" Carbon steel casing (0-211')	180	" "
(between 6" + 10" casing)	185	Very Coarse Gravel (184-189')
Cement grout (pressure grout)	190	Qtz + Basalt (189-195')
5 gal gravel on top of packer	195	" "
Perforations in 10" casing (175-203')	200	Coarse Gravel (195-216')
Packer between 6" and 8"	205	Gravel (216-224')
Carbon steel casing at 210'	210	"
Static Water level (218', 5/65)	215	"
Johnson, 7" dia., stainless	220	"
steel screen, 20 slot,	225	Sand + Gravel (224-250')
214-244'	230	" "
Perforations in 8" casing	235	" "
(240-215')	240	" "
6" carbon steel casing (welded	245	" "
to bottom of screen) 244-254'	250	" "
6" casing cut @ 254'	255	Gravel (250-268')
8" Carbon steel casing	260	"
(205-262'; 0 to 205' was	265	"
removed)	270	Coarse Gravel + Boulders (268-273)
	275	Sand + Gravel (273-299')
Perforations in 6" casing	280	" "
(263-302')	285	" "
	290	" "
6" Carbon steel casing (254-302')	295	" "
(cut off @ 254' - removed	300	Sand (299-302')
original 6" casing 0-254')	305	"
Cement ("1/2 sack")		

Construction Diagram / Lithologic Diagram



Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

ECNs incorporated into Rev. 5

WELL CONSTRUCTION REPORT

VALIDATED SIGNATURE/DATE

Page 1 of 2

Specification No. WHC-S-014 Rev No. 4 5

Well No. Temp. Well No. N/A

ECNs 146189-124393-124394-146133-144223-144233-144240,144241

Coordinates N: 135,127.48', E: 566,397.00' (LAMBERT)

Project W-017 SST Milestone 1990 RCRA

Casing Elev. 674.19' (NGVD'29) Ground Elev. 671.16 (NGVD'29)

Location East side of Camden - NE corner of U tank Farm

Drilling Company KGH

Driller G. Thomas / B. Strode

Other (Companies)

Geologist(s) Dave Weeks, Kent Reynolds, G. Kelty, C. Delaney, A. Pearson, J.A. Coats

Drilling Method

Verification Method Visual Observation

Criteria WHC-S-014 5.2 5.3 7.5 ETI 6.7 Sec 6.2

		Initials	Date
Rotary	Air N/A Mud N/A	—	—
Cable Tool	D 0-139' H 142' (KR 4/19/90) (KR 11/6/92)	KDR	12/6/90
Drilling Fluid	Raw water 301 Gal	KDR	11/19/90
Other	NA		

Geophysical Logging

Sondes	Interval	Date
Gross gamma	0 - 139'	10/22/90
Gross gamma	130 - 225	12/6/90
	-	
	-	
	-	

Completion Data

Drilled Depth 225.05' KDR

Completed Depth 222.6' AWP 4/22/91

Date Started 10/2/91 (KR 12/30/91) ~~11/9/90~~ AWP 4/22/91

Date Completed 12/18/91 (KR 12/30/91) ~~11/19/90~~ AWP 4/22/91

Static Water Level/Date 202.3 / 12/6/90 KDR

Aquifer Testing

Type Slug Test Injection + withdrawal

Flow Meter I.D. No. NA

Cal Due Date NA

Length of Test 20 min

Volume Pumped NA

Drawdown NA

Date of Test 1/17/91 AWP 4/22/91

Completion Results

Cleaning

Verification Method Visual and Documents BC-6000-292

Criteria WHC-S-014, Sec 7.6, WHC-CM-2-2 ETI 5.4

	Initials	Date
Drilling Tools/Rig	NCW	10/5/90
Temporary Materials	KDR	10/5/90
Permanent Materials	KDR	12/7/90

Material Storage/Packing

Verification Method Visual observation

Criteria WHC-S-014 4.2.2 7.3

	Initials	Date
Mtl. Handling/Storage	KDR	11/19/90
Material Packing	KDR	11/19/90

Screen

Type	Length	Slot Size
Johnson Channel Pack	21.3'	10 slot

Depth(s) 222.6 - 201.3'

Verification Method Verify using steel tape

Criteria WHC-S-014 4.2.3 4.3.5 7.7.1 4.2.1

Initials SK Date 12/10/90

Lubricants/Additives

Verification Method Visual observation

Criteria WHC-S-014 7.2

	Identify	Initials	Date
Additives	Raw water	KDR	10/2/90
Lubricants	Jet Lube	KDR	10/2/90

Straightness Test

Verification Method Visual observation

Criteria WHC-S-014 3.7

Initials Robert Taylor Date 12/6/90

A-6000-435 (09/90)

9413205.0112

WELL CONSTRUCTION REPORT
(continuation sheet)

W19-31

Page 2 of 2

Casing (permanent)

Type	Size	Placement
Stainless Steel, 304, 55	4.5	201.3 - ~~222.6~~ 1' ALS
		-
		-
		-

Verification Method Visual, measurement

Criteria 4.21, 4.24, 4.25, WHC-S-014

Initials S K Date 12/11/90

Well Protection

Verification Method Visual, Measure w/Tape

Criteria WHC-S-014 4.2.10

	Initials	Date
Protective Posts	[signature]	12/18/91
Protective Casing	[signature]	12/18/91
Site Restored	[signature]	12/18/91
Cap, Hasp and Lock	[signature]	12/18/91
Surface Pad	[signature]	12/18/91

Annular Seal/Filter Pack

Verification Method Measurement w/Steel Tape Criteria WHC-S-014 4.2.6, 4.2.7, 4.2.8, 4.2.9, 5.3.1 or 5.3.2

Type	Interval	Volume	Initials	Date
Bentonite pellets	196.1 - 191.2	4 buckets 50#	S K	12/11/90
Bentonite crumbles	191.3 - 183.6	10 50# bags	CDD	12/15/90
Bentonite ~~pellets~~ crumbles cd 4/23/91	183.7 - 19.9'	139 50# bags	CDD	12/17/90
Portland Type II Cement	19.8' - 2.1'	20.5 50# bags	CDD	12/17/90

Well Survey/Labeling

Verification Method Review of Survey Report

Criteria WHC-S-014 3.4

	Initials	Date
Measurement Point/Surveyed	[signature]	12/18/91
Protective Casing/Brass Cap Surveyed	[signature]	12/18/91
Well Number Stenciled	[signature]	12/18/91
Brass Cap Labeled	[signature]	12/18/91

Pump Installation

Verification Method Visual Observation

Criteria WHC-S-014 4.2.11, 4.2.2

	Initials	Date
Pump Decon/Prep	[signature]	12/20/91
Installed	[signature]	12/20/91
Pump Tested	[signature]	12/20/91

Other (initial if performed)

NA Well Abandonment AWD Downhole TV Inspection [signature] Complete As-Built Diagram, Driller's/Geologist's Logs

[signature] Well Development

Comments/Remarks

Reviewed By (Sign/Print Name) [signature] Date 12/18/91

A-6000-436 (09/90)

9413205.0413

WELL SUMMARY SHEET

Boring or Well No. 299-W19-31

Sheet 1 of 2

Location 200W / SST / 241-U Tank Farm
Project W-017
Elevation 671.16 BRASS CAP (NGVD '29)
Drilling Contractor KEH
Driller G. Thomas / B. Strode
Drilling Method and Equipment Cable Tool
Prepared By R.D. Miller (Sign/Print Name) Date 12/27/00
Reviewed By B.A. Williams (Sign/Print Name) Date 5/21/01

CONSTRUCTION DATA		Depth in Feet	GEOLOGIC/HYDROLOGIC DATA	
Description	Diagram		Graphic Log	Lithologic Description
10"Ø temporary carbon steel casing to 135.92' bls		21		Gravelly SAND
Cement grout		10		" "
8"Ø temporary carbon steel casing to 224.95' bls		19.4' 20		Sandy GRAVEL
				" "
Granular bentonite #8-20 mesh		30		Slightly Sandy GRAVEL
				" Gravelly SAND
		40		" " "
				" " "
4"Ø stainless steel casing		50		" Silty SAND
				" Gravelly SAND
		60		" " "
				" Silty SAND
		70		SAND
				Slightly Gravelly Slightly Silty SAND
		80		Slightly Silty SAND
				Slightly Gravelly Slightly Silty SAND
		90		Slightly Silty SAND
				" " "
		100		" " "
				" " "
		110		Slightly Gravelly Slightly Silty SAND
				" " SAND
		120		" Silty SAND
				Silty SAND
		130		Sandy SILT
		135.92'		" "
		138 140		Gravelly SAND - Caliche zone
				" "
		150		" "
				" "
		160		Slightly Silty Gravelly SAND
				" " " "

A-6000-334 04-90

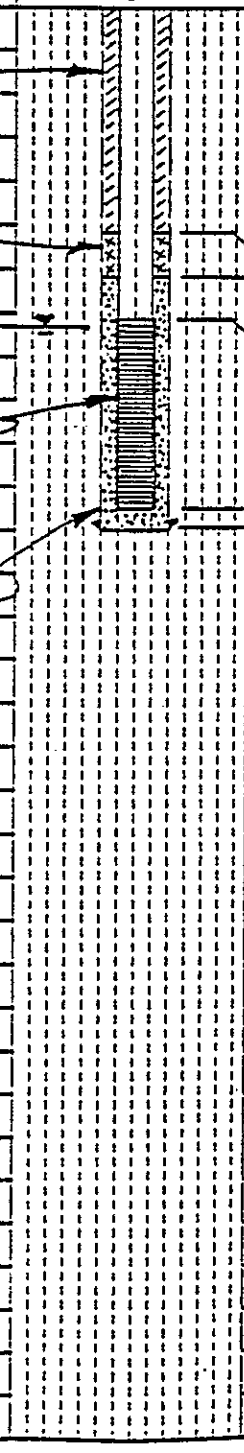
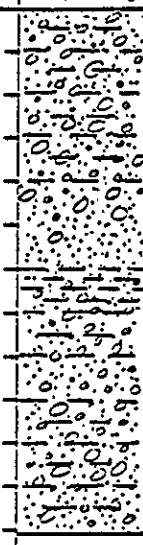
9413205.0114

WELL SUMMARY SHEET

Boring or Well No. 299-W19-31

Sheet 2 of 2

Location 200W / SST / 241-U Tank farm
Project W-017
Elevation 671.16 BRASS CAP (NGVD'29)
Drilling Contractor KEH
Driller G. Thomas / B. Strode
Drilling Method and Equipment Cable Tool
Prepared By R.D. Miller (Sign/Print Name) Date 12/27/90
Reviewed By [signature] / BA DILLIANS (Sign/Print Name) Date 5/21/91

CONSTRUCTION DATA: Description	Diagram	Depth in Feet	GEOLOGIC/HYDROLOGIC DATA: Graphic Log	Lithologic Description
8"ø temporary carbon steel		170		Slightly Silty Sandy GRAVEL
casing to 224.95' bls				"
		180		"
				"
Bentonite pellets, 1/4"		190		Sandy GRAVEL
		191.1		SAND
		196.1		Gravelly Silty SAND
WATER LEVEL ~ 202.3		200		Slightly Silty Sandy GRAVEL
		201.3		Sandy GRAVEL
4"ø stainless steel .010		210		Slightly Silty Sandy GRAVEL
slot (wire wound) screen				" " " "
channel pak (Johnson)		220		" " " "
		222.6		
		224.9		T.D. 225.3' bls
Sand pack - Silica Sand		230		
#20-40				
		240		

9413205.0416

A-6000-334 0491

WELL CONSTRUCTION REPORT (2 OF 6)

Specification No. WHC-S-014 Rev No. 5

ECNs 144240, 144241

Project W-017-SST

Location 200 W Area

Drilling Company Kaiser Engineers Hanford

Driller Darrel Ludtke, Mel Thoresen, Jr. L. Bultina, B. Strode.

Other (Companies)

Geologist(s) Dave Weekes, James Conrad, Steve Airhart, Steve Teel, George Kelty, NA Cadorus

Well No. 299-W19-32 Temp. Well No N/A

Coordinates N: 135 009.29, E: 566 896.55 (LAMBERT)

Casing Elev. 674.90 Ground Elev. 671.92 BRASS CAP

Drilling Method

Verification Method Visual observation

Criteria WHC-S-014 5.2, 5.3, 7.5 EII 6.7 sec. 6.2

			Initials	Date
Rotary	Air N/A	Mud N/A	N/A	N/A
Cable Tool	D 0'-152'	H 152-206.9' 210.5-220'	SST	11/13/90
Drilling Fluid	Raw water	280 GAL RD 1/6/92	SST	11/13/90
Other	split spoon	206.9 - 210.5	SST	11/13/90

Geophysical Logging

Sondes	Interval	Date
Gross Gamma	143.1'-3.8'	10/17/90 AWT 11/18/90
Gross Gamma	216.6'-130.0'	10/13/90

Completion Data

Drilled Depth 220.35 / 222.05 (Redrill) 223.1 12/18/91

Completed Depth 222.35 12/27/90

Date Started 11/8/89

Date Completed 1/3/91

Static Water Level/Date 202.4 11/13/90

Aquifer Testing

Type SLUG INJECTION / WITHDRAWAL

Flow Meter I.D. No N/A

Cal Due Date N/A

Length of Test 20 MIN. TOTAL

Volume Pumped N/A

Drawdown N/A

Date of Test 1/14/91 [signature] 4/21/91

Completion Results

Cleaning

Verification Method Visual Inspection / direct observation of rig cleaning

Criteria WHC-S-014 sec. 4.2.2, 7.6

	Initials	Date
Drilling Tools/Rig	KDR 1/6/92 ~~See other page~~	10/3/90 *
Temporary Materials	KDR 1/6/92 " "	10/30/90
Permanent Materials	KDR	12/17/90

Material Storage/Packing

Verification Method visual observation

Criteria WHC-S-014 sec 4.2.2 7.3

	Initials	Date
Mtl. Handling/Storage	JCW	11/28/90
Material Packing	JCW	11/28/90

Screen

Type	Length	Slot Size
* 4" Ø 304ss continuous wire wrap	~~20.33~~ 20.62' JCW 12/17/90	0.010"

Depth(s) 222.35 - 201.73 SST 12/27/90

Verification Method visual / depth using s-tape

Criteria WHC-S-014 sec 4.2.1, 4.2.3, 4.2.5, 12.2.1

Initials JCW (re-drill) JCW Date 11/28/90 12/17/90

Lubricants/Additives

Verification Method visual observation

Criteria WHC-S-014 sec. 7.2

	Identify	Initials	Date
Additives	Raw water	SPA	10/22/90
Lubricants	Well Guard	SPA	10/22/90
	Well Guard	JCW	11/28/90

Straightness Test

Verification Method visual observation

Criteria WHC-S-014 sec. 8.2

Initials SST (re-drill) SPA Date 11/13/90 12/17/90

A-6000-436 (09/90)

9413205.0415

WELL CONSTRUCTION REPORT (continuation sheet)

(3 of 6) well # 299-W19-32

Page 2 of 3

Casing (permanent)

Type	Size	Placement
* Type 304 ss sch 5	4"Ø	201.73 - 1' ALS
		-
		-
		-

Verification Method visual / depth using s-tape

Criteria WHC-5-014 sec. 4.2.1, 4.2.5, 4.2.4, 12.2.1

Initials [signature] Date 11/28/90

(re-drill) [signature] 12/17/90

Well Protection

Verification Method visual measure w/ tape

Criteria WHC-5-014 sec. 4.2.10

	Initials	Date
Protective Posts	[signature]	12/18/91
Protective Casing	[signature]	12/18/91
Site Restored	[signature]	12/18/91
Cap, Hasp and Lock	[signature]	12/18/91
Surface Pad	[signature]	12/18/91

Annular Seal/Filter Pack

Verification Method steel tape

Criteria WHC-5-014 4.2.6, 4.2.7, 4.2.8, 4.2.9, 5.3.1 or 5.3.2

Type	Interval	Volume	Initials	Date
20-40 Colo. Silica Sand	221.7 - 195.4	9 - 100 lb bags (SST 12/27/90)	SST	12/27/90
3/8", 1/2" Bentonite Pellets (2 - 3/8" size, 1 - 1/2" size)	195.4 - 190.0	3 buckets	SST	12/27/90
8-20 mesh bentonite crumbles	190.0 - 20.3	~~3/8" size~~ SST 12/27/90 16 - 50# bags	[signature]	01/03/91
Type II Portland Cement	20.3 - 3.1	14 50# bags	[signature]	01/03/91

Well Survey/Labeling

Verification Method SPA 10/31/90 ~~steel tape~~ Review survey report

Criteria WHC-5-014 sec. 3.4

	Initials	Date
Measurement Point/Surveyed	[signature]	12/18/91
Protective Casing/Brass Cap Surveyed	[signature]	12/18/91
Well Number Stenciled	[signature]	12/18/91
Brass Cap Labeled	[signature]	12/18/91

Pump Installation

Verification Method visual observation

Criteria WHC-5-014 sec. 4.2.2, 4.2.11

	Initials	Date
Pump Decon/Prep	[signature]	12/20/91
Installed	[signature]	12/20/91
Pump Tested	[signature]	12/20/91

Other (initial if performed)

N/A Well Abandonment AWP Downhole TV Inspection [signature] Complete As-Built Diagram, Driller's/Geologist's Logs

[signature] Well Development

Comments/Remarks * Initially installed screen & permanent casing removed

* Signed & dated after document review.

Reviewed By (Sign/Print Name) [signature] Date 12/18/91

A-6000-436 (09/90)

9413205.0417

WELL CONSTRUCTION REPORT (6 of 6)

ECN # 124344, 122261, 144253, 124231, 144232, 144230, 124393, 124435, 124199, 124188, 124423, 113223, 144236

Specification No. WHC-S-014 Rev No. 4

Project W-017 SST MILESTONE 1990 ALARA

Location 200 W

Drilling Company KEH

Driller Dave Lodge

Other (Companies)

Geologist(s) DAVE WEEKES, Tamas Cornett, STEVE ARHART, Steve Tool

Well No. 299-W19-32 Temp. Well No.

Coordinates N: 135 009.29 E: 566,526.55 (Lambert)

Casing Elev. 674.90 Ground Elev. ~671.92 Bypass Cap

Drilling Method

Rotary Air Mud

Cable Tool D H

Drilling Fluid

Other

Geophysical Logging

Sondes	Interval	Date
	-	
	-	
	-	
	-	
	-	

Completion Data

Drilled Depth

Completed Depth

Date Started

Date Completed

Static Water Level/Date

Aquifer Testing

Type

Length of Test

Volume Pumped

Drawdown

Date of Test

Completion Results

Cleaning

Verification Method VISUAL & DOCUMENT # TC-6000-291

Criteria WHC-S-014 SEC 7.5 WHC-CM-7-2 ETC 5.4

		Date
Drilling Tools/Rig	KEH	10/5/90
Temporary Materials	TC	10/4/90
Permanent Materials		

Material Storage/Packing

Verification Method

Criteria

		Date
Mtl. Handling/Storage		
Material Packing		

Screen

Type	Length	Slot Size

Depth(s) -

-

Verification Method

Criteria

Date

Lubricants/Additives

Verification Method

Criteria

	Identify	Date
Additives		
Lubricants		

Straightness Test

Verification Method

Criteria

Date

Casing (permanent)

Type	Size	Placement
		-
		-

Verification Method

Criteria

Date

Well Protection

Verification Method

Criteria

		Date
Protective Posts		
Locks		

Annular Seal

Verification Method Criteria

Type	Interval	Volume	Date
	-		
	-		
	-		
	-		

Other (Initial if performed)

Well Abandonment RW Downhole TV Inspection RW Complete As-Built Diagram, Driller & Geologist Logs

RW Well Development

Reviewed by (sign/print name) RW Date 12/13/91

A-6000-438 (10/89)

9413275.0418

WELL SUMMARY SHEET (4 of 6)

Boring or Well No. 299-W19-32

Sheet 1 of ~~2~~ 3 1-6-92

Location 200W/SST/241-U Tank farm
Project W-017
Elevation 671.92 Brass Cap NGVD'29
Drilling Contractor KEH
Driller D. Ludtke
Drilling Method and Equipment Cable Tool
Prepared By R.D. Miller (Sign/Print Name) Date 12/27/91
Reviewed By [signature] / BA Williams (Sign/Print Name) Date 5/21/91

CONSTRUCTION DATA: Description	Diagram	Depth in Feet	GEOLOGIC/HYDROLOGIC DATA: Graphic Log	Lithologic Description
10"ø temporary carbon				Sandy GRAVEL
steel casing to 140.3' bls				" "
		10		
Cement grout				" "
8"ø temporary carbon		20		Gravelly SAND
steel casing to 223.1' bls		20.3'		Sandy GRAVEL - Silt 22.5-23.0'
				" "
		30		
Granular bentonite #8-20				Gravelly SAND
mesh		40		Sandy GRAVEL
				" "
4"ø stainless steel casing		50		Slightly Gravelly SAND
				" " "
				" " "
		60		
				SAND
				"
		70		
				"
				Slightly Gravelly SAND
		80		SAND
				Slightly Silty SAND
		90		" Gravelly SAND
				" " "
		100		
				" " "
				SAND
		110		"
				"
		120		
				"
				"
		130		
				Sandy SILT
				SAND
		140		
		140.3'		Slightly Silty SAND - Caliche 145'
				Silty Sandy GRAVEL
		150		" " "
				" " "
		160		" " "

9413205.0419

A-6000-334 (04-90)

WELL SUMMARY SHEET (5 OF 6)

Boring or Well No. 299-W19-32

Sheet 2 of 23 (Rev. 7/8/92)

Location 200W/SST/241-U Tank Farm
Elevation 671.92 Brass Cap NGVD29
Driller D. Lustke
Prepared By R.D. Miller (Sign/Print Name) Date 12/27/00

Project W-017
Drilling Contractor KEH
Drilling Method and Equipment Cable Tool
Reviewed By B.A. Williams (Sign/Print Name) Date 5/21/01

CONSTRUCTION DATA		Depth in Feet	GEOLOGIC/HYDROLOGIC DATA	
Description	Diagram		Graphic Log	Lithologic Description
8"ø temporary carbon steel casing to 223.1' bls		170		Silty Sandy GRAVEL
				" " "
		180		" " "
				" " "
		190.0		" " "
Bentonite pellets 1/4"		195.4		" " "
		200		" " "
4"ø stainless steel	202.4' 8/15/00	201.75		Sandy GRAVEL
.010 slot (wire wound) screen		210		Silty Sandy GRAVEL
				" " "
Sand pack - Silica Sand #20-40		220		" " "
		223.35 / 223.1		
		230		

A-6000-384 (04/93)

9413205.0120

WELL COMPLETION SUMMARY

Project "
Location
Drilling Co. Hatch
Driller Hatch
Other (companies)
Geologist(s)

Well No. 299-W21-1 Temp. Well No.
Coordinates PN 35868 PW 71382
Elevation: Casing 699.26 Brass Marker

DRILLING METHOD

Drilling Method(s) Cable tool - assume hard tool bit
Drilling Fluid Water, bentonite
Other

COMPLETION DATA

Drilled Depth 352'
Completed Depth 352'
Date Started 8/21/57
Date Completed 9/6/57
Static Water Level/Date 241' (Hanford wells)

OTHER (check if performed)

- ___ Well Abandonment
- ___ Well Development
- ___ Aquifer Testing
- ___ Geophysical Log(s)
- ___ Lock and Cap
- ___ Downhole TV Inspection
- ___ Driller's Logs
- ___ Pad
- ___ Guardposts
- ___ Protective Casing

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Perforations	8"			220 - 290'

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
			-
			-
			-
			-

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon steel	8"		0 - 352'

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
None	-		
	-		
	-		
	-		
	-		
	-		

PUMP

Type Depth to Inlet Date Set

ACCEPTANCE

Completed Well: Accept Conditionally Accept
Reject

COMMENTS

Reviewed by Date Depths are below land surface unless noted.

9413205.0421

AS-BUILT DIAGRAM

Boring or Well Number 299-W21-1 Sheet 1 of 3
Location _____ Project _____

Logged by _____ Date Well Started 8/21/57
Reviewed by _____ Date _____ Date Well Completed 9/6/57

Well Construction Data			Depth in Feet	Geologic/Hydrologic Data		
		Drill Bit		Sample Method		
Description	Construction Diagram				Lithologic Diagram	Lithologic Description
		Assume Hard tool	5	Assume hard tool		Sand - silt
			10			Coarse sand + gravel
8" dia carbon steel			15			" " "
casing (0-352') →			20			Coarse sand
			25			Coarse sand + silt
			30			" " "
			35			" " "
			40			" " "
			45			" " "
			50			" " "
			55			" " "
			60			" " "
			65			" " "
			70			Coarse sand + silt, 1/2" gra
			75			Coarse sand + silt
			80			" " "
			85			" " "
			90			" " "
			95			" " "
			100			" " "
			105			Fine sand + silt
			110			" " "
			115			" " "
			120			" " "
			125			" " "
			130			" " "
			135			" " "
			140			" " "
			145			" " "
			150			" " "
			155			" " "
			160			" " "
			165			" " "

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9113205.0422

AS-BUILT DIAGRAM

Boring or Well Number 299-W21-1 Sheet 2 of 3
Location Project

Logged by
Reviewed by Date
Date Well Started 8/21/57
Date Well Completed 9/6/57

Well Construction Data			Depth in Feet	Geologic/Hydrologic Data	
Description	Construction Diagram	Drill Bit		Sample Method	Lithologic Description
			170		Fine sand + silt
			175		Sand - silt
8" dia carbon steel			180		" "
casing (0-352') →			185		" "
			190		Sand - silt - clay
			195		" " " (gravel layer
			200		Sand - silt - gravel 1/2" dia
			205		" " " "
			210		" " " "
			215		" " " "
			220		" " " "
			225		Yellow clay + gravel, 1 1/2" dia
Perforations in 8" casing			230		" " " "
(220-290') →			235		" " " "
			240		Yellow clay + gravel - real hard
			245		" " " "
			250		" " " "
			255		Gray sand + gravel, 1" dia
			260		" " " "
			265		Gravel, 1 1/2" dia
			270		Gravel, 4" dia
			275		Gravel, 3" dia
			280		Small gravel + sand
			285		Sand, Gravel 3" dia
			290		Clean gravel
			295		Cemented gravel
			300		Sand and gravel lenses
			305		Cemented Sand
			310		" "
			315		Cemented sand + gravel 1 1/2"
			320		Cemented sand + gravel
			325		Cemented sand + gravel
			330		Gravel

Assume Hard-tool

Assume hard tool

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ● Split-Barrel

A-1800-186 (05/90)

9413205.0423

AS-BUILT DIAGRAM

Boring or Well Number 299-W21-1 Sheet 3 of 3
Location _____ Project _____

Logged by _____
Reviewed by _____ Date _____

Date Well Started 8/21/57
Date Well Completed 9/6/57

Well Construction Data			Depth in Feet	Geologic/Hydrologic Data		
		Drill Bit		Sample Method		
Description	Construction Diagram				Lithologic Diagram	Lithologic Description
		Assume Hard Tool	335	Assume Top Feet		Hard and soft streaks of sand & gr
8" dia carbon steel casing			340			Gravel
(0-352')			345			Sand - gravel
			350			Sand - gravel

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413205.0424

WELL COMPLETION SUMMARY

Project
Location
Drilling Co.
Driller Chausse
Other (companies)
Geologist(s)

Well No. 299-W22-14 Temp. Well No. 216-S-7 #3
Coordinates N35120 W74513
Elevation: Casing 675.97 Brass Marker

DRILLING METHOD
Drilling Method(s) Cable Tool
Hard Tool 0'-342'
Drilling Fluid Water
Other

COMPLETION DATA
Drilled Depth 342'
Completed Depth 247
Date Started 2/15/56
Date Completed 2/26/79
Static Water Level/Date

OTHER (check if performed)
- ___ Well Abandonment
- ___ Well Development
- ___ Aquifer Testing
- ___ Geophysical Log(s)
- ___ Lock and Cap
- ___ Downhole TV Inspection
- ___ Driller's Logs
- ___ Pad
- ___ Guardposts
- ___ Protective Casing

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Perforated Carbon Steel	8"	125'		213' - 338'

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
			-
			-
			-
			-

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon Steel	8"		0' - 213'
Liner w/ Packer on Bottom	4"		0' - 204

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
Cement Grout	0' - 199'		
Sand	199' - 202'	5 gal.	
Cement Plug	246' - 247'	1/2 sack	
Backfill	247' - 342'		
	-		
	-		

PUMP
Type Depth to Inlet Date Set

ACCEPTANCE
Completed Well: Accept Conditionally Accept
Reject

COMMENTS
Piezometers removed from borehole 2/21/79

Reviewed by Date Depths are below land surface unless noted.

9413205.0425

AS-BUILT DIAGRAM

Boring or Well Number 299-W22-14 Sheet 1 of 3

Location _____ Project _____

Logged by _____ Date Well Started 2/15/56

Reviewed by _____ Date _____ Date Well Completed 2/26/79

Well Construction Data		Depth in Feet	Geologic/Hydrologic Data	
	Drill Bit		Sample Method	Data from Drillers Log
Description	Construction Diagram		Lithologic Diagram	Lithologic Description
8" Carbon Steel Casing 0'-199' (Perforated)		5		Sand & Gravel
		10		" "
		15		" "
		20		" "
Cement Grout 0'-199'		25		Sand & Silt
		30		" "
		35		" "
4" Liner 0'-205'		40		" "
		45		" "
		50		Sand & Gravel
		55		Gravel, Sand & Silt
		60		" " "
		65		Sand & Silt
		70		" "
		75		" "
		80		" "
		85		" "
		90		" "
		95		" "
		100		" "
		105		" "
		110		" "
		115		" "
		120		" "
		125		" "
		130		" "
		135		" "
		140		" "
		145		" "
		150		" "
		155		" "
		160		" "
		165		" "

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413205.0426

AS-BUILT DIAGRAM

Boring or Well Number 299-W22-14 Sheet 2 of 3
Location _____ Project _____

Logged by _____ Date Well Started 2/15/56
Reviewed by _____ Date _____ Date Well Completed 2/26/79

Well Construction Data — Geologic/Hydrologic Data

Drill Bit — Sample Method — Data from Driller's Log

Description	Construction Diagram	Depth in Feet	Lithologic Diagram	Lithologic Description
Carbon Steel Casing		170		Sand & Silt
0'-199' (Peforated		175		Sand, Silt & Gravel
4" Liner 205'-0'		180		Sand & Gravel
		185		" "
Cement Grout 0'-199'		190		" "
		195		" "
Sand 199'-202'		200		" "
Carbon Steel Casing 8"		205		" "
199'-213'		210		" "
Packer		215		" "
		220		" "
Perforated 8" Carbon		225		" "
Steel Casing 213'-338'		230		" "
		235		Sand, Silt & Gravel
		240		" " "
		245		" " "
Cement Plug 246'-247'		250		" " "
		255		" " "
		260		" " "
		265		" " "
		270		" " "
		275		" " "
Back fill 247'-342'		280		" " "
		285		" " "
		290		" " "
		295		" " "
		300		" " "
		305		" " "
		310		" " "
		315		" " "
		320		" " "
		325		" " "
		330		" " "

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413275.0427

AS-BUILT DIAGRAM

Boring or Well Number 299-W22-14 Sheet 3 of 3
Location _____ Project _____

Logged by _____
Reviewed by _____ Date _____

Date Well Started 2/15/56
Date Well Completed 2/26/79

Well Construction Data			Depth in Feet		Geologic/Hydrologic Data	
		Drill Bit		Sample Method	Data from Drillers Log	
Description	Construction Diagram				Lithologic Diagram	Lithologic Description
Backfill 247'-342'			335			Sand, Silt & Gravel
			340			" " "
						TD=342'

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413205.0428

WELL COMPLETION SUMMARY REPORT

Project OAC 843
Location
Drilling Co.
Driller McDonald / Swain
Other (companies)
Geologist(s)

Well No. 299-W22-24 Temp. Well No.
Coordinates N35917 W72997
Elevation: Casing 692.61 Brass Marker

DRILLING METHOD

Rotary Air Mud
Cable Tool D30'-68'-74'-141' H0-30'-68'-74'-141'-575'
Drilling Fluid Water
Other

COMPLETION DATA

Drilled Depth 575'
Completed Depth 564'
Date Started 8/11/60
Date Completed 9/8/60
Static Water Level/Date 236' 4/62

OTHER (check if performed)

- ___ Well Abandonment
- ___ Well Development
- ___ Aquifer Testing
- ___ Geophysical Log(s)
- ___ Lock and Cap
- ___ Downhole TV Inspection
- ___ As-Built, Driller's/ Geologist's Logs
- ___ Guardposts
- ___ Protective Casing

SCREEN

Type	Outer Diameter	Length	Slot Size	Depth(s)
Perforated Carbon Steel	8"	340'		560' - 220'

TEMPORARY CASING

Type	Nominal Diameter	Shoe/Casing Diameter	Placement
			-
			-
			-
			-

PERMANENT CASING

Type	Nominal Diameter	Shoe/Casing Diameter	Placement
Carbon Steel	8"		220' - 0'
Carbon Steel	8"		563' - 560'

ANNULAR SEAL/FILL

*See Back

Type	Interval	Quantity	Volume
Silt / Slough	226.5' - 265'		
Cement Grout	265' - 288'		
Silica Sand	288' - 298'		
Silt/Slough	298' - 325'		
Cement Grout	325' - 338'		

PUMP

Type Depth to Inlet Date Set

ACCEPTANCE

Completed Well: Accept Conditionally Accept
Reject

COMMENTS

Piezometers added to borehole 8/62

Reviewed by Date For all blanks mark N/A if not applicable.

9413205.0429

299-W22-24

ANNUALR SEAL/FILL

Type	Interval
Silica Sand	338' - 365'
Cement Grout	365' - 412'
Silica Sand	412' - 420'
Silt / Slough	420' - 437'
Cement Grout	437' - 454'
Silt / Slough	454' - 505'
Cement Grout	505' - 536'
Silica Sand	536' - 564'
Silt / Slough	564' - 575'
	-
	-
	-

9413205.0130

WELL COMPLETION SUMMARY REPORT

Project OAC 843
Location
Drilling Co.
Driller McDonald / Swain
Other (companies)
Geologist(s)

Well No. 299-W22-24P Temp. Well No.
Coordinates N35917 W72997
Elevation: Casing 692.61 Brass Marker

DRILLING METHOD

Rotary Air Mud
Cable Tool D30'-68'-74'-141' H0-30'-68'-74'-141'-575'
Drilling Fluid Water
Other

COMPLETION DATA

Drilled Depth 575'
Completed Depth 567'
Date Started 8/11/60
Date Completed 8/62
Static Water Level/Date 236' 4/62

OTHER (check if performed)

- ___ Well Abandonment
- ___ Well Development
- ___ Aquifer Testing
- ___ Geophysical Log(s)
- ___ Lock and Cap
- ___ Downhole TV Inspection
- ___ As-Built, Driller's/ Geologist's Logs
- ___ Guardposts
- ___ Protective Casing

SCREEN

Type		Outer Diameter	Length	Slot Size	Depth(s)
Perforated	Carbon Steel	8"	340'		560' - 220'
Perforated	Polyethelene	1½"	30'		567' - 537'

TEMPORARY CASING

Type	Nominal Diameter	Shoe/Casing Diameter	Placement
			-
			-
			-
			-

PERMANENT CASING

Type	Nominal Diameter	Shoe/Casing Diameter	Placement
Carbon Steel	8"		220' - 0'
Carbon Steel	8"		563' - 580'
~~Polyethelene~~	~~1½"~~		~~537'~~

ANNULAR SEAL/FILL

*See Back

Type	Interval	Quantity	Volume
Silt / Slough	226.5' - 265'		
Cement Grout	265' - 288'		
Silica Sand	288' - 298'		
Silt/Slough	298' - 325'		
Cement Grout	325' - 338'		

PUMP

Type Depth to Inlet Date Set

ACCEPTANCE

Completed Well: Accept Conditionally Accept
Reject

COMMENTS

Piezometers added to borehole 8/62

Reviewed by Date For all blanks mark N/A if not applicable.

9413205.0431

299-W22-24 "P"

ANNUALR SEAL/FILL

Type	Interval
Silica Sand	338' - 365'
Cement Grout	365' - 412'
Silica Sand	412' - 420'
Silt / Slough	420' - 437'
Cement Grout	437' - 454'
Silt / Slough	454' - 505'
Cement Grout	505' - 536'
Silica Sand	536' - 564'
Silt / Slough	564' - 575'
	-
	-
	-

9413205.0432

WELL COMPLETION SUMMARY REPORT

Project OAC 843
Location
Drilling Co.
Driller McDonald / Swain
Other (companies)
Geologist(s)

Well No. 299-W22-24Q Temp. Well No.
Coordinates N35917 W72997
Elevation: Casing 692.61 Brass Marker

DRILLING METHOD

Rotary Air Mud
Cable Tool D30'-68',74'-141' H0-30',68'-74',141'-575'
Drilling Fluid Water
Other

COMPLETION DATA

Drilled Depth 575'
Completed Depth 497'
Date Started 8/11/60
Date Completed 8/62
Static Water Level/Date

OTHER (check if performed)

- ___ Well Abandonment
- ___ Well Development
- ___ Aquifer Testing
- ___ Geophysical Log(s)
- ___ Lock and Cap
- ___ Downhole TV Inspection
- ___ As-Built, Driller's/ Geologist's Logs
- ___ Guardposts
- ___ Protective Casing

SCREEN

Type	Outer Diameter	Length	Slot Size	Depth(s)
Perforated Carbon Steel	8"	340'		560' - 220'
Perforated Polyethelene	1½"	22'		497' - 475'

TEMPORARY CASING

Type	Nominal Diameter	Shoe/Casing Diameter	Placement
			-
			-
			-
			-

PERMANENT CASING

Type	Nominal Diameter	Shoe/Casing Diameter	Placement
Carbon Steel	8"		220' - 0'
Carbon Steel	8"		563' - 560'
~~Polyethelene~~	~~1½"~~		~~475' - 0'~~

ANNULAR SEAL/FILL

*See Back

Type	Interval	Quantity	Volume
Silt / Slough	226.5' - 265'		
Cement Grout	265' - 288'		
Silica Sand	288' - 298'		
Silt/Slough	298' - 325'		
Cement Grout	325' - 338'		

PUMP

Type Depth to Inlet Date Set

ACCEPTANCE

Completed Well: Accept Conditionally Accept
Reject

COMMENTS

Piezometers added to borehole 8/62

Reviewed by Date For all blanks mark N/A if not applicable.

9413205.0433

299-W22-24 "Q"

ANNUALR SEAL/FILL

Type	Interval
Silica Sand	338' - 365'
Cement Grout	365' - 412'
Silica Sand	412' - 420'
Silt / Slough	420' - 437'
Cement Grout	437' - 454'
Silt / Slough	454' - 505'
Cement Grout	505' - 536'
Silica Sand	536' - 564'
Silt / Slough	564' - 575'
	-
	-
	-

9413205.0434

WELL COMPLETION SUMMARY REPORT

Project OAC 843
Location
Drilling Co.
Driller McDonald / Swain
Other (companies)
Geologist(s)

Well No. 299-W22-24R Temp. Well No.
Coordinates N35917 W72997
Elevation: Casing 692.61 Brass Marker

DRILLING METHOD

Rotary Air Mud
Cable Tool D30'-68'74'-141' H0-30'68'-74'141'-575'
Drilling Fluid Water
Other

COMPLETION DATA

Drilled Depth 575'
Completed Depth 437'
Date Started 8/11/60
Date Completed 8/62
Static Water Level/Date

OTHER (check if performed)

- ___ Well Abandonment
- ___ Well Development
- ___ Aquifer Testing
- ___ Geophysical Log(s)
- ___ Lock and Cap
- ___ Downhole TV Inspection
- ___ As-Built, Driller's/ Geologist's Logs
- ___ Guardposts
- ___ Protective Casing

SCREEN

Type	Outer Diameter	Length	Slot Size	Depth(s)
Perforated Carbon Steel	8"	340'		560' - 220'
Perforated Polyethelene	1½"	25'		437' - 412'

TEMPORARY CASING

Type	Nominal Diameter	Shoe/Casing Diameter	Placement
			-
			-
			-
			-

PERMANENT CASING

Type	Nominal Diameter	Shoe/Casing Diameter	Placement
Carbon Steel	8"		220' - 0'
Carbon Steel	8"		563' - 560'
Polyethelene	1½"		412' - 0'

ANNULAR SEAL/FILL

*See Back

Type	Interval	Quantity	Volume
Silt / Slough	226.5' - 265'		
Cement Grout	265' - 288'		
Silica Sand	288' - 298'		
Silt/Slough	298' - 325'		
Cement Grout	325' - 338'		

PUMP

Type Depth to Inlet Date Set

ACCEPTANCE

Completed Well: Accept Conditionally Accept
Reject

COMMENTS

Piezometers added to borehole 8/62

Reviewed by Date For all blanks mark N/A if not applicable.

9413205.0435

299-W22-24 "R"

ANNUALR SEAL/FILL

Type	Interval
Silica Sand	338' - 365'
Cement Grout	365' - 412'
Silica Sand	412' - 420'
Silt / Slough	420' - 437'
Cement Grout	437' - 454'
Silt / Slough	454' - 505'
Cement Grout	505' - 536'
Silica Sand	536' - 564'
Silt / Slough	564' - 575'
	-
	-
	-

9413205.0436

WELL COMPLETION SUMMARY REPORT

Project OAC 843
Location
Drilling Co.
Driller McDonald / Swain
Other (companies)
Geologist(s)

Well No. 299-W22-245 Temp. Well No.
Coordinates N35917 W72997
Elevation: Casing 692.61 Brass Marker

DRILLING METHOD

Rotary Air Mud
Cable Tool D30'-68'74'-141' H0-30'68'-74'141'-575'
Drilling Fluid Water
Other

COMPLETION DATA

Drilled Depth 575'
Completed Depth 377
Date Started 8/11/60
Date Completed 8/62
Static Water Level/Date

OTHER (check if performed)

- ___ Well Abandonment
- ___ Well Development
- ___ Aquifer Testing
- ___ Geophysical Log(s)
- ___ Lock and Cap
- ___ Downhole TV Inspection
- ___ As-Built, Driller's/ Geologist's Logs
- ___ Guardposts
- ___ Protective Casing

SCREEN

Type	Outer Diameter	Length	Slot Size	Depth(s)
Perforated Carbon Steel	8"	340'		560' - 220'
Perforated Polyethelene	1½"	25'		377' - 352'

TEMPORARY CASING

Type	Nominal Diameter	Shoe/Casing Diameter	Placement
			-
			-
			-
			-

PERMANENT CASING

Type	Nominal Diameter	Shoe/Casing Diameter	Placement
Carbon Steel	8"		220' - 0'
Carbon Steel	8"		563' - 560'
Polyethelene	1½"		352' 0'

ANNULAR SEAL/FILL

* See Back

Type	Interval	Quantity	Volume
Silt / Slough	226.5' - 265'		
Cement Grout	265' - 288'		
Silica Sand	288' - 298'		
Silt/Slough	298' - 325'		
Cement Grout	325' - 338'		

PUMP

Type Depth to Inlet Date Set

ACCEPTANCE

Completed Well: Accept Conditionally Accept
Reject

COMMENTS

Piezometers added to borehole 8/62

Reviewed by Date For all blanks mark N/A if not applicable.

9413205.0437

299-W22-24 "S"

ANNUALR SEAL/FILL

Type	Interval
Silica Sand	338' - 365'
Cement Grout	365' - 412'
Silica Sand	412' - 420'
Silt / Slough	420' - 437'
Cement Grout	437' - 454'
Silt / Slough	454' - 505'
Cement Grout	505' - 536'
Silica Sand	536' - 564'
Silt / Slough	564' - 575'
	-
	-
	-

9413205.0438

WELL COMPLETION SUMMARY REPORT

Project: OAC 843
Location:
Drilling Co.:
Driller: McDonald / Swain
Other (companies):
Geologist(s):

Well No. 299-W22-247 Temp. Well No.:
Coordinates: N35917 W72997
Elevation: Casing 692.61 Brass Marker:

DRILLING METHOD

Rotary Air: Mud:
Cable Tool: D 30'-68', 74'-141' H 0-30', 68'-74', 141'-575'
Drilling Fluid: Water
Other:

COMPLETION DATA

Drilled Depth: 575'
Completed Depth: 317'
Date Started: 8/11/60
Date Completed: 8/62
Static Water Level/Date:

OTHER (check if performed)

- ___ Well Abandonment
- ___ Well Development
- ___ Aquifer Testing
- ___ Geophysical Log(s)
- ___ Lock and Cap
- ___ Downhole TV Inspection
- ___ As-Built, Driller's/ Geologist's Logs
- ___ Guardposts
- ___ Protective Casing

SCREEN

Type	Outer Diameter	Length	Slot Size	Depth(s)
Perforated	8"	340'		560' - 220'
Perforated Polyethylene	1½"			317' - 292'

TEMPORARY CASING

Type	Nominal Diameter	Shoe/Casing Diameter	Placement
			-
			-
			-
			-

PERMANENT CASING

Type	Nominal Diameter	Shoe/Casing Diameter	Placement
Carbon Steel	8"		220' - 0'
Carbon Steel	8"		563' - 560'
Polyethylene	1½"		292' - 0'

ANNULAR SEAL/FILL *See Back

Type	Interval	Quantity	Volume
Silt / Slough	226.5' - 265'		
Cement Grout	265' - 288'		
Silica Sand	288' - 298'		
Silt/Slough	298' - 325'		
Cement Grout	325' - 338'		

PUMP

Type: Depth to Inlet: Date Set:

ACCEPTANCE

Completed Well: Accept: Conditionally Accept:
Reject:

COMMENTS

Piezometers added to borehole 8/62

Reviewed by: Date: . For all blanks mark N/A if not applicable.

9413205.0439

299-W22-24 "T"

ANNUALR SEAL/FILL

Type	Interval
Silica Sand	338' - 365'
Cement Grout	365' - 412'
Silica Sand	412' - 420'
Silt / Slough	420' - 437'
Cement Grout	437' - 454'
Silt / Slough	454' - 505'
Cement Grout	505' - 536'
Silica Sand	536' - 564'
Silt / Slough	564' - 575'
	-
	-
	-

9413205.0440

AS-BUILT DIAGRAM

Boring or Well Number 299-W22-24 Sheet 1 of 4

Location _____ Project _____

Logged by _____ Date Well Started 8/11/60

Reviewed by _____ Date _____ Date Well Completed 8/62

Well Construction Data			Depth in Feet	Geologic/Hydrologic Data		
		Drill Bit		Sample Method		Data from Driller's Logs
Description	Construction Diagram				Lithologic Diagram	Lithologic Description
8" Carbon Steel Casing		●	5	●		Brown Sand & Lame Cobbles
			10			Brown Sand
1½" Polyethelene			15			" "
T-Tube 0'-317'			20			" "
			25			" "
1½" Polyethelene			30			" "
S-Tube 0'-377'		○	35	○		" "
			40			Fine Brown Sand & Silt
1½" Polyethelene			45			Fine Brown Sand & Gravel
R-Tube 0'-437'			50			Fine Brown Sand & Silt
			55			" " " "
1½" Polyethelene			60			" " " "
Q-Tube 0'-497'			65			" " " "
		●	70	●		Fine Brown Sand & Gravel
1½" Polyethelene		○	75	○		Fine Brown Sand & Silt
P-Tube 0'-567'			80			" " " "
			85			" " " "
			90			" " " "
			95			" " " "
			100			" " " "
			105			" " " "
			110			" " " "
			115			" " " "
			120			" " " "
			125			" " " "
			130			" " " "
			135			" " " "
			140			Sandy Brown Clay
		●	145	●		Fine Brown Sand & Silt
			150			" " " "
			155			" " " "
			160			Sandy Brown Clay
			165			" " "

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413205.0441

AS-BUILT DIAGRAM

Boring or Well Number 299-W22-24 Sheet 2 of 4

Location _____ Project _____

Logged by _____ Date Well Started 8/11/60

Reviewed by _____ Date _____ Date Well Completed 8/62

Well Construction Data: Description	Depth in Feet	Geologic/Hydrologic Data: Lithologic Description (Data from Driller's Logs)
8" Carbon Steel Casing	170	Sandy Brown Clay
	175	" " "
	180	" " "
	185	" " "
	190	Sandy Brown Clay w/Gravels & Caliche'
	195	Sandy Brown Clay w/Gravels
	200	Soft Brown Clay & Sand
	205	Brown Clay & Gravel
	210	" " "
	215	" " "
	220	Soft Brown Sandy Clay
	225	" " " "
	230	" " " "
	235	" " " "
Perforations 220'-560'	240	Small Gravels
	245	Sand & Gravel
Silt/Slough	250	" "
226.5'-265'	255	" "
	260	" "
	265	" "
	270	" "
Cement Grout	275	" "
265'-288'	280	" "
	285	" "
	290	" "
Silica Sand	295	" "
288'-298'	300	" "
	305	" "
T-Tube Perforated	310	" "
from 317'-292'	315	" "
	320	" "
Silt/Slough	325	" "
298'-325'	330	Sand & Small Gravels

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413205.0442

AS-BUILT DIAGRAM

Boring or Well Number 299-W22-24 Sheet 3 of 4
Location _____ Project _____

Logged by _____ Date Well Started 8/11/60
Reviewed by _____ Date _____ Date Well Completed 8/62

Well Construction Data			Depth in Feet	Geologic/Hydrologic Data		
		Drill Bit		Sample Method		Data from Driller's Logs
Description	Construction Diagram				Lithologic Diagram	Lithologic Description
Cement Grout 325'-338'		●	335	●		Sand & Small Gravels
			340			" " "
			345			Fine Sand & Gravel
Silica Sand 338'-365'			350			" " "
			355			" " "
			360			" " "
S-Tube Perforated from 377'-352'			365			Sand & Fine Gravel
			370			" " "
			375			" " "
			380			" " "
Cement Grout 365'-412'			385			" " "
			390			" " "
			395			" " "
			400			Coarse Grey Sand & Silt
			405			" " " "
			410			Sand & Gravel
R-Tube Perforated 437'-412'			415			Sand & Silt (Soft)
			420			" " "
Silica Sand 412'-420'			425			Fine Sand & Silt
			430			Fine Brown Sand w/ Fine Gravel
Silt / Slough 420'-437'			435			" " " " "
			440			" " " " "
Cement Grout 437'-454'			445			Clean Coarse Sand
			450			" " "
			455			" " "
			460			Coarse Sand & Silt
			465			Tan Clay w/ Small Gravel
Silt / Slough 454'-505'			470			" " " "
			475			" " " "
			480			Sandy Tan Clay w/ Small Gravel
Q-Tube Perforated 497'-475'			485			" " " " "
			490			" " " " "
			495			" " " " "

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413205.0443

AS-BUILT DIAGRAM

Boring or Well Number 299-W22-24 Sheet 4 of 4

Location _____ Project _____

Logged by _____ Date Well Started 8/11/60

Reviewed by _____ Date _____ Date Well Completed 8/62

Well Construction Data: Description	Depth in Feet	Geologic/Hydrologic Data: Lithologic Description (Data from Drillers Logs)
Silt / Slough 454'-505'	500	Clean Fine Blue-Black Sand
	505	Clean Coarse Blue-Black Sand
	510	Fine Blue Sand
Cement Grout	515	Blue Sandy Clay & Small Gravel
505'-536'	520	" " " " "
	525	" " " " "
Perforated 8" Carbon	530	Fine Blue Sand & Silt
Steel Casing 220'-560'	535	" " " "
	540	Fine Blue Sand & Silt w/Small Gravel
Silica Sand	545	" " " " " "
536'-564'	550	Fine Blue Sand & Silt
P-Tube Perforated	555	" " " "
567'-537'	560	" " " "
	565	" " " "
Silt / Slough	570	Basalt
564-575'	575	Basalt
		TD=575'

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413205.0444

WELL COMPLETION SUMMARY REPORT

Project CAC-101
Location
Drilling Co. Bach Drilling Co.
Driller W.J. Rodda
Other (companies)
Geologist(s)

Well No. 299-W22-27 Temp. Well No.
Coordinates N36203 W74627
Elevation: Casing 680.66 Brass Marker

DRILLING METHOD

Rotary Air Mud
Cable Tool D 78'-95' H 0-78'95'-572'
Drilling Fluid Water
Other

COMPLETION DATA

Drilled Depth 572'
Completed Depth 570'
Date Started 2/4/64
Date Completed 4/9/64
Static Water Level/Date 212'/4/9/64

OTHER (check if performed)

___ Well Abandonment
___ Well Development
___ Aquifer Testing
___ Geophysical Log(s)
___ Lock and Cap
___ Downhole TV Inspection
___ As-Built, Driller's/ Geologist's Logs
___ Guardposts
___ Protective Casing

SCREEN

*See Back

Type	Outer Diameter	Length	Slot Size	Depth(s)
Perforated Carbon Steel	8"	100'		190' - 290'
Perforated Carbon Steel	8"	30'		325' - 355'

TEMPORARY CASING

Type	Nominal Diameter	Shoe/Casing Diameter	Placement
			-
			-
			-
			-

PERMANENT CASING

*See Back

Type	Nominal Diameter	Shoe/Casing Diameter	Placement
Carbon Steel	8"		0' - 190'
Carbon Steel	8"		290' - 325'

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
Sand Pack	303' - 545'		
Silt / Slough	545' - 572'		
	-		
	-		
	-		

PUMP

Type Depth to Inlet Date Set

ACCEPTANCE

Completed Well: Accept Conditionally Accept
Reject

COMMENTS

Piezometers set in well 4/9/64

Reviewed by Date For all blanks mark N/A if not applicable.

9413275.0445

299-W22-27 WELL COMPLETION SUMMARY (CONTINUED)

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Perforated Carbon Steel	8"	30'	—	395' - 425'
" " "	"	"	—	460' - 490'
" " "	"	20'	—	530' - 550'
				-
				-
				-

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon Steel	8"		355' - 395'
" "	"		425' - 460'
" "	"		490' - 530'
" "	"		550' - 556'
			-
			-

9413205.0446

WELL COMPLETION SUMMARY REPORT

Project CAC-101
Location
Drilling Co. Bach Drilling Co.
Driller W.J. Rodda
Other (companies)
Geologist(s)

Well No. 299-W22-27P Temp. Well No.
Coordinates N36203 W74627
Elevation: Casing 680.66 Brass Marker

DRILLING METHOD

Rotary Air Mud
Cable Tool D 78'-95' H 0-78'95'-572'
Drilling Fluid Water
Other

COMPLETION DATA

Drilled Depth 572'
Completed Depth 570
Date Started 2/4/64
Date Completed 4/9/64
Static Water Level/Date

OTHER (check if performed)

- ___ Well Abandonment
- ___ Well Development
- ___ Aquifer Testing
- ___ Geophysical Log(s)
- ___ Lock and Cap
- ___ Downhole TV Inspection
- ___ As-Built, Driller's/ Geologist's Logs
- ___ Guardposts
- ___ Protective Casing

SCREEN *See Back

Type	Outer Diameter	Length	Slot Size	Depth(s)
Perforated Carbon Steel	8"	100'		190' - 290'
Perforated Carbon Steel	8"	30'		325' - 355'

TEMPORARY CASING

Type	Nominal Diameter	Shoe/Casing Diameter	Placement

PERMANENT CASING *See Back

Type	Nominal Diameter	Shoe/Casing Diameter	Placement
Carbon Steel	8"		0' - 190'
Carbon Steel	8"		290' - 325'

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
Sand Pack	303' - 545'		
Silt / Slough	545' - 572'		

PUMP

Type Depth to Inlet Date Set

ACCEPTANCE

Completed Well: Accept Conditionally Accept
Reject

COMMENTS

Piezometers set in well 4/9/64

Reviewed by Date For all blanks mark N/A if not applicable.

9413205.0447

"P"
299-W22-27 WELL COMPLETION SUMMARY (CONTINUED)

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Perforated Carbon Steel	8"	30'	—	395' - 425'
" " "	"	"	—	460' - 490'
" " "	"	20'	—	530' - 550'
Perforated Polyethylene (?)	1.5"	20'		550' - 570'
				-
				-

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon Steel	8"		355' - 395'
" "	"		425' - 460'
" "	"		490' - 530'
" "	"		550' - 556'
Polyethylene (?)	1.5"		0 - 550'
			-

9413205.0448

WELL COMPLETION SUMMARY REPORT

oject CAC-101
cation
illing Co. Bach Drilling Co.
iller W.J. Rodda
her (companies)
ologist(s)

Well No. 299-W22-27 Temp. Well No.
Coordinates N36203 W74627
Elevation: Casing 680.66 Brass Marker

DRILLING METHOD

Rotary Air Mud
Cable Tool D 78'-95' H 0-78', 95'-572'
Drilling Fluid Water
Other

COMPLETION DATA

rilled Depth 572'
ompleted Depth 490'
ate Started 2/4/64
ate Completed 4/9/64
atic Water Level/Date

OTHER (check if performed)

- ___ Well Abandonment
- ___ Well Development
- ___ Aquifer Testing
- ___ Geophysical Log(s)
- ___ Lock and Cap
- ___ Downhole TV Inspection
- ___ As-Built, Driller's/ Geologist's Logs
- ___ Guardposts
- ___ Protective Casing

SCREEN *See Back

Type	Outer Diameter	Length	Slot Size	Depth(s)
Perforated Carbon Steel	8"	100'		190' - 290'
Perforated Carbon Steel	8"	30'		325' - 355'

TEMPORARY CASING

Type	Nominal Diameter	Shoe/Casing Diameter	Placement

PERMANENT CASING *See Back

Type	Nominal Diameter	Shoe/Casing Diameter	Placement
Carbon Steel	8"		0' - 190'
Carbon Steel	8"		290' - 325'

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
Sand Pack	303' - 545'		
Silt / Slough	545' - 572'		

PUMP

Type Depth to Inlet Date Set

ACCEPTANCE

Completed Well: Accept Conditionally Accept
Reject

COMMENTS

Piezometers set in well 4/9/64

eviewed by Date For all blanks mark N/A if not applicable.

9413205.0449

"Q"
299-W22-27 WELL COMPLETION SUMMARY (CONTINUED)

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Perforated Carbon Steel	8"	30'	—	395' - 425'
" " "	"	"	—	460' - 490'
" " "	"	20'	—	530' - 550'
Perforated Polyethylene (?)	1.5"	20'		470' - 490'
				-
				-

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon Steel	8"		355' - 395'
" "	"		425' - 460'
" "	"		490' - 530'
" "	"		550' - 556'
Polyethylene	1.5"		0' - 470'
			-

9413205.0450

WELL COMPLETION SUMMARY REPORT

oject CAC-101
cation
illing Co. Bach Drilling Co.
iller W.J. Rodda
her (companies)
ologist(s)

Well No. 299-W22-27R Temp. Well No.
Coordinates N36203 W74627
Elevation: Casing 680.66 Brass Marker

DRILLING METHOD
Rotary Air Mud
Cable Tool D 78'-95' H 0-78', 95'-572'
Drilling Fluid Water
Other

COMPLETION DATA
illed Depth 572'
ompleted Depth 420'
ate Started 2/4/64
ate Completed 4/9/64
atic Water Level/Date

OTHER (check if performed)
___ Well Abandonment
___ Well Development
___ Aquifer Testing
___ Geophysical Log(s)
___ Lock and Cap
___ Downhole TV Inspection
___ As-Built, Driller's/ Geologist's Logs
___ Guardposts
___ Protective Casing

*See Back

SCREEN

Type	Outer Diameter	Length	Slot Size	Depth(s)
Perforated Carbon Steel	8"	100'		190' - 290'
Perforated Carbon Steel	8"	30'		325' - 355'

TEMPORARY CASING

Type	Nominal Diameter	Shoe/Casing Diameter	Placement

*See Back

PERMANENT CASING

Type	Nominal Diameter	Shoe/Casing Diameter	Placement
Carbon Steel	8"		0' - 190'
Carbon Steel	8"		290' - 325'

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
Sand Pack	303' - 545'		
Silt / Slough	545' - 572'		

PUMP
Type Depth to Inlet Date Set

ACCEPTANCE
Completed Well: Accept Conditionally Accept
Reject

COMMENTS
Piezometers set in well 4/9/64

eviewed by Date For all blanks mark N/A if not applicable.

9413205.0451

"R"

299-W22-27 WELL COMPLETION SUMMARY (CONTINUED)

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Perforated Carbon Steel	8"	30'	—	395' - 425'
" " "	"	"	—	460' - 490'
" " "	"	20'	—	530' - 550'
Perforated Polyethylene	1.5"	20'		400' - 420'
				-
				-

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon Steel	8"		355' - 395'
" "	"		425' - 460'
" "	"		490' - 530'
" "	"		550' - 556'
Polyethylene (?)	1.5"		0 - 400'
			-

9413205.0452

WELL COMPLETION SUMMARY REPORT

oject CAC-101
cation
illing Co. Bach Drilling Co.
iller W.J. Rodda
her (companies)
ologist(s)

Well No. 299-W22-275 Temp. Well No.
Coordinates N36203 W74627
Elevation: Casing 680.66 Brass Marker

DRILLING METHOD

Rotary Air Mud
Cable Tool D 78'-95' H 0-78', 95'-572'
Drilling Fluid Water
Other

COMPLETION DATA

illed Depth 572'
mpleted Depth 350'
te Started 2/4/64
te Completed 4/9/64
atic Water Level/Date

OTHER (check if performed)

- ___ Well Abandonment
- ___ Well Development
- ___ Aquifer Testing
- ___ Geophysical Log(s)
- ___ Lock and Cap
- ___ Downhole TV Inspection
- ___ As-Built, Driller's/ Geologist's Logs
- ___ Guardposts
- ___ Protective Casing

SCREEN *See Back

Type	Outer Diameter	Length	Slot Size	Depth(s)
Perforated Carbon Steel	8"	100'		190' - 290'
Perforated Carbon Steel	8"	30'		325' - 355'

TEMPORARY CASING

Type	Nominal Diameter	Shoe/Casing Diameter	Placement

PERMANENT CASING *See Back

Type	Nominal Diameter	Shoe/Casing Diameter	Placement
Carbon Steel	8"		0' - 190'
Carbon Steel	8"		290' - 325'

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
Sand Pack	303' - 545'		
Silt/Slough	545' - 572'		

PUMP

Type Depth to Inlet Date Set

ACCEPTANCE

Completed Well: Accept Conditionally Accept
Reject

COMMENTS

Piezometers set in well 4/9/64

eviewed by Date For all blanks mark N/A if not applicable.

9413205.0453

"S"
299-W22-27 WELL COMPLETION SUMMARY (CONTINUED)

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Perforated Carbon Steel	8"	30'	—	395' - 425'
" " "	"	"	—	460' - 490'
" " "	"	20'	—	530' - 550'
Perforated Polyethylene (?)	1.5"	20'		330' - 350'
				-
				-

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon Steel	8"		355' - 395'
" "	"		425' - 460'
" "	"		490' - 530'
" "	"		550' - 556'
Polyethylene	1.5"		0' - 330'
			-

AS-BUILT DIAGRAM

Boring or Well Number 299-W22-27 Sheet 1 of 4
Location _____ Project _____

Logged by _____
Reviewed by _____ Date _____

Date Well Started 2/4/64
Date Well Completed 4/9/64

Well Construction Data: Description	Construction Diagram	Drill Bit	Depth in Feet	Sample Method	Lithologic Diagram	Geologic/Hydrologic Data: Lithologic Description (Data from Driller's Log)
		●	5	●		Sand & Gravel
			10			" "
			15			Coarse Sand & Fine Gravel
8" Carbon Steel Casing 0'-190'			20			Coarse Sand
			25			" "
			30			" "
1½" Polyethelene S-Tube 0'-350'			35			" "
			40			" "
			45			Coarse Sand & Gravel
1½" Polyethelene R-Tube 0'-420'			50			Gravel
			55			Sand & Gravel
			60			" "
1½" Polyethelene Q-Tube 0'-490'			65			Coarse Sand & Gravel
			70			" " "
			75			" " "
1½" Polyethelene P-Tube 0'-570'		○	80	○		Sand & Silt
			85			" "
			90			" "
		●	95	●		Coarse Sand & Clay
			100			Sand & Clay
			105			" "
			110			Fine Sand & Clay
			115			" " "
			120			" " "
			125			" " "
			130			" " "
			135			" " "
			140			Clay
			145			"
			150			Sand & Gravel
			155			Sand, Gravel & Silt
			160			Sand & Silt
			165			" "

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413205.0455

AS-BUILT DIAGRAM

Boring or Well Number 299-W22-27 Sheet 2 of 4

Location _____ Project _____

Logged by _____ Date Well Started 2/4/64

Reviewed by _____ Date _____ Date Well Completed 4/9/64

Well Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Drill Bit			Sample Method	Data from Driller's Log
Description	Construction Diagram		Lithologic Diagram	Lithologic Description
8" Carbon Steel Casing 0'-190'		170		Sand & Silt
		175		" "
		180		Sand & Clay
		185		Sand & Silt
		190		" "
Perforated 8" Carbon Steel Casing 190'-290'		195		Gravel & Sand
		200		" "
		205		Sand & Gravel to 3"
1½" Polyethelene S-Tube 0-350'		210		" " " "
		215		Sand, Gravel & Cobbles
		220		" " "
1½" Polyethelene R-Tube 0'-420'		225		" " "
		230		" " "
		235		Sand & Gravel
1½" Polyethelene Q-Tube 0'-490'		240		" "
		245		Sand & Very few Gravels
		250		Sand & few Gravels to 2"
1½" Polyethelene P-Tube 0'-570'		255		" " " " "
		260		Sand & Pea Gravel
		265		" " "
		270		" " "
		275		Coase Sand & Brown Clay
		280		" " " "
		285		Sand & Gravel
		290		" "
		295		" "
8" Carbon Steel Casing 290'-325'		300		" "
		305		Sand & Very Little Gravel
		310		" " " "
Sand Pack 303'-545'		315		Sand & Gravel
		320		Cemented Sand & Gravel
		325		" " "
		330		Cemented Gravel & Sand

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413205.0456

AS-BUILT DIAGRAM

Boring or Well Number 299-W22-27 Sheet 3 of 4

Location _____ Project _____

Logged by _____ Date Well Started 2/4/64

Reviewed by _____ Date _____ Date Well Completed 4/9/64

Well Construction Data		Depth in Feet	Geologic/Hydrologic Data	
	Drill Bit		Sample Method	Data from Driller's Log
Description	Construction Diagram		Lithologic Diagram	Lithologic Description
Perforated 8" Carbon		335		Cemented Sand & Gravel
Steel Casing 325'-355'		340		" " "
		345		" " "
S-Tube Perforated		350		Cemented Sand
from 350'-330'		355		" "
		360		Sand & Gravel
8" Carbon Steel Casing		365		" "
355'-395'		370		" "
		375		" "
Sand Pack		380		" "
303'-545'		385		" "
		390		" "
		395		" "
Perforated 8" Carbon		400		" "
Steel Casing 395'-425'		405		" "
		410		Brown Sand & Gravel
R-Tube Perforated		415		Sand & Clay
from 420'-400'		420		Sand, Clay & Gravel
		425		Sand & Gravel
		430		" "
		435		" "
8" Carbon Steel Casing		440		" "
425'-460'		445		" "
		450		Sand, Gravel & Clay
		455		Clay
		460		"
Perforated 8" Carbon		465		"
Steel Casing 460'-490'		470		"
		475		"
Q-Tube Perforated		480		"
from 490'-470'		485		"
		490		"
		495		"

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

9413205.0457

A-1800-186 (05/90)

AS-BUILT DIAGRAM

Boring or Well Number 299-W22-27 Sheet 4 of 4

Location _____ Project _____

Logged by _____ Date Well Started 2/4/64

Reviewed by _____ Date _____ Date Well Completed 4/9/64

Well Construction Data			Depth in Feet	Geologic/Hydrologic Data		
		Drill Bit		Sample Method		Data from Driller's Log
Description	Construction Diagram				Lithologic Diagram	Lithologic Description
8" Carbon Steel Casing 490'-530'			500			Clay
			505			Clay & Sand
			510			Blue Sand
Sand Pack 303'-545'			515			Blue Sand & Gravel
			520			" " "
			525			" " "
Perforated Carbon Steel Casing 530'-550'			530			" " "
			535			" " "
			540			" " "
			545			Gray Clay, Sand & Gravel
			550			" " " "
8" Carbon Steel Casing 550'-556'			555			Dark Gray Clay
			560			Basalt @559'
			565			"
P-Tube Perforated from 570'-550'			570			"
						TD = 572'
Silt / Slough 545'-572'						

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413205.0458

WELL COMPLETION/INSPECTION REPORT (governing procedure DO-1, RO)

Specification No. WHC-S-014* Rev. No. 4
Project W-017 216-U-12 CRIB
Location 200 WEST
Drilling Co. KAISER ENGINEERING HANFORD
Driller LOUIS WATKINS
Other (companies) N/A
Geologist(s) P.S. INNIS (GOLDER ASSOCIATES)
C.D. CONDIT (GOLDER ASSOCIATES)
L.A. DOREMUS S.M. GOODWIN
M.A. CHAMNESS

Well No. 299-W22-40 Temp. Well No. N/A
Coordinates
Casing Elev. Ground Elev.

DRILLING METHOD

Rotary Air N/A Mud N/A
Cable Tool D 0-160' H 160'-245'
Drilling Fluid WATER - 200 EAST POWER HOUSE SUPPLY
Other NONE

GEOPHYSICAL LOGGING

Sondes	Interval	Date
NATURAL GAMMA	0-143'	3/12/90
NAT. GAMMA	110-243	3/30/90

COMPLETION DATA

Drilled Depth 245.0
Completed Depth 244.49
Date Started 2/28/90
Date Completed 5/15/90
Static Water Level/Date 228.07' 4/23/90

AQUIFER TESTING

Type SLUG TEST
Length of Test
Volume Pumped
Drawdown
Date of Test 4/23/90

INSPECTION RESULTS

CLEANING

Inspection Method VISUAL
Acceptance Criteria SECTION 7.6, SECTION 4.2.2

	Accept	Reject	Date
Drilling Tools/Rig	PJD	N/A	3/20/90
Temporary Materials	PJD	N/A	3/20/90
Permanent Materials	SMC	N/A	4/5/90

MATERIAL STORAGE/PACKING

Inspection Method VISUAL
Acceptance Criteria SECTION 4.2.2, 7.3

	Accept	Reject	Date
Mtl. Handling/Storage	SMC	N/A	4/5/90
Material Packing	SMC	N/A	4/5/90

SCREEN

Type	Length	Slot Size
JOHNSON DIV. TYPE 304 STAINLESS	10.33	10
STEEL CHANNEL PACK	10.02	10

Depth(s) 244.49 - 234.16
234.16 - 224.14
Inspection Method VISUAL
Acceptance Criteria SECTION 4.2.3.5 [illegible]
Accept SMC Reject N/A Date 4/5/90

LUBRICANTS/ADDITIVES

Inspection Method VISUAL
Acceptance Criteria SECTION 7.2

	Identify	Accept	Reject	Date
Additives	SMC 4/24/90 ~~N/A~~ DRILL H_2O	SMC	N/A	4/11/90
Lubricants	FOOD GRADE VEG. OIL	PJD	N/A	2/28/90

STRAIGHTNESS TEST

Inspection Method VISUAL 21.56 ± 0.50 STRAIGHTNESS TESTER PIPE
Acceptance Criteria SECTION 8.2
Accept PJD Reject N/A Date 3/20/90

CASING (permanent)

Type	Size	Placement
JOHNSON DIV. TYPE 304	4"	224.14 - +0.83
SCH. 5 STAINLESS STEEL	-	- -

Inspection Method VISUAL
Acceptance Criteria SECTION 4.2.1, 4.2.5
Accept SMC Reject N/A Date 4/5/90

WELL PROTECTION

Inspection Method VISUAL - ~~21.56 ± 0.50 STRAIGHTNESS~~ ~~TESTER PIPE~~ PJD 3/20
Acceptance Criteria SECTION 4.2.10

	Accept	Reject	Date
Protective Posts	MAC 5/11/90 ~~MAC~~ SMC	N/A	5/15/90
Locks	MAC	N/A	5/1/90

ANNULAR SEAL

Inspection Method MEASURED W/STEEL TAPE
Acceptance Criteria SECTION 4.2.6 - 4.2.9.1

Type	Interval	Volume	Accept	Reject	Date
40 mesh silica [illegible]	218.1 - 243.2	6.57 ft³	LAD	NA	[illegible]
3/8" - 1/2" [illegible] Tablets	211.1 - 218.1	[illegible]	LAD	NA	4-10-90
6-20 mesh Bentonite Crumbles	20.5 - 211.1	7.74 ft³	LAD	NA	[illegible]
[illegible]	30 - 20.5	[illegible]	LAD	NA	4-11-[illegible]

OTHER (initial if performed)

N/A Well Abandonment
JPM Well Development
VRM Downhole TV Inspection
SMC Complete As-Built Diagram, Driller's/Geologist's Logs

* ECN 146189 ECN 124393 146188
ECN 124394 ECN 124427 124435

For all blanks mark N/A if not applicable.

9413205.0459

 WELL COMPLETION/INSPECTION REPORT(governing procedure DO-1, RO)

Well 299-W22-40 continued...

ANNULAR SEAL

Inspection Method PHYSICAL MEASUREMENT Acceptance Criteria SECTION 4.2.6 - 4.2.4.1

Type	Interval	Volume	Accept	Reject	Date
CONCRETE PAD	3.0' - +0.5'	1 YARD³	MAV	N/A	5/1/93
	-				
	-				
	-				

for all blanks mark N/A if not applicable.

9413205.0160

Battelle
Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W22-40 Geologist R.S. INNIS C.D. CONDIT Page 1 of 2

Reviewed by [illegible] Date 4-24-90

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Diagram Litho.	Lithologic Description
CONCRETE PAD		5		SAND
CEMENT GROUT		10		SL. GRAVELLY SL. MUDDY SAND
143.5 OF 10" CARBON STEEL		15		SL. MUDDY SAND
CASING (TEMPORARY)		20		MUDDY SAND
(1.4' STICK-UP)		25		SL. GRAVELLY SAND
		30		" " "
247.94' OF 8" CARBON STEEL		35		SAND
CASING (TEMPORARY)		40		SAND
		45		SAND (MUDDY [illegible])
		50		SAND
224.97' OF 4" TYPE 304		55		SAND
SCH. 5 STAINLESS STEEL		60		SL. GRAVELLY SAND
CASING		65		SL. MUDDY SAND [illegible] GRAVELLY SAND
		70		SAND
		75		SAND
		80		SAND
		85		SAND
		90		SL. MUDDY SAND 87-88 SAND
		95		SL. MUDDY SAND 92-93, 94-94.5 SAND
CASING CENTRALIZER		100		MUDDY SAND (CASING -97')
		105		SAND (CASING - 102')
8-20 MESH BENTONITE PELLETS		110		SL. MUDDY SAND (CASING - 108')
		115		" " "
		120		SAND
CASING JOINT		125		SAND
		130		SAND

SL. - SLIGHTLY

A-1800-186 (3/87)

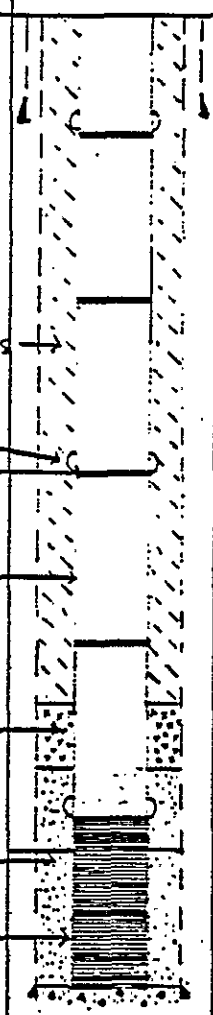
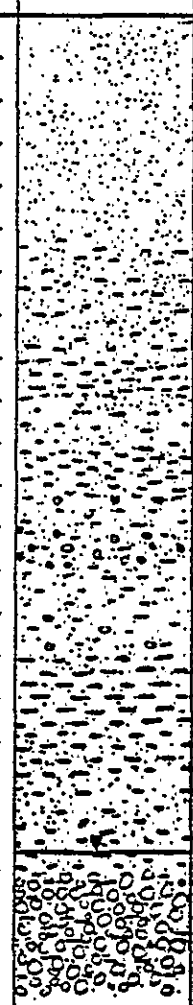
9413205.0461

Battelle
Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W22-40 Geologist P.S. INNIS, C.D. CONDIT Page 2 of 2

Reviewed by V.L. McGhan Date 4-24-90

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Diagram Litho.	Lithologic Description
143.5' of 10" Carbon		135		SAND
Steel Casing (Temporary)		140		SAND
		145		SAND
247.94' of 8" Carbon		150		SAND
Steel Casing (Temporary)		155		SAND
3.1' Stick-up		160		Sl. Muddy SAND (Beginning 157')
		165		Sl. Muddy SAND
8-20 Mesh Bentonite Crumbles		170		" " "
		175		Muddy SAND
Casing Centralizer		180		Sl. Muddy SAND
Casing Joint		185		Muddy SAND
		190		187' Sl. Gravelly Sl. Muddy SAND
224.97' of 4" Type 304		195		Sl. Muddy Gravelly SAND
Sch. 5 Stainless Steel		200		Sl. Muddy SAND
Casing		205		Sl. Gravelly Sl. Muddy SAND
		210		Muddy SAND
1/2-3/8" Bentonite Pellets		215		" "
		220		" "
		225		Sl. Muddy SAND D/W = 228.07' 4/23/90
40 Mesh CSSI Silica Sand		230		Muddy SAND
		235		Muddy Sandy GRAVEL
20.35' of 10 Slot Type		240		" " "
304 Stainless Steel Channel		245		" " "
Pack Screen				

Sl. - Slightly

A-1800-188 (3/8)

9413205.0462

WELL COMPLETION/INSPECTION REPORT

Specification No. WHC-S-014 Rev. No. 3+4
Project W017
Location 200 WEST AREA, 216-U-12 CRIB
Drilling Co. KEH
Driller Craig Wamsley
Other (companies) NONE
Geologist(s) R.C. Miller (GAI) A.W. PEARSON, C.D. CONDIT (GAI), LA DOREMUS, SM GOODWIN, MA CHAMNESS

Well No. 299-W22-41 Temp. Well No. N/A
Coordinates
Casing Elev. Ground Elev.

DRILLING METHOD

Rotary Air N/A Mud N/A
Cable Tool D 0m-160.0' H 160.0-244.7'
Drilling Fluid 200E Raw Water Supply
Other N/A

GEOPHYSICAL LOGGING

Sondes	Interval	Date
NAT. GAMMA	237' - 2.5'	3/5/90
	-	
	-	
	-	
	-	

COMPLETION DATA

Drilled Depth 244.7' bls
Completed Depth 245.33'
Date Started 2/7/90
Date Completed 5/15/90
Static Water Level/Date 227.96 4/5/90

AQUIFER TESTING

Type SLUG TEST
Length of Test
Volume Pumped
Drawdown
Date of Test 4/23/90

INSPECTION RESULTS

CLEANING

Inspection Method Visual
Acceptance Criteria Section 7.6

	Accept	Reject	Date
Drilling Tools/Rig	[illegible]	N/A	2/6/90
Temporary Materials	[illegible]	N/A	2/7/90
Permanent Materials	[illegible]	N/A	4/5/90

MATERIAL STORAGE/PACKING

Inspection Method Visual
Acceptance Criteria Section 4.2.2, 7.3

	Accept	Reject	Date
Mtl. Handling/Storage	[illegible]	N/A	4/5/90
Material Packing	[illegible]	N/A	4/5/90

SCREEN

Type	Length	Slot Size
JOHNSON DIV. TYPE 304 CONTINUOUS	21.24'	5
WRAP STAINLESS STEEL	—	—

Depth(s) 245.33' - 224.09'
— - —

Inspection Method Visual
Acceptance Criteria Section 4.2.5
Accept LAD Reject N/A Date 3/29/90

LUBRICANTS/ADDITIVES

Inspection Method Visual
Acceptance Criteria Section 7.2

	Identify	Accept	Reject	Date
Additives	DRILL WATER	[illegible]	N/A	4/5/90
Lubricants	Vegetable Oil	[illegible]	N/A	2/7/90

STRAIGHTNESS TEST

Inspection Method Run straightness tool to bottom
Acceptance Criteria Section 8.2
Accept [illegible] Reject N/A Date [illegible]

CASING (permanent)

Type	Size	Placement
JOHNSON DIV TYPE 304	4"	224.09' - +1.03'
SCH. 5 STAINLESS STEEL	—	— - —

Inspection Method Visual
Acceptance Criteria Section 4.2.1, 4.2.5
Accept ~~[illegible]~~ LAD Reject N/A Date 3/29/90

WELL PROTECTION

Inspection Method Visual
Acceptance Criteria Section 4.2.10

	Accept	Reject	Date
Protective Posts	[illegible]	N/A	5/15/90
Locks	MAC	N/A	5/1/90

ANNULAR SEAL

Inspection Method Physical Measurement
Acceptance Criteria Section 4.2.6 - 4.2.9.1

Type	Interval	Volume	Accept	Reject	Date
40-100 MESH CSSI SILICA SAND	243.4 - 220.7	9.32 FT³ ~~8.76 FT³~~	[illegible]	N/A	4/3/90
3/8" VOLCLAY TABLETS	220.7 - 215.4	1.24 FT³	[illegible]	N/A	4/3/90
8-20 MESH BENTONITE CRUMBLES	215.4 - 18.4	99.4 FT³	[illegible]	N/A	4/4/90
CEMENT GROUT	18.4 - 2.5	5.94 FT³	[illegible]	N/A	4/4/90

OTHER (initial if performed)

N/A Well Abandonment
JJS Well Development
[illegible] Downhole TV Inspection
[illegible] Complete As-Built Diagram, Driller's/Geologist's Logs

Rev. 4 ECN #'s:
146169 124427 146188
124393 124394 124435

A-225 For all blanks mark N/A if not applicable.

 WELL COMPLETION/INSPECTION REPORT(governing procedure DO-1, RO)

Well 299-W22-41 continued...

ANNULAR SEAL

Inspection Method PHYSICAL MEASUREMENT Acceptance Criteria Sect. 4.2.6 - 4.2.9.1

Type	Interval	Volume	Accept	Reject	Date
CONCRETE PAD	2.5' - +0.5'	1 YARD³	MAT.	N/A	5/1/90
	-				
	-				
	-				

for all blanks mark N/A if not applicable.

9413205.0464

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AS-BUILT DIAGRAM

Well Number 299-W22-41 Geologist R. Miller (GAI), AW Pearson Page 1 of 2

Reviewed by [illegible] Date 4-24-90

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Diagram Litho.	Lithologic Description
CONCRETE PAD		5		Slightly Muddy SAND DB
10"Ø carbon steel casing -		10		SAND - trace of gravels "
temporary w/drive shoe		15		" - f. micaceous "
from 41.0' to 132.1' bls		20		" - " "
CEMENT GROUT		25		" - " "
8"Ø carbon steel casing -		30		" - coarser "
temporary w/drive shoe		35		" - f. micaceous to gravel "
from + 2.1' to 244.4'		40		" - " " "
		45		" - coarser - increase [illegible]
8-20 MESH GRAVEL		50		Slightly Gravelly SAND "
		55		SAND - to gravel "
CASING CENTRALIZERS		60		" - " " "
CASING JOINT		65		" - " " "
		70		" - " " "
		75		" "
225.12' of 4" DIA. TYPE		80		" - f. sands to gravel "
304 SCH. 5 STAINLESS STEEL		85		" - f. micaceous "
TUBING		90		" - to gravel "
		95		" - f. micaceous "
		100		SAND
		105		" w/slightly cemented lenses @ 104'
		110		MUDDY SAND "
		115		SAND "
		120		" "
		125		" "
		130		" "

A-1800-186 (3/87)

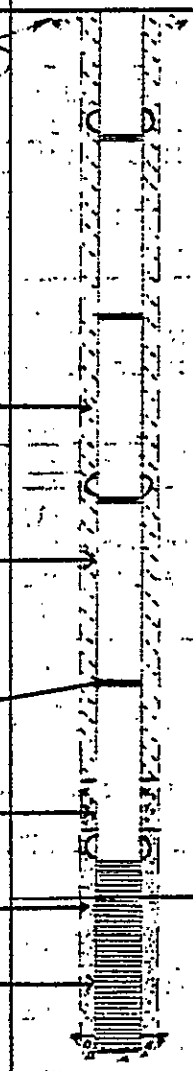
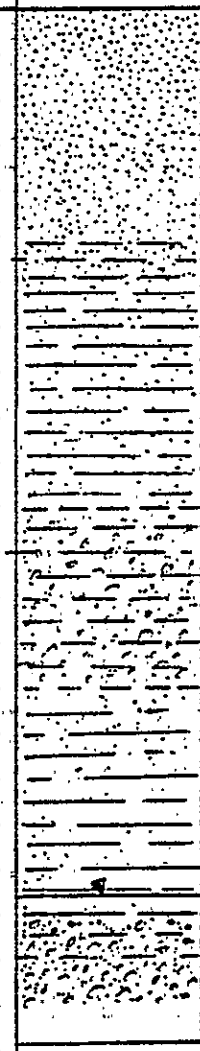
9413205.0465

Battelle
Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W22-41 Geologist R Miller (GAI), AW Pearson Page 2 of 2

Reviewed by [illegible] Date 4-24-90

Construction Data: Description	Construction Data: Diagram	Depth in Feet	Geologic/Hydrologic Data: Diagram Litho.	Geologic/Hydrologic Data: Lithologic Description
10"ø carbon steel casing		135		SAND EE
temporary with drive shoe		140		" "
from +1.0' to 132.1' bls		145		" "
		150		" "
8"ø carbon steel casing		155		" - f mica grads to mud sand
temporary with drive shoe		160		Muddy SAND - gradational "
from +2.2 to 244'		165		Sandy MUD LT
		170		" "
8-20 MESH BENTONITE		175		" "
CRUMBLES		180		" "
		185		" "
225.12' of 4" DIA. TYPE 304		190		Muddy Sandy GRAVEL tr [illegible]
SCH. 5 STAINLESS STEEL		195		" "
CASING		200		" "
		205		" "
CASING JOINT		210		Sandy MUD "
		215		" "
3/8" VOLCLAY TABLETS		220		" "
		225		" "
40 MESH CSS: SILICA SAND		230		" D/W = 227.96' 4/5/90 "
		235		Muddy Sandy GRAVEL "
21.24' of TYPE 304		240		" " " "
CONTINUOUS WRAP STAINLESS		245		" " "
STEEL CASING				

9413205.0466

A-1800-186 (3/87)

WELL COMPLETION/INSPECTION REPORT

Specification No. [illegible] Rev. No. 3 4
Project [illegible]
Location [illegible]
Drilling Co. [illegible]
Driller GARY LYDIN
Other (companies) NONE
Geologist(s) [illegible] AW [illegible]
[illegible] M.A. CHAMNESS
S. M. GOODWIN L.A. DOREMUS

Well No. 299-W22-42 Temp. Well No. N/A
Coordinates
Casing Elev. Ground Elev.

DRILLING METHOD

Rotary Air N/A Mud N/A
Cable Tool D 0'-150' H 150'-244.0'
Drilling Fluid 200 E WATER SUPPLY
Other NONE

GEOPHYSICAL LOGGING

Sondes	Interval	Date
Gross Gamma	3.9' - 137.3	2/22/90
" "	100.0' - 242.8'	3/5/90
	-	
	-	
	-	

COMPLETION DATA

Drilled Depth 244.0'
Completed Depth 243.39
Date Started 2/12/90
Date Completed 5/15/90
Static Water Level/Date 226.99' (4/23/90)

AQUIFER TESTING

Type SLUG TEST
Length of Test
Volume Pumped
Drawdown
Date of Test 4/30/90

INSPECTION RESULTS

CLEANING

Inspection Method [illegible]
Acceptance Criteria [illegible]

	Accept	Reject	Date
Drilling Tools/Rig	CLC	N/A	2/12/90
Temporary Materials	[illegible]	N/A	3/5/90
Permanent Materials	SML	N/A	4/23/90

MATERIAL STORAGE/PACKING

Inspection Method VISUAL
Acceptance Criteria SECTION 4.2.2 7.3 (REV 4)

	Accept	Reject	Date
Mtl. Handling/Storage	SML	N/A	4/23/90
Material Packing	SML	N/A	4/23/90

SCREEN

Type	Length	Slot Size
J[illegible]N DIV. TYPE 304 STAINLESS	10.30	10
STEEL CHANNEL PARK	10.01	10

Depth(s) 243.39 - 233.09
233.09 - 223.08
Inspection Method VISUAL
Acceptance Criteria SECTION 4.2.5 (REV. 4)
Accept SML Reject N/A Date 4/15/90

LUBRICANTS/ADDITIVES

Inspection Method VISUAL
Acceptance Criteria SECTION 7.2

	Identify	Accept	Reject	Date
Additives	DRILL WATER	SML	N/A	4/23/90
Lubricants	FOOD OIL	SML	N/A	4/23/90

STRAIGHTNESS TEST

Inspection Method 21.6' LONG 7" O.D. PIPE
Acceptance Criteria SECTION 5.2 (REV 4)
Accept [illegible] Reject N/A Date 3/2/90

CASING (permanent)

Type	Size	Placement
JOHNSON DIV. TYPE 304	4"	223.08 - +1.92
SCH 5 STAINLESS STEEL	-	- -

Inspection Method VISUAL
Acceptance Criteria SECTIONS 4.2.1, 4.2.5 (REV. 4)
Accept SML Reject N/A Date 4/15/90

WELL PROTECTION

Inspection Method VISUAL
Acceptance Criteria SECTION 4.2.10

	Accept	Reject	Date
Protective Posts	SML	N/A	5/15/90
Locks	MAC	N/A	5/1/90

ANNULAR SEAL

Inspection Method PHYSICAL MEASUREMENT Acceptance Criteria SECTION 4.2.6 TO 4.2.[illegible]

Type	Interval	Volume	Accept	Reject	Date
40 MESH CSSI SILICA SAND	243.2 - 219.7	7.63 FT³	SML	N/A	4/19/90
1/2" VOLCLAY TABLETS	219.7 - 215.25	1.24 FT³	SML	N/A	4/19/90
8-20 MESH BENTONITE CRUMBLES	215.25 - 18.8	49.4 FT³	LAD	N/A	4/20/90
CEMENT GROUT	18.8 - 2.5	7.92 FT³	SML	N/A	4/23/90

OTHER (initial if performed)

[illegible] Well Abandonment
[illegible] Well Development
[illegible] Downhole TV Inspection
SML Complete As-Built Diagram, Driller's/Geologist's Logs

REV 4 ECN'S: 146189 124394
124393 146188
124427 124435

A-229 For all blanks mark N/A if not applicable.

9413205.0467

 WELL COMPLETION/INSPECTION REPORT(governing procedure DO-1, RO)

Well 299-W22-42 continued...

ANNULAR SEAL

Inspection Method PHYSICAL MEASUREMENT Acceptance Criteria SECT. 4.2.6 - 4.2.9.

Type	Interval	Volume	Accept	Reject	Date
CONCRETE PAD	2.5' - +0.5'	1 YARD³	MAU	N/A	5/1/90

— for all blanks mark N/A if not applicable.

9413205.0468

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AS-BUILT DIAGRAM

Well Number # 299-W23-42 Geologist R.D. Miller (Geol.) C.D. Conrad (GET) Page 1 of 2

Reviewed by V.C. McGl[illegible] Date 4-24-90

Construction Data: Description	Construction Data: Diagram	Depth in Feet	Geologic/Hydrologic Data: Diagram Litho.	Geologic/Hydrologic Data: Lithologic Description
Concrete Pad				
120.9 ft. of Temporary 10"		5'		SAND
Carbon Steel Casing		10'		"
Cement Grout		15'		"
245.4 ft. of Temporary 9"		20'		"
Carbon Steel Casing		25'		"
[illegible] +1.4 to 244.0'		30'		"
		35'		Slightly Muddy SAND
225.0' of 4" Dia [illegible]		40'		SAND
Sch. 5 Stainless Steel		45'		"
Casing		50'		Gravelly SAND
		55'		SAND
Casing Centralizer		60'		"
Casing Joint		65'		"
		70'		"
		75'		"
		80'		"
8-20 Bentonite Crumbles		85'		"
		90'		"
		95'		"
		100'		"
		105'		"
		110'		"
		115'		"
		120'		"
		[illegible]		"
		[illegible]		"

A-1800-186 (3/87)

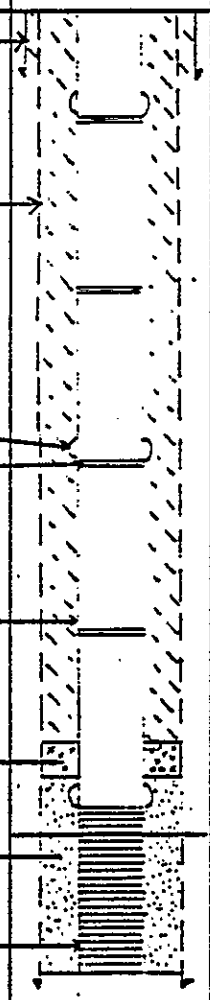
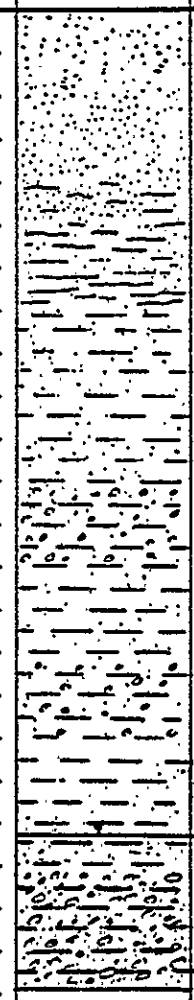
9413205.0469

Battelle
Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number #299-W22-42 Geologist C.D. Condit (GAI) AW Pearson R.D. Miller (GAI) Page 2 of 2

Reviewed by D.E. McGhan Date 4-24-90

Construction Data: Description	Construction Data: Diagram	Depth in Feet	Geologic/Hydrologic Data: Diagram Litho.	Geologic/Hydrologic Data: Lithologic Description
Temporary 10" carbon		135'		SAND
steel casing		140'		"
		145'		"
Temporary 8" carbon		150'		"
steel casing		155'		SLIGHTLY MUDDY SAND
from 1.4' to 244.0' bls		160'		MUDDY SAND
		165'		SANDY MUD
8-20 mesh bentonite crumbles		170'		" " "
		175'		Muddy SAND "
Casing centralizer		180'		" " "
Casing joint		185'		" " "
		190'		gravelly Muddy SAND "
		195'		" " " "
225.0' of 4" dia. type 304		200'		Muddy SAND "
Sch 5 stainless steel		205'		" " "
casing		210'		slightly gravelly Sandy MUD "
		215'		" " " " "
1/2" dia. volclay pellets		220'		Sandy MUD "
		225'		" D/W = 226.99' 4/23/90 "
40 mesh CSSI silica sand		230		Muddy SAND "
		235		Muddy Sandy GRAVEL "
20.31' of 10 slot type 304		240		" " " "
Stainless steel channel		245		" " " "
pack screen				total depth - 244.0' bls

A-1800-186 (3/

9413205.0470

WELL COMPLETION/INSPECTION REPORT(governing procedure DO-1, RO)

Specification No. WHC-S-014 Rev. No. 3
Project WO:7
Location 6.4-012 site
Drilling Co. KEH
Driller D. LUDTKE
Other (companies) NONE
Geologist(s) C.D. Cover, AW Pearson, R.O. Niles (Geo), S.M. Goswick, LA Dorchus, MA Chamness

Well No. 299-W22-43 Temp. Well No. N/A
Coordinates
Casing Elev. Ground Elev.

DRILLING METHOD
Rotary Air N/A Mud N/A
Cable Tool D 0.0' – 146.0' H 146.0' – 244.0'
Drilling Fluid raw water supply - 200E
Other NONE

GEOPHYSICAL LOGGING

Sondes	Interval	Date
Induction IP	20' – 135'	3/5/90
Nat Gamma 5"	135' – 242'	3-30-90

COMPLETION DATA

Drilled Depth 244.0'
Completed Depth 244.01'
Date Started 2/22/90
Date Completed 5/15/90
Static Water Level/Date 226.19' 4-17-90

AQUIFER TESTING

Type SLUG TEST
Length of Test
Volume Pumped
Drawdown
Date of Test 4/23/90

INSPECTION RESULTS

CLEANING

Inspection Method VISUAL
Acceptance Criteria SECTION 7.6

	Accept	Reject	Date
Drilling Tools/Rig	CDC	n/a	2/23/90
Temporary Materials	[illegible]	n/a	3/7/90
Permanent Materials	[illegible]	N/A	4/17/90

SCREEN

Type	Length	Slot Size
Johnson Div. Type 304 Stainless	10.33'	10
STI Channel Pack	10.01'	10

Depth(s) 244.01' – 233.65'
233.65' – 223.67'
Inspection Method VISUAL
Acceptance Criteria SECTION 4.2.5
Accept [illegible] Reject N/A Date 4/17/90

CASING (permanent)

Type	Size	Placement
Johnson Div. Type 304	4"	223.67' – +1.45'
U.S. Stainless Steel		

Inspection Method VISUAL
Acceptance Criteria SECTION 4.2.1 4.2.5
Accept [illegible] Reject N/A Date 4/12/90

MATERIAL STORAGE/PACKING

Inspection Method VISUAL
Acceptance Criteria SECTION 4.2.2 7.3

	Accept	Reject	Date
Mtl. Handling/Storage	[illegible]	N/A	4/17/90
Material Packing	[illegible]	N/A	4/17/90

LUBRICANTS/ADDITIVES

Inspection Method VISUAL
Acceptance Criteria SECTION 7.2

	Identify	Accept	Reject	Date
Additives	DRILL WATER	[illegible]	n/a	4/17/90
Lubricants	Crisco vegetable oil	[illegible]	n/a	5/2/90

STRAIGHTNESS TEST

Inspection Method 20' of 6" SS CASING TO BOTTOM OF HOLE
Acceptance Criteria SECTION 4.2
Accept [illegible] Reject n/a Date 5/10/90

WELL PROTECTION

Inspection Method VISUAL
Acceptance Criteria SECTION 4.2.10

	Accept	Reject	Date
Protective Posts	[illegible]	N/A	5/15/90
Locks	WAC	N/A	5/1/90

ANNULAR SEAL

Inspection Method PHYSICAL MEASUREMENT
Acceptance Criteria SECTION 4.2.6 TO 4.2.9.1

Type	Interval	Volume	Accept	Reject	Date
40 MESH ESSI SILICA SAND	242.4' – 219.4'	8.19 ft³	[illegible]	N/A	4/13/90
1/2" VOLCLAY TABLETS	219.4' – 215.95'	1.24 ft³	[illegible]	N/A	4/13/90
8-20 MESH BENTONITE CHIPS	215.95' – 15.0'	107.21 ft³	[illegible]	N/A	4/17/90
CEMENT GROUT	15.0' – 2.5'	7.42 ft³	[illegible]	N/A	4/17/90

OTHER (initial if performed)

N/A Well Abandonment
[illegible] Well Development
[illegible] Downhole TV Inspection
[illegible] Complete As-Built Diagram, Driller's/Geologist's Logs

ECN #'s: 146189 124427 146195 A-233 124393 124394 124435

For all blanks mark N/A if not applicable.

9413205.0472

WELL COMPLETION/INSPECTION REPORT(governing procedure DO-1, RO)

Well 299-W22-43 continued...

ANNULAR SEAL

Inspection Method PHYSICAL MEASUREMENT Acceptance Criteria SECT 4.2.6 - 4.2.9.1

Type	Interval	Volume	Accept	Reject	Date
CONCRETE PAD	2.5' - +0.5'	1 YARD³	MAX	N/A	5/1/90
	-				
	-				
	-				

for all blanks mark N/A if not applicable.

9413205.0471

9413205.0473

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Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W22-43 Geologist C.D. Condit, AW Pearson Page 1 of 2

Reviewed by V.L. McGhan Date 4-25-90

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Diagram Litho.	Lithologic Description
Concrete Pad				
155.7 Ft. of Temporary 10"		5'		Slightly muddy SAND
Carbon Steel Casing		10'		Slightly gravelly SAND
Cement Grout		15'		SAND
246.1 Ft. of Temporary 8"		20'		"
Carbon Steel Casing		25'		"
		30'		"
225.12' of 4" Dia. Type		35'		"
304 Sch. 5 Stainless Steel		40'		Slightly gravelly SAND
Casing		45'		Gravelly SAND
		50'		Slightly gravelly SAND
		55'		SAND
Casing Centralizer		60'		"
Casing Joint		65'		"
		70'		"
		75'		"
		80'		"
		85'		"
		90'		"
		95'		"
		100'		Slightly muddy SAND
		105'		" " "
		110'		" " "
		115'		Mud Leases 111'-114' SAND
8-20 Mesh Bentonite		120'		"
Crumbles		125'		"
		130'		"

A-1800-186 (3/87)

Battelle
Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W22-43 Geologist AW Pearson / RC Miller (GAI) Page 2 of 2

Reviewed by [illegible] Date 4-25-90

Construction Data: Description	Construction Data: Diagram	Depth in Feet	Geologic/Hydrologic Data: Diagram Litho.	Geologic/Hydrologic Data: Lithologic Description
10" ø temporary carbon steel		135'		SAND DC
casing w/drive shoe from		140'		slightly Muddy SAND "
+0.2' to 134.9' bls		145'		" " " - 5' [illegible]
8" ø temporary carbon steel		150'		Muddy SAND - from 147' [illegible]
casing w/drive shoe from		155'		" " [illegible] "
+1.35' to 244.75' bls		160'		Sandy MUD - [illegible] "
		165'		" "
225.12' of 4" DIA. TYPE		170'		" "
304 SCH. 5 STAINLESS		175'		" "
STEEL CASING		180'		" "
		185'		" - basaltic - caliche "
CASING CENTRALIZER		190'		Muddy Sandy GRAVEL - caliche
		195'		slightly Gravelly Muddy SAND
		200'		" " " "
CASING JOINT		205'		Sandy MUD "
		210'		" " "
		215'		"
1/2" VOLCLAY TABLETS		220'		Muddy SAND "
		225		" " "
		230		D/[illegible] 226.14' 4-19-90 "
40 MESH CSSI SILICA SAND		235		" " "
		240		SAND - to siltstone fine "
20.34' of TYPE 304		245		MUDDY SANDY GRAVEL "
STAINLESS STEEL CHANNEL				
PACK SCREEN				

A-1800-186 (3/87)

9413205.0474

WELL CONSTRUCTION REPORT

VALIDATED

Page 1 of 2

Specification No. WHC-S-014 Rev No. 4 5 (Rev. 5 as of 11/9/90; NC 11/29/90)

ECNs 122223 122261 124393 124394 124427 124425 144230, 144231 144232, 144233, 144236, 196189 144239, 144237, 144240

Project W-027-SST

Location 200 W, west side of S Tank Farm

Drilling Company KEH

Driller Rob Jones Lewis Watkins, Gene Thomas

Other (Drillers Contractors) Brett Strode

Geologist(s) NA Chamness, AW Pearson, K.R.D. Barton, Tyler Gilmore, L.D Walker, LA Dovemus, S.P. Aiblart, N.A. Cadoret, SJ Teel, G.G. Kelty, N.A. Ballantyne (Elsasser)

Well No. S-14 (Drilled as TB30E/Jetted) Well No. N/A

Coordinates N: 134,445.93 E: 566,712.80

Casing Elev. 666.33 (Outer Casing) Ground Elev. 663.74 Brass Cap

Drilling Method

Verification Method Visual

Criteria 52, 53, 56 (Addendum 7.5) EII 6.7 Sec 6.2 WHC-S-014

			Initials	Date
Rotary	Air N/A	Mud N/A	N/A	N/A
Cable Tool	D 0'-15.5'	H 155-232.0	TDW	12/4/90
Drilling Fluid	Raw H-O	360 gal	PDW	10/10/90
Other	N/A			

Geophysical Logging

Sondes	Interval	Date
Natural gamma	0'-145'	11/5/90
" "	140'-215	11/30/90
	-	
	-	
	-	

Completion Data

Drilled Depth 218.15

Completed Depth 217.17

Date Started 10/17/90

Date Completed 12/4/90

Static Water Level/Date 197.4 11/30/90

198.1 1/15/91

Aquifer Testing

Type Slug Test (Section 4.4) (Unconfined)

Flow Meter I.D. No. NA

Cal. Due Date NA

Length of Test 22 min.

Volume Pumped NA

Drawdown NA

Date of Test 12/12/90

Completion Results

Cleaning

Verification Method visual

Criteria WHC-S-014 Section 4.2.2.7.6 (EII 5.4)

	Initials	Date
Drilling Tools/Rig	[illegible]	10/10/90
Temporary Materials	[illegible]	10/10/90
Permanent Materials	GK	12/4/90

Material Storage/Packing

Verification Method visual

Criteria Sec 4.2.2.7.3 (WHC-S-014)

	Initials	Date
Mtl. Handling/Storage	GK	12/4/90
Material Packing	GK	12/4/9

Screen

Type	Length	Slot Size
Johnson Channel 1" ID	2 x 10.5'	10 slot

Depth(s) 217.17' - 195.9'

Verification Method Visual and measurement

Criteria WHC-S-014 Sec 4.2.3

Initials G.G.K Date 12/4/90

Lubricants/Additives

Verification Method visual

Criteria Sec 7.3 (WHC-S-014)

	Identify	Initials	Date
Additives	N/A		
Lubricants	Jet Lube Well Guard	AWP	10/25/90

Straightness Test

Verification Method Visual

Criteria WHC-S-014 Section 9.2

Initials SST Date 11/30/90

A-6000-436 (09/90)

9413205.0175

WELL CONSTRUCTION REPORT
(continuation sheet)

well # 299.W23-13

Page 2 of 2

Casing (permanent)

Type	Size	Placement
Stainless steel 304	4.5"	195.9' ~~195.5~~ + 4.2' NO 12/18/91
		-
		-
		-

Verification Method Measurement + Visual

Criteria WHC-S-014, Section 4.2.4 + 4.2.5

Initials GGK Date 12/4/90

Well Protection

Verification Method Visual

Criteria WHC-S-014 Section

	Initials	Date
Protective Posts	[signature]	12/20/91
Protective Casing	[signature]	12/20/91
Site Restored	[signature]	12/20/91
Cap, Hasp and Lock	[signature]	12/20/91
Surface Pad	[signature]	12/20/91

Annular Seal/Filter Pack

Verification Method Visual + measurement Criteria WHC-S-014 Section 4.2.6, 4.2.8, 4.2.9 + 5.3

Type	Interval	Volume	Initials	Date
8-12 sand	217.17 - 190.4	10.7 BAGS @ 100#	GGK	12/5/90
Bentonite Pellets 1/4"	190.4 - 186.6	3 buckets 50#	GGK	12/5/90
Bentonite Grumbles	186.6' - 18.5'	112 bags	GGK	12/7/90
cement	18.5 - 2.7	45 bags	GGK	12/5/90

Well Survey/Labeling

Verification Method REVIEW OF SURVEY REPORT

Criteria WHC-S-014 3.4

	Initials	Date
Measurement Point/Surveyed	[signature]	12/19/91
Protective Casing/Brass Cap Surveyed	[signature]	12/19/91
Well Number Stenciled	[signature]	12/19/91
Brass Cap Labeled	[signature]	12/19/91

Pump Installation

Verification Method VISUAL OBSERVATION

Criteria WHC-S-014 4.2.11, 4.2.2

	Initials	Date
Pump Decon/Prep	[signature]	12/20/91
Installed	[signature]	12/20/91
Pump Tested	[signature]	12/20/91

Other (initial if performed)

N/A Well Abandonment AWP Downhole TV Inspection [signature] Complete As-Built Diagram, Driller's/Geologist's Logs

[signature] Well Development

Comments/Remarks

Reviewed By (Sign/Print Name) [signature] Date 12/18/91

9413205.0476

A-6000-435 (09/90)

Page 1 of 2

WELL SUMMARY SHEET

VALIDATED 1/17/92 SIGNATURE DATE

Boring or Well No. 299-W23-13

Sheet 1 of 2

Location 200 W. West side of S Truck Fwy

Project [illegible]

Elevation 663.34 Brass Cap (NGVD '29)

Drilling Contractor KEH

Driller Rob Jones, Louis Watkins, Gene Thomas

Drilling Method and Equipment Cable tool

Prepared By AW Pearson / [illegible] Date 10/17/90 (Sign/Print Name)

Reviewed By [illegible] / DA Williams Date 8/21/91 (Sign/Print Name)

CONSTRUCTION DATA: Description	Diagram	Depth in Feet	GEOLOGIC/HYDROLOGIC DATA: Graphic Log	Lithologic Description
		5		SLIGHTLY SILTY SAND
Temporary 12" casing 20.03' bls 0.7' shelby		10		GRAVELLY SAND
Portland Cement		15		SLIGHTLY SILTY SAND
8" Temporary Carbon Steel		20		SANDY GRAVEL
Casing		25		SANDY GRAVEL
Crumbles to 18.5'		30		SANDY GRAVEL
10" Temporary Carbon Steel		35		SANDY GRAVEL
Casing, set at 154.5		40		SLIGHTLY ~~SANDY GRAVEL~~ GRAVELLY SAND MAC 10/23/90
		45		SAND
		50		SAND
		55		SAND
		60		SAND
		65		SAND
		70		SAND
		75		SANDY SILT (21-23') SAND @ 25'
Bentonite Crumbles		80'		SLIGHTLY GRAVELLY SILTY SAND
		85'		SILTY SANDY GRAVEL
		90'		GRAVELLY SILTY SAND
		95'		SLIGHTLY GRAVELLY SLIGHTLY SILTY SAND
		100'		SAND
		105'		SLIGHTLY SILTY SAND
		110'		Slightly Silty Sand
		115'		" " "
		120'		" " "
		125'		" " "
		130'		SILT
		135'		MAC 11/7/90 ~~SILTY SAND~~ SANDY SILT
		140'		" "
		145'		SLIGHTLY SILTY SAND
		150'		SILTY SAND
		155'		GRAVELLY SAND starting @ ~153.5'
		160'		(no sample)
		165'		~164 Silty Sandy Gravel

4-6000-384 (04/90)

9413205.0478

PAGE 2 of 2

WELL SUMMARY SHEET

Boring or Well No. 299-W23-13

Sheet 2 of 2

Location 200 West S Tank Farm

Project W-017 SST

Elevation 663.34 Brass Cap (NGVD'29)

Drilling Contractor KEH

Driller Gene Thomas

Drilling Method and Equipment Cable Tool

Prepared By Lt Duemus (Sign/Print Name) Date 12/4/90

Reviewed By [signature] / BA William (Sign/Print Name) Date 12/5/90

CONSTRUCTION DATA Description	Diagram	Depth in Feet	GEOLOGIC/HYDROLOGIC DATA Graphic Log	Lithologic Description
Bentonite Grouble		170		SILTY SANDY GRAVEL
		175		" " "
		180		" " "
Top Bentonite Pellets 186.6		185		GRAVELLY SANDY MUD
3" Temporary Carbon steel		190		GRAVELLY MUDDY SAND
Casing; Top Sand (8-12) 190.4'		195		" " H2O table ~197'
Top Screen 195.4		200		Muddy Sandy Gravel
Johnson 10 slot		205		" " "
Stainless steel Screen 4"φ		210		CLAYEY / SILTY SANDY GRAVEL
8" Set to 217.83'		215		" " " "
TD 11/30/90		220		SAND
Measured depth to		225		TD 218.15'
btm = 218.15' RGS		230		
		235		
		240		
Screen Set at 217.17		245		

9413205.0477

A-6000-384 (04/90)

WELL CONSTRUCTION REPORT

Specification No. WHC-S-014 Rev No. 5

ECNs 144240, 144241

Project W-012-SST

Location NW CORNER 299-SX TANK FARM

Drilling Company KEH

Driller L.D. BULLENA

Other (Companies) N/A

Geologist(s) N.A. CADORET A.W. PEARSON
LA DOVIMUS, K.R. BURTON
MA CHAMNESS, J.A. COATES

Well No. 299-W23-14 Temp. Well No. N/A

Coordinates N: 134,290.17 E: 566,708.67

Casing Elev. 664.00 outer casing Ground Elev. 661.00 Basin Cap

Drilling Method

Verification Method VISUAL OBSERVATION

Criteria WHC-S-014 5.2, 5.3, 7.5, E.I.I. 6.3 SEC 62

			Initials	Date
Rotary	Air N/A	Mud N/A	NA	NA
Cable Tool	D 0-172'	H 172'-324'	AWP	1/29/91
Drilling Fluid	RAW WATER	1% GAC @ 1/6/92	AWP	1/29/91
Other	NA	NA	NA	NA

Geophysical Logging

Sondes	Interval	Date
Gross Gamma	164.3'-4.4'	1/15/91
Gross/Y Gamma	223.5'-130'	1/21/91
	-	
	-	
	-	

Completion Data

Drilled Depth 224.4'

Completed Depth 223.7'

Date Started 1/22/91

Date Completed 4/16/91 12/6/91

Static Water Level/Date 224' KRCB 1/21/91 / 1/21/91

196.05/1-22-91 | 195.63 1/31/91

Aquifer Testing

Type INSTANTANEOUS SLUG

Flow Meter I.D. No. NA

Cal. Due Date NA

Length of Test 4/8 min

Volume Pumped NA

Drawdown NA

Date of Test 4-12-91

Completion Results

Cleaning

Verification Method VISUAL INSPECTION

Criteria WHC-S-014 7.6 4.2.2

	Initials	Date
Drilling Tools/Rig	NJC	1/15/91
Temporary Materials	KDR	1/11/91
Permanent Materials	AWP	1/29/91

Screen

Type	Length	Slot Size
Stainless Steel	~~29.28'~~ 21.28' AWP 2/4/91	10

Depth(s) 215.26' - 193.98'

Verification Method Verify using Steel Tape

Criteria WHC-S-014 4.23 4.25 12.2.1 4.2.1

Initials AWP Date 2/1/91

Material Storage/Packing

Verification Method Visual observation

Criteria WHC-S-014 4.2.2 7.3

	Initials	Date
Mtl. Handling/Storage	AWP	2/4/91
Material Packing	AWP	2/4/91

Lubricants/Additives

Verification Method VISUAL OBSERVATION

Criteria WHC-S-014 7.2

	Identify	Initials	Date
Additives	Raw Water	AWP	1/29/91
Lubricants	WELL GUARD	AWP	1/25/91

Straightness Test

Verification Method Visual observation

Criteria WHC-S-014 9.3

Initials KRCB AWP / PA 1/21-29-91 / DGH 1-29-91 Date 1/21/91 1/29/91

A-6000-436 (09/90)

9413205.0479

WELL CONSTRUCTION REPORT
(continuation sheet)

Well # 299-W23-14

Casing (permanent)

Type	Size	Placement
Type 304 SS sch.5 (Non-Passivated)	4"	~~215.28~~ +1.0' - 193.98 AWP 2/4/91

Verification Method: Verify using Steel Tape

Criteria: WHC-S-014 4.2.1, 4.2.4, 4.2.5, 12.2.1

Initials: AWP Date: 2/1/91

Well Protection

Verification Method: Visual Measure w/Tape

Criteria: WHC-S-014 4.2.10

	Initials	Date
Protective Posts	[illegible]	12/18/91
Protective Casing	[illegible]	12/18/91
Site Restored	[illegible]	12/18/91
Cap, Hasp and Lock	[illegible]	12/18/91
Surface Pad	[illegible]	12/18/91

Annular Seal/Filter Pack

Verification Method: Measure with Steel Tape Criteria: WHC-S-014 4.2.6, 4.2.7, 4.2.8, 4.2.9, 5.2.1 or 5.2.2

Type	Interval	Volume	Initials	Date
Filter Pack 8-12 silica sand	223.7' - 190.4'	14.65 ft³	AWP	1/31/91
Bentonite Pellets 1/2"	190.4' - 187.0'	2.48 ft³	AWP	1/31/91
8-20 Mesh Bentonite Crumbles	187.0' - 20.4'	104.37 ft³	AWP	2/4/91
Cement Grout	20.4' - 3.0'	22.05 ft³	AWP	2/4/91

Well Survey/Labeling

Verification Method: Review of Survey Report

Criteria: WHC-S-014 3.4

	Initials	Date
Measurement Point/Surveyed	[illegible]	12/18/91
Protective Casing/Brass Cap Surveyed	[illegible]	12/18/91
Well Number Stenciled	[illegible]	12/18/91
Brass Cap Labeled	[illegible]	12/18/91

Pump Installation

Verification Method: Visual Observation

Criteria: WHC-S-014 4.2.1, 4.2.2

	Initials	Date
Pump Decon/Prep	J.A.C.	4-16-91
Installed	J.A.C.	4-16-91
Pump Tested	[illegible]	12/20/91

Other (initial if performed)

N/A Well Abandonment — N/A Downhole TV Inspection — [illegible] Complete As-Built Diagram, Driller's/Geologist's Logs

12/12/91 JAC Well Development

Comments/Remarks

Reviewed By (Sign/Print Name) [illegible] Date 12/18/91

A-6000-436 (09/90)

9413205.0480

WELL SUMMARY SHEET

Boring or Well No. 299-W23-14

Sheet 1 of 2

Location 200W/SST/299-SX Tank Farm
Project W-017
Elevation 661.00 ~~Brass~~ CAP (NGVD'29)
Drilling Contractor KEH
Driller L. Bultena
Drilling Method and Equipment Cable Tool
Prepared By Alan Pearson/Alan Pearson (Sign/Print Name) Date 2/5/91
Reviewed By [illegible]/BA Williams (Sign/Print Name) Date 3/26/91

CONSTRUCTION DATA		Depth in Feet	GEOLOGIC/HYDROLOGIC DATA	
Description	Diagram		Graphic Log	Lithologic Description
12" Ø temporary carbon steel casing to 19.33' bls		3.0'		SAND
Cement Grout		10		SLIGHTLY GRAVELLY SAND
				SAND
		19.33' 20 20.4'		"
10" Ø temporary carbon steel casing to 163.89' bls				SLIGHTLY GRAVELLY SAND
		30		SANDY GRAVEL
				SILTY SANDY GRAVEL
Granular bentonite #8-20 mesh		40		SLIGHTLY SILTY SAND
				SILTY SAND
8" Ø temporary carbon steel casing to 224.4' bls		50		SLIGHTLY SILTY SAND
				" " "
		60		" " "
				SILTY SAND
4" Ø stainless steel casing		70		" "
				SLIGHTLY SILTY SAND
		80		SILTY SAND w/ SILTY & CLAY LENSES
				SLIGHTLY GRAVELLY SLIGHTLY SILTY SAND
		90		SANDY GRAVEL
				" "
		100		SLIGHTLY SILTY SAND
				SILTY SAND to SANDY SILT
		110		SILTY SAND
				" "
		120		" "
				SILT
		130		"
				SILTY SAND
		140		SANDY SILT
				" "
		150		" "
				SLIGHTLY SILTY SAND
		160		SILTY SANDY GRAVEL
		163.89'		SAND

A-6000-334 04/90

9413205.0481

WELL SUMMARY SHEET

Boring or Well No. 299-W23-14

Sheet 2 of 2

Location 200W/SST/299-SX Tank Farm
Project W-017
Elevation 661.00 Brass Cap (NGVD'29)
Drilling Contractor KEH
Driller L. Bultena
Drilling Method and Equipment Cable Tool
Prepared By Alan Pearson/Alan Pearson (Sign/Print Name) Date 2/5/91
Reviewed By [illegible] (Sign/Print Name) Date 8/21/91

CONSTRUCTION DATA: Description	Depth in Feet	GEOLOGIC/HYDROLOGIC DATA: Lithologic Description
8" ø temporary carbon steel casing to 224.4' bls	170	SLIGHTLY GRAVELLY SAND
		" " "
	180	SLIGHTLY SILTY GRAVELLY SAND
	187.0	" " " "
Bentonite pellets 1/2"	190	" " " "
195.6	190.4 / 193.98	GRAVELLY SILTY SAND
4" ø stainless steel .010 slot (wire wound) screen	200	GRAVELLY SANDY MUD
		" " "
channel pak (Johnson)	210	" " "
	215.26	" " "
Sand Pack - Silica Sand #8-12	220	" " "
	223.7 / 224.4	" " "
	230	T.D. 224.4' bls

A-6000-384 (04/90)

9413206.0482

WELL COMPLETION/INSPECTION REPORT

Specification No. WHC-S-014 Rev No. 4
Project W017 ECN's: 146189, 146188, 124393
Location 216-S-10 124394, 124427
Drilling Company KEH
Driller CRAIG WAMSLEY
Other (Companies) NONE
Geologist(s) C.D. CONDIT (GAI), A.W. Pearson, L.A. Doremus, K.R.O. Barton
Technical Procedure No. DO-1 Rev No. Ø

Well No. 299-W26-8 Temp. Well No. N/A
Coordinates
Casing Elev. Ground Elev.

Drilling Method
Rotary Air N/A Mud N/A
Cable Tool D 0'-136.2' H 136.2'-216.29'
Drilling Fluid 200E H2O STAND PIPE
Other NONE

Geophysical Logging

Sondes	Interval	Date
NATURAL GAMMA	2'-214.8'	4/5/90
" "	2.1'-216'	5/29/90
	-	
	-	
	-	

Completion Data
Drilled Depth 216.29'
Completed Depth 215.7'
Date Started 3/6/90
Date Completed 5/22/90
Static Water Level/Date 200.3'/4-2-90

Aquifer Testing
Type SLUG WITHDRAWAL
Length of Test 1.5 hrs.
Volume Pumped N/A
Drawdown N/A
Date of Test 5/31/90

Inspection Results

Cleaning
Inspection Method VISUAL
Acceptance Criteria SECTION 7.6, 4.2.2

	Accept	Reject	Date
Drilling Tools/Rig	CDC	N/A	3/6/90
Temporary Materials	CDC	N/A	3/30/90
Permanent Materials	AWP	N/A	5/8/90

Material Storage/Packing
Inspection Method VISUAL
Acceptance Criteria SECTION 4.2.2, 7.3 ECN 124427 146189

	Accept	Reject	Date
Mtl. Handling/Storage	LAD	N/A	5-17-90
Material Packing	LAD	N/A	5-17-90

Screen

Type	Length	Slot Size
Stainless Steel Channel Pack	10.33'	10
"	10.02'	10

Depth(s) 195.35' - 215.7'
— - —
Inspection Method VISUAL
Acceptance Criteria SECTION 4.2.3
Accept AWP Reject N/A Date 5/8/90

Lubricants/Additives
Inspection Method VISUAL
Acceptance Criteria SECTION 7.2

	Identify	Accept	Reject	Date
Additives	N/A	N/A	N/A	
Lubricants	FOOD GRADE VEG. OIL	CDC	N/A	3/7/90

Straightness Test
Inspection Method RUN PIPE TO BOTTOM
Acceptance Criteria SECTION 8.2
Accept AWP Reject N/A Date 4/3/90

Casing (permanent)

Type	Size	Placement
Johnson Division Type 304	4" (200.01')	-7.0' - 195.35'
Stainless Steel	—	— - —

Inspection Method VISUAL
Acceptance Criteria SECTION 4.2.4
Accept AWP Reject N/A Date 5/8/90

Well Protection
Inspection Method VISUAL
Acceptance Criteria SECTION 4.2.10

	Accept	Reject	Date
Well Pad and Protective Posts	KROB (See NCR PNL-90-035)		5/22/90
Locks	KROB	N/A	5/22/90
Well Number			

Annular Seal
Inspection Method Steel Tape #L300-17 Acceptance Criteria SECTION 4.2.6 TO 4.2.9.1

Type	Interval	Volume	Accept	Reject	Date
CSSI 20-40 mesh Silica Sand	214.8' AWP 6/12/90 ~~215.4~~ - 192.0	AWP 6/12/90 ~~27.44 ft³~~ 26.32 ft³	LAD	N/A	5-16-90
3/8" Volclay Tablets	192.0 - 188.4	1.96 ft³	LAD	N/A	5-16-90
8-20 mesh Bentonite Crumbles	188.4 - 19.9	93.72 ft³	LAD	N/A	5-17-90
Cement Grout	19.9 - 2.4	13.2 ft³	LAD	N/A	5-17-90

Other (initial if performed)
N/A Well Abandonment AWP Downhole TV Inspection SPA Complete As-Built Diagram, Driller's/Geologist's Logs
AWP Well Development

For all blanks mark N/A if not applicable.

A-1800-002 (10/89)

REVIEWED BY S.M. GOODWIN 6/12/90
A. [illegible]

ECN#s 124393, 146188, 124427, 146189, 124394

9413205.0483

S-10

Battelle
Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W26-8 Geologist C.D. Conoit (GAE), K. Barton, A.W. Pearson (PNL), L.A. Doremus Page 1 of 2

Reviewed by S. [illegible] Date 6/12/90

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Diagram Litho.	Lithologic Description
CEMENT GROUT (2.4'-19.9')		5'		MUDDY SANDY GRAVEL
137.18 FT. OF 10" TEMPORARY		10'		SAND
CARBON STEEL CASING		15'		"
Concrete Pad (+0.5'-2.4)		20'		"
216.29 FT. OF 8" TEMPORARY		25'		"
CARBON STEEL CASING		30'		"
		35'		"
8-20 MESH DRY BENTONITE		40'		"
(19.9'-188.4')		45'		"
		50'		"
TYPE 304, SCH.5, 4" DIA.		55'		"
STAINLESS STEEL		60'		"
CASING		65'		"
		70'		"
		75'	TRACE OF COARSE PEBBLE AT 71' TO 72'	"
		80'		"
		85'		"
		90'		"
		95'		"
		100'		"
		105'		"
		110'		SLIGHTLY MUDDY SAND
CENTRALIZERS		115'		SAND
		120'		"
		125'		SLIGHTLY MUDDY SAND
		130'		" " "

A-1800-188 (3/87)

A.1

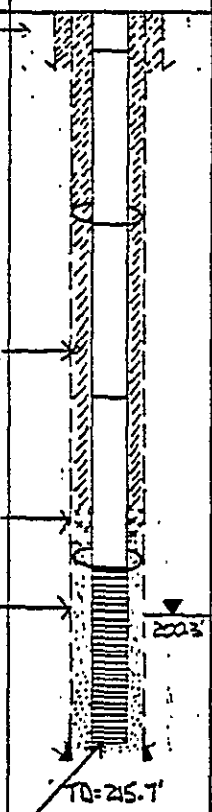
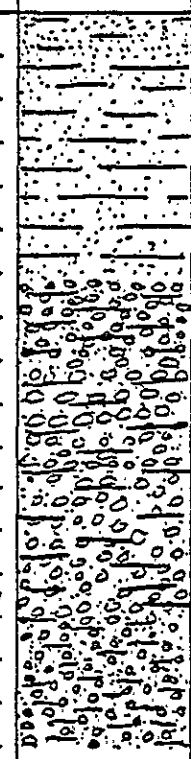
9413205.0484

Battelle
Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W26-8 Geologist C.D. CONDIT (GAI), AW PARSON, L.A. DOREMUS, K.R.O. BARTON Page 2 of 2

Reviewed by [signature] Date 6/12/90

Construction Data: Description	Construction Data: Diagram	Depth in Feet	Geologic/Hydrologic Data: Diagram Litho.	Geologic/Hydrologic Data: Lithologic Description
10" TEMPORARY CARBON STEEL		135'		SLIGHTLY MUDDY SAND
CASING (0'-137.18')		140'		SWITCHED TO HARD TOOL AT 136.2 FT. MUDDY SAND
		145'		" "
8" TEMPORARY CARBON STEEL		150'		" "
CASING 216.29' Total		155'		" "
		160'		" "
		165'		ENCOUNTERED AT 162 FT. MUDDY SANDY GRAVEL
8-20 MESH DRY BENTONITE		170'		" " "
(19.9'-188.4')		175'		" " "
		180'		" " "
		185'		" " "
3/8" Volclay Tablets (188.4'-192.0')		190'		" " "
static H2O level 200.3'		195'		" " "
20-40 mesh silica sand		200'		" " "
(192.0'-215.4')	200.3'	205'		" " "
		210'		" " "
		215'		" " "
	TD=215.7'			
TYPE 304, 4" DIA. STAINLESS				
STEEL 10 SLOT CHANNEL				
PACK SCREEN (195.35'-215.7')				
w/BOTTOM CAP				

A-1800-186 (3/87)

A.2

9413205.0485

WELL COMPLETION/INSPECTION REPORT

Specification No. WHC-S-014 Rev No. 4*
Project W-017
Location 216-S-10
Drilling Company KAISER ENGINEERING HANFORD
Driller LOUIS WATKINS
Other (Companies) N/A
Geologist(s) P.S. INNIS (G.A.I), A.W. PEARSON, L.A. DOREMUS, S.P. AIRHART
Technical Procedure No. D.O. 1 Rev No. Ø

Well No. 299-W26-9 Temp. Well No. N/A
Coordinates
Casing Elev. Ground Elev.

Drilling Method
Rotary Air N/A Mud N/A
Cable Tool D 0-176.5' H 176.5'-206.25
Drilling Fluid WATER - 200E STAND PIPE
Other NONE

Geophysical Logging

Sondes	Interval	Date
NATURAL GAMMA	Ø -145	4/2/90
" "	104' - 204'	4/12/90
" "	2.1' - 204.7	5/29/90

Completion Data
Drilled Depth 206.25'
Completed Depth 204.88'
Date Started 3/21/90
Date Completed 5/4/90
Static Water Level/Date 190.1'/4/11/90

Aquifer Testing
Type SLUG WITHDRAWAL
Length of Test 1.3 hrs.
Volume Pumped N/A
Drawdown N/A
Date of Test 5/21/90

Inspection Results

Cleaning
Inspection Method VISUAL
Acceptance Criteria SECTION 7.6

	Accept	Reject	Date
Drilling Tools/Rig	PSI	N/A	4/10/90
Temporary Materials	PSI	N/A	4/10/90
Permanent Materials	LAD	N/A	5-2-90

Material Storage/Packing
Inspection Method VISUAL
Acceptance Criteria SECTION 4.2.2, 7.3, ECN 124427 146189

	Accept	Reject	Date
Mtl. Handling/Storage	SPA	N/A	5/4/90
Material Packing	SPA	N/A	5/4/90

Screen

Type	Length	Slot Size
Johnson Type 304 Stainless Steel	20.34	10 channel pack
		MD

Depth(s) ~~[illegible]~~ 184.6' - ~~[illegible]~~ 204.9'
Inspection Method VISUAL
Acceptance Criteria SECTION 4.2.3
Accept LAD Reject N/A Date 5-2-90

Lubricants/Additives
Inspection Method VISUAL
Acceptance Criteria SECTION 7.2

	Identify	Accept	Reject	Date
Additives	N/A	PSI	N/A	3/23/90
Lubricants	FOOD GRADE VEG OIL	PSI	N/A	3/23/90

Straightness Test
Inspection Method VISUAL RAN AT 6.55'OD x 21.56'L PIPE TO BOTTOM
Acceptance Criteria SECTION 8.2
Accept PSI Reject N/A Date 4/11/90

Casing (permanent)

Type	Size	Placement
Johnson Type 304 Stainless	4" dia, 184.99'	10.4 - 184.6

Inspection Method VISUAL
Acceptance Criteria SECTION 4.2.4
Accept LAD Reject N/A Date 5-2-90

Well Protection
Inspection Method VISUAL
Acceptance Criteria SECTION 4.2.10

	Accept	Reject	Date
Well Pad and Protective Posts	KROB (SEE NCR PNL-90-035)		5/22/90
Locks	KROB	N/A	5/22/90
Well Number			

Annular Seal
Inspection Method VISUAL, STEEL TAPE Acceptance Criteria SECTION 4.2.6 TO 4.2.9.1

Type	Interval	Volume	Accept	Reject	Date
20-40 Mesh Silica Sand	181.8' - 204.7	16.0 ft³	LAD	N/A	5-3-90
3/8", 1/2" Volclay Tablets	178.4' - 181.8'	1.9 ft³	LAD	N/A	5-3-90
8-20 Mesh Dry Bentonite	18.5' - 178.4'	91.6 ft³	SPA	N/A	5/4/90
Cement Surface Seal	2' - 18.5'	6.9 ft³	SPA	N/A	5/4/90

Other (initial if performed)
N/A Well Abandonment AWP Downhole TV Inspection SPA Complete As-Built Diagram, Driller's/Geologist's Logs
JVB Well Development REVIEWED BY S. GOODWIN [signature] 6/10/90

For all blanks mark N/A if not applicable.

A-1800-002 (10/89)

*ECN #'s 146189, 146188, 124393, 124427, 124394

9413205.0486

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Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W26-9 Geologist P.S. INNIS, A.W. PEARSON S.P. AIRHART, L.A. DORENUS Page 1 of 2

Reviewed by D. M. Mouk Date 6/10/90

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Diagram Litho.	Lithologic Description
		5		SLIGHTLY MUDDY SAND
CEMENT SURFACE SEAL		10		SAND
(20' - 18.5')		15		SAND
		20		SAND
10" CARBON STEEL CASING		25		SAND
(0'-143.7') - REMOVED		30		SLIGHTLY MUDDY SAND
		35		SLIGHTLY MUDDY GRAVELLY SAND
8" CARBON STEEL CASING		40		MUDDY SANDY GRAVEL
(0'-206.5') - REMOVED		45		SAND (AT 44')
		50		SAND
8-20 MESH DRY BENTONITE		55		SLIGHTLY MUDDY SAND
(18.5'-178.4')		60		SAND
		65		SAND
TYPE 304, SCH 5, 4" DIA.		70		SAND
STAINLESS STEEL CASING		75		SAND
		80		SLIGHTLY MUDDY SAND
		85		SAND
		90		SAND
		95		SAND
		100		SAND
CENTRALIZERS		105		SAND
		110		SLIGHTLY MUDDY SAND
		115		SAND 114-115 SANDY MUD 113-114, 115-116.5
		120		SLIGHTLY MUDDY SAND
		125		SLIGHTLY MUDDY SAND
		130		SANDY MUD (AT 125')

A-1800-186 (3/87)

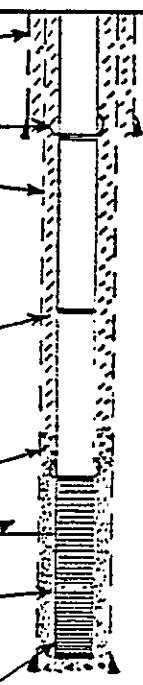
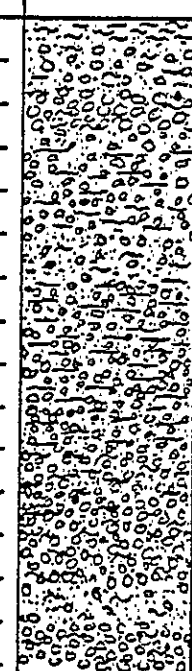
9413205.0487

Battelle
Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W26-9 Geologist P.S. INNIS, A.W. PEARSON, S.P. AIRHART, L.A. DOREMUS Page 2 of 2

Reviewed by [signature] Date 6/10/90

Construction Data: Description	Construction Data: Diagram	Depth in Feet	Geologic/Hydrologic Data: Diagram Litho.	Geologic/Hydrologic Data: Lithologic Description
10" CARBON STEEL CASING		135		SLIGHTLY MUDDY GRAVELLY SAND ~~[illegible] MUDDY SAND~~ (133') SDA 6/13/9
(0'-143.7') - REMOVED		140		MUDDY SANDY GRAVEL (139')
CENTRALIZERS		145		GRAVELLY SAND (143')
8" CARBON STEEL CASING		150		MUDDY SANDY GRAVEL
(0'-206.5')		155		" " "
		160		SLIGHTLY MUDDY GRAVELLY SAND
		165		MUDDY SANDY GRAVEL
8-20 MESH DRY BENTONITE		170		" " "
(18.5'-178.4')		175		" " "
		180		" " "
VOLCLAY TABLETS (178.4'-181.8')		185		" " "
		190		" " "
D/W = 190.1' (41:190)		195		" " "
20-40 MESH COLORADO SILICA		200		SL. GRAVELLY SL. MUDDY SAND
SAND. (181.8'-204.2')		205		MUDDY SANDY GRAVEL
	TD = 206.25'			
TYPE 304, 4" DIA. STAINLESS				
STEEL 10-SLOT CHANNEL PACK				
SCREEN (184.9'-204.9')				
W/ BOTTOM CAP				

SL. - SLIGHTLY

A-1800-188 (3/87)

9413205.0488

WELL COMPLETION/INSPECTION REPORT

Specification No. WHC-S-014 Rev No. 4*
Project W017
Location 200W S-10 trench
Drilling Company Kaiser Engineers Hanford
Driller Darrel Ludtke
Other (Companies) NONE
Geologist(s) R. Miller (GAI), A Pearson, S. Airhart, L. Doremus, S. Goodwin
Technical Procedure No. DO-1 Rev No. 0

Well No. 299-W26-11 Temp. Well No. N/A
Coordinates
Casing Elev. Ground Elev.

Drilling Method
Rotary Air N/A Mud N/A
Cable Tool D 0.0-169.01' H N/A
Drilling Fluid 200E Raw Water Supply
Other NONE

Geophysical Logging

Sondes	Interval	Date
spectral gamma	41.82 - 148.10'	4/4/90
natural gamma	43.30 - 149.0'	4/5/90
natural gamma	109.0 - 167.0'	4/13/90
natural gamma	~~[illegible]~~ 127.7-135.6' 04 LUN 90	5/29/90

Completion Data

Drilled Depth 169.01' b/s
Completed Depth ~~135.96'~~ AWP 6/6/90 135.3'
Date Started 3/19/90
Date Completed 5/22/90
Static Water Level/Date 124.77'/5/17/90

Aquifer Testing

Type SLUG WITHDRAWAL
Length of Test 19 hrs.
Volume Pumped N/A
Drawdown N/A
Date of Test 5/31 - 6/1/90

Inspection Results

Cleaning

Inspection Method Visual
Acceptance Criteria Section 7.6

	Accept	Reject	Date
Drilling Tools/Rig	[illegible]	N/A	3/19/90
Temporary Materials	[illegible]	N/A	3/26/90
Permanent Materials	SPA	N/A	4/25/90

Material Storage/Packing

Inspection Method Visual
Acceptance Criteria Sections 4.2.2, 4.2.11, 7.3 ECN 124427, 146189

	Accept	Reject	Date
Mtl. Handling/Storage	SPA	N/A	4/25/90
Material Packing	SPA	N/A	4/25/90

Screen

Type	Length	Slot Size
304 stainless steel	—	—
channel-pack	20.34'	10-slot

Depth(s) ~~[illegible]~~ 115.0 ~~115.62~~ - ~~135.3~~ 135.3' ~~135.96~~ AWP 6/6/90

Inspection Method Visual
Acceptance Criteria Section 4.2.3
Accept GW Reject N/A Date 4/26/90

Lubricants/Additives

Inspection Method Visual
Acceptance Criteria Section 7.2

	Identify	Accept	Reject	Date
Additives	N/A	N/A	N/A	N/A
Lubricants	[illegible] oil	[illegible]	N/A	3/19/90

Straightness Test

SEE NCR # PNL-90-041

Inspection Method Run device to bottom
Acceptance Criteria Section 8.2
Accept N/A Reject N/A Date NOT PERFORMED

Casing (permanent)

Type	Size	Placement
304 stainless steel	4" dia.	~~+1.0'~~ - ~~[illegible]~~ ~~+5.0~~ - ~~116.0~~ 115.0' AWP 6/6/90

Inspection Method Visual
Acceptance Criteria ~~[illegible]~~ Section 4.2.4
Accept GW Reject N/A Date 4/26/90

Well Protection

Inspection Method Visual
Acceptance Criteria Section 4.2.10

	Accept	Reject	Date
Well Pad and Protective Posts	KRDB (SEE NCR PNL-90-035)	N/A	5/22/90
Locks	KRDB	N/A	5/22/90
Well Number		N/A	

Annular Seal

Inspection Method Visual, Steel tape Acceptance Criteria Section 4.2.6 to 4.2.9.1

Type	Interval	Volume	Accept	Reject	Date
Volclay Pure Gold Slurry	~~[illegible]~~ 137.4' - 167.3'	23.1 ft³	GW	N/A	4/26/90
40-100 Mesh Colorado Silica Sand	133.3' - ~~[illegible]~~ 137.4'	3.5 ft³	SPA	N/A	4/27/90
20-40 Mesh Colorado Silica Sand	109.5' - 133.3'	21.3 ft³	SPA	N/A	4/27/90
1" dia. Volclay Tablets	105.8' - 109.5'	1.70 ft³	LAD	N/A	4/30/90

Other (initial if performed)

N/A Well Abandonment AWP Downhole TV Inspection SPA Complete As-Built Diagram, Driller's/Geologist's Logs
Well Development

REVIEWED BY S.M. GOODWIN 6/10/90 [signature]

For all blanks mark N/A if not applicable.

A-1800-002 (10/89)

* ECN #'s, 146189, 146180, 124393, 124427, 124394

9413205.0489

page 2 of 2 WELL COMPLETION/INSPECTION REPORT(governing procedure DO-1, RO)

Well 299-W26-11 continued...

ANNULAR SEAL

Inspection Method Visual, Steel Tape Acceptance Criteria Section 4.2.6 to 4.2.9.1

Type	Interval	Volume	Accept	Reject	Date
8-20 MESH DRY BENTONITE	105.8' - 21.4'	52.54 ft³	JAD	N/A	4/30/90
~~Concrete Surface Seal~~ CEMENT GROUT	21.4' - 2.0'	9.24 ft³	JAD	N/A	4/30/90
AWP 6/1/90 AWP 6/6/90	~~2.0'~~ - ~~+0.5'~~	~~1.3 ft³~~	—	—	—
—	— - —	—	—	—	—

REVIEWED BY S.M. GOODWIN [signature] 6/10/90 for all blanks mark N/A if not applicable.

9413205.0490

A.1

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AS-BUILT DIAGRAM

Well Number 299-W26-11 Geologist R. Miller (GAI), AW Parson, LA Doremus, S.P. Airhart, S.M. Goodwin Page 1 of 2

Reviewed by [illegible] Date 6/10/90

Construction Data: Description	Construction Data: Diagram	Depth in Feet	Geologic/Hydrologic Data: Diagram Litho.	Geologic/Hydrologic Data: Lithologic Description
10"Ø temporary carbon steel casing, w/drive shoe (0'-145.3') - removed		5		SAND - trace f gravel CS
		10		SAND "
		15		" - c. sand "
		20		sl. Gravelly SAND - c sand "
		25		SAND - f sand "
		30		" - c sand "
		35		" - f. sand "
Cement Grout 2.0'-21.4'		40		" - " "
		45		" - " "
		50		" - " "
8" dia. temporary carbon steel casing, w/drive shoe (0'-164.9') - removed		55		" - ", tr mud lenses "
		60		" - " "
		65		" - m sand - tr concretions "
		70		" - f sand "
		75		" - " "
8-20 Mesh Dry bentonite (21.4'-105.8')		80		Sandy GRAVEL - 76.5-78.0' CLAY @ 76.5' SAND - f sand 78-80' "
		85		SAND "
		90		" "
		95		" "
1/2" Volclay Tablets (105.8'-109.5')		100		" "
		105		" "
10-slot type 304 stainless steel channel-pack screen 4" dia. (115.0'-135.3')		110		" "
		115		" "
20-40 Colorado Silica Sand (109.5'-133.3')		120		" - f micaceous "
		125		" - " - mf "
40-100 Colorado Silica Sand (133.3'-137.35')		130		" - " "

A-1800-188 (3/87)

9413205.0491

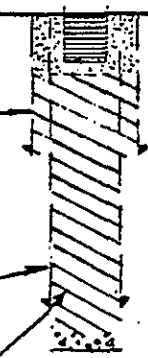
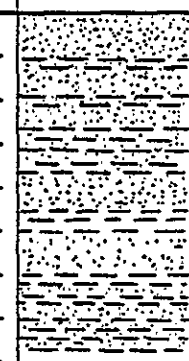
F-13

Battelle
Pacific Northwest Laboratories

AS-BUILT DIAGRAM

Well Number 299-W26-11 Geologist R Miller (GAI) AW Pearson LA Doremus Page 2 of 2

Reviewed by [signature] Date 6/10/90

Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Diagram		Diagram Litho.	Lithologic Description
10"ø temporary carbon steel		135		sl Muddy SAND - at 135.3'-1 DB
casing w/drive shoe from		140		Sandy MUD - 139.5-140.5'
(0'-145.3') - removed		145		SAND f 140.5-143.5'
				Sandy MUD 143.5-147.2'
		150		Muddy SAND 147.2-153.0'
8"ø temporary carbon steel		155		MUD - some f sand 153-155.5'
casing w/drive shoe from		160		Muddy SAND 155.5-160.0'
(0'-164.9') - removed		165		MUD 160-161.8' f 162.3-163.0 sl Muddy SAND 161.8'-162.3' & 163.0-165.5 *black sands
		170		Muddy SAND to 169.01' TD
Volclay Pure Gold Slurry	TD = 169.01'			
(137.35' - 167.3')				

A-1800-188 (3/87)

A-4

9413205.0492

WELL COMPLETION SUMMARY

Project
Location
Drilling Co. Haden
Driller E. Wilcox
Other (companies)
Geologist(s)

Well No. 699-26-89 Temp. Well No.
Coordinates PN 26000 PW 89000
Elevation: Casing 653.08 Brass Marker

DRILLING METHOD

Drilling Method(s) Cable Tool: Drive barrel 0-45', Hard Tool 45-500'
Drilling Fluid Water
Other

COMPLETION DATA

Drilled Depth 500'
Completed Depth 250'
Date Started 11/19/62
Date Completed 12/11/62
Static Water Level/Date 180' (9/18/89)

OTHER (check if performed)

- ___ Well Abandonment
- ___ Well Development
- ___ Aquifer Testing
- ___ Geophysical Log(s)
- ___ Lock and Cap
- ___ Downhole TV Inspection
- ___ Driller's Logs
- ___ Pad
- ___ Guardposts
- ___ Protective Casing

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Perforations in 8" casing				488 - 165'

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
			-
			-
			-
			-

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon Steel	8"		+2 - 490'

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
Cement Plug	250' - 252'?		
Heaving sand (sluff)	252? - 500'		
	-		
	-		
	-		

PUMP

Type Submersible Depth to Inlet Date Set 9/18/89

ACCEPTANCE

Completed Well: Accept Conditionally Accept
Reject

COMMENTS

Sand-filled in well to ~250'. Cement plug set at 250' (3/26/80)

Reviewed by Date Depths are below land surface unless noted.

9413205.0492

AS-BUILT DIAGRAM

Boring or Well Number 699-26-89 Sheet 1 of 3
Location N26000 W89000 Project

Logged by
Reviewed by Date

Date Well Started 11/19/62
Date Well Completed 12/11/62

Well Construction Data			Depth in Feet	Geologic/Hydrologic Data		
Description	Construction Diagram	Drill Bit		Sample Method	Lithologic Diagram	Lithologic Description *
Casing Elev. = 653.08			0			
						Muddy sand
8" carbon-steel casing						
			25			
						Calcareous
						Gravel basaltic
			50			Muddy sandy gravel basaltic
			75			
			100			
						Slightly gravelly muddy sand
						Muddy sand
			125			
						Slightly muddy gravelly sand
			150			
						Sandy gravel

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

* Lithology based on ROCSAN and Bjornstad (1984)

9413205.0484

AS-BUILT DIAGRAM

Boring or Well Number 699-26-89 Sheet 2 of 3

Location _____ Project _____

Logged by _____ Date Well Started _____

Reviewed by _____ Date _____ Date Well Completed _____

Well Construction Data: Description	Depth in Feet	Geologic/Hydrologic Data: Lithologic Description
Perforations: 165-488 ft	165	Muddy sandy gravel
	175	Slightly muddy gravelly sand
Water level (1989) = 180 ft		
		Muddy sandy gravel
	200	
8" carbon-steel casing		
		Sandy gravel
	225	
		Muddy sandy gravel
Cement plug at 250 ft	250	
	275	
		Gravelly sand
		Muddy sandy gravel
	300	
		Mud, lt. gray to olive gray, laminated
	325	

Drill Bit — Sample Method

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413205.0495

AS-BUILT DIAGRAM

Boring or Well Number 699-26-89 Sheet 3 of 3

Location _____ Project _____

Logged by _____ Date Well Started _____

Reviewed by _____ Date _____ Date Well Completed _____

Well Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Construction Diagram (Drill Bit)		Lithologic Diagram (Sample Method)	Lithologic Description
		330		Mud
8" carbon-steel casing				
		350		
				Mud, paleosol, calcareous
				(Caliche)
		375		
				Muddy sandy gravel
				Sandy gravel
				Muddy sandy gravel
		400		
		425		Gravelly muddy sand (yellow)
				(fine clay)
				Muddy sand (black silt)
				(Black silty clay)
		450		
				Gravelly sand
				(Black silty clay w/ sand and gravel)
		475		
				Gravelly sand (blue/black)
Perforations: 165-488 ft				
				Basalt, upper part weathered
TD = 500 ft.				

Drill Bit/Sample Method Used: ☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

( ) drillers log description

A-258

A-1800-186 (05/90)

9413205.0496

WELL COMPLETION SUMMARY

Project
Location
Drilling Co. HATCH DRILLING
Driller HATCH
Other (companies)
Geologist(s)

Well No. 699-31-65 Temp. Well No.
Coordinates N30536 W65357
Elevation: Casing 683.09 Brass Marker

DRILLING METHOD

Drilling Method(s) Cable Tool
HT-0'-450'
Drilling Fluid Water
Other

COMPLETION DATA

Drilled Depth 450'
Completed Depth 450'
Date Started 6/4/1957
Date Completed 8/20/1957
Static Water Level/Date 245.6'/4/2/65

OTHER (check if performed)

___ Well Abandonment	___ Downhole TV Inspection
___ Well Development	___ Driller's Logs
___ Aquifer Testing	___ Pad
___ Geophysical Log(s)	___ Guardposts
___ Lock and Cap	___ Protective Casing

*See Back

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Perforated Carbon Steel	8"	90'		240' - 330'
Perforated Carbon Steel	8"	20'		365' - 385'

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
			-
			-
			-
			-

*See Back

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon Steel	8"		0' - 240'
Carbon Steel	8"		330' - 365'

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
Sand Pack	310' - 450'		
	-		
	-		
	-		
	-		
	-		

PUMP

Type Depth to Inlet Date Set

ACCEPTANCE

Completed Well: Accept Conditionally Accept
Reject

COMMENTS

Piezometers set 5/64

Reviewed by Date Depths are below land surface unless noted.

9413205.0497

699-31-65 WELL COMPLETION SUMMARY (CONTINUED)

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Casing Perforations	7 1/8"	26'		424' - 450'
				-
				-
				-
				-
				-

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon Steel	8"		395' - 424'
			-
			-
			-
			-
			-

9413205.0198

WELL COMPLETION SUMMARY

Project
Location
Drilling Co. HATCH DRILLING
Driller HATCH
Other (companies)
Geologist(s)

Well No. 699-31-650 Temp. Well No.
Coordinates N30536 W65357
Elevation: Casing 683.09 Brass Marker

DRILLING METHOD
Drilling Method(s) Cable Tool
HT-0'-450'
Drilling Fluid Water
Other

COMPLETION DATA
Drilled Depth 450'
Completed Depth 260'
Date Started 6/14/1957
Date Completed 4/2/65
Static Water Level/Date

OTHER (check if performed)

___ Well Abandonment	___ Downhole TV Inspection
___ Well Development	___ Driller's Logs
___ Aquifer Testing	___ Pad
___ Geophysical Log(s)	___ Guardposts
___ Lock and Cap	___ Protective Casing

*See Back

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Perforated Carbon Steel	8"	90'		240' - 330'
Perforated Carbon Steel	8"	20'		365' - 385'

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
			-
			-
			-
			-

*See Back

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon Steel	8"		0' - 240'
Carbon Steel	8"		330' - 365'

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
Sand Pack	310' - 450'		
	-		
	-		
	-		
	-		
	-		

PUMP
Type Depth to Inlet Date Set

ACCEPTANCE
Completed Well: Accept Conditionally Accept
Reject

COMMENTS
Piezometers added 4/2/65

Reviewed by Date Depths are below land surface unless noted.

9413205.0499

699-31-65 "O" WELL COMPLETION SUMMARY (CONTINUED)

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Casing Perforations	7 1/8"	26'		424' - 450'
Perforated Polyethylene (?)	1.5"	20'		240' - 260'
				-
				-
				-
				-

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon Steel	8"		385' - 424'
Polyethylene (?)	1.5"		0 - 240'
			-
			-
			-
			-

9413205.0500

WELL COMPLETION SUMMARY

Project
Location
Drilling Co. HATCH DRILLING
Driller HATCH
Other (companies)
Geologist(s)

Well No. 699-31-65P Temp. Well No.
Coordinates N30536 W65357
Elevation: Casing 683.09 Brass Marker

DRILLING METHOD

Drilling Method(s) Cable Tool
HT-0'-450'
Drilling Fluid Water
Other

COMPLETION DATA

Drilled Depth 450'
Completed Depth 430'
Date Started 6/4/1957
Date Completed 4/2/65
Static Water Level/Date

OTHER (check if performed)

___ Well Abandonment	___ Downhole TV Inspection
___ Well Development	___ Driller's Logs
___ Aquifer Testing	___ Pad
___ Geophysical Log(s)	___ Guardposts
___ Lock and Cap	___ Protective Casing

SCREEN

*See Back

Type	Outer Diameter	Length	Slot Size	Interval
Perforated Carbon Steel	8"	90'		240' - 330'
Perforated Carbon Steel	8"	20'		365' - 385'

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
			-
			-
			-
			-

PERMANENT CASING

*See Back

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon Steel	8"		0' - 240'
Carbon Steel	8"		330' - 365'

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
Sand Pack	310' - 450'		
	-		
	-		
	-		
	-		
	-		

PUMP

Type Depth to Inlet Date Set

ACCEPTANCE

Completed Well: Accept Conditionally Accept
Reject

COMMENTS

Piezometers added 4/2/65

Reviewed by Date Depths are below land surface unless noted.

9413205.0501

699-31-65 "P" WELL COMPLETION SUMMARY (CONTINUED)

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Casing Perforations	7 1/8"	26'		424' - 450'
Perforated Polyethylene (?)	1.5"	20'		410' - 430'
				-
				-
				-
				-

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon Steel	8"		385' - 424'
Polyethylene (?)	1.5"		0 - 410'
			-
			-
			-
			-

9413205.0502

WELL COMPLETION SUMMARY

Project
Location
Drilling Co. HATCH DRILLING
Driller HATCH
Other (companies)
Geologist(s)

Well No. 699-31-65Q Temp. Well No.
Coordinates N30536 W65357
Elevation: Casing 683.09 Brass Marker

DRILLING METHOD
Drilling Method(s) Cable Tool
HT-0-450'
Drilling Fluid Water
Other

COMPLETION DATA
Drilled Depth 450'
Completed Depth 390'
Date Started 6/14/1957
Date Completed 4/2/65
Static Water Level/Date

OTHER (check if performed)
___ Well Abandonment
___ Well Development
___ Aquifer Testing
___ Geophysical Log(s)
___ Lock and Cap
___ Downhole TV Inspection
___ Driller's Logs
___ Pad
___ Guardposts
___ Protective Casing

*See Back

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Perforated Carbon Steel	8"	90'		240' - 330'
Perforated Carbon Steel	8"	20'		365' - 385'

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
			-
			-
			-
			-

*See Back

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon Steel	8"		0' - 240'
Carbon Steel	8"		330' - 365'

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
Sand Pack	310' - 450'		
	-		
	-		
	-		
	-		
	-		

PUMP
Type Depth to Inlet Date Set

ACCEPTANCE
Completed Well: Accept Conditionally Accept
Reject

COMMENTS
Piezometers add 4/2/65

Reviewed by Date Depths are below land surface unless noted.

9413205.0503

699-31-65 "Q" WELL COMPLETION SUMMARY (CONTINUED)

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Casing Perforations	7 1/8"	26'		424' - 450'
Perforated Polyethylene (?)	1.5"	20'		370' - 390'
				-
				-
				-
				-

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon Steel	8"		385' - 424'
Polyethylene	1.5"		0 - 370'
			-
			-
			-
			-

9413205.0504

WELL COMPLETION SUMMARY

Project
Location
Drilling Co. HATCH DRILLING
Driller HATCH
Other (companies)
Geologist(s)

Well No. 699-31-65R Temp. Well No.
Coordinates N30536 W65357
Elevation: Casing 683.09 Brass Marker

DRILLING METHOD
Drilling Method(s) Cable Tool
HT-0'-450'
Drilling Fluid Water
Other

COMPLETION DATA
Drilled Depth 450'
Completed Depth 330'
Date Started 6/4/1957
Date Completed 4/2/65
Static Water Level/Date

OTHER (check if performed)
___ Well Abandonment
___ Well Development
___ Aquifer Testing
___ Geophysical Log(s)
___ Lock and Cap
___ Downhole TV Inspection
___ Driller's Logs
___ Pad
___ Guardposts
___ Protective Casing

*See Back

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Perforated Carbon Steel	8"	90'		240' - 330'
Perforated Carbon Steel	8"	20'		365' - 385'

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
			-
			-
			-
			-

*See Back

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon Steel	8"		0' - 240'
Carbon Steel	8"		330' - 365'

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
Sand Pack	310' - 450'		
	-		
	-		
	-		
	-		
	-		

PUMP
Type Depth to Inlet Date Set

ACCEPTANCE
Completed Well: Accept Conditionally Accept
Reject

COMMENTS
Piezometers added 4/2/65

Reviewed by Date Depths are below land surface unless noted.

9413205.0505

699-31-65"R" WELL COMPLETION SUMMARY (CONTINUED)

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Perforated	7 1/8"	26'		424 - 450'
Perforated Polyethylene (?)	1.5"	20'		310' - 330'
				-
				-
				-
				-

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon Steel	8"		385' - 424'
Polyethylene (?)	1.5"		0 - 310'
			-
			-
			-
			-

9413205.0506

AS-BUILT DIAGRAM

Boring or Well Number 699-31-65 Sheet 1 of 3

Location _____ Project _____

Logged by _____

Reviewed by _____ Date _____

Date Well Started 6/14/57

Date Well Completed 4/2/65

Well Construction Data			Depth in Feet	Geologic/Hydrologic Data		
	Drill Bit			Sample Method	Data from Drillers Log	
Description	Construction Diagram				Lithologic Diagram	Lithologic Description
8" Carbon Steel Casing 0'-240'			5			Sand
			10			Sand & Silt
			15			" "
			20			" "
			25			" "
1½" Polyethelene O-Tube 0'-260'			30			" "
			35			" "
			40			" "
			45			" "
1½" Polyethelene R-Tube 0'-330'			50			" "
			55			" "
			60			" "
			65			" "
1½" Polyethelene Q-Tube 0'-390'			70			" "
			75			" "
			80			" "
			85			" "
1½" Polyethelene P-Tube 0'-430'			90			" "
			95			" "
			100			" "
			105			" "
			110			" "
			115			" "
			120			" "
			125			" "
			130			" "
			135			" "
			140			" "
			145			" "
			150			" "
			155			" "
			160			" "
			165			" "

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ▣ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ● Split-Barrel

A-1800-186 (05/90)

9413205.0507

AS-BUILT DIAGRAM

Boring or Well Number 699-31-65 Sheet 2 of 3

Location _____ Project _____

Logged by _____

Reviewed by _____ Date _____

Date Well Started 6/14/57

Date Well Completed 4/2/65

Drill Bit

Sample Method Data from Driller's Log

Well Construction Data: Description	Depth in Feet	Geologic/Hydrologic Data: Lithologic Description
1½" Polyethelene R-Tube 0'-330'	170	Sand & Silt
	175	" "
	180	" "
1½" Polyethelene Q-Tube 0'-390'	185	" "
	190	" "
	195	Coarse Sand & Little Silt
1½" Polyethelene P-Tub 0'-430'	200	" " " "
	205	" " " "
	210	Fine Sand & Little Silt
	215	Sand & Gravel to ½"
	220	" " " "
	225	Sand, Clay & Fine Gravel
	230	" " " "
	235	Sand & Silt
	240	Coarse Sand & Gravel
O-Tube Perforated from 240'-260'	245	Sand & Silt
	250	Clean Coarse Sand & Gravel
	255	" " " "
	260	Clean Gravel ¼" to 1½"
	265	" " " " "
	270	" " " " "
	275	Clean Gravel ½" to 1¼"
Perforated Carbon Steel Casing 240'-330'	280	" " " " "
	285	" " " " "
	290	Clean Gravel ¼" to 3"
	295	Cemented Gravel ¼" to 1½"
	300	" " " " "
	305	" " " " "
	310	" " " " "
R-Tube Perforated from 310'-330'	315	Gravel, Sand & Silt
	320	" " "
	325	Sand, Silt & Gravel to 3"
Sand Pack 310'-450'	330	" " " " "

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ● Split-Barrel

A-1800-186 (05/90)

9413205.0508

AS-BUILT DIAGRAM

Boring or Well Number 699-31-65 Sheet 3 of 3
Location _____ Project _____

Logged by _____
Reviewed by _____ Date _____

Date Well Started 6/14/57
Date Well Completed 4/2/65

Well Construction Data			Depth in Feet	Geologic/Hydrologic Data		
		Drill Bit		Sample Method		Data from Drillers Log
Description	Construction Diagram				Lithologic Diagram	Lithologic Description
8" Carbon Steel Casing 330'-365'			335			Sand, Silt & Gravel to 3"
			340			Sand, Silt & Fine Gravel
			345			" " " "
			350			" " " "
Sand Pack 310'-450'			355			" " " "
			360			Cemented Gravel
			365			Sand, Silt & Gravel
Perforated 8" Carbon Steel Casing 365'-385'			370			" " "
			375			" " "
			380			" " "
Q-Tube Perforated from 370'-390'			385			" " "
			390			" " "
			395			Sand & Silt
8" Carbon Steel Casing 385'-424'			400			Yellow Clay
			405			Yellow Clay w/ Gravel
			410			" " "
P-Tube Perforated from 410'-430'			415			" " "
			420			" " "
			425			" " "
Perforated 7⅛" Casing 414'-450'			430			Cemented Sand
			435			" "
			440			Cemented Sand & Gravel
			445			Sandy Clay
			450			Sandy Clay & Gravel
						TD = 450.0'

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413205.0509

WELL COMPLETION SUMMARY

Project
Location
Drilling Co.
Driller Swain
Other (companies)
Geologist(s)

Well No. 699-32-70B Temp. Well No. 699-32-70
Coordinates PN 32077 PW 70338
Elevation: Casing 666.68 Brass Marker

DRILLING METHOD

Drilling Method(s) Cable Tool - Assume Hard Tool Bit
Drilling Fluid Water
Other

COMPLETION DATA

Drilled Depth 350'
Completed Depth 246'
Date Started 7/15/57
Date Completed 3/25/80
Static Water Level/Date 211' (6/20/85

OTHER (check if performed)

___ Well Abandonment	___ Downhole TV Inspection
___ Well Development	___ Driller's Logs
___ Aquifer Testing	___ Pad
___ Geophysical Log(s)	___ Guardposts
___ Lock and Cap	___ Protective Casing

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Perforations	8"			207 - 222'
Perforations	8"			230 - 330'

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
			-
			-
			-
			-

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
			-
Carbon Steel	8"		0 - 332'

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
	-		
	-		
Cement Plug	246 - 250'		
	-		
	-		
	-		

PUMP

Type _____ Depth to Inlet _____ Date Set _____

ACCEPTANCE

Completed Well: Accept _____ Conditionally Accept _____
Reject _____

COMMENTS

Reviewed by _____ Date _____ Depths are below land surface unless noted.

9413205.0510

AS-BUILT DIAGRAM

Boring or Well Number 699-32-70 B Sheet 1 of 3

Location _____ Project _____

Logged by _____

Reviewed by _____ Date _____

Date Well Started 7/15/57

Date Well Completed 3/25/80

Well Construction Data			Depth in Feet	Geologic/Hydrologic Data		
	Drill Bit			Sample Method	Litl. from Drill Log	
Description	Construction Diagram				Lithologic Diagram	Lithologic Description
			5			Sand
			10			Gravel
			15			Sand + Gravel
8" Carbon Steel Casing			20			" "
(0 - 332')			25			" "
			30			Sand + silt w/ streaks of small gravel
			35			" " "
			40			" " "
			45			" " "
			50			" " "
			55			" " "
			60			" " "
			65			" " "
			70			" " "
			75			Fine Sand and Silt
			80			" " "
			85			" " "
			90			" " "
			95			" " "
			100			" " "
			105			" " "
			110			" " "
			115			" " "
			120			" " "
			125			" " "
			130			" " "
			135			" " "
			140			" " "
			145			" " "
			150			" " "
			155			" " "
			160			" " "
			165			" " "

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413205.0511

AS-BUILT DIAGRAM

Boring or Well Number 699-32-70B Sheet 2 of 3

Location _____ Project _____

Logged by _____ Date Well Started 7/15/57

Reviewed by _____ Date _____ Date Well Completed 3/25/80

Well Construction Data: Description	Depth in Feet	Geologic/Hydrologic Data: Lithologic Description
	170	Fine Sand + Silt
	175	" " "
	180	" " "
	185	" " "
	190	" " "
	195	" " "
Perforations (207-222')	200	Cemented sand + small gravel (starts
4 cuts/ft	205	Sand, silt, + clay (starts @ 202')
	210	" " "
Water level (6/20/85)	215	" " "
	220	Cemented sand, silt, + gravel (starts @ 219
	225	" " " " "
	230	" " " "
	235	Cemented sand and gravel with layers of large gravel (4")
	240	" " "
	245	" " "
Cement Plug (246-250')	250	(no information)
(set 3/25/80)	255	" "
Perforations in 8" Casing	260	" "
(230-330') 3 cuts/ft	265	Cemented Sand
	270	" "
	275	" "
	280	Cemented sand and small gravel
	285	" " " "
	290	" " " "
	295	" " " "
	300	" " " "
8" Carbon Steel Casing	305	Sand and Gravel
(0-332')	310	" " "
	315	Sand + large gravel (3")
	320	Sand and silt
	325	Cemented Sand and Silt
	330	" " "

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413205.0512

AS-BUILT DIAGRAM

Boring or Well Number 699-32-70B Sheet 3 of 3
Location _____ Project _____

Logged by _____
Reviewed by _____ Date _____

Date Well Started 7/15/57
Date Well Completed 3/25/80

Well Construction Data			Depth in Feet	Geologic/Hydrologic Data		
		Drill Bit			Sample Method	
Description	Construction Diagram				Lithologic Diagram	Lithologic Description
			335			cemented sand + gravel (small)
8" Borehole to 350'			340			" " "
			345			Sand + silt, small gravel
			350			" " "

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413205.0513

WELL COMPLETION SUMMARY

Project
Location
Drilling Co.
Driller
Other (companies)
Geologist(s)

Well No. 699-32-72"P" Temp. Well No. N/A
Coordinates
Elevation: Casing Brass Marker

DRILLING METHOD

Drilling Method(s) Cable Tool. Bit not specified - assume Hard Tool bit
Drilling Fluid Water
Other

COMPLETION DATA

Drilled Depth 580'
Completed Depth 470'
Date Started 6/19/57
Date Completed 6/28/77
Static Water Level/Date N/A

OTHER (check if performed)

___ Well Abandonment	___ Downhole TV Inspection
___ Well Development	___ Driller's Logs
___ Aquifer Testing	___ Pad
___ Geophysical Log(s)	___ Guardposts
___ Lock and Cap	___ Protective Casing

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Screen	1.5"	5 ft	60	465 - 470'

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
			-
			-
			-
			-

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
1.5" dia. Piezometer tube	1.5"		0 - 465'

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
	-		
Pea gravel	? - ?	?	?
Sand	? - ?	?	?
Cement plug (between 1.5' + 8" casing)	415 - 420	?	?
	-		
	-		

PUMP

Type Depth to Inlet Date Set

ACCEPTANCE

Completed Well: Accept Conditionally Accept
Reject

COMMENTS

Piezometer tube "P" completed within well 699-32-72

Reviewed by Date Depths are below land surface unless noted.

9413205.0514

AS-BUILT DIAGRAM

Boring or Well Number: 699-32-72 Sheet: 1 of 4
Location: Project:

Logged by:
Reviewed by: Date:
Date Well Started: 6/19/77
Date Well Completed: 6/28/77

Well Construction Data: Description	Construction Diagram (Drill Bit)	Depth in Feet	Geologic/Hydrologic Data: Lithologic Diagram (Sample Method)	Lithologic Description (Lith from sieve data - 0-35', 245-500; " " drill log - 35-245')
		5		Muddy Sand
8" Carbon Steel Casing (0-571')		10		" "
		15		" "
		20		" "
		25		Sl. Muddy Sand
		30		" "
		35		" "
		40		(No sample)
		45		Sand
1.5" dia. piezometer tube "P" (0-470')		50		(Sand + silt @ 48')
		55		Sand - little silt
		60		(no sample)
		65		Sand - little silt
		70		(no sample)
		75		Sand - little silt
		80		(no sample)
		85		Sand - little silt
		90		(no sample)
		95		Sand - little silt
		100		(no sample)
		105		Sand - little silt
		110		Sand - little silt
		115		(no sample)
		120		Sand - little silt
		125		(no sample)
		130		50% sand, 50% silt
		135		(no sample)
		140		"
		145		"
		150		50% sand, 50% silt
		155		Sand - very little silt
		160		(no sample)
		165		"

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413275.0515

AS-BUILT DIAGRAM

Boring or Well Number 699-32-72 Sheet 2 of 4

Location _____ Project _____

Logged by _____ Date Well Started 6/19/57

Reviewed by _____ Date _____ Date Well Completed 6/28/77

Well Construction Data			Depth in Feet	Geologic/Hydrologic Data	
Description	Construction Diagram (Drill Bit)			Lithologic Diagram (Sample Method)	Lithologic Description
			170		50% silt, 50% sand
			175		(no sample)
			180		" "
			185		50% silt, 50% sand
			190		Sand and small gravel (starts @
			195		Sand and coarse gravel
			200		Sand, silt + gravel
8" Carbon Steel Casing			205		(no sample)
(0-571')			210		Sand + silt
			215		(no sample)
Perforations in 8" casing:			220		Sand + silt
210-240' 6 cuts/ft	6/57		225		Sand - silt
240-275' 2 cuts/ft			230		(no sample)
275-280' 6 cuts/ft			235		Sand - silt
280-370' 1 cut/ft			240		Sand - silt
370-380 6 cuts/ft			245		Muddy Sandy Gravel (start @ 242
380-410 1 cut/ft			250		Sandy Gravel
415-420 6 cuts/ft			255		" "
465-485'			260		" "
1.5" dia. piezometer tube			265		Gravel
"P" (0-470')			270		Sandy Gravel
			275		Muddy Sandy Gravel
			280		Sandy Gravel
			285		" "
			290		Gravelly Sand
			295		Sandy Gravel
			300		Gravelly Sand
			305		Sandy Gravel
			310		Gravelly Sand
			315		Sandy Gravel
			320		Muddy Sandy Gravel
			325		Sl. Muddy Gravelly Sand
			330		Sand

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/9

9413205.0516

AS-BUILT DIAGRAM

Boring or Well Number 699-32-72 Sheet 3 of 4
Location
Project

Logged by
Reviewed by Date

Date Well Started 6/19/57
Date Well Completed 6/28/77

Well Construction Data: Description	Construction Diagram (Drill Bit)	Depth in Feet	Geologic/Hydrologic Data: Lithologic Diagram (Sample Method)	Lithologic Description
		335		Gravelly Sand
8" Carbon Steel Casing (0-471')		340		Sandy Gravel
		345		Sl. gravelly, sl. muddy sand
		350		sl. muddy gravelly sand
1.5" dia piezometer tube (0-470') "P"		355		sl. gravelly, sl. muddy sand
		360		" " "
		365		sl. muddy gravelly sand
		370		" " "
		375		" " "
		380		sl. gravelly sand
		385		Sand
		390		Sl. gravelly sand
		395		Sandy Gravel
		400		Gravelly Sand
		405		Sandy Gravel
		410		Gravel
		415		Sl. Muddy Sand
Cement Plug (415-420')		420		Muddy Sandy Gravel
		425		(no sample)
Sand Pack (depth not specified)		430		Gravelly Muddy Sand
		435		Muddy Sand
		440		" "
		445		" "
		450		" "
60-slot screen (465-470')		455		Sl. gravelly muddy sand
		460		Muddy Sandy Gravel
		465		" " "
"Pea Gravel" (depth not specified)		470		" " "
(hole was redrilled to 475') (6/77)		475		Sl. Muddy gravelly sand
		480		Muddy Sandy Gravel
Perforations in 8" casing 465-485'		485		Sl. Muddy Gravelly Sand
		490		Sl. gravelly, sl. muddy sand
Sluff?		495		Sl. muddy gravelly sand

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413205.0517

AS-BUILT DIAGRAM

Boring or Well Number 699-32-72 Sheet 4 of 4
Location Project

Logged by
Reviewed by Date
Date Well Started 6/19/57
Date Well Completed 6/28/

Well Construction Data: Description	Construction Diagram (Drill Bit)	Depth in Feet	Geologic/Hydrologic Data: Lithologic Diagram (Sample Method)	Lithologic Description
		500		Muddy Sandy Gravel
		505		Sl. Muddy Gravelly Sand
Borehole originally contained		510		Sl. Gravelly, Sl. Muddy Sand
5 piezometer tubes.		515		Sl. gravelly muddy sand
These were removed - no		520		Sl. gravelly, sl. muddy sand
information on what		525		Sl. muddy sand
material is in well between		530		Sl. gravelly, sl. muddy sand
475' and 580'. Assume		535		" " "
it contains sluff		540		Sl. Muddy Sand
		545		Sandy Gravel
8" Carbon steel casing		550		Sl. gravelly Muddy Sand
(0-471')		555		Sl. gravelly, Sl. muddy sand
		560		Sand
		565		"
		570		"
		575		Basalt (starts @ 573')
Original TD = 580'		580		

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/5

9413205.0518

WELL COMPLETION SUMMARY

Project
Location
Drilling Co.
Driller Ford
Other (companies)
Geologist(s)

Well No. 699-32-77 Temp. Well No.
Coordinates PN 31812 PW 77032
Elevation: Casing 653.74 Brass Marker

DRILLING METHOD
Drilling Method(s) Cable Tool: Hard Tool 0-29
Drilling Fluid
Other

COMPLETION DATA
Drilled Depth 290'
Completed Depth 220'
Date Started 4/17/51
Date Completed 5/15/51
Static Water Level/Date 190' (8/17/87)

OTHER (check if performed)
___ Well Abandonment
___ Well Development
___ Aquifer Testing
___ Geophysical Log(s)
___ Lock and Cap
___ Downhole TV Inspection
___ Driller's Logs
___ Pad
___ Guardposts
___ Protective Casing

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Perforations in 8" casing	8"			175' - 290'

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
			-
			-
			-
			-

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon Steel	8"		0 - 290'

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
	-		
	-		
Cement Plug	220' - ~~222'~~ 290'?		
	-		
	-		
	-		

PUMP
Type Submersible Depth to Inlet Date Set

ACCEPTANCE
Completed Well: Accept Conditionally Accept
Reject

COMMENTS
Cement plug set 4/17/78

Reviewed by Date Depths are below land surface unless noted.

9413205.0519

AS-BUILT DIAGRAM

Boring or Well Number 699-32-77 Sheet 1 of 2
Location N31812 W77032 Project

Logged by
Reviewed by Date

Date Well Started 4/17/51
Date Well Completed 5/15/51

Well Construction Data: Description	Construction Diagram (Drill Bit)	Depth in Feet	Geologic/Hydrologic Data: Lithologic Diagram (Sample Method)	Lithologic Description *
Casing Elev.=653.74'		0		Slightly muddy sand
				" "
8" carbon-steel casing				Sand
				Slightly gravelly muddy sand
		25		Slightly muddy sand
				" "
				Sand
				Slightly muddy sand, yel
				" "
		50		"
				Slightly muddy gravelly sand
				Slightly gravelly muddy sand
				Sand, white
				Slightly muddy sand
		75		" "
				Muddy sand micaceous
				" "
				Slightly muddy sand
				" "
		100		Muddy sand
				Slightly muddy sand
				Muddy sand, calcareous, pale
				" "
				"
		125		"
				Gravelly muddy sand, v. calca
				" "
				"
				Slightly muddy gravelly sand
		150		Muddy sandy gravel
				Slightly muddy gravelly sand
				Muddy sandy gravel
				" "

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

* Based on ROCSAN and Bjornstad (1984)

A-1800-186 (05/90)

9413205.0520

AS-BUILT DIAGRAM

Boring or Well Number 699-32-77 Sheet 2 of 2
Location N31812 W77032 Project

Logged by
Reviewed by Date
Date Well Started 4/17/51
Date Well Completed 5/15/51

Well Construction Data: Description	Depth in Feet	Geologic/Hydrologic Data: Lithologic Description
8" carbon-steel casing	165	Gravelly muddy sand
	175	" "
Perforated casing from 175-290'		"
		Muddy sandy gravel
1987 water level @ 190 ft		Slightly muddy gravelly sand
		Muddy sandy gravel
	200	Slightly muddy gravelly sand
		Muddy sandy gravel
		Slightly muddy gravelly sand
		Muddy sandy gravel
D/B (1987) = 220 ft		Gravelly sand
Submersible cement plug	225	Gravelly muddy sand
from 222 ft to TD		Muddy sandy gravel
		"
		"
	250	Slightly muddy gravelly sand
		Muddy sandy gravel
		Gravelly sand
		Muddy sandy gravel
		Slightly muddy gravelly sand
	275	Muddy sandy gravel
		" "
		"
TD = 290 ft (TD)		Sandy gravel
	300	

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413205.0521

WELL COMPLETION SUMMARY

Project
Location
Drilling Co.
Driller Chausse
Other (companies)
Geologist(s)

Well No. 699-34-88 Temp. Well No. 34-88.5
Coordinates
Elevation: Casing Brass Marker

DRILLING METHOD
Drilling Method(s)
Drilling Fluid
Other

COMPLETION DATA

Drilled Depth 688'
Completed Depth 210'
Date Started 8/28/48
Date Completed 3/12/76
Static Water Level/Date 162' (3/13/87)

OTHER (check if performed)

- ___ Well Abandonment
- ___ Well Development
- ___ Aquifer Testing
- ___ Geophysical Log(s)
- ___ Lock and Cap
- ___ Downhole TV Inspection
- ___ Driller's Logs
- ___ Pad
- ___ Guardposts
- ___ Protective Casing

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Perforations (12/20/48)	8"			? - ?
" (10/16/56)	8"			180 - 220
" (4/20/78)	6"			156 - 178'

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
			-
			-
			-
			-

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon Steel	8"		0 - 647.5

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
Gravel pack + piezometer tubes	380' - 688'		
Cement plug	? - 210'		
	-		
	-		
	-		

PUMP

Type None Depth to Inlet Date Set

ACCEPTANCE

Completed Well: Accept Conditionally Accept
Reject

COMMENTS

Reviewed by Date Depths are below land surface unless noted

9413205.0522

AS-BUILT DIAGRAM

Boring or Well Number 699-34-68 Sheet 1 of 5
Location _____ Project _____

Logged by _____ Date Well Started 8/28/48
Reviewed by _____ Date _____ Date Well Completed 3/12/76

Well Construction Data — Drill Bit

Geologic/Hydrologic Data — Sample Method Lith. from Drill Log, Sieve data, + Geol.

Description	Construction Diagram	Depth in Feet	Lithologic Diagram	Lithologic Description
		0		
		5		Sandy Loam
8" dia. Carbon Steel		10		Sl. Muddy Sand
Casing (0-647.5')		15		" "
		20		" "
		25		Muddy Sand
		30		" "
		35		" "
		40		Sl. Muddy Sand
		45		" "
		50		" "
		55		Muddy Sand
		60		" "
		65		" " (@ 67')
		70		Sandy Mud
		75		" "
		80		Sand, Gravel, Boulders, + clay
		85		" " "
		90		" " "
		95		Clay, boulders, and silt
		100		" " "
		105		" " "
		110		Clay + boulders
		115		" "
		120		sl. Muddy Sand (sieve data)
		125		Sand, silt, clay, gravel + boulders
		130		" " "
Perforations in 8" casing		135		" " "
(156-170')		140		Sl. Muddy gravelly sand (sieve data)
		145		Gravel, boulders, + silt
		150		" " "
		155		Gravel, silt, boulders, + clay
Water level 162' (3/13/87)		160		" " " "
		165		" " " "

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413205.0523

AS-BUILT DIAGRAM

Boring or Well Number 699-34-88 Sheet 2 of 5

Location _____ Project _____

Logged by _____ Date Well Started 8/28/48

Reviewed by _____ Date _____ Date Well Completed 3/12/76

Well Construction Data: Description	Drill Bit: Construction Diagram	Depth in Feet	Geologic/Hydrologic Data: Sample Method: Lithologic Diagram	Lithologic Description
		170		Gravelly Muddy Sand
		175		Sand, gravel, + some silt
		180		Muddy Sandy Gravel
Perforations in 8" casing (10/11/56)		185		" " "
180-200' 6 cuts/ft		190		" " "
200-220 3 cuts/ft		195		" " "
(4/20/78) 156-170 4 cuts/ft		200		" " "
		205		" " "
Cement plug @ 210'		210		" " "
		215		" " "
		220		" " "
		225		" " "
		230		" " "
		235		" " "
		240		" " "
		245		" " "
		250		" " "
		255		" " "
		260		" " "
		265		" " "
		270		" " "
		275		" " "
		280		" " "
		285		" " "
		290		" " "
		295		" " "
		300		" " "
		305		" " "
		310		" " "
		315		" " "
		320		" " "
		325		" " "
		330		" " "

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413205.0524

AS-BUILT DIAGRAM

Boring or Well Number 699-34-88 Sheet 3 of 5
Location Project

Logged by
Reviewed by Date
Date Well Started 8/28/48
Date Well Completed 3/12/76

Well Construction Data			Depth in Feet	Geologic/Hydrologic Data		
	Drill Bit			Sample Method		
Description	Construction Diagram	▼		▼	Lithologic Diagram	Lithologic Description
Well originally contained 6 1.5"			335			Muddy Sandy Gravel
plastic piezometer tubes. The			340			
monitoring intervals of these tubes			345			
was: "O" (160-180'), "P" (668-688)			350			
"Q" (590-600), "R" (510-520),			355			
"S" (430-440), + "T" (350-360)			360			
These tubes were "gravel packed"			365			
in place (no seal between tubes)			370			
Remaining 1.5" Plastic piezometer	S R Q P		375			
tubes. Well was later drilled			380			
out to 378' (3/11/76)			385			
"O" + "T" were removed with			390			
380' of "S".			395			
			400			
Gravel pack between tubes			405			
			410			
			415			
			420			90% clay, 10% gravel (422-42
			425			Clay
			430			"
			435			" (Blue clay 433-476')
			440			" , blue
			445			" "
			450			" "
8" Carbon Steel Casing			455			" "
(0-647.5)			460			" "
			465			" "
8" casing is probably			470			" "
perforated but don't know			475			Slightly silty, sandy clay (476-
exact depths			480			" " " "
			485			Basalt sand, trace of clay, calcareous
			490			Very clayey coarse black sand w/caliche
			495			" " "

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413205.0525

AS-BUILT DIAGRAM

Boring or Well Number 699-34-88 Sheet 4 of 5
Location Project

Logged by
Reviewed by Date

Date Well Started 8/28/48
Date Well Completed 3/12/76

Well Construction Data: Description	Depth in Feet	Geologic/Hydrologic Data: Lithologic Description
	500	Sandy, slightly gravelly, clay w/caliche
	505	" " " "
	510	Brown ash or clay w/ small gravel
	515	Brown ash, sand, clay, & small gravel
	520	Silty + clayey qtz sand w/ black sandstone
	525	" " " "
	530	Slightly silty qtz sand
	535	" " "
	540	Sand & granule-size gravel
	545	Silty sand + fine gravel w/cobbles + bo
	550	Qtz sand & pebble-cobble-gravel
"Gravel pack" between	555	Sand & a few granule size gravel
piezometer tubes →	560	" " "
	565	Clay and Sand
	570	Tan Sandstone
	575	" "
	580	" "
	585	Sand and Gravel
	590	Silty Sand
	595	" "
	600	" "
	605	" "
	610	" "
	615	" "
	620	" " w/ some gravel
	625	" " w/ wood fragments
8" Carbon Steel Casing	630	Silty sand
(0-647.5') →	635	" " w/ wood fragments
	640	Slightly silty sand
	645	Silty sand, some gravel
	650	sand w/ basaltic gravels
	655	Basalt ?
	660	Rotten basalt & sand lag

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ◉ Split-Barrel

A-1800-186 (05/90)

9413205.0526

AS-BUILT DIAGRAM

Boring or Well Number 699-34-88 Sheet 5 of 5

Location _____ Project _____

Logged by _____

Reviewed by _____ Date _____

Date Well Started 8/28/48

Date Well Completed 3/12/76

Well Construction Data			Depth in Feet	Geologic/Hydrologic Data		
		Drill Bit		Sample Method		
Description	Construction Diagram				Lithologic Diagram	Lithologic Description
			665			Slightly silty chopped basalt
			670			Hard black basalt
8" Borehole			675			" " "
Gravel Pack			680			" " "
"P" piezometer tube			685			" " "
			690			
						(Driller says basalt starts @ 650')
						TD = 688'

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ◉ Split-Barrel

A-1800-186 (05/90)

9413205.0527

WELL COMPLETION SUMMARY

Project
Location
Drilling Co.
Driller Row
Other (companies)
Geologist(s) Randy Brown

Well No. 699-36-61A Temp. Well No. 36.5-60.5
Coordinates PN 36365 PW 60704
Elevation: Casing 748.11 Brass Marker

DRILLING METHOD
Drilling Method(s) Cable Tool - Assume Hard Tool bit
Drilling Fluid Water
Other

COMPLETION DATA
Drilled Depth 390'
Completed Depth 363' or 365'
Date Started 7/21/48
Date Completed 8/12/48
Static Water Level/Date 339.5 (6/28/85)

OTHER (check if performed)
- ___ Well Abandonment
- ___ Well Development
- ___ Aquifer Testing
- ___ Geophysical Log(s)
- ___ Lock and Cap
- ___ Downhole TV Inspection
- ✓ Driller's Logs
- ___ Pad
- ___ Guardposts
- ___ Protective Casing

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Perforations in 8" Casing	8"			330' - 389'

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
			-
			-
			-
			-

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon Steel	8"		+0.75 - 390'

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
	-		
	-		
Cement plug (8/20/75)	? - 363' or 365'		
	-		
	-		
	-		

PUMP
Type Submersible Depth to Inlet ___ Date Set ___

ACCEPTANCE
Completed Well: Accept ___ Conditionally Accept ___
Reject ___

COMMENTS

Reviewed by ___ Date ___ Depths are below land surface unless noted.

9413205.0528

AS-BUILT DIAGRAM

Boring or Well Number 699-36-61A Sheet 1 of 3

Location _____ Project _____

Logged by _____ Date Well Started 7/21/48

Reviewed by _____ Date _____ Date Well Completed 8/12/48

Drill Bit: Assume Hard Tool

Sample Method: Assume Hard Tool — Lith from Geologist Log

Well Construction Data: Description	Construction Diagram	Depth in Feet	Geologic/Hydrologic Data: Lithologic Diagram	Lithologic Description
		5		Silty Sand
		10		Sandy Gravel (pebble size)
		15		" " "
8" Carbon Steel Casing		20		Silty Sandy Gravel
(+0.75 - 390')		25		" " "
		30		" " "
		35		Sl. Gravelly Silty Sand, some calich
		40		" " "
		45		" " "
		50		" " "
		55		Gravelly Silty Sand
		60		" " "
		65		" " "
		70		" " "
		75		" " "
		80		Sl. Silty Sand
		85		" "
		90		" "
		95		Sl. Silty, Sl. Gravelly Sand, some calic
		100		Sand
		105		"
		110		" w/ caliche chunks
		115		Sl. gravelly sand with caliche chunk
		120		" " "
		125		Sl. Gravelly, silty sand, w/calich
		130		Sl. Gravelly Sand, some caliche
		135		Sand
		140		Sl. Silty, Sl Gravelly Sand
		145		" " "
		150		" " "
		155		Sl. Gravelly, Silty Sand
		160		" " "
		165		" " "

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413205.0529

AS-BUILT DIAGRAM

Boring or Well Number 699-36-61A Sheet 2 of 3

Location _____ Project _____

Logged by _____ Date Well Started 7/21/48

Reviewed by _____ Date _____ Date Well Completed 8/12/48

Well Construction Data			Depth in Feet	Geologic/Hydrologic Data		
	Drill Bit			Sample Method		
Description	Construction Diagram				Lithologic Diagram	Lithologic Description
		Assume Hard Tool	170	Assume Hard Tool		Sl. Gravelly Silty Sand
8" Carbon Steel Casing			175			" " "
(+ 0.75 to 390')			180			Sand " "
			185			"
			190			Silty Sand
			195			" "
			200			Sandy Gravel, some caliche
			205			" " , abundant caliche
			210			" " " "
			215			Sl. Gravelly Sand w/ caliche
			220			Sl. Gravelly Silty Sand w/caliche
			225			Silty Sand w/ caliche
			230			" " "
			235			" " "
			240			" " "
			245			" " "
			250			" " "
			255			" " "
			260			" " "
			265			" " "
			270			" " "
			275			" " "
			280			" " "
			285			Well sorted Silty Coarse Qtz Sand
			290			" " "
			295			" " "
			300			Sand
			305			"
			310			"
			315			"
			320			"
			325			"
			330			Sl. Gravelly Sand

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ● Split-Barrel

A-1800-186 (05/90)

9413205.0530

AS-BUILT DIAGRAM

Boring or Well Number 699-36-61A Sheet 3 of 3
Location _____ Project _____

Logged by _____
Reviewed by _____ Date _____

Date Well Started 7/21/48
Date Well Completed 8/12/48

Well Construction Data			Depth in Feet	Geologic/Hydrologic Data		
		Drill Bit		Sample Method		
Description	Construction Diagram				Lithologic Diagram	Lithologic Description
Water level 339.5 (6/28/85)		Assumed Hard Tool	335	Assume H.T.		Silty Sandy Gravel
Perforations in 8" casing			340			" " "
(330-389')			345			" " "
			350			" " "
			355			" " "
			360			" " "
Cement Plug – depth is			365			" " "
either 363' or 365' –			370			Sandy Gravel
both are recorded in			375			Silty Sandy Gravel
logs. Originally set			380			" " "
plug 8/20/75			385			" " "
			390			" " "

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ● Split-Barrel

A-1800-186 (05/90)

9413205.0531

WELL COMPLETION SUMMARY

Project
Location
Drilling Co.
Driller Courtney Bach
Other (companies)
Geologist(s)

Well No. 699-36-61B Temp. Well No.
Coordinates
Elevation: Casing Brass Marker

DRILLING METHOD

Drilling Method(s) Cable Tool: Hard Tool - 0-40, 250-295, 305-568'; Core Barrel 40-250, 295-3
Drilling Fluid Water, 20 gal clay
Other

COMPLETION DATA

Drilled Depth 568'
Completed Depth 380'
Date Started 11/30/59
Date Completed 2/4/60
Static Water Level/Date 340' (8/24/87)

OTHER (check if performed)

- ___ Well Abandonment
- ___ Well Development
- ___ Aquifer Testing
- ___ Geophysical Log(s)
- ___ Lock and Cap
- ___ Downhole TV Inspection
- ___ Driller's Logs
- ___ Pad
- ___ Guardposts
- ___ Protective Casing

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Perforations (6/18/64)				? - ?
Perforations (2/4/60)	8"			330 - 400'

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
			-
			-
			-
			-

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon Steel	8"		+2.5 - 549.5

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
Cement plug (set 4/12/78)	380' - 382'?		
	-		
	-		
	-		
	-		

PUMP

Type None Depth to Inlet Date Set

ACCEPTANCE

Completed Well: Accept Conditionally Accept
Reject

COMMENTS

Piezometers "O", "P", "Q", + "R" were removed 8/19/75
Hanford Wells says perforations from 330 to 505'. Well was perf. for piez. installation but d[illegible] noted logs

Reviewed by Date Depths are below land surface unless noted.

9413205.0537

AS-BUILT DIAGRAM

Boring or Well Number 699-36-61B Sheet 1 of 4

Location _____ Project _____

Logged by _____

Reviewed by _____ Date _____

Date Well Started 11/30/59

Date Well Completed 2/4/60

Well Construction Data			Depth in Feet	Geologic/Hydrologic Data		
	Drill Bit			Sample Method	Lithology from driller's log	
Description	Construction Diagram				Lithologic Diagram	Lithologic Description
			5			Sand
8" dia carbon steel casing			10			"
(+2.5 - 549.5)			15			Fine Gravel
			20			" "
			25			" "
			30			" "
			35			" "
			40			" " w/silt
			45			Coarse Sand
			50			" "
			55			" "
			60			Sand
			65			Coarse Sand
			70			Fine Sand
			75			" "
			80			" "
			85			" "
			90			" "
			95			" "
			100			Sand + Silt
			105			" "
			110			" "
			115			" "
			120			" "
			125			" "
			130			Fine Sand
			135			" "
			140			" "
			145			" "
			150			" " (one cobble)
			155			Silt
			160			Hard silt w/sand
			165			Sand + Silt

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413205.0533

AS-BUILT DIAGRAM

Boring or Well Number 699-36-61B Sheet 2 of 4

Location _____ Project _____

Logged by _____ Date Well Started 11/30/59

Reviewed by _____ Date _____ Date Well Completed 2/4/60

Well Construction Data				Depth in Feet	Geologic/Hydrologic Data		
	Drill Bit				Sample Method		
Description	Construction Diagram					Lithologic Diagram	Lithologic Description
				170			Sand & Silt
				175			Silt & Fine sand
				180			" " "
				185			Clay streaks
				190			Fine gravel
				195			Silt
				200			Silt & Clay
				205			" "
				210			" "
				215			" "
				220			Silt & Sand
				225			" "
				230			Silt & Clay
				235			" "
				240			" "
				245			Silt & clay
				250			Sand & clay
				255			" "
				260			" "
				265			Sand & Clay
				270			Sand & Silt
				275			Sand & Clay
				280			" "
				285			" "
				290			" "
				295			Sand & Silt
				300			Silt & Clay
				305			" "
				310			" "
				315			Fine gravel
				320			Clay & Gravel
				325			" "
				330			" "

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ● Split-Barrel

A-1800-186 (05/90)

9413205.0534

AS-BUILT DIAGRAM

Boring or Well Number 699-36-61B Sheet 3 of 4
Location _____ Project _____

Logged by _____ Date Well Started 11/30/59
Reviewed by _____ Date _____ Date Well Completed 2/4/60

Well Construction Data: Description	Depth in Feet	Geologic/Hydrologic Data: Lithologic Description
8" dia. Carbon Steel	335	Clay & Gravel
Casing (+2.5-549.5)	340	" "
Water Level 340' (8/24/87)	345	" "
Perforations in 8" casing	350	Gravel
(2/4/60) 330-360' (6 cuts/ft)	355	"
" 360-380' (1 cut/ft)	360	Mixed gravel & clay
" 380-400' (6 cuts/ft)	365	Sand (heaving)
	370	" "
	375	Fine sand
	380	Cobbles
Cement Plug @ 380'	385	Sand & clay, scattered cobbles
(set 4/12/78)	390	Sand with clay
	395	" "
	400	" " (no water)
	405	Yellow Clay
4 piezometers were installed	410	" "
in this well in 1964-5.	415	Blue clay
These piezometers have	420	" "
since been removed. The	425	" "
monitoring intervals of	430	" "
these were: "O" 320-340'	435	" "
"P" 548-568'	440	Black sand & clay
"Q" 480-500'	445	Black sand (water coming back)
"R" 420-440'	450	Blue clay (starts @ 448')
There was no seal between	455	" "
these - they were merely	460	" "
gravel-packed in place	465	" "
	470	" "
	475	Blue clay + gravel
	480	" "
	485	" "
	490	" "
	495	Gravel - blue clay (boulder @ 498')

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413205.0535

AS-BUILT DIAGRAM

Boring or Well Number 699-36-61B Sheet 4 of 4
Location
Project

Logged by
Reviewed by Date

Date Well Started 11/30/59
Date Well Completed 2/4/60

Well Construction Data			Depth in Feet	Geologic/Hydrologic Data		
		Drill Bit		Sample Method		
Description	Construction Diagram				Lithologic Diagram	Lithologic Description
			500			Hard Cemented gravel
			505			" " "
			510			Cemented Gravel
			515			" "
			520			Cemented gravel + blue clay mixed
			525			Fine sand
			530			(no information)
			535			Hard packed gravel
8" Carbon Steel Casing			540			" " "
(+2.5 - 549.5')			545			Hard cemented gravel
			550			Basalt Rock
8" borehole to 580'			555			" "
			560			" "
			565			Harder Basalt
			570			" "
			575			" "
TD 580'			580			" "

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413205.0536

WELL COMPLETION SUMMARY

Project
Location
Drilling Co.
Driller McDonald/Swain
Other (companies)
Geologist(s)

Well No. 699-37-82A Temp. Well No.
Coordinates N37018 W81988
Elevation: Casing 636.75 Brass Marker

DRILLING METHOD
Drilling Method(s) Cable Tool
HT 0'-440'
Drilling Fluid Water
Other

COMPLETION DATA
Drilled Depth 440'
Completed Depth 175'
Date Started 9/24/60
Date Completed 10/10/60
Static Water Level/Date 169'/1991

OTHER (check if performed)
- ___ Well Abandonment
- ___ Well Development
- ___ Aquifer Testing
- ___ Geophysical Log(s)
- ___ Lock and Cap
- ___ Downhole TV Inspection
- ___ Driller's Logs
- ___ Pad
- ___ Guardposts
- ___ Protective Casing

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Perforated 8" Carbon Steel	8"	255'		155' - 410'

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
			-
			-
			-
			-

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon Steel	8"		0' - 155'
Liner w/Packer @ Base	6"		0' - 150'

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
Cement Grout (Annulus)	0 - 150'	350 gal.	
Cement Grout/Sand	175' - 440'		
	-		
	-		
	-		
	-		

PUMP
Type _____ Depth to Inlet _____ Date Set _____

ACCEPTANCE
Completed Well: Accept _____ Conditionally Accept _____
Reject _____

COMMENTS
Piezometers were removed from borehole 9/18/74
6" Liner set in well 5/12/80

Reviewed by _____ Date _____ Depths are below land surface unless noted.

9413205.0538

AS-BUILT DIAGRAM

Boring or Well Number 699-37-82A Sheet 1 of 3

Location N37018 W81988 Project

Logged by

Reviewed by Date

Date Well Started 9/24/60

Date Well Completed 10/10/60

Well Construction Data		Depth in Feet	Geologic/Hydrologic Data
Description	Construction Diagram		Lithologic Description *
Casing Elev. = 636.75		0	
Perforations: 0-135 ft			Slightly muddy sand
			Slightly muddy gravelly sand
8" carbon-steel casing			Muddy sandy gravel
			Slightly muddy sandy gravel
		25	Slightly muddy sand
6" liner (carbon steel?)			
Annulus filled with cement grout			Sandy mud
		50	Muddy sand
			Sand
			Muddy sand
		75	
			Sandy mud calcareous
			Muddy sand
		100	Gravel, basaltic
			Slightly muddy gravelly sand
			Muddy sandy gravel
			Slightly muddy gravelly sand
			Gravelly muddy sand
		125	Sandy gravel
			Muddy sandy gravel
			Gravelly muddy sand, cement
Packer at base of 6" liner?			Slightly muddy gravelly sand
		150	
Perforations: 155-410 ft			

Drill Bit/Sample Method Used: ☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

Lithology based on ROCSAN and Gornstad (1984)

A-1800-186 (05/90)

9413205.0537

AS-BUILT DIAGRAM

Boring or Well Number 699-37-82A Sheet 2 of 3
Location N37018 W81988 Project

Logged by
Reviewed by Date

Date Well Started 9/24/60
Date Well Completed 10/10/60

Well Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Drill Bit			Sample Method	
Description	Construction Diagram		Lithologic Diagram	Lithologic Description
Water level (1991) = 169 ft		165		
Perforations: 155-410 ft				Muddy sandy gravel
		175		Slightly muddy gravelly sand
Cement plug to 175 ft				
8" carbon steel casing				
		200		
				Slightly gravelly, slightly muddy, sand
Backfilled with cement grout/sand				
		225		
				Slight muddy gravelly sand
		250		
		275		
		300		
		325		

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413205.0539

AS-BUILT DIAGRAM

Boring or Well Number 699-37-82A Sheet 3 of 3

Location N37018 W81988 Project

Logged by

Reviewed by Date

Date Well Started 9/24/60

Date Well Completed 10/10/60

Well Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Construction Diagram		Lithologic Diagram	Lithologic Description *
		330		Slightly muddy gravelly sand
Backfilled with cement grout/sand				
		350		Slightly gravelly sand
8" carbon-steel casing				Slightly muddy gravelly sand
		375		
		400		Slightly gravelly sand
Perforations: 155-410 ft				Mud gray (blue)
		425		
TD = 440 ft.				
		450		

Drill Bit/Sample Method Used: ☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

( ) Drillers log description

9413205.0540

WELL COMPLETION SUMMARY REPORT

Project
Location
Drilling Co.
Driller Hatch
Other (companies)
Geologist(s)

Well No. 699-37-82B Temp. Well No.
Coordinates
Elevation: Casing 636.07 Brass Marker

DRILLING METHOD

Rotary Air Mud
Cable Tool D 25-100' H 0-25, 100-625'
Drilling Fluid WATER
Other

COMPLETION DATA

Drilled Depth 625
Completed Depth
Date Started 9/15/60
Date Completed
Static Water Level/Date 210'/9/29/60

OTHER (check if performed)

- ___ Well Abandonment
- ___ Well Development
- ___ Aquifer Testing
- ___ Geophysical Log(s)
- ___ Lock and Cap
- ___ Downhole TV Inspection
- ___ As-Built, Driller's/ Geologist's Logs
- ___ Guardposts
- ___ Protective Casing

(*SEE Back*)

SCREEN

Type	Outer Diameter	Length	Slot Size	Depth(s)
Perforated	8"			590 - 545
"	8"			540 - 505

TEMPORARY CASING

Type	Nominal Diameter	Shoe/Casing Diameter	Placement
Carbon Steel	10"		0 - 9'

PERMANENT CASING

Type	Nominal Diameter	Shoe/Casing Diameter	Placement
Carbon Steel	8"		0 - 603.5'

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
Sand Pack	625' - 500'?'		
Cement Grout Around shoe	~600 - ~605		

PUMP

Type Depth to Inlet Date Set

ACCEPTANCE

Completed Well: Accept Conditionally Accept
Reject

COMMENTS

5/64 well cleaned & casing perforated Piezometers added 9/64
8/64 well cleaned & casing perforated

Reviewed by Date For all blanks mark N/A if not applicable.

9413205.0511

699-37-82B WELL COMPLETION SUMMARY (CONTINUED)

Type	Outer Diameter	SCREEN Length	Slot Size	Interval
Perforations	8"	20'		415' - 395'
"	"	"		375' - 355'
"	"	8'		330' - 322'
"	"	8'		250' - 242'
"	"	9'		172' - 163'
				-

9413205.0542

WELL COMPLETION SUMMARY REPORT

Project
Location
Drilling Co.
Driller Hatch
Other (companies)
Geologist(s)

Well No. 699-37-8280 Temp. Well No.
Coordinates
Elevation: Casing 636.07 Brass Marker

DRILLING METHOD

Rotary Air Mud
Cable Tool D ~~[illegible]~~ 25-100' H ~~[illegible]~~ 0-25 100-625'
Drilling Fluid WATER
Other

COMPLETION DATA

Drilled Depth 625
Completed Depth 585
Date Started 9/15/60
Date Completed 10/64
Static Water Level/Date ~~215'/[illegible]~~

OTHER (check if performed)

- ___ Well Abandonment
- ___ Well Development
- ___ Aquifer Testing
- ___ Geophysical Log(s)
- ___ Lock and Cap
- ___ Downhole TV Inspection
- ___ As-Built, Driller's/ Geologist's Logs
- ___ Guardposts
- ___ Protective Casing

SEE Back

SCREEN

Type	Outer Diameter	Length	Slot Size	Depth(s)
Perforated ~~Casing~~	8"			590 - 545
" "	8"			540 - 505

TEMPORARY CASING

Type	Nominal Diameter	Shoe/Casing Diameter	Placement
Carbon Steel	10"		0 - 9'

PERMANENT CASING

Type	Nominal Diameter	Shoe/Casing Diameter	Placement
Carbon Steel	8"		0 - 603.5'
Piezometer	1.5"		0 - 165'

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
Sand Pack	625' - ~~300'~~ 200?'		
Cement Grout Caboundshoe	~600' - ~605'		

PUMP

Type Depth to Inlet Date Set

ACCEPTANCE

Completed Well: Accept Conditionally Accept
Reject

COMMENTS

5/64 well cleaned & casing perforated
8/64 well cleaned & casing perforated

Reviewed by Date For all blanks mark N/A if not applicable.

9413205.0543

"0"

699-37-82B WELL COMPLETION SUMMARY (CONTINUED)

Type	Outer Diameter	SCREEN Length	Slot Size	Interval
Perforations	8"	20'		415' - 395'
"	"	20'		375' - 355'
"	"	8'		330' - 322'
"	"	8'		250' - 242'
"	"	9'		172' - 163'
Perforated PVC	1.5"	20'		185' - 165'

9413205.0544

WELL COMPLETION SUMMARY

Project
Location
Drilling Co.
Driller
Other (companies)
Geologist(s)

Well No. 699-27-82BP Temp. Well No.
Coordinates
Elevation: Casing 636.07 Brass Marker

DRILLING METHOD
Drilling Method(s) H 0'-25', 100'-625'
D 25'-100'
Drilling Fluid water
Other

COMPLETION DATA
Drilled Depth 625'
Completed Depth 560'
Date Started 9/15/60
Date Completed
Static Water Level/Date 210' 9/29/60

OTHER (check if performed)
___ Well Abandonment
___ Well Development
___ Aquifer Testing
___ Geophysical Log(s)
___ Lock and Cap
___ Downhole TV Inspection
___ Driller's Logs
___ Pad
___ Guardposts
___ Protective Casing

CONTINUED ON BACK

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Perforated	8"	45'		545' - 590'
"	8"	35'		505' - 540'

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon steel	10"		0' - 9'

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon Steel	8"		0' - 603.5'
Piezometer	1.5"		0' - 540'

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
Sand pack	200'? - 625'		
Cement grout (around shoe)	~600' - ~605'		

PUMP
Type Depth to Inlet Date Set

ACCEPTANCE
Completed Well: Accept Conditionally Accept
Reject

COMMENTS

Reviewed by Date Depths are below land surface unless noted.

9413205.0545

"P"

699-37-82B WELL COMPLETION SUMMARY (CONTINUED)

Type	Outer Diameter	SCREEN Length	Slot Size	Interval
Perforations	8"	20'		415' - 395'
"	"	20'		375' - 355'
"	"	8'		330' - 322'
"	"	8'		250' - 242'
"	"	9'		172' - 163'
Perforated PVC	1.5"	20'		540' - 560'

9413205.0546

WELL COMPLETION SUMMARY

Project
Location
Drilling Co.
Driller
Other (companies)
Geologist(s)

Well No. 699-37-82BQ Temp. Well No.
Coordinates
Elevation: Casing 636.07 Brass Marker

DRILLING METHOD

Drilling Method(s) H 0'-25' 100'-625'
D 25'-100'
Drilling Fluid water
Other

COMPLETION DATA

Drilled Depth 625
Completed Depth 410
Date Started 9/15/60
Date Completed
Static Water Level/Date

OTHER (check if performed)

___ Well Abandonment	___ Downhole TV Inspection
___ Well Development	___ Driller's Logs
___ Aquifer Testing	___ Pad
___ Geophysical Log(s)	___ Guardposts
___ Lock and Cap	___ Protective Casing

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Perforated	8"	45'		545' - 590'
"	8"	35'		505' - 540'

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon steel	10"		0' - 9'

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon steel	8"		0' - 603.5'
Piezometer	1.5"		0' - 390

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
Sand Pack	200'? - 625'		
Cement Grout	~600' - ~605'		

PUMP

Type Depth to Inlet Date Set

ACCEPTANCE

Completed Well: Accept Conditionally Accept
Reject

COMMENTS

Reviewed by Date

Depths are below land surface unless noted.

9413205.0547

"a"

699-37-82B WELL COMPLETION SUMMARY (CONTINUED)

Type	Outer Diameter	SCREEN Length	Slot Size	Interval
Perforations	8"	20'	—	415' - 395'
"	"	20'	—	375' - 355'
"	"	8'	—	330' - 322'
"	"	8'	—	250' - 242'
"	"	9'	—	172' - 163'
Perforated PVC	1.5"	20'	—	410' - 390'

9413205.0548

WELL COMPLETION SUMMARY

Project
Location
Drilling Co.
Driller
Other (companies)
Geologist(s)

Well No. 699-37-82BR Temp. Well No.
Coordinates
Elevation: Casing 636.07 Brass Marker

DRILLING METHOD

Drilling Method(s) H 0'-25' 100'-625'
D 25'-100'
Drilling Fluid water
Other

COMPLETION DATA

Drilled Depth 625'
Completed Depth 330'
Date Started 9/15/60
Date Completed 10/13/60
Static Water Level/Date

OTHER (check if performed)

___ Well Abandonment	___ Downhole TV Inspection
___ Well Development	___ Driller's Logs
___ Aquifer Testing	___ Pad
___ Geophysical Log(s)	___ Guardposts
___ Lock and Cap	___ Protective Casing

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Perforated	8"			545' - 590'
"	8"			505' - 540'

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon steel	10"		0' - 9'

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon Steel	8"		0' - 603.5'
Piezometer	1.5"		0 - 310'

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
Sand Pack	200'? - 625'		
Cement Grout	~600' - ~605'		

PUMP

Type Depth to Inlet Date Set

ACCEPTANCE

Completed Well: Accept Conditionally Accept
Reject

COMMENTS

Reviewed by Date Depths are below land surface unless noted.

9413205.0549

699-37-82B "R" WELL COMPLETION SUMMARY (CONTINUED)

Type	Outer Diameter	SCREEN Length	Slot Size	Interval
Perforations	8"	20'		415' - 395'
"	"	20'		375' - 355'
"	"	8'		330' - 322'
"	"	8'		250' - 242'
"	"	9'		172' - 163'
Perforated PVC	1.5"	20'		330' - 310'

9413205.0550

WELL COMPLETION SUMMARY

Project
Location
Drilling Co.
Driller
Other (companies)
Geologist(s)

Well No. 699-37-82BS Temp. Well No.
Coordinates
Elevation: Casing 636.07 Brass Marker

DRILLING METHOD

Drilling Method(s) H 0'-25' 100'-625'
D 25'-100'
Drilling Fluid water
Other

COMPLETION DATA

Drilled Depth 625'
Completed Depth 330'
Date Started 9/15/60
Date Completed 10/13/60
Static Water Level/Date

OTHER (check if performed)

___ Well Abandonment	___ Downhole TV Inspection
___ Well Development	___ Driller's Logs
___ Aquifer Testing	___ Pad
___ Geophysical Log(s)	___ Guardposts
___ Lock and Cap	___ Protective Casing

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Perforated	8"			545' - 590'
"	8"			505' - 540'

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon steel	10"		0' - 9'

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon steel	8"		0' - 603.5'
Piezometer	1.5"		0' - 230'

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
Sand Pack	200'? - 625'		
Cement Grout	~600' - ~605'		

PUMP

Type Depth to Inlet Date Set

ACCEPTANCE

Completed Well: Accept Conditionally Accept
Reject

COMMENTS

Reviewed by Date

Depths are below land surface unless noted.

9413205.0551

699-37-82B "5" WELL COMPLETION SUMMARY (CONTINUED)

Type	Outer Diameter	SCREEN Length	Slot Size	Interval
Perforations	8"	20'		415' - 395'
"	"	20'		375' - 355'
"	"	8'		330' - 322'
"	"	8'		250' - 242'
"	"	9'		172' - 163'
Perforated PVC	1.5"	20'		250' - 230'

9413205.0552

AS-BUILT DIAGRAM

Boring or Well Number 699-37-82B Sheet 1 of 4

Location _____ Project _____

Logged by _____ Date Well Started 9/15/60

Reviewed by _____ Date _____ Date Well Completed 10/64

Well Construction Data: Description	Depth in Feet	Geologic/Hydrologic Data: Lithologic Description
10" dia. Carbon steel Casing 0-8'	5	Sand & Silt
	10	" "
	15	Coarse gravel to 4", clean
	20	Clean gravel, small to 4"
	25	Sand & Silt
	30	" "
	35	" "
	40	" "
	45	" "
	50	" "
	55	" "
	60	" "
	65	" "
	70	" "
	75	" "
	80	" "
	85	" "
	90	" "
	95	" "
	100	Broken gravel, 3" & 4"
	105	Silt, Sand & Gravel (4")
	110	" " "
	115	" " "
	120	" " (large)
	125	Clean gravel up to 2"
8" Carbon steel casing enclosing 5 - 1.5" plastic piezometer tubes	130	" "
	135	Gravel w/ Sand & silt
	140	" " "
	145	" " "
	150	" " " (more silt
	155	" " " "
	160	" " (no information)
	165	Cobbles, Gravel, Coarse Sand & silt

Drill Bit/Sample Method Used: ☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ● Split-Barrel

o PQRS

A-1800-186 (05/90)

9413205.0554

AS-BUILT DIAGRAM

Boring or Well Number 699 - 37 - 82B Sheet 2 of 4
Location _____ Project _____

Logged by _____
Reviewed by _____ Date _____

Date Well Started 9/15/60
Date Well Completed 10/64

Well Construction Data: Description	Depth in Feet	Geologic/Hydrologic Data: Lithologic Description
	165	
	170	Cobbles, gravel, coarse sand + silt
"O" piezometer tube, 1.5"	175	Sand, silt, + clay
plastic, 0-185'; slot openings	180	" " "
165-185'	185	Large gravel, silt + sand
	190	" " "
"S" piezometer tube, 1.5"	195	" " "
plastic pipe, 0-250';	200	" " "
slot openings 230-250'	205	" " "
	210	Sand, silt, + small gravel
"R" piezometer tube, 1.5"	215	(no information)
plastic pipe, 0-330';	220	Gravel, clay streaks, sand + silt
slot openings 310-330'	225	Streaks of clay + clean sand
	230	" " "
	235	" " "
	240	" " "
Perforations in 8" casing	245	Gravel to 2", clean sand
(9/64) 163-172' 4 holes/8-in.	250	" " "
242-250' " "	255	" " "
322-330' " "	260	" " "
(shaped charge perforator)	265	" " "
	270	" " "
8" Carbon Steel Casing	275	80% sand, 20% small gravel
enclosing piezometer tubes,	280	Sand + Gravel
(0-603.5)	285	" "
	290	" " (2" max)
	295	" " (streaks of clean sa
Sand pack between piezometer	300	" "
tubes (625-200?)	305	" "
	310	" "
	315	" "
	320	" "
	325	" "
	330	" "

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion (P Q R) △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413205.0553

AS-BUILT DIAGRAM

Boring or Well Number 699-37-82B Sheet 3 of 4
Location _____ Project _____

Logged by _____ Date Well Started 9/15/60
Reviewed by _____ Date _____ Date Well Completed 10/64

Well Construction Data: Description	Depth in Feet	Geologic/Hydrologic Data: Lithologic Description
	335	Clean sand + gravels to 2"
	340	" " "
	345	" " to 4"
	350	" " (sandier)
Perforations in 8" casing	355	Clean sand + gravel – silt
(5/26/64) 395-415'	360	" " "
" 355-375'	365	Coarse sand + silt
(9/64) 402-410 4holes/8"	370	Sand + silt, gravel
	375	" " "
"Q" piezometer tube,	380	" " "
1.5" plastic pipe, 0-410',	385	" " "
slot openings 390-410'	390	(no information)
	395	" "
	400	Brown sandy clay
	405	Gray Clay
	410	" "
	415	" " (very sticky)
	420	Very dk gray clay, not sticky
8" Carbon Steel Casing	425	Green clay
(0-603.5')	430	" "
	435	Clay
	440	"
Sand pack between piezometer	445	"
tubes (625-200?')	450	Blue gray clay
	455	" "
	460	Black + Blue sand
	465	" "
	470	Blue sticky clay
	475	Light blue clay
	480	Blue hard sticky clay
	485	" " "
	490	(no information)
	495	Dark green sticky hard clay

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ● Split-Barrel

A-1800-186 (05/90)

9413205.0555

AS-BUILT DIAGRAM

Boring or Well Number 699-37-82B Sheet 4 of 4
Location _____ Project _____

Logged by _____ Date Well Started 9/15/60
Reviewed by _____ Date _____ Date Well Completed 10/64

Well Construction Data: Description	Depth in Feet	Geologic/Hydrologic Data: Lithologic Description
	500	DK green sticky hard clay
Perforations in 8" Casing	505	Sm gravel, sand, + clay
(10/13/60) 505-540' 6 cuts / ft	510	" " "
" 560-590' 2 cuts / ft -	515	lg. gravel, sand, + clay
(5/26/64) 545-565'	520	" " "
	525	" " "
	530	Gravels, green sand
	535	Black sand + gravels
"P" piezometer tube, 1.5"	540	" " "
plastic pipe, 0-560,	545	Sand + Silt
slot openings 540-560'	550	More sand + little silt
	555	Sand + silt
	560	Coarse sand + silt
	565	Sand, silt, + clay
	570	Sand + clay
Sand Pack between piezometer	575	(no information)
tubes (625-200?)	580	Clay + sand
	585	Clay w/sand + gravel
	590	" " "
	595	Clay
Bottom of 8" Casing	600	Clean sand
603.5'	605	" " (darker)
Open hole (603.5-625')	610	Basalt
TD 625'	615	
	620	
	625	

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413205.0556

WELL COMPLETION SUMMARY

Project
Location
Drilling Co.
Driller Aqua
Other (companies)
Geologist(s) VL McGhan
R Ledgerwood

Well No. 699-37-82C Temp. Well No.
Coordinates —
Elevation: Casing — Brass Marker

DRILLING METHOD
Drilling Method(s) Air Rotary 0-245'
Cable Tool
Drilling Fluid
Other

COMPLETION DATA
Drilled Depth 282'
Completed Depth 279'
Date Started 3/30/76
Date Completed 5/18/76
Static Water Level/Date

OTHER (check if performed)
- ___ Well Abandonment
- ___ Well Development
- ___ Aquifer Testing
- ___ Geophysical Log(s)
- ___ Lock and Cap
- ___ Downhole TV Inspection
- ___ Driller's Logs
- ___ Pad
- ___ Guardposts
- ___ Protective Casing

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Perforations	8" ?			165 - 279

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Unkown			-
			-
			-

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Unknown	?		? - ?

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
	-		
	-		
	-		
	-		
	-		
	-		

PUMP
Type Depth to Inlet Date Set

ACCEPTANCE
Completed Well: Accept Conditionally Accept
Reject

COMMENTS
Driller's log incomplete

Reviewed by Date Depths are below land surface unless noted.

9413205.0558

AS-BUILT DIAGRAM

Boring or Well Number 699-37-82C Sheet 1 of 2

Location _____ Project _____

Logged by _____ Date Well Started _____

Reviewed by _____ Date _____ Date Well Completed _____

Well Construction Data			Depth in Feet	Geologic/Hydrologic Data		
		Drill Bit		Sample Method		
Description	Construction Diagram	☒		☒	Lithologic Diagram	Lithologic Description
			0			Sand, Silt, Gravel
			5			" " "
			10			Sand, large Gravel
			15			" " "
			20			Sand, f-m, small gravel
Drill logs don't specify			25			" " "
type, dia., or length			30			Sand, fine
of casing. The rotary			35			Fine Sand + Silt
drilled a 12" hole			40			" " "
and the cable tool			45			Silt + VF Sand
apparently drilled a			50			Fine Sand + silt
8" hole			55			" "
			60			" "
Casing was perf. from			65			" "
165-279'			70			" "
			75			" "
			80			" "
			85			Silt + VF Sand
			90			Silt, VF Sand, streaks of clay
			95			" " " "
			100			Silt, fine sand, small gravel
			105			Silt + f-m sand-gravel
			110			Sand - coarse gravel
			115			" " "
			120			Sand w/silt + coarse gravel
			125			" " + m-c gravel
			130			" " " "
			135			" " " "
			140			(No sample)
			145			" "
			150			" "
			155			m-f Sand w/gravel
			160			" " "

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413205.0557

AS-BUILT DIAGRAM

Boring or Well Number 699-37-82C Sheet 2 of 2
Location _____ Project _____

Logged by _____ Date Well Started _____
Reviewed by _____ Date _____ Date Well Completed _____

Well Construction Data			Depth in Feet	Geologic/Hydrologic Data		
		Drill Bit		Sample Method		
Description	Construction Diagram				Lithologic Diagram	Lithologic Description
		☒	165	☒		m-f Sand w/ gravel + silt
			170			" " " "
			175			" " " "
			180			Fine Sand w/silt + med. gravel
			185			" " "
			190			" " "
Drill logs don't specify type,			195			" " "
dia, or length of casing.			200			VF Sand w/silt + gravel
The rotary drilled a 12"			205			" " "
hole and the cable tool			210			" " "
apparently drilled a 8" hole.			[illegible]			Gravel w/ sand VF-M + silt
						VF-M Sand w/silt + gravel
Casing was perf. from						" " " "
165-279'			230			Gravelly Sand
			235			" "
			240			Gravel with med. sand
			245			Gravel w/VF-M sand + silt
			250			20% cobbles, 30% pebbles, 20% sand, 30%
			255			" " "
			260			" " "
			265			" 45% pebbles, " 15%
			270			" " " "
			275			" " 25% sand, 10%
			280			" " " "
TD = 282'			282			

Cable tool 245-282'

Cable Tool 245-282'

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413206.0559

WELL COMPLETION SUMMARY

Project
Location
Drilling Co. Aquo
Driller
Other (companies)
Geologist(s)

Well No. 699-37-82D Temp. Well No.
Coordinates —
Elevation: Casing — Brass Marker

DRILLING METHOD

Drilling Method(s) Air Rotary
Drilling Fluid
Other

COMPLETION DATA

Drilled Depth 250'
Completed Depth 190'
Date Started 4/5/76
Date Completed 6/1/76
Static Water Level/Date

OTHER (check if performed)

- ___ Well Abandonment
- ___ Well Development
- ___ Aquifer Testing
- ___ Geophysical Log(s)
- ___ Lock and Cap
- ___ Downhole TV Inspection
- ___ Driller's Logs
- ___ Pad
- ___ Guardposts
- ___ Protective Casing

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Perforations	8" ?			155 - 190'

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
?			-
			-
			-
			-

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
?	8" ?		? - ?

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
	-		
	-		
	-		
	-		
	-		
	-		

PUMP

Type _____ Depth to Inlet _____ Date Set _____

ACCEPTANCE

Completed Well: Accept _____ Conditionally Accept _____
Reject _____

COMMENTS

Drillers log incomplete.

Reviewed by _____ Date _____ Depths are below land surface unless noted.

9413205.0560

AS-BUILT DIAGRAM

Boring or Well Number 699-37-82D Sheet 1 of 1

Location _____ Project _____

Logged by _____ Date Well Started _____

Reviewed by _____ Date _____ Date Well Completed _____

Well Construction Data			Depth in Feet	Geologic/Hydrologic Data		
		Drill Bit		Sample Method		
Description	Construction Diagram				Lithologic Diagram	Lithologic Description
Drill logs don't specify type, dia., or length of casing. Hanford Wells says the permanent casing is 8" dia, perf from 155-190'						Geologic information not complete — see logs for the other wells in the cluster (699-37-82 A, B, C)

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413205.0561

WELL COMPLETION SUMMARY

Project
Location
Drilling Co. Hatch
Driller Mike Dawson
Other (companies)
Geologist(s)

Well No. 699-38-65 Temp. Well No.
Coordinates PN 37965 PW 64978
Elevation: Casing 753.33 Brass Marker

DRILLING METHOD

Drilling Method(s) Cable Tool, Drive barrel 0-465, Hard Tool 465-536'
Drilling Fluid
Other

COMPLETION DATA

Drilled Depth 536'
Completed Depth 395'
Date Started 9/12/59
Date Completed 12/6/59
Static Water Level/Date

OTHER (check if performed)

___ Well Abandonment	___ Downhole TV Inspection
___ Well Development	___ Driller's Logs
___ Aquifer Testing	___ Pad
___ Geophysical Log(s)	___ Guardposts
___ Lock and Cap	___ Protective Casing

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Perforations in 8" casing	8"		4 cuts/ft	330 - 475'
" " "	"		2 cuts/ft	261 - 265'
" " "	"		4 cuts/ft	220 - 235'
" " "	"		6 cuts/ft	475 - 520'

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
			-
			-
			-
			-

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon Steel	8"		+3 - 526'

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
"Pea Gravel"	536' - 460'		
Sand	460 - 440		
Cement Plug	440 - 420		
Sand	420 - 395		
	-		
	-		

PUMP

Type Depth to Inlet Date Set

ACCEPTANCE

Completed Well: Accept Conditionally Accept
Reject

COMMENTS

Piezometer added 3/14/77, original piezometers installed in 1964 have been removed (1975)

Reviewed by Date Depths are below land surface unless noted.

9413205.0562

WELL COMPLETION SUMMARY

Project
Location
Drilling Co. Hatch
Driller Mike Dawson
Other (companies)
Geologist(s)

Well No. 699-38-65 "P" Temp. Well No.
Coordinates PN37965 PW64978
Elevation: Casing 753.33 Brass Marker

DRILLING METHOD

Drilling Method(s) Cable Tool, Drive barrel 0-465, Hard Tool 465-536'
Drilling Fluid
Other

COMPLETION DATA

Drilled Depth 536'
Completed Depth 510'
Date Started 9/12/59
Date Completed 1964
Static Water Level/Date

OTHER (check if performed)

- ___ Well Abandonment
- ___ Well Development
- ___ Aquifer Testing
- ___ Geophysical Log(s)
- ___ Lock and Cap
- ___ Downhole TV Inspection
- ___ Driller's Logs
- ___ Pad
- ___ Guardposts
- ___ Protective Casing

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
PVC ?	1.5"		60	500 - 510

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
			-
			-
			-
			-

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
PVC ?	1.5"		0 - 500'

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
See well 699-38-65	-		
	-		
	-		
	-		
	-		
	-		

PUMP

Type Depth to Inlet Date Set

ACCEPTANCE

Completed Well: Accept Conditionally Accept
Reject

COMMENTS

"P" piezometer within well 699-38-65

Reviewed by Date Depths are below land surface unless noted.

9413205.0563

AS-BUILT DIAGRAM

Boring or Well Number 699-38-65 Sheet 1 of 4
Location _____ Project _____

Logged by _____
Reviewed by _____ Date _____

Date Well Started 9/12/59
Date Well Completed 12/6/59

Well Construction Data		Depth in Feet	Geologic/Hydrologic Data	
	Drill Bit →		Sample Method Lithology from Driller's Log	
Description	Construction Diagram		Lithologic Diagram	Lithologic Description
		5		Gravelly Sand
		10		" "
8" dia. Carbon steel		15		Sandy Silt
casing (+3 - 526') →		20		" "
		25		" "
		30		" "
1.5" dia piezometer tube		35		" "
+ screen (0 - 510') →		40		" "
		45		" "
		50		" "
		55		" "
		60		" "
		65		" "
		70		" "
		75		" "
		80		" "
		85		Silty Sand
		90		" "
		95		" "
		100		" "
		105		" "
		110		" "
		115		Sandy Silt
		120		" "
		125		" "
		130		" "
		135		" "
		140		Silty Sand
		145		" "
		150		" "
		155		" "
		160		" "
		165		" "

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413205.0564

AS-BUILT DIAGRAM

Boring or Well Number 699-38-65 Sheet 2 of 4
Location _____ Project _____

Logged by _____ Date Well Started 9/12/59
Reviewed by _____ Date _____ Date Well Completed 12/6/59

Well Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Construction Diagram (Drill Bit)		Lithologic Diagram (Sample Method)	Lithologic Description
		170		Silty Sand - hard packed
		175		" " " "
		180		" " " " "
		185		" " " "
		190		Soft packed silty sand
1.5" dia. piezometer tube		195		" " " "
+ screen (0-510')		200		" " " "
		205		" " " "
		210		" " " "
		215		" " " "
		220		Heavy sand - water bearing @ 22
Perforations in 8" Casing		225		Sand
		230		"
		235		Silt
		240		"
		245		"
		250		Sandy Silt
		255		" "
		260		Heaving sand (261-264')
Perforations in 8" Casing		265		Soft packed sand + silt
		270		Sandy Silt
		275		Silty Sand
		280		" "
		285		Cemented Gravel (starts @ 282'
		290		Sandy Gravel
		295		" "
		300		" "
		305		" "
		310		" "
		315		" "
		320		" "
		325		" "
		330		" "

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413205.0565

AS-BUILT DIAGRAM

Boring or Well Number 699-38-65 Sheet 2 of 4

Location _____ Project _____

Logged by _____

Reviewed by _____ Date _____

Date Well Started 9/12/59

Date Well Completed 12/6/59

Well Construction Data			Depth in Feet	Geologic/Hydrologic Data		
		Drill Bit		Sample Method		
Description	Construction Diagram				Lithologic Diagram	Lithologic Description
			335			Sandy Gravel
			340			" "
Perforations in 8" Casing			345			" " (Water bearing)
475-520 6 cuts/ft			350			" "
330-475 4 cuts/ft			355			" "
261-265 2 cuts/ft			360			Sandy Silty Gravel
220-235 4 cuts/ft			365			" " "
			370			" " "
			375			" " "
			380			" " "
1.5" piezometer tube			385			Heaving sand + gravel
+ screen (0-510')			390			" " "
			395			Brown clay w/ fine gravel
			400			" " " "
			405			Brown clay
			410			Blue clay
			415			" "
			420			" "
Cement Plug (420-440')			425			" "
			430			" "
			435			" "
			440			Sandy Clay (to 443')
Sand (440-460')			445			Water bearing gravel (443')
			450			Gravel + black sand
			455			Gravel + colored sand
			460			Gray sand
			465			Gray sand, some gravel (2")
			470			Gray sand + gravel
"Peagravel" 460-530'			475			" " "
			480			" " "
			485			Basalt gravel
			490			" "
			495			Sand + basalt gravel

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ● Split-Barrel

A-1800-186 (05/90

9413205.0566

AS-BUILT DIAGRAM

Boring or Well Number 699-38-65 Sheet 4 of 4
Location _____ Project _____

Logged by _____
Reviewed by _____ Date _____

Date Well Started 9/12/59
Date Well Completed 12/6/59

Well Construction Data			Depth in Feet	Geologic/Hydrologic Data		
		Drill Bit		Sample Method		
Description	Construction Diagram				Lithologic Diagram	Lithologic Description
1.5" Piezometer tube (0-500')			500			Basalt gravel
w/60 slot slot screen (500-510')			505			" " , some sand
Perforations in 8" casing			510			Hard basalt + gravel, some sand
(475-520')			515			" " " "
8" Carbon steel casing			520			Gravel + sand - hard basalt
(+3 - 526')			525			" " " "
"Pea Gravel" 536-460'			530			Basalt (starts @ 526')
8" Borehole (526-536')			535			"
TD = 536'						

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ● Split-Barrel

A-1800-186 (05/90)

9413205.0567

WELL COMPLETION SUMMARY

Project
Location
Drilling Co.
Driller SWAIN
Other (companies)
Geologist(s)

Well No. 699-38-70 Temp. Well No. N/A
Coordinates N 38147 W 70226
Elevation: Casing 710.67' Brass Marker

DRILLING METHOD

Drilling Method(s) CABLE TOOL
HT: 0' - 413'
Drilling Fluid WATER
Other BENTONITE @ 72', 285', 350'

COMPLETION DATA

Drilled Depth 413'
Completed Depth 295' (HW)
Date Started 5/17/57
Date Completed ~~5/19/57~~ *
Static Water Level/Date 254' (HW)

OTHER (check if performed)

- ___ Well Abandonment
- ___ Well Development
- ___ Aquifer Testing
- ___ Geophysical Log(s)
- ___ Lock and Cap
- ___ Downhole TV Inspection
- ✓ Driller's Logs
- ___ Pad
- ___ Guardposts
- ___ Protective Casing

8/20/87

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
CASING PERFORATIONS				255' - 380'

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
CARBON STEEL	8.0"		0' - 388'

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
CEMENT PLUG	295' - 310'		

PUMP

Type SUBMERSIBLE Depth to Inlet ___ Date Set ___

ACCEPTANCE

Completed Well: Accept ___ Conditionally Accept ___
Reject ___

COMMENTS

Piezometers "O", "P", "Q", installed in 1964, were removed in 1975. The o[illegible] monitoring intervals were: "O" (260-280'), "P" (390-410'), "Q" (320-350'). Piez tubes were separ by sand pack only.

Reviewed by ___ Date ___

Depths are below land surface unless noted.

9413205.0568

AS-BUILT DIAGRAM

Boring or Well Number 699-38-70 Sheet 1 of 3
Location _____ Project _____

Logged by _____
Reviewed by _____ Date _____

Date Well Started 5/17/57
Date Well Completed 6/14/57

Well Construction Data		Depth in Feet	Geologic/Hydrologic Data	
	Drill Bit		Sample Method Lith. from driller's log	
Description	Construction Diagram		Lithologic Diagram	Lithologic Description
		5		small gravel
		10		" "
		15		Sandy silt - gravel
		20		" " "
8" carbon steel casing →		25		Silt - coarse sand
(0-388')		30		Sandy silt
		35		Sand - silt
		40		Sandy silt
		45		Sand - silt - gravel
		50		Sand, silt, + gravel
Carbon steel casing is →		55		Sand - silt
broken @ 53'		60		" "
		65		" "
		70		Sand - small gravel
		75		Clean sand
		80		Sand - silt
		85		" "
		90		" "
		95		" "
		100		" "
		105		" "
		110		" "
		115		" "
		120		" " (harder packed)
		125		" " " "
		130		" "
		135		" "
		140		" "
		145		" "
		150		" "
		155		" "
		160		" "
		165		" "

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ● Split-Barrel

A-1800-186 (05/90)

9413205.0569

AS-BUILT DIAGRAM

Boring or Well Number 699-38-70 Sheet 2 of 3

Location _____ Project _____

Logged by _____

Reviewed by _____ Date _____

Date Well Started 5/17/57

Date Well Completed 6/14/57

Well Construction Data			Depth in Feet	Geologic/Hydrologic Data		
	Drill Bit			Sample Method		
Description	Construction Diagram				Lithologic Diagram	Lithologic Description
			170			Sand - silt
			175			" "
			180			" "
			185			" "
			190			" " - small gravel
8" Carbon steel casing			195			" " " "
(0 - 388')			200			Sand, silt, + small gravel
			205			Sand - silt
			210			" "
			215			" "
			220			Sand - silt (more clay than sand
			225			" " " " "
			230			Clay + small gravel
			235			" " "
			240			" " "
			245			Clay
			250			Clay - gravel
Static water level 254' (8/20/87)			255			(no description)
			260			Sand - silt - gravel
Perforations in 8" casing			265			Sand - gravel
(255-380')			270			" "
			275			Clean gravel
			280			Sand - gravel
			285			Clean sand + gravel
			290			Sand - gravel
			295			" "
Cement Plug (295-310')			300			" "
			305			" "
			310			Sand - gravel + silt
			315			Sand - silt - gravel - clay
			320			Sand, silt, + gravel
			325			" " "
			330			" " "

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413205.0570

AS-BUILT DIAGRAM

Boring or Well Number 699-38-70 Sheet 3 of 3
Location _____ Project _____

Logged by _____ Date Well Started 5/17/57
Reviewed by _____ Date _____ Date Well Completed 6/14/57

Well Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Description	Construction Diagram (Drill Bit)		Lithologic Diagram (Sample Method)	Lithologic Description
		335		Sand – gravel
		340		" "
Perforations in 8" casing		345		Clean coarse sand
(255-380')		350		Fine clean sand
		355		Clean sand
		360		Sand
		365		Sand – small gravel
		370		Sand
		375		"
		380		Sand – silt, very fine
8" Carbon steel casing (0-388')		385		" " " "
		390		Sand – gravel
8" borehole (388 – 413')		395		Sand
		400		Fine sand & silt
		405		(no sample)
		410		Fine sand + silt
		413		" " "

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ● Split-Barrel

A-1800-186 (05/90)

9413205.0571

WELL COMPLETION SUMMARY

Project
Location
Drilling Co. G.E.
Driller Radda
Other (companies)
Geologist(s)

Well No. 699-40-62 Temp. Well No. 40.3-61
Coordinates PN 40300 PW 61500
Elevation: Casing 747.78' Brass Marker

DRILLING METHOD
Drilling Method(s) Assumed Cable tool
Drilling Fluid
Other

COMPLETION DATA

Drilled Depth 384'
Completed Depth 369'
Date Started 12/14/48
Date Completed 1/17/49
Static Water Level/Date 356' 1/14/49

OTHER (check if performed)

___ Well Abandonment	___ Downhole TV Inspection
___ Well Development	___ Driller's Logs
___ Aquifer Testing	___ Pad
___ Geophysical Log(s)	___ Guardposts
___ Lock and Cap	___ Protective Casing

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Perforated Casing	8"		Perforated	359' - 374'
			Perforated	335' - 348'

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
			-
			-
			-
			-

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Assumed Carbon steel	8"		Surface - 384'
			-

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
N/A	-		
	-		
	-		
	-		
	-		
	-		

PUMP

Type Submersible Depth to Inlet unknown Date Set unknown

ACCEPTANCE

Completed Well: Accept ___ Conditionally Accept ___
Reject ___

COMMENTS

Ref. RockSAN Database; Hanford Wells (PNL 6907); Drillers Logs

Reviewed by ___ Date ___ Depths are below land surface unless noted.

9413205.0672

AS-BUILT DIAGRAM

Boring or Well Number 699-40-62 Sheet 1 of 3

Location _____ Project _____

Logged by _____

Reviewed by _____ Date _____

Date Well Started 12/14/48

Date Well Completed 1/17/49

Well Construction Data			Depth in Feet	Geologic/Hydrologic Data		
Description	Construction Diagram	Drill Bit		Sample Method	Lithologic Diagram	Lithologic Description
8" Casing			5	●		SAND GRAVEL BOULDERS
			10			
			15			Slightly MUDDY GRAVELY SAND 25'-45'
			20			
			25			
			30			
			35			
			40			
			45			GRAVELY SAND 45-50'
			50			SAND 50-60'
			55			
			60			Slightly GRAVELY SAND 60-70'
			65			
			70			
			75			Slightly SILTY SAND 70-165
			80			
			85			
			90			
			95			
			100			
			105			
			110			
			115			
			120			
			125			
			130			
			135			
			140			
			145			
			150			
			155			
			160			

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ● Split-Barrel

A-1800-186 (05/90)

9413205.0573

AS-BUILT DIAGRAM

Boring or Well Number 699-40-62 Sheet 2 of 3
Location _____ Project _____

Logged by _____
Reviewed by _____ Date _____

Date Well Started 12/14/48
Date Well Completed 1/17/49

Well Construction Data			Depth in Feet	Geologic/Hydrologic Data		
	Drill Bit			Sample Method		
Description	Construction Diagram				Lithologic Diagram	Lithologic Description
8" Casing			170	●		Slightly gravely slightly silty SAND
			175			SAND
			180			Slightly silty SAND 175-200'
			185			
			190			
			195			
			200			
			205			
			210			Slightly silty GRAVELY SAND
			215			Slightly gravely SAND 215-220
			220			Slightly silty SAND 220-300
			225			
			230			
			235			
			240			
			245			
			250			
			255			
			260			
			265			
			270			
			275			
			280			
			285			
			290			
			300			
			305			
			310			SILTY SAND
			315			SI SILTY GRAVELY SAND 310-315
			320			SILTY SANDY GRAVEL 315-320
			325			SI silty SAND
			330			SILTY SANDY GRAVEL 325-350

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ● Split-Barrel

A-1800-186 (05/90)

9413205.0574

AS-BUILT DIAGRAM

Boring or Well Number 699-40-62 Sheet 3 of 3
Location _____ Project _____

Logged by _____ Date Well Started 12/10/48
Reviewed by _____ Date _____ Date Well Completed 1/12/49

Well Construction Data			Depth in Feet	Geologic/Hydrologic Data		
		Drill Bit		Sample Method		
Description	Construction Diagram				Lithologic Diagram	Lithologic Description
8" Casing			~~340~~			
Perforated 335'-348'			~~345~~			
			~~350~~			
			~~355~~			
Initial Depth to WATER 356'			~~360~~			SILTY SAND 355'-360'
Perforated 359'-374'			~~365~~			"SILT SAND and GRAVEL"
			~~370~~			360-374
			~~375~~			SAND and CLAY 374'-375'
TD 384'			~~380~~			CLAY 375-384
			~~385~~			

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413205.0575

WELL COMPLETION SUMMARY

Project
Location
Drilling Co.
Driller Chausse
Other (companies)
Geologist(s)

Well No. 699-43-88 Temp. Well No. 43-88
Coordinates N43209 W88445
Elevation: Casing 644.82 Brass Marker

DRILLING METHOD
Drilling Method(s) Cable Tool
HT 0'-203'
Drilling Fluid Water
Other

COMPLETION DATA
Drilled Depth 203'
Completed Depth 191.5'
Date Started 8/12/48
Date Completed 12/21/48
Static Water Level/Date 176'/1990

OTHER (check if performed)
- ___ Well Abandonment
- ___ Well Development
- ___ Aquifer Testing
- ___ Geophysical Log(s)
- ___ Lock and Cap
- ___ Downhole TV Inspection
- ___ Driller's Logs
- ___ Pad
- ___ Guardposts
- ___ Protective Casing

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Perforated Carbon Steel	8"	20'		178' - 198'

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
			-
			-
			-
			-

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon Steel	8"		0' - 178'
			-

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
Backfill/Slough	193.0' - 203.0'		
Cement Grout	191.5' - 193.0'		
	-		
	-		
	-		
	-		

PUMP
Type Depth to Inlet Date Set

ACCEPTANCE
Completed Well: Accept Conditionally Accept
Reject

COMMENTS

Reviewed by Date Depths are below land surface unless noted.

9413205.0576

AS-BUILT DIAGRAM

Boring or Well Number 699-43-88 Sheet 1 of 2
Location N43174 W88400 Project

Logged by
Reviewed by Date
Date Well Started 8/12/48
Date Well Completed 12/21/48

Well Construction Data: Description	Construction Diagram	Depth in Feet	Geologic/Hydrologic Data: Lithologic Diagram	Lithologic Description *
Casing Elev. = 643.90		0		(Sandy loam)
8" carbon-steel casing				
				Muddy sand
		25		Slightly muddy sand
				Muddy sand
				Sandy mud
				Muddy sandy gravel Calcareo
		50		
				Slightly muddy gravelly sand
				Muddy sandy gravel
		75		Slightly muddy gravelly sand
				Gravelly sand
				Slightly gravelly sand
		100		Sand
				(Fine sand and brown silt)
		125		
Perforations: 142-152 ft				(Sand gravel silt)
		150		(Sand, gravel, clay)

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ● Split-Barrel

* Lithology based on ROCSAN and drillers log, ( ) Drillers log description

A-1800-186 (05/90)

9413205.0577

AS-BUILT DIAGRAM

Boring or Well Number 699-43-88 Sheet 2 of 2
Location N43174 W88400 Project

Logged by
Reviewed by Date
Date Well Started 8/12/48
Date Well Completed 12/21/48

Well Construction Data			Depth in Feet	Geologic/Hydrologic Data		
	Drill Bit			Sample Method		
Description	Construction Diagram				Lithologic Diagram	Lithologic Description
			165			(Sand, gravel, clay)
Water level (1990) = 176 ft			175			
Perforations: 178-198 ft						
Cement grout 191.5-193.0 ft						(Fine sand and fine gravel)
						(Fine sand, gravel, and clay)
			200			(Sand, gravel, clay, silt)
TD = 203 ft						
			225			

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ◉ Split-Barrel

A-1800-186 (05/90)

9413205.0578

WELL COMPLETION SUMMARY

Project
Location
Drilling Co.
Driller Stanbery & Robinson
Other (companies)
Geologist(s)

Well No. 699-43-89 Temp. Well No.
Coordinates N43200 W88500
Elevation: Casing 644.15 Brass Marker

DRILLING METHOD

Drilling Method(s) Cable Tool
HT 0'-307'
Drilling Fluid Water
Other

COMPLETION DATA

Drilled Depth 307'
Completed Depth 307'
Date Started 1950
Date Completed 10/18/56
Static Water Level/Date 204'/10/18/56

OTHER (check if performed)

___ Well Abandonment	___ Downhole TV Inspection
___ Well Development	___ Driller's Logs
___ Aquifer Testing	___ Pad
___ Geophysical Log(s)	___ Guardposts
___ Lock and Cap	___ Protective Casing

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Perforated Carbon Steel	8"	72'		175' - 247'

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
			-
			-
			-
			-

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon Steel	8"		0' - 175'
Carbon Steel	8"		247' - 307'

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
Backfill/Slough	304' - 307'		
	-		
	-		
	-		
	-		
	-		

PUMP

Type Depth to Inlet Date Set

ACCEPTANCE

Completed Well: Accept Conditionally Accept
Reject

COMMENTS

Perforated again in 1969 175'-195'

Reviewed by Date Depths are below land surface unless noted.

9413205.0580

AS-BUILT DIAGRAM

Boring or Well Number 699-43-89 Sheet 1 of 2

Location _____ Project _____

Logged by _____

Reviewed by _____ Date _____

Date Well Started 1950

Date Well Completed 10/18/56

Well Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Drill Bit			Sample Method	Data from RHO-LD-158
Description	Construction Diagram		Lithologic Diagram	Lithologic Description
		5		Recent Alluvium
8" Carbon Steel Casing		10		" "
0'-175'		15		Silt & Fine Sand
		20		" " "
		25		" " "
		30		Silt, Clay & Sand
		35		" " "
		40		" " "
		45		Sand & Gravel
		50		" "
		55		" "
		60		" "
		65		" "
		70		" "
		75		Sand, Gravel & Silt
		80		" " "
		85		" " "
		90		" " "
		95		" " "
		100		Sand & Silt
		105		" "
		110		" "
		115		Fine & Medium Sand
		120		" " "
		125		" " "
		130		" " "
		135		" " "
		140		" " "
		145		Sand & Silty Gravel
		150		" " "
		155		" " "
		160		" " "
		165		" " "

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ● Split-Barrel

A-1800-186 (05/90)

9413205.0579

AS-BUILT DIAGRAM

Boring or Well Number 699-43-89 Sheet 2 of 2
Location _____ Project _____

Logged by _____ Date Well Started 1950
Reviewed by _____ Date _____ Date Well Completed 10/18/56

Well Construction Data — Geologic/Hydrologic Data

Drill Bit — Sample Method — Data from RHO-LD-158

Description	Construction Diagram	Depth in Feet	Lithologic Description
		170	Sand & Silty Gravel
		175	" " "
Perforated 8" Carbon Steel Casing 175'-247'		180	" " "
		185	" " "
		190	" " "
		195	" " "
		200	" " "
		205	" " "
		210	" " "
		215	" " "
		220	" " "
		225	" " "
		230	" " "
		235	" " "
		240	" " "
		245	" " "
		250	Sand w/ Gravel & Silt
		255	" " "
8" Carbon Steel Casing 247'-307'		260	" " "
		265	" " "
		270	" " "
		275	" " "
		280	" " "
		285	Sand & Gravel
		290	" "
		295	Gravel (Granule-Boulder)
		300	Meduim to Coarse Sand
Backfill/Slough 304'-307'		305	Gravel (Granule-Cobble)
			TD=307'

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413205.0581

WELL COMPLETION SUMMARY

Project
Location
Drilling Co. Aqua Drilling
Driller
Other (companies)
Geologist(s) Ledgerwood (ARHCO)

Well No. 699-49-100B Temp. Well No.
Coordinates N49423 W100365
Elevation: Casing 791.35 Brass Marker

DRILLING METHOD
Drilling Method(s) Air Rotary
0'-170'
Drilling Fluid
Other

COMPLETION DATA
Drilled Depth 175'
Completed Depth 175'
Date Started 5/19/75
Date Completed 5/21/75
Static Water Level/Date

OTHER (check if performed)
___ Well Abandonment
___ Well Development
___ Aquifer Testing
___ Geophysical Log(s)
___ Lock and Cap
___ Downhole TV Inspection
___ Driller's Logs
___ Pad
___ Guardposts
___ Protective Casing

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Perforated Carbon Steel	6"	31'		144' - 175'

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
			-
			-
			-
			-

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon Steel	8"		0' - 17'
Carbon Steel			0' - 144'

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
	-		
	-		
	-		
	-		
	-		
	-		

PUMP
Type Depth to Inlet Date Set

ACCEPTANCE
Completed Well: Accept Conditionally Accept
Reject

COMMENTS
Hanford Wells Notes Depth/Bottom as 429 & Dia. 3.5". This may have been deepened at a later date, but there is no evidence in the drill logs.

Reviewed by Date Depths are below land surface unless noted.

9413205.0582

AS-BUILT DIAGRAM

Boring or Well Number 699-49-100B Sheet 1 of 2

Location _____ Project _____

Logged by _____

Reviewed by _____ Date _____

Date Well Started 5/19/75

Date Well Completed 5/21/75

Well Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Drill Bit			Sample Method	Data from RHO-LD-158
Description	Construction Diagram		Lithologic Diagram	Lithologic Description
8" Carbon Steel Casing 0'-17'		5		Fine-Very Fine Sand
		10		" " " "
		15		Sandy Gravel
		20		" "
		25		Pebbles & Cobbles w/ F-VF Sand
		30		Very Fine Sand
		35		Slightly Sandy Gravel
6" Carbon Steel Casing 0'-144'		40		" " "
		45		Sandy Gravel
		50		" "
		55		" "
		60		" "
		65		Cemented Silty Sandy Gravel
		70		" " " "
		75		" " " "
		80		" " " "
		85		" " " "
		90		" " " "
		95		" " " "
		100		" " " "
		105		" " " "
		110		Gravelly Med.-Coarse Sand
		115		Sandy Gravel
		120		Muddy Gravel w/ Sand & Silt
		125		Muddy Sandy Gravel
		130		" " "
		135		Muddy Gravelly Sand
		140		Coarse Black Sand w/ Silt
		145		Fine-Med. Clean Sand
Perforated 6" Carbon Steel Casing 144'-176'		150		Gravelly Sand
		155		Very Fine-Coarse Sand
		160		" " " "
		165		Very Fine Sand

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

*Note: Hanford Wells Notes Drilled Depth as 429' & Dia 3.5" (May have been deep

A-1800-186 (05/90)

9413205.0583

AS-BUILT DIAGRAM

Boring or Well Number 699-49-100B Sheet 2 of 2
Location _____ Project _____

Logged by _____
Reviewed by _____ Date _____

Date Well Started 5/19/75
Date Well Completed 5/21/75

Well Construction Data			Depth in Feet	Geologic/Hydrologic Data		
		Drill Bit		Sample Method	Data fro RHO-LD-158	
Description	Construction Diagram				Lithologic Diagram	Lithologic Description
Perforated 6" Carbon		☒	170	☒		Fine-Med. Sand (Clean)
Steel Casing 144'-175'			175			" " " "

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ▩ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ● Split-Barrel

A-1800-186 (05/90)

9112205.0581

WELL COMPLETION SUMMARY

Project
Location
Drilling Co.
Driller
Other (companies)
Geologist(s)

Well No. 699-49-100C Temp. Well No. 6-49100C
Coordinates PN49419 PW100334
Elevation: Casing 790.43' Brass Marker

DRILLING METHOD
Drilling Method(s) Cable tool
Drilling Fluid
Other

COMPLETION DATA
Drilled Depth 408'
Completed Depth 408'
Date Started 5/28/76
Date Completed 8/25/76
Static Water Level/Date

OTHER (check if performed)
- ___ Well Abandonment
- ___ Well Development
- ___ Aquifer Testing
- ___ Geophysical Log(s)
- ___ Lock and Cap
- ___ Downhole TV Inspection
- ___ Driller's Logs
- ___ Pad
- ___ Guardposts
- ___ Protective Casing

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Perforated Casing	10"			unknown -

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
			-
			-
			-
			-

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
12" Casing	12"		Surface - 340'4"
10" (Liner)	10"		326' - 401'

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
N/A	-		
	-		
	-		
	-		
	-		
	-		

PUMP
Type Depth to Inlet Date Set

ACCEPTANCE
Completed Well: Accept Conditionally Accept
Reject

COMMENTS

Reviewed by Date Depths are below land surface unless noted.

9413205.0585

AS-BUILT DIAGRAM

Boring or Well Number 699-49-100C Sheet 1 of 3

Location _____ Project _____

Logged by _____

Reviewed by _____ Date _____

Date Well Started 5/28/76

Date Well Completed 8/25/76

Well Construction Data — Geologic/Hydrologic Data

Drill Bit — Sample Method — Data from ROLSAN

Description	Construction Diagram	Depth in Feet	Lithologic Diagram	Lithologic Description
		5		SANDY MUD 0-10'
12" Casing 0'-240.3'		10		
		15		GRAVELY MUDDY SAND 10'-13'
		20		SANDY MUD 13-15'
		25		GRAVELY MUDDY SAND 15'-25'
		30		MUDDY SANDY GRAVEL 25-30'
		35		SI MUDDY GRAVELY SAND 30'-35'
		40		MUDDY SANDY GRAVEL 35-40'
		45		SI GRAVELY MUDDY SAND 40-45'
		50		GRAVELY MUDDY SAND 45-50'
		55		SI MUDDY GRAVELY SAND 50-55'
		60		SI GRAVELY SI MUDDY SAND 55-60'
		65		SI MUDDY SAND 60-65'
		70		SI GRAVELY SI MUDDY SAND [illegible]
		75		SI GRAVELY MUDDY SAND [illegible]
		80		GRAVELY MUDDY SAND 75-125
		85		
		90		
		95		
		100		
		105		
		110		
		115		
		120		
		125		SI GRAVELY MUDDY SAND 125'-130'
		130		MUDDY SAND 130-135'
		135		GRAVELY SAND 135'-150'
		140		
		145		
		150		
		155		SANDY GRAVEL 150-155'
		160		SI MUDDY GRAVELY SAND 155-160
				MUDDY SAND 160'-18[illegible]

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ● Split-Barrel

A-1800-186 (05/90)

9413205.0586

AS-BUILT DIAGRAM

Boring or Well Number 699-49-100C Sheet 2 of 3

Location _____ Project _____

Logged by _____ Date Well Started 5/28/76

Reviewed by _____ Date _____ Date Well Completed 8/25/76

Well Construction Data		Depth in Feet	Geologic/Hydrologic Data	
Drill Bit			Sample Method	Data from ROCSAN
Description	Construction Diagram		Lithologic Diagram	Lithologic Description
		170		
12" Casing 0'-340.3'		175		
		180		
		185		
		190		GRAVELY MUDDY SAND 190-205
		200		" " "
		205		SANDY MUD 200'-205'
		210		MUDDY SAND 205-220
		215		" "
		220		" "
		225		SL GRAVELLY SL MUDDY SAND
		230		GRAVELLY MUDDY SAND
		235		" " "
		240		GRAVELLY SAND
		245		SL GRAVELLY SAND
		250		GRAVELL SAND
		255		SANDY GRAVEL
		260		MUDDY SANDY GRAVEL
		265		GRAVELLY MUDDY SAND
		270		" " "
		275		SL. MUDDY GRAVELLY SAND
		280		GRAVELLY MUDDY SAND
		285		" " "
		290		" " "
		295		" " "
		300		SL. GRAVELLY MUDDY SAND
		305		GRAVELLY MUDDY SAND
		310		SL. GRAVELLY MUDDY SAND
		315		GRAVELLY MUDDY SAND
		320		SL. GRAVELLY SL. MUDDY SAND
		325		SL. MUDDY GRAVELLY SAND
		330		MUDDY SANDY GRAVEL
				SL. GRAVELLY MUDDY SAND

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ● Split-Barrel

A-1800-186 (05/90)

9413205.0587

AS-BUILT DIAGRAM

Boring or Well Number 699-49-100C Sheet 3 of 3

Location _____ Project _____

Logged by _____ Date Well Started 5/28/76

Reviewed by _____ Date _____ Date Well Completed 8/25/76

Well Construction Data			Depth in Feet	Geologic/Hydrologic Data		
		Drill Bit		Sample Method	Data from ROCSAN 0'-350'/RHO-LA-158 350'-408'	
Description	Construction Diagram				Lithologic Diagram	Lithologic Description
			340			GRAVELLY MUDDY SAND
			345			SL. GRAVELLY MUDDY SAND
			350			SANDY GRAVEL
10" Liner 326'-401'			355			60% Gravel, 20% Sand, 10% Clay
Perforated ?			360			" " "
			365			" " "
			370			No Record
			375			" "
			380			" "
			385			80% Gravel, 20% Sand & Clay
			390			80% Gravel, 20% Sand
			395			Gray Sticky Clay
			400			" " "
			405			Broken Basalt
						TD = 408'

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ● Split-Barrel

A-1800-186 (05/90)

9413205.0588

WELL COMPLETION SUMMARY REPORT

Project USGS
Location
Drilling Co.
Driller Gentz
Other (companies)
Geologist(s)

Well No. 699-51-75 Temp. Well No.
Coordinates PN 50667, PW75151
Elevation: Casing 641.51 Brass Marker

DRILLING METHOD

Rotary Air Mud
Cable Tool D H
Drilling Fluid
Other Method not specified - assume cable tool

COMPLETION DATA

Drilled Depth 382
Completed Depth 235'
Date Started 8/21/57
Date Completed
Static Water Level/Date 97/9/17/57

OTHER (check if performed)

- ___ Well Abandonment
- X Well Development
- ___ Aquifer Testing
- ___ Geophysical Log(s)
- ___ Lock and Cap
- ___ Downhole TV Inspection
- ___ As-Built, Driller's/Geologist's Logs
- ___ Guardposts
- ___ Protective Casing

SCREEN

Type	Outer Diameter	Length	Slot Size	Depth(s)
Perforated (see back for details)	8"			190 - 370

TEMPORARY CASING

Type	Nominal Diameter	Shoe/Casing Diameter	Placement

PERMANENT CASING

Type	Nominal Diameter	Shoe/Casing Diameter	Placement
CARBON Steel (assumed)	8"		0 - 376

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
Gravel Pack	382' - 365		
SAND Pack	365 - 245		
Cement Grout	245 - 235		
SAND Pack	235 - 225		

PUMP

Type Depth to Inlet Date Set

ACCEPTANCE

Completed Well: Accept Conditionally Accept
Reject

COMMENTS

Reviewed by Date For all blanks mark N/A if not applicable.

9413205.0589

699-51-75 WELL COMPLETION SUMMARY (CONTINUED)

Type	Outer Diameter	SCREEN Length	Slot Size	Interval	
Perforations	8"	35'	2 cuts/ft	235 - 270'	10/57
"	"	100'	1 cut/ft	270' - 370'	10/57
"	"	45'	6 rows/ft	190' - 235'	8/63 ?
				-	
				-	
				-	

9413205.0590

WELL COMPLETION SUMMARY

Project USGS
Location
Drilling Co.
Driller Gentz
Other (companies)
Geologist(s)

Well No. 699-51-75 "P" Temp. Well No.
Coordinates PN 50667 PW75151
Elevation: Casing 641.51 Brass Marker

DRILLING METHOD

Drilling Method(s) Not specified - assume cable tool
Drilling Fluid
Other

COMPLETION DATA

Drilled Depth 382'
Completed Depth 375'
Date Started 8/21/57
Date Completed 5/31/77
Static Water Level/Date 190.9 (8/85)

OTHER (check if performed)

- ___ Well Abandonment
- ___ Well Development
- ___ Aquifer Testing
- ___ Geophysical Log(s)
- ___ Lock and Cap
- ___ Downhole TV Inspection
- ___ Driller's Logs
- ___ Pad
- ___ Guardposts
- ___ Protective Casing

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Polyethylene ?	1.5		60	270 - 275'

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
			-
			-
			-
			-

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Polyethylene ?	1.5		0 - 270'
			-

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
	-		
	-		
See well 699-51-75	-		
	-		
	-		
	-		

PUMP

Type None Depth to Inlet Date Set

ACCEPTANCE

Completed Well: Accept Conditionally Accept
Reject

COMMENTS

Piezometer tube installed 5/31/77. Previously installed tubes (1963, 1965) were removed

Reviewed by Date Depths are below land surface unless noted.

9413205.0591

AS-BUILT DIAGRAM

Boring or Well Number 699-51-75 Sheet 1 of 3
Location _____ Project _____

Logged by _____
Reviewed by _____ Date _____

Date Well Started 8/21/57
Date Well Completed 5/31/77

Well Construction Data			Depth in Feet	Geologic/Hydrologic Data		
		Drill Bit		Sample Method		
Description	Construction Diagram				Lithologic Diagram	Lithologic Description
		Not specified Assume cable tool	5	Not specified (assume cable tool)		Boulders, gravel, + sand
			10			" " "
			15			Boulders - gravel
1.5" dia piezometer tube →			20			" "
			25			" "
8" dia casing			30			" "
(assume carbon steel) →			35			" "
			40			" "
			45			" "
			50			Cobbles - boulders
			55			" "
			60			Boulders - gravel
			65			" "
			70			Cobbles - gravel - boulders
			75			Cobbles - gravel
			80			" "
			85			" "
			90			" "
			95			Sand, gravel, + cobbles
			100			" " "
			105			" " "
			110			" " "
			115			Cobbles - gravel
			120			" "
			125			Gravel - sand - silt
			130			" " "
			135			" " "
			140			" " "
			145			" " "
			150			" " "
			155			" " "
			160			Cobbles - gravel - sand - silt
			165			Gravel - sand - silt

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413205.0592

AS-BUILT DIAGRAM

Boring or Well Number 699-51-75 Sheet 2 of 3
Location _____ Project _____

Logged by _____ Date Well Started 8/21/57
Reviewed by _____ Date _____ Date Well Completed 5/31/77

Well Construction Data: Description	Depth in Feet	Geologic/Hydrologic Data: Lithologic Description
Initially the well only consisted	170	Gravel - sand - silt
of 8" casing. 1.5" piezometer	175	" " "
tubes were then installed. The	180	" " "
monitoring intervals and date	185	" " "
of ins. are listed below:	190	" " "
"P" 8/63 340-360'	195	" " "
"Q" 8/63 273-293'	200	" " "
"O" 4/65 210-230'	205	" " "
The above tubes were removed 5/77	210	Sandstone
There was no seal between them, they	215	"
were sand-packed in place.	220	Cobbles - gravel - sand
	225	Gravel - sand
Sand Pack (235-225')	230	Coarse sand - little gravel
	235	Gravel - sand
Cement grout (235-245')	240	Sand - gravel
	245	" "
	250	Sand - gravel - cobbles
	255	Gravel - sand
1.5" dia piezometer tube	260	" "
(0-270'); 60 slot screen	265	Sand - silt little
from 270-275' ("P")	270	Sand - gravel - silt
(Current piez. tube installed 5/77)	275	Sand - gravel
Sand Pack (365-245')	280	Cobbles - gravel sand
	285	Cobbles - gravel sand
Perforations in 8" casing	290	Cobbles - gravel sand
(10/4/57) 235-270' (2 cuts/ft)	295	Coarse gravel - fine sand
" 270-370' (1 cut/ft)	300	Small + coarse gravel - fine sand
(8/63?) 190-235' (6 rows/ft)	305	" " " "
	310	" " " "
	315	Coarse gravel + sand
	320	" " "
	325	" " "
	330	" " "

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413205.0593

AS-BUILT DIAGRAM

Boring or Well Number 699-51-75 Sheet 3 of 3

Location _____ Project _____

Logged by _____ Date Well Started 8/21/57

Reviewed by _____ Date _____ Date Well Completed 5/31/77

Well Construction Data			Depth in Feet	Geologic/Hydrologic Data		
	Drill Bit			Sample Method		
Description	Construction Diagram				Lithologic Diagram	Lithologic Description
Perforations in 8" casing			335			Sand - silt - gravel (starts @ 352')
			340			Sand - Gravel.
			345			Sand - gravel - cobbles
Sand Pack (245-365')			350			Sand - gravel - basalt - cobbles
			355			" " " "
			360			Sand + gravel
			365			Sand - silt - gravel
Gravel Pack (382-365')			370			Sand - gravel - basalt
Bottom of 8" casing @ 376'8"			375			Basalt (starts @ 375')
			380			"
TD = 382'			382			"

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ● Split-Barrel

A-1800-186 (05/90)

9413205.0594

WELL COMPLETION SUMMARY

Project
Location
Drilling Co. Hayden Drilling Co.
Driller J.D. St. George & Smith
Other (companies)
Geologist(s)

Well No. 699-57-83A Temp. Well No.
Coordinates N57020 W82993
Elevation: Casing 577.96 Brass Marker

DRILLING METHOD

Drilling Method(s) Cable Tool 0'-355'
Drilling Fluid Water
Other

COMPLETION DATA

Drilled Depth 355'
Completed Depth 355'
Date Started 10/10/60
Date Completed 12/6/60
Static Water Level/Date 169'/10/31/60

OTHER (check if performed)

___ Well Abandonment	___ Downhole TV Inspection
___ Well Development	___ Driller's Logs
___ Aquifer Testing	___ Pad
___ Geophysical Log(s)	___ Guardposts
___ Lock and Cap	___ Protective Casing

SCREEN

Type	Outer Diameter	Length	Slot Size	Interval
Perforated Carbon Steel	8"	195'		145' - 340'

TEMPORARY CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
			-
			-
			-
			-

PERMANENT CASING

Type	Nominal Diameter	Max. Outer Diameter	Interval
Carbon Steel	8"		0' - 145'
Carbon Steel	8"		340' - 342'

ANNULAR SEAL/FILL

Type	Interval	Quantity	Volume
Cement Grout	195' - 354'		
Wood Plug	354' - 355'		
	-		
	-		
	-		
	-		

PUMP

Type Depth to Inlet Date Set

ACCEPTANCE

Completed Well: Accept Conditionally Accept
Reject

COMMENTS P,Q&R Piezometers were set 6/9/64 all in Sand Pack (No cement) (P) perforated 335'-355', (Q) perforated 270'-290' (R) " 210'-230'
Piezometers were removed and well cemented to 195' on 7/26/76

Reviewed by Date

Depths are below land surface unless noted.

9413205.0595

AS-BUILT DIAGRAM

Boring or Well Number 699-57-83A Sheet 1 of 3
Location Project

Logged by
Reviewed by Date

Date Well Started 10/10/60
Date Well Completed 12/6/60

Well Construction Data — Geologic/Hydrologic Data

Drill Bit — Sample Method — Data from Driller's Log

Description	Construction Diagram	Depth in Feet	Lithologic Diagram	Lithologic Description
8" Carbon Steel Casing		5		Solid Cobble Bed
0'-145'		10		12" Cobbles & Silty Sand
		15		" " " "
		20		Cobbles & Silty Sand
		25		" " "
		30		" " "
		35		" " "
		40		Cemented Gravel & Sand
		45		Silty Gravel & Sand
		50		" " "
		55		" " "
		60		" " "
		65		" " "
		70		" " "
		75		" " "
		80		" " "
		85		" " "
		90		" " "
		95		" " "
		100		" " "
		105		" " "
		110		" " "
		115		" " "
		120		" " "
		125		" " "
		130		" " "
		135		" " "
		140		" " "
		145		" " "
Perforated 8" Carbon		150		" " "
Steel Casing 145'-340'		155		" " "
		160		" " "
		165		" " "

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ● Split-Barrel

A-1800-186 (05/90)

9413205.0596

AS-BUILT DIAGRAM

Boring or Well Number 699-57-83A Sheet 2 of 3
Location _____ Project _____

Logged by _____
Reviewed by _____ Date _____

Date Well Started 10/10/60
Date Well Completed 12/6/60

Well Construction Data — Geologic/Hydrologic Data

Drill Bit — Sample Method — Data from Driller's Log

Description	Construction Diagram	Depth in Feet	Lithologic Diagram	Lithologic Description
		170		Silty Gravel & Sand
		175		" " "
Perforated 8" Carbon Steel Casing 145'-340'		180		" " "
		185		" " "
		190		" " "
		195		" " "
		200		" " "
		205		" " "
		210		Conglomerate
		215		Sand & Silt
		220		" "
Cement Grout 195'-354'		225		" "
		230		Brown Silty Sand
		235		" " "
		240		Yellow Sand & Silt
		245		No Record
		250		Sand & Silt
		255		" "
		260		" "
		265		" "
		270		Sand & Gravel
		275		" "
		280		" "
		285		" "
		290		" "
		295		" "
		300		" "
		305		" "
		310		" "
		315		" "
		320		Sand
		325		"
		330		Sand & Gravel

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413205.0597

AS-BUILT DIAGRAM

Boring or Well Number 699-57-83A Sheet 3 of 3
Location _____ Project _____

Logged by _____
Reviewed by _____ Date _____

Date Well Started 10/10/60
Date Well Completed 12/6/60

Well Construction Data			Depth in Feet	Geologic/Hydrologic Data		
	Drill Bit			Sample Method	Data from Drillers Log	
Description	Construction Diagram				Lithologic Diagram	Lithologic Description
Perforated 8" Carbon		●	335	●		Sand & Gravel
Steel Casing 145'-340'			340			" "
8" Carbon Steel Casing			345			Basalt
340'-342'			350			"
Cement Grout 195'-354'			355			"
						TD=355'
Wood Plug 354'-355'						

Drill Bit/Sample Method Used:
☐ Rotary ☒ Air Rotary ■ Mud Rotary ▲ Air Percussion △ Back Hoe ◇ Auger ○ Drive Barrel ● Hard Tool ⊕ Split-Barrel

A-1800-186 (05/90)

9413205.0598

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Pacific Northwest Laboratories

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Other — Date

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This data package is being cleared in order to release it to Westinghouse Hanford Company.

Need a publisher for the Brown & Steele ref.

No comments. MHC

Clearance Administration Will Route

Patent Reviewer: Paul W. Zimmerman — Date 92/JAN/15

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ID Number (include revision, volume, etc.): WHC-SD-EN-DP-029, REV. 0

List attachments.

Date Release Required: April 30, 1992

Title: Unconfined Aquifer Hydrologic Test Data Package for the 200 West Aggregate Area Management Study

Unclassified Category: UC- N/A

Impact Level: 4

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Author/Requestor (Printed/Signature): S. J. Trent — Date: 4/16/92

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Part 1

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Project Title/Work Order:

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EDT No.: 157083

ECN No.:

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