ORIGINAL OCT 2 1956 W	VATER WELL DRIL	LERS REPORTS DO Not State Well No. 6/1W -10 5
STATE ENGINEEP ENGINEER	STATE OF OR	REGON State Permit No. G - 296
(1) OWNER:	41.	(10) WELL TESTS:
Name Cly of MI HNGEL		Was a pump test made? No If yes, by whom? Into Schnick
Address MT ANDEL ORCGON		Yield: 450 gal./min. with 360 ft. draw down after 24 hrs.
		<u>" 426 " 310 " 10 "</u>
(2) LOCATION OF WELL:	D-25-12 #1	<u>" 350 " 260 " 10"</u>
County MARION Owner's number,	if any—	Artesian flow 75 gal before p. p. mosurguy 20 gal after
R. F. D. or Street No. CITUAF M	TANGELFILE	Shut-in pressurelbs, per square inch. Bailer testlc
Bearing and distance from section or subdivision	corner	Temperature of water 6 2 Was a chemical analysis made? Ves No
530 A 8.24 E	460 FT	Was electric log made of well? Yes No
Mestery FX M Sta	S.W. Comes	(11) WELL LOG:
The city of Mitangel 7	to well site	
(3) TYPE OF WORK (check):		Diameter of well, inches. To 335 4 8" To 492
Ne li M Deepening Reconditi	oning Abandon	Total depth 492 ft. Depth of completed well 492 ft. Formation: Describe by color character size of material and structure and
abandonment, describe material and procedur	e in Item 11.	Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.
(4) PROPOSED USE (check):	(5) EQUIPMENT:	Oft. to 3 ft. Two Soil
Domestic 🗆 Industrial 🗀 Municipal 🔀	Rotary	3 " 27 " Mollow Clay
I on ☐ Test Well ☐ Other ☐	Cable X Dug Well	27 "32 " Blue "
CACING INSTALLED.		32 "49 " Comerated ground
hreaded Welded X	If gravel packed	79 63 Blue Clay & gravel
Gage	Diameter from to	70 "29 " Rementer the alive
	of Bore ft. ft.	79 "108 " Blue Class & Hours
"Top" 325" 10" 76" -	" "	100 "100 " Brown Blow & Bruel
" 8" FROM \$54 - F"	19 33	110"115" " Shale o
" " " " " " " " " " " " " " " " " " "	11 11	115" 135 " Blue Clay
,, ,, ,, ,, ,, ,,	,, ,,	135" 145 " Blue clay & Grand.
	Size of gravel:	143 /53
Describe joint Welded.		150 151 March & Andrew 1
(7) PERFORATIONS:		176 "247 " mixed chan & Krand.
Type of perforator used Mills	VIFE	247 "305 " mife & Clay
~ 4	ength, by / in. per foot (No. of rows	305" 400 " Clay + Roth 1)
	" " (" " "	700 430 They Clay
"167" 176 " 2= "	" " (" " "	461 "492 " Broken Benelt Bork.
" 220 " 222 " 2 "	" " 6 " " "	The man was the state of the st
" 247 " 277 2	<u>" " Z " " " " " " " " " " " " " " " " "</u>	23
SCATTORS: 441 TO 460 - 2		n n
Five Manufacturer's Name, Model No. a	ind Size	n n
CONCENTION		n n
Was a surface sanitary seal provided? Yes	No To what depth 2/1 ft.	27 17
Were any strata sealed against pollution? Tyes No		Ground elevation at well site feet above mean sea level.
If yes, note depth of strata		Work started fram 8 1956 Completed Sept 24 1956
FROM ft. to rt.		Well Drilleg's Statement:
NEEDLAND OF CELL DIG		This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
METHOD OF SEALING		10 -41 10
(9) WATER LEVELS:		(Person, firm, or corporation) (Types/or printed)
Depth at which water was first found	/3.0 ft. _ ft.	Address 729 N MHINST menters.
Standing level before perforating Standing level after perforating	and the second of the second o	Driller's well number
Standing level after perforating 510 Log Accepted by:	At 150 Depth ft.	0/1 + 0/1/
	9-26- 1956	[Signed] Hadhu M Handson
[Signed] City of Mt lage Dated	annigeneer annie des Rouse con 1 Tarres W	License No. Dated Sapt 26 , 1956
My pem on grew		0



251 FINANCE BUILDING 170 12TH STREET S.E.

REFER TO	
FILE No.	

STATE ENGINEER
WATER RESOURCES DEPARTMENT
SALEM

December 18, 1959

Mr. Lewis A. Stanley State Engineer Salem, Oregon

MEMORANDUM ON THE ARTESIAN FLOW AT MT. ANGEL WELL NO. 3

An examination of the Mt. Angel City Well No. 3 was made on the morning of December 17, 1959, to learn more about the water quality problem that exists at this well. Information was obtained from Mr. William Bean, Mayor, and Mr. Pete Meissner, water superintendent.

This well, which was constructed under State Engineer Permit No. G-296, was drilled to adepth of 492 feet by the Arrow Drilling Co. in 1956. The log of this well, which is attached to this memorandum, shows that the well penetrates several gravel strata in the upper 250 feet and a broken basalt aquifer at the bottom. The static water level when the well was at a depth of 150 feet was 30 feet below land surface. Upon completion of the well at 492 feet, it had an artesian flow of 75 g.p.m. The head on the artesian zone was sufficient to cause the well to flow when the top of the casing extended to 10 feet above land surface.

The City Water Department was troubled with a fine grained volcanic ash in this well that discolored the water to a point where the well was unusable. In 1957, the R. J. Strasser Drilling Co. was employed by the City to repair the well. The old casing was pulled and the well was recased to a depth of 488 feet. This new casing was perforated opposite several of the water bearing gravel strata but the location of these perforations is not known. The water eventually cleared up and the well was put into operation.

As the well drillers advised the City that they might "lose the well" if it was capped, the city installed a deep well turbine and a small capacity centrifugal pump to utilize all the artesian flow. In this system an automatic switch starts the small capacity centrifugal pump whenever the well starts to flow (see attached sketch). This pumping system

was reported to operate perfectly, however, when only the artesian flow was being utilized, the water quality in the city system became almost unusable because of the presence of hydrogen sulfide in the water. When the turbine pump on this well is in operation the water quality improves and the city is not bothered by complaints from the water users.

It is believed that the artesian aquifer, which is at the bottom of the well, carries the water containing the hydrogen sulfide gas. When the turbine pump is not in operation the artesian flow is derived from the deep aquifer. When the turbine pump is put into operation, sufficient water is developed from the overlying-aquifers so as to dilute the artesian water to a point where it is usable.

The City now desires to discontinue the use of the artesian flow so as to eliminate their water quality problem. The artesian flow was estimated to be approximately 50 g.p.m. at the time of my visit. This flow, if continuous of two-thirds of a year (estimated period when turbine pump would not be operated) would amount to approximately 100 acre feet a year.

The closing of the control valves on this well could cause some undesirable effects. The flow at the surface would be eliminated, but because of the difference in static levels, the artesian water would move up the well casing and out into the overlying aquifers. This could change the water quality that would be obtained when the turbine pump is in operation and could also affect the water quality in nearby wells that develop water from the shallower aquifers. The plugging of the Mt. Angel well at the bottom would probably eliminate the water quality problem but it would also reduce the capacity of their well.

As there are no other deep wells developing water from the artesian zone in the immediate vicinity of the city well, the waste of water from this zone may not cause injury to existing wells. I would recommend that, for the time being, this well be allowed to flow. The City should be required, however, to meter the amount of water being discharged to waste so that we would have a record of its magnitude. Should it be found that this waste is causing injury to other wells or depleting the supply in the artesian aquifer, the City should be required to either utilize the artesian flow or plug off the artesian zone in their well so as to correct the situation.

> ack E. Sceva Geologist

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ORIGINAL COT 2 1956 File Original and COT 2 1956 Duplicate with the STATE ENCOURER SALEM, ORBITAL	WATER WELL DRIL	LERS REPORT	Do Not State Well No. 6/1W-10 (3)
(1) OWNER		1	State Permit No. G-296
Name City of MIT	HNGEL	(10) WELL TEST	rs:
Address MT ANDEL	D. Pole VI	Was a pump test made	? X Yes No If yes, by whom? Mocho Schnie
- A STATE OF THE S	CACON	Yield: 450 gal./	min. with 360 ft. draw down after 24 hrs
(2) I OCATION OF	D- 25-/2	424	" 310 " 10 "
(2) LOCATION OF WELL:	#/	Artesian flow 75.9	260 " (0"
R. F. D. or Street No.		Shut-in pressure	
Bearing and distance from section or subdivision	ALANGELFILE	. The same of the	g.p.m. with ft. drawdown
520 M 2 24 E	on corner	Temperature of water	6 2 Was a chemical analysis made? Ves Way
Westerly FRIM of	a CW. Rarner	Was electric log made	of well? Yes No
Start of Buta	las addition	(11) WELL LOG:	
(3) TYPE OF WORK (check):	to well site		
17		Total depth	O inches. & 39% 1 8" To 49
New well Deepening Recond abandonment, describe material and procedu	itioning Abandon	Formation Describe by	ft. Depth of completed well 492 ft. y color, character, size of material and structure, and ers and the kind and nature of the material is,
		show thickness of aqui- stratum penetrated, wi	g cotor, character, size of material and structure, and ers and the kind and nature of the material in each th at least one entry for each change of formation.
PROPOSED USE (check):	(5) EQUIPMENT:	Oft. to 3 ft.	The land enange of formation.
mestic		3 " 27 "	reland class
Irrigation Test Well Other	Cable Dug Well	27 "32 "	Blue "
'6) CASING INSTALLED:	Tf	32 "49 "	Commented grand
areaded Welded X	If gravel packed	49 "65 "	Blue clay & growel
Gage or	Diameter from to	45 70	Brown Velly
FROM ft. to ft. Diam. Wall	of Bore ft. ft.	70 " 29 "	Consected Grabel
" X" Fee " A FU 1-"	" "	100 "100 "	Brand Brand
" T" U// ET" "	27 27	110 "115" "	1 Branch
н н н н н н н н н н н н н н н н н н н	39 11	115" 135 "	Blue 10
39 27 27 31 33	9) 29	135" 145"	Plue Clay & Hay
	Size of gravel:	145"155"	" shoo.
Describe joint Wol 2	elded	155"157 "	Krunel + 2 to
(7) PERFORATIONS:		157"176 "	mistad Clay + Branch
Type of perforator used Mills K	N.F.	176 247 "	mixed Clay & Ground
VIII. and manufactured to the Control of the Contro	ength, by / in.	297 305	mited Cliny
	per foot / No of rows	305 400 "	Clay + Mosta
155" 157" 2"	"" 6 """	400"450 " 430"461 "	Library Clary
167" 176" 2"	"" 6 """	IN 1" 490 "	Park ROTER
<u>" 220 " 222 " 2 " </u>	" " <u>(</u> " " "	" · · · · · · · · · · · · · · · · · · ·	Broken Banult Book.
241 21/ 2	<u>" " (" " " " </u>	The second second	The state of the s
Give Manufacturer's Name, Model No. s	ond Sine		
110.	ind Size	and the second s	
) CONSTRUCTION:			
Was a surface sanitary seal provided? ▼ Yes	No To what depth \$10 to	and some any color and all the second sections and the second	
Were any strata scaled against pollution? [] Yes		Ground elevation at well	olto de
if yes, note depth of strata		Work started	TO THE SER ICVEL
FROM ft. to	ft.	Well Driller's Stateme	8 1967 Completed Supt 24 1956
	**	This well was drill	led under my jurisdiction and this named to
METHOD OF SEALING		true to the best of my	knowledge and belief.
(9) WATER LEVELS:		NAME annow	Drill + Il
Depth at which water was first found	155 n	(Person, fir	rm, or corporation (Types or printed)
Standing level before perforating	ft.	Address 729 N	MAINST merchan
Standing level after perforating 30	at 150 Beth the	Driller's well number	4
Log Accepted by:	0	[Signed] Harle	m 2/ 1/
[Signed] City a mt Crysl Dated	9-26- 1956	117	(Well Dylle)
[Signed] City of Mt Engl Dated.	_	License No.	Dated 3 9pt 16, 1956
W. San	ه در م <u>عد شاه</u> ر شرع به در به	arte art er toak kan it	Stephen and the state of the st

DIAGRAMATIC SKETCH OF PUMPING EQUIPMENT AT MOUNT ANGEL WELL No 3

