INVESTIGATION OF CONTENTS OF LEAD AND MERCURY IN GROUNDWATER IN THE DRAYTON VALLEY DISTRICT

by: V.A. Carlson

January 1971

OFR 71-01

V. A. Carlson - January 6, 1971

INVESTIGATION OF CONTENTS OF LEAD AND MERCURY IN GROUNDWATER IN THE DRAYTON VALLEY DISTRICT

Background

Part of the routine processing of data for the Central Data File consists of the sending of letters requesting that locations be provided for chemical analyses originating from the Provincial Analyst. While this task was being carried out a number of analyses which gave a value for lead were noted. It is unusual for the lead content of well water to be stated on these analyses and a check of the form attached to the analyses revealed that the lead content was specifically asked for by the Edson Health Unit. Also, four of the analyses stated that the water was unsuitable for human consumption due to a high lead content. It was felt that some investigation into the matter was warranted in order to determine if in fact the groundwater in the area was high in lead content, who had suggested that lead be analyzed for in the first place, and why the suggestion was made.

Investigation and results

On September 11, 1970, a letter was sent to the Edson Health Unit requesting information regarding the lead analyses. Subsequent correspondence (copies of which are appended to the report) indicate that a resident of the Drayton Valley area suffered from a malady, some of the symptoms of which suggested lead poisoning. Her physician requested water samples be taken for analysis of lead content. This was done at five locations in the district in February of 1967 and a sufficiently high lead content was reported at four of them to render the water unfit for human consumption. These five analyses are the ones which originally came to our attention. However, subsequent analyses from samples taken

on the 3rd, 7th, and 8th of March, 1967, showed a significant drop in lead content and in fact are, except in one case, well within the limits prescribed for human consumption, which are 0.1 ppm. The table showing the lead concentrations of samples taken from wells at different dates, illustrates the sharp drop in reported lead concentration between the samples taken in February and those taken in March.

Analyses for Lead in Water Samples

The variation in reported lead contents for well water samples taken from individual wells over a short period of time in Drayton Valley district seems to indicate that either the original analyses were in error or the analyst received contaminated samples. During a telephone conversation with the Provincial Analyst it was learned that the method used in 1967 for determining lead content was the ditizone colorometric method. This involves extracting the heavy metals (Zn, Cu, Pb, Hg) from the sample using ditizone and determining the concentration of the metals in the extract by color. Special reagents are used to block out or mask the effects of heavy metals which are not being analyzed for, in this case Zn, Cu, and Hg. If an analysis for copper was desired then certain reagents would be used to block out the effects of the zinc, lead, and mercury. Mr. Davidson, who analyses water samples at the Research Council, said that this is a long procedure and that the opportunity for error is present. Contamination of the sample could also be the reason for the high lead values reported for the first round of samples. In support of this, Mr. Broomhall (Provincial Public Health Inspector) in his letter of April 27, 1967, to the Medical Health Officer of the Edson Health Unit, stated that he felt that the containers used at that time could have been a contributing factor to contamination of samples. Mr. Broomhall's letter also indicates that, considering the results of the March 1967 analyses, he felt there was

no significant lead contamination of groundwater in the Drayton Valley district. After surveying the data available, we agree with his conclusion. However, to be absolutely sure, five water samples were collected from within township 48, range 8, by the Research Council and subsequently analyzed for lead, zinc, copper, and mercury content by Mr. Davidson at the Research Council. In this case the lead was extracted with ditizone and analyzed for by atomic absorption. The results of these analyses all indicated a lead content of below 0.05 parts per million and similar very low values for the other metals included in the analysis. Copies of these analyses are appended to this report.

Conclusions

1. At present there is no lead contamination of groundwater in township 48, range 8, west of the fifth meridian of the Drayton Valley district, and it appears likely that there never was.
2. There does not appear to be contamination from any of the other heavy metals (Cu, Zn, and Hg).
3. No useful purpose can be served in continuing this investigation.

LOCATION					OWNER NAME	LEAD CONCENTRATION IN PPM					
1/4	Sec.	Tp.	Rg.	Mer.		Feb./67 8	Feb./67 23	March/67 3,7,8	March/67 29	Nov./68 21	RCA Jan./71
NE	2	48	8	5	W. Ewanick			0.15	0.0425		
4	10	48	8	5	J. Hewlett						< 0.05
SW	15	48	8	5	M. Grue			0.025	0.035		
NW	15	48	8	5	C. Dunnington	0.20	0.31	0.015	0.037	trace	< 0.05
SE	16	48	8	5	A. Landseibel		0.47	0.03	0.225		
NE	16	48	8	5	Gulf Oil			0.025			
NE	16	48	8	5	J. Mikulin		0.13	0.0375	0.003		
NW	16	48	8	5	A. Grinde		0.04	0.01	0.008		< 0.05
NW	18	48	8	5	H. Smithinsky			0.015	0.14		
SE	20	48	8	5	L. Mattson		0.31	0.0175	0.018		
SW	20	48	8	5	P. Klan			0.05	0.035		
NW	20	48	8	5	L. Stordalsvoll			0.05	0.07		
SW	21	48	8	5	O. Stordalsvoll						< 0.05
SE	22	48	8	5	Gulf Oil			0.0175			
NW	23	48	8	5	F. Hoge			0.0125	0.04		
SE	24	48	8	5	Violet Grove Store			0.0125	0.02		
NE	27	48	8	5	F. Wilson			0.005	0.175		
SE	28	48	8	5	W. Wallschlager			0.015	0.01		
SW	28	48	8	5	F. Hill			0.0075	0.03		< 0.05
SE	16	49	7	5	K. Machan				0.023		

September 11, 1970.

Health Inspector,
Edson Health Unit,
EDSON, Alberta.

Dear Sir:

Part of the work undertaken by the Groundwater Division, Research Council of Alberta consists of the routine processing of chemical analyses originating from the Provincial Analyst. While this task was being carried out a number of analyses which gave a value for lead were brought to my attention. It is unusual for the lead content of well water to be stated on these analyses and therefore we checked the form attached to the analysis which revealed that the lead content was specifically asked for by someone at the Edson Health Unit. A copy of a chemical analysis and the attached form is enclosed. Unfortunately, there are no signatures on the requests other than initials so I cannot identify the person who made them. I am, therefore, addressing this letter simply to the Health Inspector, hoping that it was you who made the requests and hence would be able to answer some questions regarding the analyses. If this is not the case, perhaps you could let me know the name and address of the person who did.

In any case, do you know why the lead content was specifically asked for on the analysis in question? If someone suggested to you that a lead analysis should be included could you tell me who, under what circumstances, and where he can be contacted? Also, if you have any further comments which you would like to make, please feel free to do so.

I would very much appreciate your attention to this matter.

Yours truly,

V. Carlson,
Hydrogeologist.

VC/dc
Encl.

MAIN OFFICE- EDSON
Phone 723-4421
Sub Offices:
DRAYTON VALLEY
Phone 542-3842
HINTON
Phone 865-2286

EDSON HEALTH UNIT

P.O. BOX 1718

EDSON, ALBERTA

September 14, 1970.

Mr. V. Carlson,
Research Council of Alberta,
97th Avenue & 114th Street,
EDMONTON, Alberta.

Dear Sir:

Re: Lead Determination - Water Supply
C.N. Dunnington - Violet Grove

Mrs. C.N. Dunnington of Violet Grove became ill in December, 1966 and some of the symptoms were suggestive of lead poisoning. She was subsequently transferred to the Royal Alex Hospital in Edmonton for diagnosis and treatment.

On a request from Mrs. Dunnington's family physician, a water sample was obtained for the purpose of determining the lead content. The first two samples revealed a lead content of 0.2 p.p.m. and 0.31 p.p.m. However the accuracy of the test was doubtful and subsequent samples did not reveal any dangerous level (0.015 - 0.037). Water samples were also taken from other supplies in the Violet Grove area.

The patient fully recovered and to my knowledge remained in good health.

Should you require further information, pleasee feel free to contact our office.

Yours truly,

Wm. H. Campbell,
Senior Public Health Inspector.

WHC/mc

October 14, 1970.

Mr. Wm. H. Campbell,
Senior Public Health Inspector,
Edson Health Unit,
P.O. Box 1718,
EDSON, Alberta.

Dear Sir:

Thank you for your informative letter of September 14 regarding the lead analyses for Mrs. C. N. Dunnington. We have on file the first two analyses (0.2 ppm and 0.31 ppm lead) which you mention in your letter, but have no record of the last two (0.015 ppm and 0.037 ppm lead). If you have these analyses on hand and if it isn't too much trouble we would very much appreciate copies of them. Also, I am interested in your statement that the accuracy of the analyses was doubtful, and would very much like to know what led you to this conclusion.

The reason I am investigating his matter is to try and determine if there was a high lead content in the water and, if there was, how did it get there.

Yours truly,

V. A. Carlson,
Hydrogeologist.

VAC/dc

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EDSON HEALTH UNIT

P.O. BOX 1718

EDSON, ALBERTA

October 15, 1970.

Mr. V.A. Carlson,
Research Council of Alberta,
87th Avenue & 114th Street,
EDMONTON, Alberta.

Dear Sir:

Re: C.N. Dunnington - Violet Grove
Lead Determination in Water Supply

I am enclosing further information and reports on the above mentioned water supply. Many of the results were relayed through Mr. Broomhall, Provincial Health Inspector who assisted in the sampling program.

A copy of Mr. Broomhall's letter will no doubt summ up the results.

Yours truly,

Wm. H. Campbell,
Senior Public Health Inspector.

WHC/mc

Encl.

RESEARCH COUNCIL OF ALBERTA

WATER ANALYSIS REPORT

Mer. 5 Tp. 48-8 Sec. 15 ¼ or LSD NW Identification No. (1061) 20-NW V. CARLSON

Origin of sample well Date sampled Oct /70

Sampled by V Carlson Date submitted

Date of analysis Jan 5 / 71

General	Total dissolved solids	836 ppm
	Total hardness as:	
	$CaCO_3$	87 ppm
	Noncarbonate	ppm
	Total alkalinity	502 ($CaCO_3$) ppm
	Residue on evaporation	ppm
	Specific conductance	micromhos @ 25°C
	Oxygen consumption	
	Color	
	pH	8.00

		ppm	epm	% of total anion or cation
Major Constituents	Calcium (Ca^{++})	17.0	0.85	6.9
	Magnesium (Mg^{++})	11.0	0.91	7.4
	Sodium (Na^{+})	240	10.4	85.2 ✓
	Potassium (K^{+})	2.1	0.05	0.4
	Carbonate (CO_3^{--})	0.0	0.0	0.0
	Bicarbonate (HCO_3^{-})	502 ($CaCO_3$)	10.0	82.9 ✓
	Sulfate (SO_4^{--})	96	2.00	16.5
	Chloride (Cl^{-})	2.0	0.06	0.5
	Nitrate (NO_3^{-})	1.4	0.02	0.2

		ppm		ppm
Minor Constituents	Hydroxide (OH^{-})	0.0	Copper (Cu)	0.05
	Iron (Fe)		Lead (Pb)	<0.05
	in solution	<0.05	Zinc (Zn)	<0.08
	total		Selenium (Se)	
	Silica (SiO_2)		Strontium (Sr)	
	Aluminum (Al)		Nitrogen (N)	
	Fluorine (F)	0.25	Manganese (Mn)	
	Bromine (Br)		Arsenic (As)	
	Iodine (I)		Chromium (Cr)	
	Boron (B)		(hexavalent)	

Mercury < .05 ppm

Elementary spectrographic analysis

RESEARCH COUNCIL OF ALBERTA

WATER ANALYSIS REPORT

Mer. ____ Tp. ____ Sec. ____ ¼ or LSD ____ Identification No. (0613) NW 16 V. CARLSON

Origin of sample ____ Date sampled ____

Sampled by V Carlson Date submitted ____

Date of analysis ____

General	Total dissolved solids	986	ppm
	Total hardness as:		
	$CaCO_3$	150	ppm
	Noncarbonate		ppm
	Total alkalinity	526 ($CaCO_3$)	ppm
	Residue on evaporation		ppm
	Specific conductance		micromhos @ 25°C
	Oxygen consumption		
	Color		
	pH	7.60	

		ppm	epm	% of total anion or cation
Major Constituents	Calcium (Ca^{++})	35.0	1.75	13.9
	Magnesium (Mg^{++})	15.3	1.26	10.0
	Sodium (Na^{+})	219	9.53	75.6
	Potassium (K^{+})	2.9	0.07	0.6
	Carbonate (CO_3^{--})	0.0	0.0	0.0
	Bicarbonate (HCO_3^{-})	526 ($CaCO_3$)	10.5	77.5
	Sulfate (SO_4^{--})	134	2.79	20.5
	Chloride (Cl^{-})	8.0	0.23	1.7
	Nitrate (NO_3^{-})	2.1	0.03	0.2

		ppm		ppm
Minor Constituents	Hydroxide (OH^{-})	0.0	Copper (Cu)	0.04
	Iron (Fe)		Lead (Pb)	<0.05
	in solution	<0.05	Zinc (Zn)	<0.02
	total		Selenium (Se)	
	Silica (SiO_2)		Strontium (Sr)	
	Aluminum (Al)		Nitrogen (N)	
	Fluorine (F)	0.22	Manganese (Mn)	
	Bromine (Br)		Arsenic (As)	
	Iodine (I)		Chromium (Cr)	
	Boron (B)		(hexavalent)	

Elementary spectrographic analysis ____

RESEARCH COUNCIL OF ALBERTA

WATER ANALYSIS REPORT

Mer. 5 Tp. 48-5 Sec. 28 ¼ or LSD SW Identification No. (0614) SW 28 V.CARLSON

Origin of sample _____ Date sampled Jan 121

Sampled by V Carlson Date submitted _____

F Hill Date of analysis _____

General	Total dissolved solids	1458	ppm
	Total hardness as:		
	$CaCO_3$	54	ppm
	Noncarbonate		ppm
	Total alkalinity	494 ($CaCO_3$)	ppm
	Residue on evaporation		ppm
	Specific conductance		micromhos @ 25°C
	Oxygen consumption		
	Color		
	pH	8.20	

		ppm	epm	% of total anion or cation
Major Constituents	Calcium (Ca^{++})	16.5	0.82	4.0
	Magnesium (Mg^{++})	3.2	0.26	1.3
	Sodium (Na^{+})	446	19.4	94.5
	Potassium (K^{+})	1.3	0.03	0.2
	Carbonate (CO_3^{--})	0.0	0.0	0.0
	Bicarbonate (HCO_3^{-})	494 ($CaCO_3$)	9.88	49.6
	Sulfate (SO_4^{--})	478	9.94	49.9
	Chloride (Cl^{-})	1.0	0.03	0.1
	Nitrate (NO_3^{-})	3.5	0.06	0.3

		ppm
Minor Constituents	Hydroxide (OH^{-})	0.0
	Iron (Fe)	
	in solution	<0.05
	total	
	Silica (SiO_2)	
	Aluminum (Al)	
	Fluorine (F)	0.19
	Bromine (Br)	
	Iodine (I)	
	Boron (B)	

	ppm
Copper (Cu)	0.04
Lead (Pb)	<0.05
Zinc (Zn)	0.20
Selenium (Se)	
Strontium (Sr)	
Nitrogen (N)	
Manganese (Mn)	
Arsenic (As)	
Chromium (Cr) (hexavalent)	

Elementary spectrographic analysis _____

RESEARCH COUNCIL OF ALBERTA

WATER ANALYSIS REPORT

Mer. 5 Tp. 42-8 Sec. 21 ¼ or LSD SW Identification No. (U118) SW 21 V. CARLSON

Origin of sample well at Stordalsval Date sampled

Sampled by V Carlson Date submitted

Date of analysis

General	Total dissolved solids	922	ppm
	Total hardness as:		
	$CaCO_3$	284	ppm
	Noncarbonate		ppm
	Total alkalinity	508 ($CaCO_3$)	ppm
	Residue on evaporation		ppm
	Specific conductance		micromhos @ 25°C
	Oxygen consumption		
	Color		
	pH	7.70	

		ppm	epm	% of total anion or cation
Major Constituents	Calcium (Ca^{++})	62.	3.09	23.8
	Magnesium (Mg^{++})	31.4	2.58	19.9
	Sodium (Na^{+})	166	7.22	55.5
	Potassium (K^{+})	4.2	0.11	0.8
	Carbonate (CO_3^{--})	0.0	0.0	0.0
	Bicarbonate (HCO_3^{-})	508 ($CaCO_3$)	10.2	76.0
	Sulfate (SO_4^{--})	138	2.87	21.5
	Chloride (Cl^{-})	9.0	0.25	1.9
	Nitrate (NO_3^{-})	5.1	0.08	0.6

		ppm		ppm
Minor Constituents	Hydroxide (OH^{-})	0.0	Copper (Cu)	0.05
	Iron (Fe)		Lead (Pb)	<0.05
	in solution	<0.05	Zinc (Zn)	<0.02
	total		Selenium (Se)	
	Silica (SiO_2)		Strontium (Sr)	
	Aluminum (Al)		Nitrogen (N)	
	Fluorine (F)	0.19	Manganese (Mn)	
	Bromine (Br)		Arsenic (As)	
	Iodine (I)		Chromium (Cr)	
	Boron (B)		(hexavalent)	

Elementary spectrographic analysis

RESEARCH COUNCIL OF ALBERTA

WATER ANALYSIS REPORT

Mer. 5 Tp. 49-8 Sec. 10 ¼ or LSD 4 Identification No. (0612) 4-10 V. CARLSON

Origin of sample well 5 Hewlett Date sampled Nov / 70

Sampled by V Carlson Date submitted

Date of analysis

General	Total dissolved solids	772	ppm
	Total hardness as:		
	$CaCO_3$	145	ppm
	Noncarbonate		ppm
	Total alkalinity	520 ($CaCO_3$)	ppm
	Residue on evaporation		ppm
	Specific conductance		micromhos @ 25°C
	Oxygen consumption		
	Color		
	pH	7.50	

		ppm	epm	% of total anion or cation
Major Constituents	Calcium (Ca^{++})	18.0	0.90	8.0
	Magnesium (Mg^{++})	24.2	1.99	17.8
	Sodium (Na^{+})	189	8.22	73.5
	Potassium (K^{+})	2.9	0.07	0.7
	Carbonate (CO_3^{--})	0.0	0.0	0.0
	Bicarbonate (HCO_3^{-})	520 ($CaCO_3$)	10.4	95.9
	Sulfate (SO_4^{--})	74	1.62	13.4
	Chloride (Cl^{-})	2.0	0.06	0.5
	Nitrate (NO_3^{-})	2.0	0.03	0.3

		ppm
Minor Constituents	Hydroxide (OH^{-})	0.0
	Iron (Fe)	
	in solution	<0.05
	total	
	Silica (SiO_2)	
	Aluminum (Al)	
	Fluorine (F)	0.24
	Bromine (Br)	
	Iodine (I)	
	Boron (B)	

	ppm
Copper (Cu)	0.03
Lead (Pb)	<0.05
Zinc (Zn)	0.02
Selenium (Se)	
Strontium (Sr)	
Nitrogen (N)	
Manganese (Mn)	
Arsenic (As)	
Chromium (Cr) (hexavalent)	

Elementary spectrographic analysis

Appendix

GOVERNMENT OF THE PROVINCE OF ALBERTA

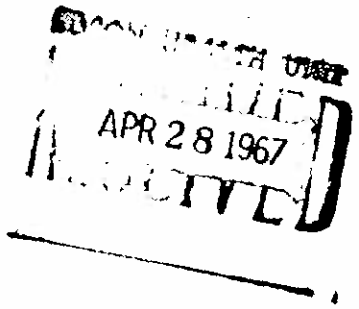
DEPARTMENT OF PUBLIC HEALTH

Environmental Health Services Division

SE 22-2-EDS

EDMONTON, ALBERTA

Administration Building,
April 27, 1967.



Dr. J. M. Brown,
Medical Officer of Health,
Edson Health Unit,
EDSON, Alberta.

Dear Sir:

Enclosed please find a compilation of the laboratory findings of samples submitted to the Provincial Analyst for lead determination. Mr. H. L. Hogge has reviewed these results with me and requested that I pass them on to you as he was committed to a trip and would be unable to pass the information on without considerable delay.

The results reveal many unexplained fluctuations and the values obtained from the two control samples (glass and plastic) were unexpected. They do, however, demonstrate that to an extent the container could have contributed to the higher values found in some samples. The degree of change in values would indicate that besides the influence of the container time of sampling and use of the supply may have had an effect on the findings. No one source has consistently demonstrated a high lead content throughout the series and, consequently, should not be considered unduly contaminated. There does not appear to be cause for alarm for any danger to public health. Random sampling of supplies from other parts of the Province has demonstrated similar findings so this should rule out a local type problem.

Therefore, the need for extension of the continuation of the sampling program is questionable. Repeat samples from those sources demonstrating lead content above the recognized limits might be taken in six months to a year's time to keep abreast of any possible change in the situation.

The above is forwarded for your information and consideration.

Yours very truly,

J H Broomhall

J. H. Broomhall,
Provincial Public Health Inspector.

Encls.
JHB:bd

MRS. KATHLEEN I. STRAUSZ
PROVINCIAL ANALYST
ACTING DIRECTOR INDUSTRIAL LABORATORY

THE UNIVERSITY OF ALBERTA
EDMONTON, CANADA

April 28, 1967

Report of Analysis

SAMPLE OF Waters

SUBMITTED BY Mr. J. H. Broomhall, Division of Sanitary Engineering, Administration Building, Edmonton, Alberta

LABORATORY NUMBER 67 - 4482, -5403

Sample No.	pH	Lead Parts Per Million
1		0.02
2		0.04
3		0.175
4		0.01
5		0.037
6		0.225
7	8.10	0.035
8	8.05	0.08
9	7.85	0.0425
10	7.95	0.003
11	7.85	0.008
12	7.70	0.018
13	8.41	0.03
14	8.30	0.07
15	8.20	0.035
16	7.75	0.14
17	7.56	0.003
18	8.10	0.003
19	8.05	0.004
20	8.44	0.001
21		0.05
22		0.075

K. I. Strausz
Kathleen I. Strausz
Provincial Analyst

KIS:pm

SAMPLES TAKEN - MAR 29/67

WATER SAMPLE RESULTS

Re: LEAD

Sample No.	Name	Legal Description	
#1 P	Violet Grove Store	S.E. 24-48-8 W5	.02
#2 P	F. Hogo	N.W. 23-48-8 W5	.04
#3 P	P. Wilson	N.E. 27-48-8 W5	.175
#4 P	W. Wallschlager	S.E. 28-48-8 W5	.01
#5 P	C. Dunnington	N.W. 15-48-8 W5	.037
#6 P	A. Landsiebel	S.E. 16-48-8-W5	.225
#7	H. Grue	S.W. 15-48-8-W5	.035
#8 P	W. Leinchbury	N.E. 4-48-8-W5	.08
#9 P	J. Ermiok	N.E. 2-48-8-W5	.0425
#10	J. Nikulin	N.W. 16-48-8-W5	.003
#11 P	A. Grindo	N.E. 17-48-8-W5	.008
#12	L. Mattsen	S.E. 20-48-8-W5	.018
#13 P	F. Hill	S.W. 28-48-8-W5	.03
#14 P	L. Stordalsvoll	N.W. 20-48-8-W5	.07
#15	P. Klan	S.E. 20-48-8-W5	.025
#16 P	H. Smithinsky	N.W. 18-48-8-W5	.14
#17	G. Schmidt	Lodgepole (Apt. Blk.)	.053
#18	E. Proehl	Lodgepole	.003
#19	Community Well	(H. Palmer) Lodgepole	.004
#20	Hamlet of Cynthia	Cynthia (Hotel)	.01

0.35	Kwanicha Ka.	N.E. 8-48-8-W5 Sample #19	Violet Grove 8/3/67

Drilled well 72' Galvanized casing with threaded joint. Drilled 1962 - Strong well inclined to be turbid on occasion.

0.05	Klan P.	S.W. 20-48-8-W5 Sample #15	Box 111 Violet Grove 8/3/67

Drilled well 47' Steel casing full depth with welded joint. Good well with jet pump. Plastic line to dwellings.

0.04	Town of Drayton Valley	Sample #1	7/3/67

5 Wells in service all discharging to central reservoir. Drilled wells steel casing 270' to 300' supply chlorinated in reservoir. Sample composite of 5 wells taken from tap in plant (chlorinated)

0.0375	Mikolin	N.W. 16-48-8-W5 Sample #6	Drayton Valley 7/3/67

Drilled well 65' steel casing (5") casing ran tight in drilling. All welded joints. Plastic line to dwelling. Installed around 1969.

0.03	Lundsichol	S.E. 16-48-8-W5 Sample #4	Drayton Valley 7-3-67

Drilled well 63' - 60' of water in well steel casing (4½" Flow Line) with welded joints. Pump and pressure tank in pump well in yard plastic line to dwelling.

0.025	D.A. Battery Site	N.E. 16-48-8-W5 Sample #3	Drayton Valley 7-3-67

600' fresh water well steel cased used for injection at pressure 1500 psi. Well servicing 9 wells using seperate take off from central manifold.

0.025	Town of Lodgepole	Sample #10	8-3-67

Drilled well steel casing 80' located in dwelling (sec. treas.) under floor porch. Copper service in dwelling.

0.025	Chas H.	S.W. 15-48-8-W5 Sample #17	Drayton Valley 8-3-67

Drilled well depth unknown. Steel casing (4") date of installation unknown.

0.0175	D.A. Battery Site	S.E. 22-48-8-W5 Sample #2	Drayton Valley 7-3-67

Well fresh water well steel cased used for injection at pressure of 900 psi. Small cuno micro filter (10 micron element) in line. Sample from pipeline by removal of plug and cracking valve.

0.0175	Nelson	S.E. 20-48-8-W5 Sample #8	7-3-67

73' drilled well under shed in yard - 6" steel casing and jet pump. Drilled in 1949 - casing is tight in drilling. 300' plastic line to house. House plumbing in copper.

0.015	Dunnington	N.W. 15-48-8-W5 Sample #5	7-3-67

72' drilled well with 4" casing (galvanized) to rock formation (20'). Old seismic hole converted to water well. Cement top. Plastic line in both well and house service.

0.015	Wallschleger	S.E. 28-48-8-W5 Sample #12	8-3-67

67' drilled well with galvanized casing (36' to rock formation) with coupled joint. 4' lengths. Drilled in 1948 (Mr. Fry, Violet Grove) Plastic Line

0.015	Smithinsky	N.W. 18-48-8-W5 Sample #16	8-3-67

87' drilled well with 4" steel casing. Origin of well is not known. Possibly 1962-63.

0.0125	Hoge	N.W. 23-48-8-W5 Sample #13	8-3-67

180' drilled well with steel casing. Jet pump and all plastic lines. Brown water wells Drayton Valley 1962.

0.0125	Violet Grove (Store)	Sample #14	8-3-67

340' drilled well by Wilson 1961. 4" steel casing with welded joints. Case to rock formation.

0.01	Grinde	N.E. 17-48-8-W5 Sample #7	7-3-67

65' drilled well with 4" galvanized casing roto drilling with galvanised run into hole contructed 1949 slip joint construction on casing - plastic line to house.

0.01	Cynthia (Hotel)	Sample #11	8-3-67

240' - 270' drilled well with steel casing all copper line. Sample hotel kitchen.

0.0075	Hill	S.W. 28-48-8-W5 Sample #20	8-3-67

Drilled well in yard - rough pumphouse shelter 4" steel crib - origin and depth unknown.

0.0075	Stordalsbold	N.W. 20-48-8-W5 Sample #21	8-3-67

170' drilled well with steel casing. Cased to rock formation (115') plastic pipe from well (yard) to pump (basement) copper service.

0.005	Wilson	N.E. 27-48-8-W5 Sample #9	8-3-67

93' drilled well with steel casing and welded joint. Depth is questionable as served by small shallow well (pitcher) pump with open top - Environment defies description -Pigs, ducks, chickens and cattle at large in yard. Open top on casing and pump - presumably 55' steel casing to rock formation.

0.005	Lainchbury	N.E. 6-48-8-W5 Sample #18	8-3-67

drilled well in yard - no detail. (request to health unit) Owner absent.

COPY

ALBERTA DEPARTMENT OF AGRICULTURE

VETERINARY SERVICES DIVISION

ANALYTICAL SERVICES SECTION

AGRICULTURE BUILDING

EDMONTON, ALBERTA

WATER ANALYSIS REPORT
CHEMICAL

Submitted by	Edson Health Unit	Date received	November 21, 1968
Address		Date reported	January 14, 1969
		Source of Sample	C. N. Dunnington Violet Grove
Container No.	P-76	Serial No.	
		Lab No.	69 - 270

PARTS PER MILLION

Total Solids	830
Ignition Loss	48
Hardness	138
Sulphates (SO_4)	212
Chlorides	2
Alkalinity	504
Nature of Alkalinity	Bicarbonate of soda, lime, magnesium
Nitrite Nitrogen	nil
Nitrate Nitrogen (N)	nil
Iron	0.10
Fluoride	
REMARKS:	Soda -- 27.2 grains per gallon (388.0 parts per million). Soda will corrode Aluminum and harm plants. Water is chemically suitable for human consumption. Lead -- trace

K. I. Strausz

Kathleen I. Strausz (Mrs.)

DIRECTOR, PROVINCIAL ANALYST

KIS:ms

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