Kevin Kincore
for your review
D.S

Chem-Met Services

1-313-282-9250
18550 ALLEN ROAD
WYANDOTTE, MICHIGAN 48192

November 18, 1982

Mr. Jerry Fore
Office of Hazardous Waste Management
P.O. Box 30028
Lansing, Michigan 48909

Dear Jerry:

The attached groundwater monitoring report is submitted for your review and comments if necessary. It includes:

1. October 19, 1982 well sample analysis and stream monitoring data to comply with our RCRA and Act 64 permit requirements (quarterly and minimum three-month averages).

2. A compilation of 4 months of monitoring data from our 4 groundwater monitoring wells and surface water sampling points with standard deviations calculated for all.

Equipment changes in the analytical procedures both at the analytical laboratory and within the wells, resulted in variations which we have included in our standard deviation calculations and summary. We assume this to be a standard operating potential and will continue to monitor henceforth on a quarterly basis continually adding the new data to this acquired information.

Please comment if you desire additional information or a change in this procedure.

Very truly yours,

CHEM-MET SERVICES

William R. Hartman
Vice President

WRH:fk
Attachment

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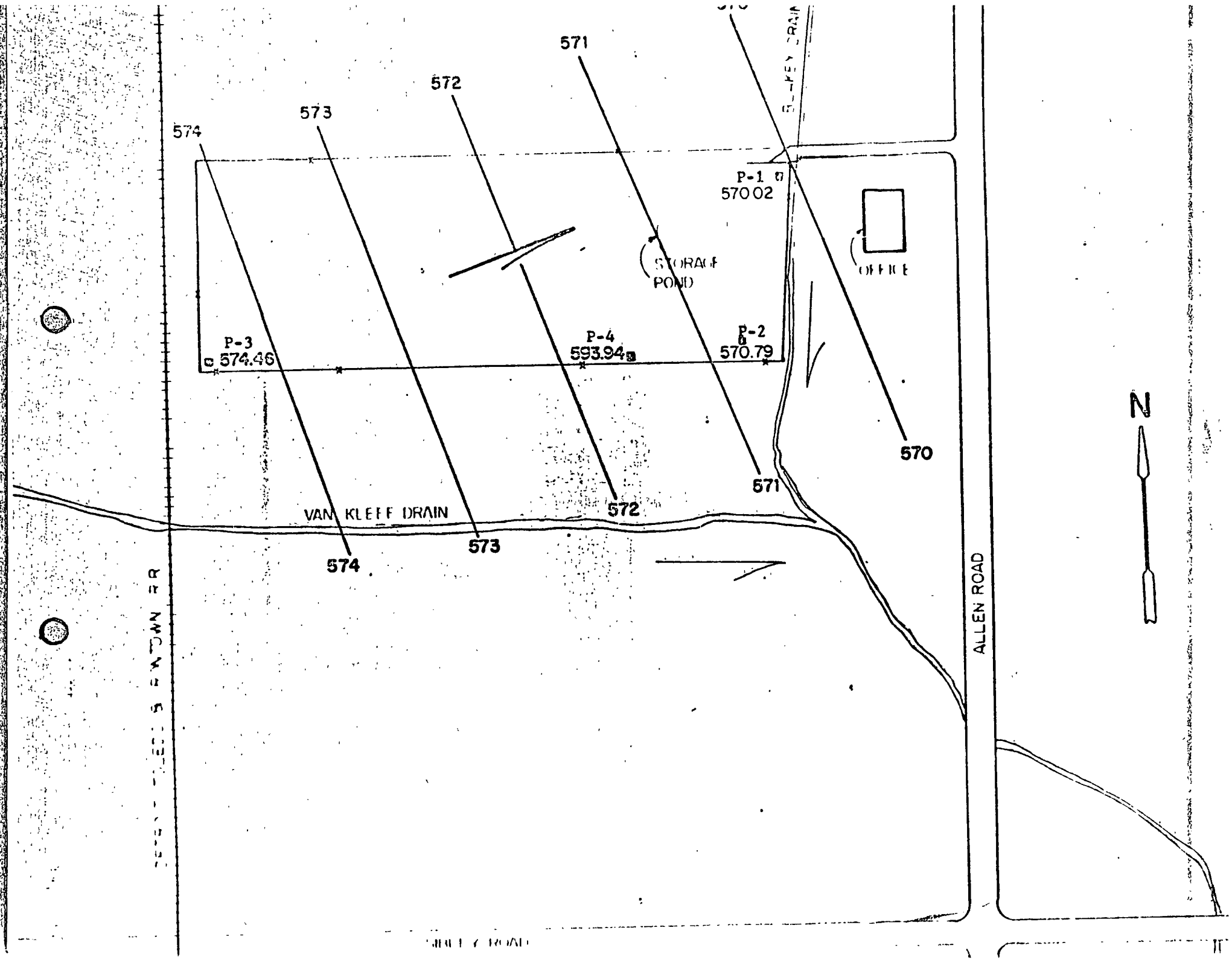
PERTINENT INFORMATION for GROUNDWATER REPORT

1. Mean and standard deviation were calculated for all parameters in which at least one (1) data point was above detection level (DL), all other detection level measurements (indicated by the less than sign <), for that parameter were treated as absolutes. Parameters with no absolute measurements were reported as miximum DL. When a mean was calculated, three standard deviations were utilized to establish population range (99%). In the absence of a true mean the maximum DL was reported as mean and equivalent to three S.D. units.

2. During the course of this survey, our reference laboratory (Canton Analytical Laboratory, Ypsilanti) converted from a Perkin-Elmer 560 Atomic Absorption Spectrograph (June 18 well samples) to a Perkin-Elmer Model 5000 (August 12 + samples). Conversion may reflect changes in sensitivity, accuracy, and/or linearity.

3. Well samples collected on 6-12-82 were acquired via a 'baling' method as described in E.P.A. SW 846. Chem-Met Services converted to "Well Wizard" (Q.E.D., Ann Arbor) monitoring system (down well PVC bladder pump, well cap, and driver controller module) to minimize cross contamination between wells and false water quality, also to reduce variability in method (due to personnel changes, equipment logistics, etc.). Samples collected on or after 9-15-82 reflect these changes.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GROUNDWATER QUALITY 1982

Site	Date	Date	Date	Date	Avg.	Population Range
P-1	6-18	8-12	9-15	10-19		(±3 S.D.)(99%)
Arsenic	<.05	< .001	.0017	.001	0.013	0 - 0.086
Barium	<.1	.2	.1	.10	0.125	0 - 0.275
Cadmium	<.01	.02	0.01	.02	0.015	0 - 0.032
Chromium (Total)	<.05	.05	.04	.04	0.045	0.028 - 0.062
Chromium (hex)	<.05	.03	.02	.038	0.035	0 - 0.073
Lead	<.05	.26	.08	.14	0.133	0 - 0.412
Mercury	<.002	.001	.001	<.001	0.001	0 - 0.003
Copper	<.05	.01	.02	.02	0.025	0 - 0.077
Zinc	<.05	8.9	1.7	.78	2.86	0 - 15.12
Iron		4.6	.021	.17	1.60	0 - 9.41
Cyanide (ox)	<.05	<.05	.20	<.01	0.08	0 - 0.33
Cyanide (total)	<.05	<.05	.22	<.01	0.08	0 - 0.36
Chloride	550	380	330	280	385	35 - 735
Sulfate	1280	2600	1200	1700	1695	0 - 3620
Sodium	140	150	170	140	150	110 - 190
Bicarb (as $CaCO_3$)	220	236	220	230	227	203 - 251
Carbonate (as $CaCO_3$)	<2.0	< 2.0	< 2.0	<2.0	< 2.0	0 - 4.0
pH	6.7	6.99	6.88	6.9	6.87	6.51 - 7.23
Specific Conductance	3000	2000	2000	2750	2450	900 - 4000
TOC	4.0	18.	49.	3.	19	0 - 83
TOH - TOX	.022	.006	.012	.006	0.012	0 - 0.035
Methylene Chloride	<.01	<.01	<.015	<.01	<.015	0 - .030
Carbon Tetrachloride	<.05	<.01	<.04	<.04	<.05	0 - 0.10
Trichloroethylene	<.01	<.01	<.01	<.01	<.01	0 - 0.02
1,1,1, Tri	<.01	<.01	<.01	<.01	<.01	0 - 0.02
O-dichloro	<.01	<.005	<.005	<.005	<.01	0 - 0.02
Toluene	<.01	<.002	<.002	<.002	<.01	0 - 0.02
M.E.K.	<.01	<.02	<.02	<.02	<.02	0 - 0.04
Carbon Di	<.01	<.06	<.04	<.04	<.06	0 - 0.12
iso-Buty	<.01	<.1		<.05	<.10	0 - 0.20
Tetrachloro	<.01	<.01	<.01	<.01	<.01	0 - 0.02

GROUNDWATER QUALITY 1982

Site P-2	Date 6-18	Date 8-12	Date 9-15	Date 10-19	Avg.	Population Range (±1 S.D.)(99%)
Arsenic	<.05	<.001	.0015	<.001	0.013	0 - 0.036
Barium	<.1	.2	<.1	<.10	0.125	0 - 0.273
Cadmium	<.01	.02	.01	.03	0.018	0 - 0.047
Chromium (total)	<.05	.03	.02	.03	0.033	0 - 0.071
Chromium (hex)	<.05	.02	<.02	.031	0.030	0 - 0.073
Lead	<.05	.23	.05	.17	0.125	0 - 0.395
Mercury	<.002	<.001	<.001	.0016	0.001	0 - 0.003
Copper	<.05	<.01	.02	.03	0.028	0 - 0.079
Zinc	<.05	15	1.7	7.7	6.11	0 - 26.44
Iron		5	.12	.20	1.77	0 - 10.16
Cyanide (ox)	<.05	<.05	.13	<.01	0.060	0 - 0.210
Cyanide (total)	<.05	<.05	.14	<.01	0.063	0 - 0.228
Chloride	800	360	340	290	450	0 - 1160
Sulfate	1200	1350	1200	1800	1390	540 - 2240
Sodium	140	150	180	140	150	95 - 205
Bicarb (as $CaCO_3$)	240	178	210	220	212	134 - 290
Carbonate (as $CaCO_3$)	<2.0	<2.	<2.	<2.	<2.	0 - 4.0
pH	7.2	8.11	7.04	7.2	7.39	5.93 - 8.85
Specific Conductance	3000	2000	2000	2500	2375	950 - 3800
TOC	1.0	24.	37.	3.	16	0 - 63
TOH - TOX	.020	.014	.020	.005	0.015	0 - 0.036
Methylene Chloride	<.01	<.01	<.015	<.01	<.015	0 - .030
Carbon Tetrachloride	<.05	<.01	<.04	<.04	<.05	0 - 0.10
Trichloroethylene	<.01	<.01	<.01	<.01	<.01	0 - 0.02
1,1,1, Tri	<.01	<.01	<.01	<.01	<.01	0 - 0.02
O-Dichloro	<.01	<.005	<.005	<.005	<.01	0 - 0.02
Toluene	<.01	<.002	<.002	<.002	<.01	0 - 0.02
MEK	<.01	<.02	<.02	<.02	<.02	0 - 0.04
Carbon Di	<.01	<.06	<.04	<.04	<.06	0 - 0.12
Iso-Buty	<.01	<.1		<.05	<.10	0 - 0.20
Tetrachloro	<.01	<.01	<.01	<.01	<.01	0 - 0.02
			<.01	<.05	<.10	0 - 0.20

GROUNDWATER QUALITY 1982

Site P-2	Date 6-18	Date 8-12	Date 9-15	Date 10-19	Avg.	Population Range (±2 S.D.)(99%)
Arsenic	<.05	<.0012	.0028	<.001	0.014	0 - 0.078
Barium	<.1	<.1	<.1	<.10	<.1	0 - 0.2
Cadmium	<.01	.02	.02	.02	0.018	0.003 - 0.033
Chromium (total)	<.05	.04	<.02	.04	0.038	0 - 0.076
Chromium (hex)	<.05	<.02	<.02	.039	0.032	0 - 0.076
Lead	<.05	.22	.07	.15	0.123	0 - 0.357
Mercury	<.002	<.001	.001	<.001	0.001	0 - 0.003
Copper	<.05	.01	.01	.02	0.023	0 - 0.060
Zinc	<.05	59	.70	5.4	16.29	0 - 102.02
Iron		2.4	.09	.18	0.89	0 - 4.81
Cyanide (ox)	<.05	<.05	.07	<.01	0.045	0 - 0.121
Cyanide (total)	<.05	<.05	.09	<.01	0.050	0 - 0.148
Chloride	400	360	340	290	350	215 - 485
Sulfate	1140	1100	1050	1600	1220	455 - 1985
Sodium	150	160	150	130	150	110 - 190
Bicarb (as $CaCO_3$)	200	24.	240	220	170	0 - 470
Carbonate (as $CaCO_3$)	<2.	<2.	<2.	<2.	<2.0	0 - 4.0
pH	6.9	8.54	7.30	7.2	7.49	5.32 - 9.66
Specific Conductance	3000	2000	2000	2500	2375	940 - 3810
TOC	7.	19.	130	3.	40	0 - 222
TOH - TOX	.005	.005	.011	.017	0.010	0 - 0.27
Methylene Chloride	<.01	<.01	<.015	<.01	<.015	0 - .030
Carbon Tetrachloride	<.05	<.01	<.04	<.04	<.05	0 - 0.10
Trichoroethylene	<.01	<.01	<.01	<.01	<.01	0 - 0.02
1,1,1, Tri	<.01	<.01	<.01	<.01	<.01	0 - 0.02
O-Dichloro	<.01	<.005	<.005	<.005	<.01	0 - 0.02
Toluene	<.01	<.002	<.002	<.002	<.01	0 - 0.02
MEK	<.01	<.02	<.02	<.02	<.02	0 - 0.04
Carbon Di	<.01	<.06	<.04	<.04	<.06	0 - 0.012
iso-Buty	<.01	<.1		<.05	<.10	0 - 0.20
Tetrachloro	<.01	<.01	<.01	<.01	<.01	0 - 0.02
Pyridine	<.01	<.1	<.01	<.05	<.10	0 - 0.02

GROUNDWATER QUALITY 1982

Site F-4	Date 6-18	Date 8-12	Date 9-15	Date 10-19	Avg.	Population Range (±3 S.D.)(99%)
Arsenic	<.05	.0024	.0028	<.001	0.014	0 - 0.086
Barium	<.1	<.1	<.1	<.10	<.1	0 - 0.20
Cadmium	<.01	.01	.02	.02	0.015	0 - 0.032
Chromium (total)	<.05	.02	.03	.04	0.035	0 - 0.074
Chromium (hex)	<.05	<.02	.02	.032	0.031	0 - 0.074
Lead	<.05	.32	.07	.15	0.15	0 - 0.520
Mercury	<.002	<.001	<.001	<.001	0.001	0 - 0.003
Copper	<.05	.03	.02	.02	0.030	0 - 0.072
Zinc	<.05	2.5	.04	.11	0.68	0 - 4.33
Iron		8.6	4.1	.98	4.56	0 - 16.05
Cyanide (ox)	<.05	<.05	<.02	<.01	0.033	0 - 0.095
Cyanide (total)	<.05	<.05	<.02	<.01	0.033	0 - 0.095
Chloride	500	550	530	500	520	445 - 595
Sulfate	80.	850	700	1300	910	110 - 1710
Sodium	76.	160	100	83.	105	0 - 220
Bicarb - (as$CaCO_3$)	550	504	550	520	531	462 - 600
Carbonate (as$CaCO_3$)	<2.0	<2.	<2.	<2.	<2	0 - 4.0
pH	6.7	6.93	7.08	7.5	7.05	6.04 - 8.06
Specific Conductance	2500	2000	2000	2400	2225	1435 - 3015
TOC	5.0	12.	67.	4.	22	0 - 113
TOH - TOX	.041	.016	.031	.015	0.026	0 - 0.064
Methylene Chloride	<.01	<.01	<.015	<.01	<.015	0 - .030
Carbon Tetrachloride	<.05	<.01	<.04	<.04	<.05	0 - 0.10
Trichoroethylene	<.01	<.01	<.01	<.01	<.01	0 - 0.02
1,1,1, Tri	<.01	<.01	<.01	<.01	<.01	0 - 0.02
O-Dichloro	<.01	<.005	<.005	<.005	<.01	0 - 0.02
Toluene	<.01	<.002	<.002	<.002	<.01	0 - 0.02
MEK	<.01	<.02	<.02	<.02	<.02	0 - 0.04
Carbon Di	<.01	<.06	<.04	<.04	<.06	0 - 0.12
iso-Buty	<.01	<.1		<.05	<.10	0 - 0.20
Tetrachloro	<.01	<.01	<.01	<.01	<.01	0 - 0.02
Pyridine	<.01	<.1	<.01	<.05	<.10	0 - 0.20

GROUNDWATER QUALITY 1982

Site Upstream	Date 6-18	Date 9-15	Avg.	Population Range (±3 S.D.)(99%)
Chromium (total)	<.05	.02	<.05	0 - 0.10
Chromium (hex)	<.05	<.02	<.05	0 - 0.10
Lead	<.05	<.05	<.05	0 - 0.10
Chloride	350	300	325	220 - 430
pH	7.5	7.0	7.25	6.19 - 8.31
TOC		300		0 - 550
TOD	15.	1.0	8.0	0 - 36.0
TDS	720	1100	910	105 - 1715

Site Downstream	Date 6-18	Date 9-15	Avg.	Population Range (±3 S.D.)(99%)
Chromium (total)	<.05	.03	<.05	0 - 0.10
Chromium (hex)	<.05	<.02	<.05	0 - 0.10
Lead	<.05	<.05	<.05	0 - 0.10
Chloride	1150	350	750	0 - 2450
pH	7.6	7.1	7.35	6.29 - 8.41
TOC		125		0 - 580
TOD	16.	4.0	10	0 - 35.0
TDS	1560	1100	1330	355 - 2305