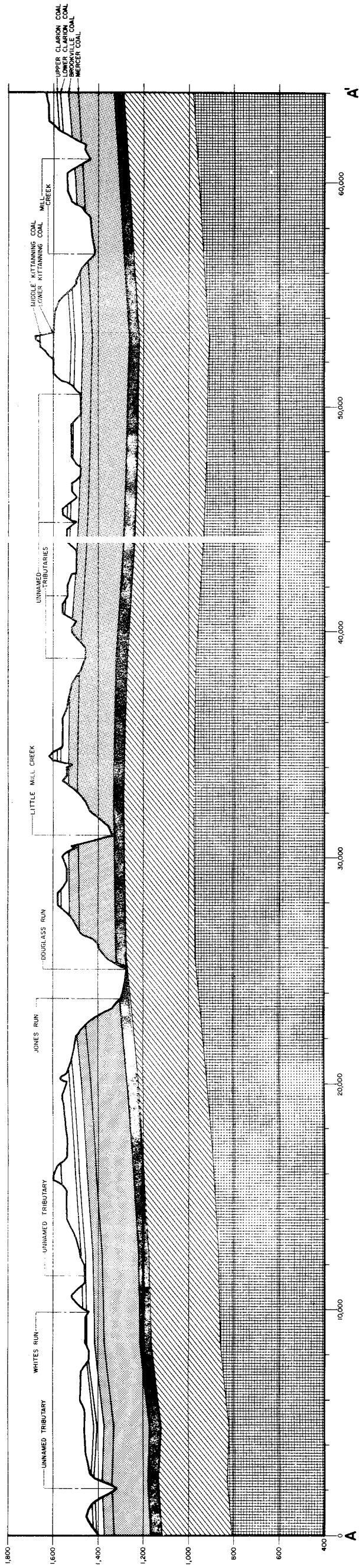
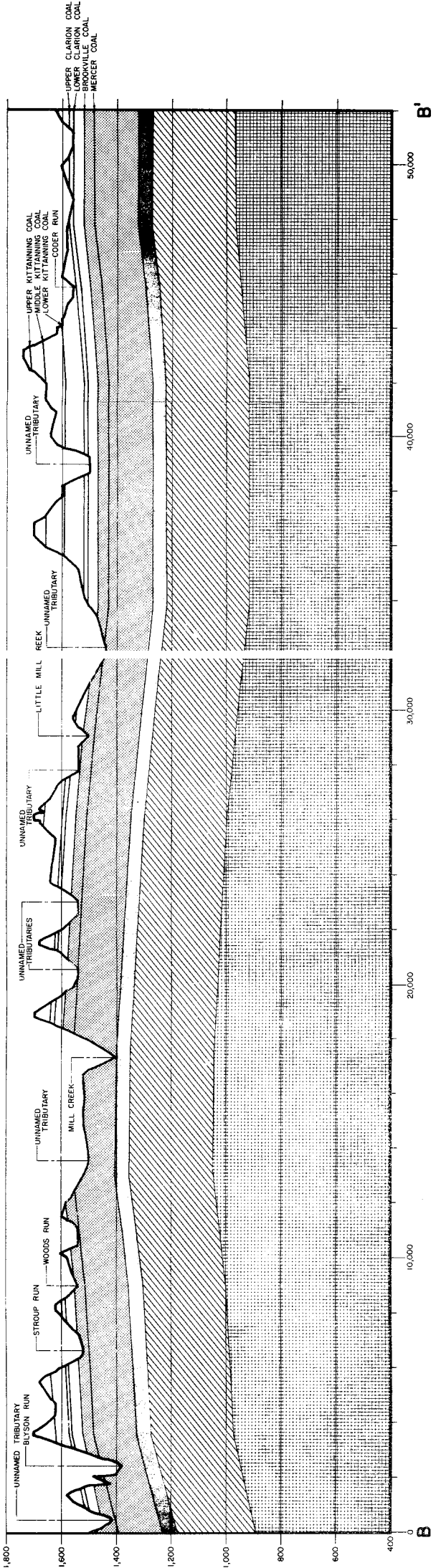


EXHIBIT I

GENERALIZED STRATIGRAPHY OF THE MILL CREEK WATERSHED

FORMATION	MEMBER	COLUMNAR SECTION	APPROXIMATE THICKNESS	ROCK TYPE
ALLEGHENY	FREEPORT	[Pattern]	325'	COAL
	KITTANNING	[Pattern]		CLAYS
	CLARION	[Pattern]		SANDSTONES
POTTSVILLE	BROOKVILLE	[Pattern]	200'	COAL
	LONSGUE	[Pattern]		CLAYS
	MESSING	[Pattern]		SANDSTONES
POCONO	PATTON	[Pattern]	25'	REG. SHALES
	SIENANGO	[Pattern]		SANDSTONES
OSWAYO		[Pattern]	600'	SANDSTONES
		[Pattern]		SHALES

NOTES:  
 THE WALCH CHUNK FORMATION AND BURGOON SANDSTONE HAVE BEEN ENTIRELY REMOVED BY EROSION OR WERE NEVER DEPOSITED IN THIS AREA. THE PATTON MEMBER IS NOT SHOWN WHERE IT IS NOT KNOWN TO BE PRESENT OR WHERE IT IS NOT KNOWN TO BE PRESENT AND THE OVERLYING POTTSVILLE ROCKS.  
 GEOLOGIC INTERPRETATION OF WATERSHED CROSS-SECTIONS IS BASED ON THE BEST INFORMATION CURRENTLY AVAILABLE.  
 HORIZONTAL AND VERTICAL DISTANCES ON CROSS-SECTIONS ARE GIVEN IN FEET.



# MILL CREEK WATERSHED

CLARION COUNTY, JEFFERSON COUNTY PENNSYLVANIA



COMMONWEALTH OF PENNSYLVANIA  
**DEPARTMENT OF ENVIRONMENTAL RESOURCES**  
MINE DRAINAGE PROJECT SL 133-5

**GEOLOGIC CROSS SECTION**



EXHIBIT 2  
MINE DRAINAGE PERMITS

Clarion Township, Clarion County

<u>Operator</u>	<u>Location</u>	<u>Permit No.</u>	<u>Status</u>
James Kerle Coal Co.	South of Rt. 322 at Day (Area XX)	2765BSM35	Inactive
C & K Coal Co., Inc.	Northwest of Strattanville bordering T-572 on the east.	2767BSM5	Inactive
W. P. Stahlman Coal Co., Inc.	South of Rt. 322 at Day (Area XX)	2767BSM12	Inactive
H & G Coal and Clay Co., Inc.	North of and bordering Strattanville	3673SM13	Active
Zacherl Coal Co.	East side of L.R. 16091 (Area XIV)	3674SM14	Active
Mauersberg Coal Co.	East side of T-490 (at Area X)	3675SM27	Active
Zacherl Coal Co.	Adjacent T-572 just north of Strattanville	3675SM51	Active
Midway Resources Inc.	South of Rt. 322 at Day (Area XL)	3675SM66	Active
W. P. Stahlman Coal Co., Inc.	Along east side of T-490 at Area XI	3676SM21	Active

<u>Operator</u>	<u>Location</u>	<u>Permit No.</u>	<u>Status</u>
Glacial Minerals, Inc.	East of T-572 at Area I	3676SM39	Pending

Millcreek Township, Clarion County

<u>Operator</u>	<u>Location</u>	<u>Permit No.</u>	<u>Status</u>
H & G Coal and Clay Co., Inc.	Area V	2767BSM8	Active
H & G Coal and Clay Co., Inc.	East of L.R. 16055 .6 mile south of Fisher	2767BSM10	Inactive
H & G Coal and Clay Co., Inc.	North of T-571 and West of L.R. 16055 (Area VIII)	2768BSM11	Inactive
W. P. Stahlman Coal Co., Inc.	Near intersection of T-320 and T-563 (Area XXX)	3776SM6	Active

Eldred Township, Jefferson County

<u>Operator</u>	<u>Location</u>	<u>Permit No.</u>	<u>Status</u>
W. P. Stahlman Coal Co., Inc.	Adjacent to L.R. 33014 2500 feet north of Mill Creek	3871BSM9	Inactive
Fariview Coal Co.	Along T-355, 3000 feet west of Pa. Rt. 36	3875SM7	Active

<u>Operator</u>	<u>Location</u>	<u>Permit No.</u>	<u>Status</u>
R.E.M. Coal Co., Inc.	4000 feet due west of junction of T-350 and L.R. 33008	3875SM19	Active
W. P. Stahlman Coal Co., Inc.	Contiguous to and on the south side of 3875SM19	3875SM37	Active
W. P. Stahlman Coal Co., Inc.	West side of L.R. 33082, 2000 feet south of junction with T-355	38A76SM9	Active
MYC-ONE Inc.	Along L.R. 33014, 3500 north of junction with L.R. 33008	38A76SM28	Pending
Colt Resources, Inc.	Along T-346 of southwest corner of 38A76SM28	38A77SM6	Pending

Union Township, Jefferson County

<u>Operator</u>	<u>Location</u>	<u>Permit No.</u>	<u>Status</u>
W. Paul Glenn	North of T-660 and west of L.R. 33008, north of Corsica	19105	Inactive

<u>Operator</u>	<u>Location</u>	<u>Permit No.</u>	<u>Status</u>
H & G Coal and Clay Co., Inc.	North of T-353 and west of T-342 (Area XXXI)	3066BSM26	Inactive
James Kerle	North of T-349 and west of T-346 (adjacent Area XXVIII)	3067BSM10	Active
H & G Coal and Clay Co., Inc.	Area XLI	3067BSM26	Inactive
W. P. Stahlman Coal Co., Inc.	North of T-347 and west of L.R. 33014	3067BSM34	Active
W. P. Stahlman Coal Co., Inc.	North of T-347 and east of T-346 (Area XXXVI)	3067BSM35	Inactive
R. E. M. Coal Co., Inc.	Adjacent T-320 and north of T-660	3874SM2	Active
W. P. Stahlman Coal Co., Inc.	East of L.R. 33008 on south side of Mill Creek	3874SM15	Active
Bracken Construction Co.	Contiguous to 3067BSM34	3874SM19	Active
R.E.M. Coal Co., Inc.	Bisected by T-353 at Area XXXI	3874SM44	Active
W. P. Stahlman Coal Co., Inc.	Between I-80 and U.S. 322 east of Corsica	3875SM51	Active

<u>Operator</u>	<u>Location</u>	<u>Permit No.</u>	<u>Status</u>
W. P. Stahlman Coal Co., Inc.	Just northwest of Interchange 12 of I-80	3875SM55	Active
Robert Fagley	Between I-80 and U.S. 322 east of Corsica	3875SM56	Active
W. P. Stahlman Coal Co., Inc.	North of I-80 at Roseville	38A76SM14	Active
C & K Coal Co.	Area XXXII	38A76SM26	Pending





EXHIBIT 3  
STREAM SAMPLING LOCATIONS

<u>Station No.</u>	<u>Location</u>
1.	Clarion River 200 feet downstream of the confluence of Mill Creek.
2.	Clarion River 200 feet upstream of the confluence of Mill Creek.
3.*	Mill Creek 1200 feet upstream of its mouth.
4.	Whites Run 50 feet upstream of its mouth.
5.	Trap Run 50 feet upstream of its mouth.
6.	Stroup Run 200 feet upstream of its mouth.
7.	Unnamed tributary to Mill Creek 50 feet upstream of its mouth.
8.	Unnamed tributary to Mill Creek 300 feet upstream of its mouth.
9.	Unnamed tributary to Mill Creek 50 feet upstream of its mouth.
10.	Unnamed tributary to Mill Creek 300 feet upstream of its mouth at fire road.
11.	Woods Run approximately 250 feet upstream of its mouth at fire road.

\* WAMIS Station

<u>Station No.</u>	<u>Location</u>
12.*	Douglass Run about 200 feet upstream of its confluence with Mill Creek.
12A.*	Jones Run 25 feet upstream of its confluence with Douglass Run.
12B.*	Douglass Run 30 feet upstream of the confluence of Jones Run.
12C & 12D.	Jones Run 20 feet upstream on each tributary from their junction.
12E & 12F.	Jones Run 20 feet upstream on each tributary from their junction.
13.*	Little Mill Creek 200 feet upstream of its mouth.
13A.	Unnamed tributary to Little Mill Creek about 300 feet upstream of its mouth and accessible from gas well.
13B.*	Unnamed tributary to Little Mill Creek about 50 feet upstream of its mouth.
13C.*	Unnamed tributary to Little Mill Creek about 500 feet upstream of its mouth at T-351
13D.	Unnamed tributary to Little Mill Creek 250 feet upstream of its mouth.

\* WAMIS Station

<u>Station No.</u>	<u>Location</u>
13E.	Unnamed tributary to Little Mill Creek 1700 feet upstream of its mouth, at T-351.
13F.	Unnamed tributary to Little Mill Creek 150 feet upstream of its confluence.
13G.	Unnamed tributary to Little Mill Creek about 100 feet from its confluence.
13H.*	Small unnamed tributary to Little Mill Creek at its mouth.
13I.	Little Mill Creek about 30 feet upstream of 13H.
13J.	Unnamed tributary to Little Mill Creek at T-349.
13K.	Unnamed tributary to Little Mill Creek 1000 feet upstream of its junction with 13J, at T-349.
14.	Unnamed tributary to Mill Creek taken along fire road about 150 feet upstream of the mouth.
15.	Pendleton Run at the mouth.
15A.	Spangler Run about 250 feet upstream of its mouth.

\* WAMIS Station

Station No.

Location

- 15B. McCanna Run about 400 feet upstream of its mouth.
16. Updike Run about 4000 feet upstream of its mouth, taken at gas well road.
- 16A. Updike Run about 100 feet upstream of the confluence with Beer Run.
- 16B. Beer Run about 50 feet upstream of its mouth.
17. Unnamed tributary to Mill Creek 20 feet upstream of the mouth.
18. Unnamed tributary to Mill Creek 20 feet upstream of the mouth.
19. Rankin Run 400 feet upstream of mouth, at T-344.
20. Martin Run about 50 feet upstream of its mouth.
21. Unnamed tributary to Mill Creek about 300 feet upstream of its mouth.
22. Unnamed tributary to Mill Creek 100 feet upstream of its mouth.

Station No.

Location

23. Northern branch of Mill Creek about 650 feet upstream of the confluence with 24, at T-353.
24. Eastern tributary of Mill Creek about 1900 feet upstream of the junction with 23, at T-348.
- 24A. Eastern headwaters tributary to Mill Creek about 150 feet upstream of junction with 24B, at T-353.
- 24B. Headwaters tributary to Mill Creek about 200 feet upstream of junction with 24A.
25. Unnamed tributary to Mill Creek 50 feet upstream of its mouth.
26. Parks Run about 1000 feet upstream of its mouth.
27. Unnamed tributary to Mill Creek 1000 feet from its mouth, at pipeline.
28. Mill Creek 100 feet upstream of confluence with 27.
29. Jones Run at T-490 about 2700 feet upstream of 12A - 12B junction.
30. Unnamed tributary to Jones Run just prior to entry into Area XV and prior to discharges 127 and 128.

Station No.

Location

- |          |   |
|----------|---|
| 31 & 32. | Unnamed tributaries to Jones Run measured 20 feet upstream on each from their junction. |
| 33.      | Mill Creek 400 feet downstream of confluence of Douglass Run.                           |
| 34.      | Mill Creek 300 feet downstream of confluence of Little Mill Creek.                      |
| 35.*     | Mill Creek 500 feet upstream of the confluence of Little Mill Creek.                    |
| 36.      | Unnamed tributary to Douglass Run about 500 feet upstream of their confluence.          |
| 37.      | Unnamed tributary to Douglass Run 100 feet upstream of its moutn.                       |
| 38.      | Douglass Run at power line.   |
| 39.      | Douglass Run at gas well road.  |
| 40.      | Unnamed tributary to Douglass Run just prior to entry of discharge 137.                 |
| 41.      | Unnamed tributary to Little Mill Creek 25 feet downstream of "Jeep trail."              |
| 42.*     | Mill Creek upstream side of bridge on T-342.  |

\* WAMIS Station

Station No.

Location

- 43 & 44. Unnamed tributaries to Little Mill Creek sampled 50 feet upstream of their junction.
45. Headwaters of Jones Run sampled were spring flow crosses under farmer's lane.
46. Unnamed tributary to Little Mill Creek sampled at power line, east of SL 133-4 project.
47. Headwaters tributary to Stroup Run adjacent to strip mine.
48. Unnamed tributary to Little Mill Creek which flows through Area XXXVIII; sampled just upstream of discharge 174.





EXHIBIT 4

RECONNAISSANCE STREAM SAMPLES - April 1-3, 1975

SAMPLE NO.	FLOW G.P.M.	pH	NET ACIDITY Mg/l	NET ACIDITY lb./day	TOTAL FE Mg/l	TOTAL FE lb/day	FERROUS FE Mg/l	SULFATE Mg/l
1	--	5.0	0	--	0	--	0	300
2	--	5.6	0	--	0	--	0	300
3	65482	3.6	28	22030	2	1574	0	325
4	1513	3.6	68	1236	1	18	0	350
5	1662	4.9	0	0	0	--	0	275
6	1227	5.9	-2	- 29	0.1	0.9	0	325
7	625	4.5	4	30	0	0	0	325
8	1956	3.7	6	141	3.2	75	1.12	275
9	49	4.8	2	12	0	0	0	275
10	476	4.8	0	0	0	0	0	300
11	3815	5.6	-4	-183	0.4	18	0	275
12	8209	3.1	154	15190	11.1	1095	8.96	450
12A	2654	3.0	400	12739	26.9	159	23.52	825
12B	4064	3.4	82	3999	4.9	239	2.24	375
12C	1120	3.4	248	3338	23.80	320	23.52	1025
12D	655	3.1	220	1731	11.4	90	2.24	850
12E	442	3.1	186	987	19	101	0	1000
12F	146	3.7	78	137	0.4	0.7	0	550
12G	--	4.4	6	--	0	0	0	300
13	13280	3.5	38	6056	4.5	718	1.12	375
13B	1101	3.0	500	6606	11.5	152	3.36	1075

RECONNAISSANCE STREAM SAMPLES (CONTD.)

SAMPLE NO.	FLOW G.P.M.	pH	NET ACIDITY Mg/1	NET ACIDITY lb./day	TOTAL FE Mg/1	TOTAL FE lb./day	FEROUS FE Mg/1	SULFATE Mg/1
13C	3420	3.9	30	1233	0.5	21	0	900
13D	846	4.2	6	61	0	0	0	275
13E	431	3.5	20	104	2.1	11	1.12	300
13F	371	4.9	2	9	0	0	0	275
13G	137	3.2	126	207	11.3	19	4.48	500
13H	--	3.0	400	--	5.3	--	1.12	850
13I	380	5.7	-2	-9	0.1	0.5	0	325
13J	889	4.7	6	65	0.7	8	0	375
13K	1499	3.9	58	1045	0.9	16	0	575
14	1445	5.5	0	0	0.8	14	0	300
15	3913	5.4	-2	-94	0	0	0	250
15A	1221	5.6	-10	-147	1.8	26	0	275
15B	3186	5.5	-4	-153	0	0	0	300
16	4248	4.5	8	408	0	0	0	300
16A	496	4.4	4	24	0	0	0	300
16B	625	4.6	2	15	0	0	0	300
17	--	4.7	2	1.2	0	0	0	275
18	220	3.8	24	64	0.1	.26	0	300

RECONNAISSANCE STREAM SAMPLES (CONTD.)

SAMPLE NO.	FLOW G.P.M.	pH	NET ACIDITY Mg/l	NET ACIDITY lb./day	TOTAL FE Mg/l	TOTAL FE lb./day	FERROUS FE Mg/l	SULFATE Mg/l
19	1807	5.0	2	44	0	0	0	250
20	11780	5.0	-2	283	0.4	57	0	275
21	615	4.2	8	59	0	0	0	300
22	272	6.3	-4	-13	0.5	0	0	300
23	2922	6.0	-2	-70	0	0	0	300
24	11430	5.2	0	0	0.8	110	0	275
24A	3379	6.0	-4	-162	0.5	20	0	275
24B	6579	4.3	6	474	0.1	8	0	275
25	754	6.0	0	0	0.2	1.8	0	275
26	973	5.2	-2	-23	0	0	0	275
27	195	4.0	6	14	0	0	0	225
28	3185	5.5	0	0	0.1	3.81	0	275