## RIVER WATER SAMPLE ANALYSIS

January 1980

Above mill
$\frac{1}{4} \mathrm{mi}$. below mill $\frac{1}{2}$ mi. below mill 1 mile below 5 miles below 10 miles below

| U-NAT | Th230 |
| :---: | :---: |
| . $00004 \times 10^{-5} \mathrm{uc} / \mathrm{ml}$ | . $0058 \times 10$ |
| . $00002 \times 10^{-5} \mathrm{uc} / \mathrm{ml}$ | . $00035 \times 10$ |
| . $00001 \times 10^{-5} \mathrm{uc} / \mathrm{ml}$ | . $0083 \times 10^{-6}$ |
| nil | . $0049 \times 10^{-}$ |
| 1 | $.0047 \times 10$ |
| nil | . $0029 \times 10^{-6}$ |

February 1980

## U-NAT

Above mill
$\frac{1}{4}$ mi. below mill $\frac{1}{2}$ mi. below mill 1 mile below 5 miles below 10 miles below

```
    .00004 \times10 -5 uc/ml
    .00002\times1\mp@subsup{0}{-5}{-5}\textrm{uc}/\textrm{ml}
    .00001 \times 10 5uc/ml
    nil
    nil
    nil
```

Ra226
$.036 \times 10_{-8}^{-8} \mathrm{uc} / \mathrm{ml}$
$.10 \times 10^{-8} \mathrm{uc} / \mathrm{ml}$
$.06 \times 10_{-8}^{-8 \mathrm{uc} / \mathrm{ml}}$
$.12 \times 10^{-8} \mathrm{uc} / \mathrm{ml}$
$.07 \times 10_{-8}^{-8 \mathrm{uc} / \mathrm{ml}}$
$.16 \times 10^{-8} \mathrm{uc} / \mathrm{ml}$

Gross Beta - Gamr
same as backgroun same as backgroun same as backgrour. same as backgrour same as backgroun same as backgroun

Gross Beta - Gam
same as backgrour
same as backgrour same as backgrour same as backgrour same as backgrou: same as backgrour

March 1980

Above mill
$\frac{1}{4}$ mi. below mill $\frac{1}{2} \mathrm{mi}$. below mill 1 mile below 5 miles below 10 miles below

| $\frac{\text { Th230 }}{}$ |  |
| :---: | :---: |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

$\frac{\mathrm{Ra} 226}{10^{-8}}$
$.10 \times \mathrm{uc} / \mathrm{ml}$
$.091 \times 10^{-8} \mathrm{uc} / \mathrm{ml}$
$.14 \times 10^{-8} \mathrm{uc} / \mathrm{ml}$
$.10 \times 10^{-8}{ }^{\mathrm{uc} / \mathrm{ml}}$
$.08 \times 10^{-8} \mathrm{uc} / \mathrm{ml}$
$.06 \times 10^{-8} \mathrm{uc} / \mathrm{ml}$

Gross Beta - Ganr same as backgrour same as backgrour same as backgrou: same as backgrour same as backgrour same as backgrou:

April 1980

| U-NAT | Th230 | Ra 226 |
| :---: | :---: | :---: |
| nil | $.0028 \times 10^{-6}{ }^{\text {uc } / \mathrm{ml}}$ | . $064 \times 10^{-8} \mathrm{sc} / \mathrm{ml}$ |
| nil | $.0014 \times 10^{-6} \mathrm{6c} / \mathrm{ml}$ | . $512 \times 10^{-8}$ uc/m1 |
| nil | . $0023 \times 10^{-6} \mathrm{uc} / \mathrm{ml}$ | $.27 \times 10^{-8} \mathrm{uc} / \mathrm{ml}$ |
| nil | $.0014 \times 10^{-6} 6^{\text {uc/ml }}$ | . $022 \times 10^{-8} \mathrm{uc} / \mathrm{ml}$ |
| nil | $.0029 \times 10_{-6}^{-6} \mathrm{uc} / \mathrm{ml}$ | . $07 \times 10^{-3} \mathrm{uc} / \mathrm{ml}$ |
| nil | . $0011 \times 10^{-6} \mathrm{uc} / \mathrm{ml}$ | . $067 \times 10^{-8} \mathrm{uc} / \mathrm{ml}$ |

Gross Beta - Gamy
same as backgrou: same as backgrou: same as backgrou: same as backgrou same as backgrou: same as backgrou

## May 1980

## $\underline{U-N A T}$

nil
nil
nil
nil
nil
nil

| $\frac{\mathrm{Th} 230}{10}$ | $\frac{\mathrm{Ra} 226}{10^{-8}}$ |
| :--- | :--- |
| $.0037 \times 10^{-6} \mathrm{uc} / \mathrm{ml}$ | $.12 \times 10^{-8} \mathrm{uc} / \mathrm{ml}$ |
| $.0020 \times 10^{-6} \mathrm{uc} / \mathrm{ml}$ | $.47 \times 10^{-8} \mathrm{uc} / \mathrm{ml}$ |
| $.0017 \times 10^{-6} \mathrm{uc} / \mathrm{ml}$ | $.068 \times 10^{-8} / \mathrm{uc} / \mathrm{ml}$ |
| $.0035 \times 10^{-6} \mathrm{uc} / \mathrm{ml}$ | $.058 \times 10^{-8} \mathrm{uc} / \mathrm{ml}$ |
| $.0028 \times 10^{-6} \mathrm{uc} / \mathrm{ml}$ | $.62 \times 10^{-8} \mathrm{uc} / \mathrm{ml}$ |
| $.0012 \times 10^{-6} \mathrm{uc} / \mathrm{ml}$ | $.059 \times 10^{-8}$ |

Gross Beta - Gam
same as backgrou same as backgrou same as backgrou same as backgrou same as backgrou same as backgrou

June 1980

Above mill
$\frac{1}{6}=$ i. below mill
$\frac{1}{2}=$ i. below mill
1 =ile below
5 ziles below 10 ailes below
nil
nil
nil
nil
nil
nil
$.0035 \times \frac{\text { Th230 }}{10^{-6}} \mathrm{uc} / \mathrm{ml} \quad .17 \times \frac{\operatorname{Ra} 226}{10^{-8}}$
$.0031 \times 10^{-6} \mathrm{uc} / \mathrm{ml} \quad .32 \times 10^{-8} \mathrm{uc} / \mathrm{ml}$
$.0038 \times 10_{-6}^{-6} \mathrm{uc} / \mathrm{ml}$
$.0044 \times 10^{-6} \mathrm{uc} / \mathrm{ml}$
$.0041 \times 10^{-6} \mathrm{uc} / \mathrm{ml}$
$.0037 \times 10^{-6} \mathrm{uc} / \mathrm{ml}$
$.099 \times 10^{-8} \mathrm{uc} / \mathrm{ml}$
$.17 \times 10^{-8} \mathrm{uc} / \mathrm{ml}$
$.14 \times 10_{-8}^{-8} \mathrm{uc} / \mathrm{ml}$
$.16 \times 10^{-8} \mathrm{uc} / \mathrm{ml}$

Cross Beta - Gar
same as backgrou same as backgrou same as backgrou same as backgrou same as backgrou same as backgro:

MPC

$$
2 \times \frac{\mathrm{U}-\mathrm{NAT}}{10^{-12} \mathrm{uci} / \mathrm{ml}}
$$

Location

| \#1 | Jan. | . $0046 \times 10^{-11} \mathrm{uci} / \mathrm{ml}$ |
| :---: | :---: | :---: |
| \$2 | Jan. | . $0023 \times 10^{-11}$ uci/ml |
| \#3 | Jan. | $.00094 \times 10^{-11} \mathrm{uci} / \mathrm{ml}$ |
| \#4 | Jan. | $.00069 \times 10^{-11}$ uci/m1 |
| \#1 | Feb. | $.0052 \times 10^{-11} \mathrm{uci} / \mathrm{ml}$ |
| \#2 | Feb. | . $0029 \times 10^{-11} \mathrm{uci} / \mathrm{ml}$ |
| 43 | Feb. | $.0019 \times 10^{-11} \mathrm{uci} / \mathrm{ml}$ |
| 14 | Feb. | $.0009 \times 10^{-11}$ uci/ml |
| \#1 | March | . $0044 \times 10^{-11} \mathrm{uci} / \mathrm{nl}$ |
| \#2 | March | $.0032 \times 10^{-11} \mathrm{uci} / \mathrm{ml}$ |
| 43 | March | $.0012 \times 10^{-11} \mathrm{uci} / \mathrm{ml}$ |
| 14 | March | $.0011 \times 10^{-11} \mathrm{uci} / \mathrm{ml}$ |

Ra-226
$4 \times \frac{\mathrm{Pb}-210}{10^{-12}}$
Sample Assays
$4.48 \times 10^{-14}$ uci $/ \mathrm{ml}$
$3.47 \times 10^{-14} \mathrm{uci} / \mathrm{ml}$
$2.46 \times 10^{-14} \mathrm{uci} / \mathrm{ml}$
$3.58 \times 10^{-14}$ uci/ml
$3.59 \times 10^{-14} \mathrm{uci} / \mathrm{ml}$
$2.37 \times 10^{-14} \mathrm{uci} / \mathrm{ml}$
$5.15 \times 10^{-14} \mathrm{uci} / \mathrm{ml}$
$2.51 \times 10^{-14} \mathrm{uci} / \mathrm{ml}$
$3.7 \times 10_{-14}^{-14} \mathrm{uci} / \mathrm{ml}$
$2.2 \times 10_{-14}^{-14}$ uci/ml
$1.5 \times 10^{-14} \mathrm{uci} / \mathrm{ml}$
$2.3 \times 10^{-14} \mathrm{uci} / \mathrm{ml}$

RN-222
$30 \times 10^{-10}$ uci/ml
$4.2 \pm .15 \times 10_{-10}^{-10} \mathrm{uci} / \mathrm{ml}$ $2.0 \frac{\mp}{\mp} .13 \times 10^{-10} 0^{\text {uci } / \mathrm{ml}}$
$5.8 \div .18 \times 10^{-10} \mathrm{uci} / \mathrm{m} 1$
$.55 \pm .22 \times 10^{-10} \mathrm{uci} / \mathrm{ml}$
$2.7 \pm .18 \times 10_{-10^{-10}}^{\mathrm{uci} / \mathrm{ml}}$ $4.0 \mp .18 \times 10^{-10} \mathrm{uci} / \mathrm{ml}$ $2.9 \pm .22 \times 10_{-10}^{-10^{\mathrm{uci}} / \mathrm{ml}}$ $1.5 \pm .15 \times 10^{-10}$ uci $/ \mathrm{ml}$ $4.2 \ddagger .13 \times 10^{-10} \mathrm{uci} / \mathrm{ml}$
$2.4 \mp .20 \times 10^{-10} \mathrm{uci} / \mathrm{ml}$ $6.5 \mp .16 \times 10_{-10}^{-10} \mathrm{uci} / \mathrm{ml}$ $1.8 \pm .20 \times 10^{-10} \mathrm{uci} / \mathrm{ml}$

## Location

$1.64 \times 10_{-12}^{-12} \mathrm{uci} / \mathrm{ml}$
$.1209 \times 10^{-14}$ uci/ml
$.211 \times 10^{-12} \mathrm{uci} / \mathrm{ml}$
$.13 \times 10_{-14}^{-14} \mathrm{uci} / \mathrm{ml}$
$1.02 \times 10^{-12} \mathrm{uci} / \mathrm{ml}$
$.038 \times 10^{-12} \mathrm{uci} / \mathrm{ml}$

Th-230

## Sample Assays

| \#1 | $1.64 \times 10^{-12} \mathrm{uci} / \mathrm{ml}$ | $.1209 \times 10^{-14} \mathrm{uci} / \mathrm{ml}$ |
| :--- | :--- | :--- |
| $\# 2$ | $.211 \times 10^{-12} \mathrm{uci} / \mathrm{ml}$ | $.13 \times 10^{-14} \mathrm{uci} / \mathrm{ml}$ |
| 73 | $1.02 \times 10^{-12} \mathrm{uci} / \mathrm{ml}$ | $.13 \times 10^{-14} \mathrm{uci} / \mathrm{ml}$ |
| 44 | $.038 \times 10^{-12} \mathrm{uci} / \mathrm{ml}$ | $.11 \times 10^{-14} \mathrm{uci} / \mathrm{ml}$ |

## MUNITOR NET., \#1

| Gamma | $=.408 \times 10^{-6} \mathrm{uci} / \mathrm{ml}$ |
| :---: | :---: |
| U NAT | $=.036 \times 10^{-5} \mathrm{uci} / \mathrm{ml}$ |
| Ra 226 | $=.88 \times 10^{-8} \mathrm{uci} / \mathrm{ml}$ |
| Th 230 | $=.0045 \times 10^{-12} \mathrm{uci} / \mathrm{ml}$ |
| Pb 210 | $=0.0 \times 10^{-9}$ uci/ml |
| Po 210 | $=.029 \mathrm{pci} / \mathrm{ml}$ |
| $\mathrm{K}^{+}$ | $=210 \mathrm{ppm}$ |
| $\mathrm{Na}^{+}$ | $=6300 \mathrm{ppm}$ |
| $\mathrm{Cl}^{-}$ | $=3152 \mathrm{ppm}$ |


| $\mathrm{SO}_{4}$ | $=833 \mathrm{ppm}$ |
| ---: | :--- |
| $\mathrm{NO}_{3}$ | $=37 \mathrm{No} / \mathrm{L}$ |
| Fe | $=\langle .1 \mathrm{ppm}$ |
| Mn | $=3.7 \mathrm{ppm}$ |
| As | $=\langle .01 \mathrm{ppm}$ |
| Se | $=\langle .1 \mathrm{ppm}$ |
| TDS | $=22,023 \mathrm{ppm}$ |
| Conductivity | $=29,400 \mathrm{micromhos}$ |
| Ph | $=7.4 \mathrm{Ppm}$ |
| Cu | $=\langle .1 \mathrm{ppm}$ |

MONITOR WELL \#2


MONITOR WELL \#3

| Gross Beta \& Gamma | $=2.02 \times 10^{-6} \mathrm{uci} / \mathrm{ml}$ |
| :---: | :---: |
| $\cup$ NAT | $=.043 \times 10^{-5} \mathrm{uci} / \mathrm{ml}$ |
| Ra 226 | $=.50 \times 10^{-8} \mathrm{uci} / \mathrm{ml}$. |
| Th 230 | $=.0044 \times 10^{-12}$ uci $/ \mathrm{ml}$ |
| Pb 210 | $=0.0 \times 10^{-9}$ uci $/ \mathrm{ml}$ |
| Po 210 | $=.013 \mathrm{pCi} / \mathrm{ml}$ |
| $\mathrm{K}^{+}$ | $=150 \mathrm{ppm}$ |
| $\mathrm{Na}^{+}$ | $=975 \mathrm{ppm}$ |
| $\mathrm{Cl}^{-}$ | $=2457 \mathrm{ppm}$ |


| $\mathrm{SO}_{4}$ | $=397 \mathrm{ppm}$ |
| ---: | :--- |
| $\mathrm{NO}_{3}$ | $=4 \mathrm{NO}_{3} / \mathrm{L}$ |
| Fe | $=5.1 \mathrm{ppm}$ |
| Mn | $=2.6 \mathrm{ppm}$ |
| As | $=\frac{5.01 \mathrm{ppm}}{\mathrm{Se}}$ |
| Se | $=\langle .1 \mathrm{ppm}$ |
| TDS | $=5563 \mathrm{ppm}$ |
| Conductivity | $=7400 \mathrm{micromhos}$ |
| Ph | $=7.4 \mathrm{K.1} \mathrm{ppm}$ |
| Cu | $=$ |

RIVER 1 MILE, BELON MILL

| Groun |  |
| :---: | :---: |
| H-H7 |  |
| सि.-226 | \% |
| \% T -30 |  |
| Pb 210 | $=3.9 \times 10^{-9}$ uci $/ \mathrm{ml}$ |
| Po 210 | $=-\frac{.00064 ~ p c i / m l ~}{\text { che }}$ |
| $\mathrm{K}^{+}$ | $=-6 \mathrm{ppm}$ |
| $\mathrm{Na}^{+}$ | $=135 \mathrm{ppm}$ |
| $\mathrm{Cl}^{-}$ | $=31.91 \mathrm{ppm}$ |


| $\mathrm{SO}_{4}$ | $=\frac{8 \mathrm{ppm}}{\mathrm{NO}_{3}}$ |
| ---: | :--- |
| Fe | $=\frac{4 \mathrm{NO}_{3} / \mathrm{L}}{}=\frac{1 \mathrm{ppm}}{}$ |
| Mn | $=\langle .1 \mathrm{ppm}$ |
| As | $=\langle .01 \mathrm{ppm}$ |
| Se | $=\langle .1 \mathrm{ppm}$ |
| TDS | $=790 \mathrm{ppm}$ |
| Conductivity | $=1050 \mathrm{micromhos}$ |
| Ph | $=8.0$ |
| Cu | $=\langle .1 \mathrm{ppm}$ |

RIVER 5 MILES BELOW MILL


| $\mathrm{SO}_{4}$ | $=10 \mathrm{ppm}$ |
| ---: | :--- |
| $\mathrm{NO}_{3}$ | $=4 \mathrm{NO}_{3} / \mathrm{L}$ |
| Fe | $=\langle .1 \mathrm{ppm}$ |
| Mn | $=\langle .1 \mathrm{ppm}$ |
| As | $=\langle .01 \mathrm{ppm}$ |
| Se | $=\langle .1 \mathrm{ppm}$ |
| TDS | $=786 \mathrm{ppm}$ |
| Conductivity | $=1050 \mathrm{micromhos}$ |
| Ph | $=8.0$ |
| Cu | $=\langle .1 \mathrm{ppm}$ |

RIVER 10 MILES BELOW MILL


## RIVER ABOVE MLLL




RIVER $1 / 4$ MILE BELOW MILL


RIVER $1 / 2$ MILE BELOW MILL



$$
2 \times \frac{\frac{\mathrm{U}-\mathrm{NAT}}{-10^{-12} \mathrm{uci} / \mathrm{ml}}}{}
$$

Location Month

| \#1 | April | $.0092 \times 10^{-11}$ uci/ml |
| :---: | :---: | :---: |
| \#2 | April | . $0060 \times 10^{-11}$ uci/ml |
| \$3 | April | $.0022 \times 10^{-11}$ uci/ml |
| 134 | April | . $0014 \times 10^{-11}$ uci/ml |
| \#1 | May | . $0086 \times 10^{-11}$ uci/ml |
| \#2 | May | . $0034 \times 10^{-11}$ uci/ml |
| 43 | May | . $0026 \times 10^{-11}$ uci/ml |
| \$4 | May | $.0016 \times 10^{-11} \mathrm{uci} / \mathrm{ml}$ |
| \#1 | June | . $032 \times 10^{-12} \mathrm{uci} / \mathrm{ml}$ |
| \#2 | June | $.029 \times 10-12^{\text {uci } / \mathrm{ml}}$ |
| \#3 | June | . $016 \times 10^{-12} \mathrm{uci} / \mathrm{ml}$ |
| \# 4 | June | $.009 \times 10^{-12} \mathrm{uci} / \mathrm{ml}$ |

$4 \times \frac{\mathrm{Pb}-210}{10^{-12}}$
Sample Assays
$5.3 \times 10_{-14}^{-14}$ uci $/ \mathrm{ml}$
$2.4 \times 10_{-14}^{-14} \mathrm{uci} / \mathrm{ml}$ $2.2 \times 10^{-14} \mathrm{uci} / \mathrm{ml}$ $2.2 \times 10^{-14}$ uci $/ \mathrm{ml}$
$4.3 \times 10_{-14}^{-14} \mathrm{uci} / \mathrm{ml}$
$1.7 \times 10^{-14} \mathrm{uci} / \mathrm{ml}$ $2.1 \times 10^{-14}$ uci/ml $1.2 \times 10^{-14}$ uci/ml $30 \times \frac{\mathrm{RN}^{-222}}{10^{-10_{\mathrm{uci} / \mathrm{ml}}}}$
$\underline{\mathrm{Ra}-226}$
Th-230

## Sample Assays

Location

$$
\begin{aligned}
& .00 \mathrm{e} \times 10^{-12} \mathrm{uci} / \mathrm{ml} \\
& .001 \times 10^{-12} 2^{\mathrm{uci} / \mathrm{ml}} \\
& .004 \times 10^{-12} \mathrm{uci} / \mathrm{ml} \\
& .001 \times 10^{-12} \mathrm{uci} / \mathrm{ml}
\end{aligned}
$$

$.97 \times 10^{-14} \mathrm{uci} / \mathrm{ml}$

$$
.47 \times 10^{-14}
$$

$$
.47 \times 10^{-14} \mathrm{uci} / \mathrm{ml}
$$

$.42 \times 10^{-14}$ uci/ml

$$
\begin{aligned}
& 3.6 \frac{\ddagger}{\ddagger} .16 \times 10^{-10}{ }^{\text {uci } / m 1} \\
& 1.1 \ddagger .20 \times 10_{-10}^{-10} \mathrm{uci} / \mathrm{ml} \\
& 2.4 \pm .20 \times 10^{-10} \mathrm{uci} / \mathrm{ml} \\
& .7 \pm .13 \times 10^{-10} \mathrm{uci} / \mathrm{ml} \\
& 4.4 \pm .18 \times 10^{-10} 0^{\text {uci } / \mathrm{ml}} \\
& 1.5 \pm .16 \times 10^{-10} \mathrm{uci} / \mathrm{ml} \\
& 4.5 \mp .22 \times 10^{-10} \text { uci } / \mathrm{ml} \\
& 1.6 \pm .22 \times 10^{-10} \text { uci } / \mathrm{ml} \\
& 5.1 \times 10^{-10} \text { uci } / \mathrm{ml} \\
& 3.1 \times 10^{-10} \mathrm{uci} / \mathrm{ml} \\
& 3.6 \times 10_{-10^{-10}}^{\text {uci } / \mathrm{ml}} \\
& 2.0 \times 10^{-10_{\text {uci } / m l}^{u l}}
\end{aligned}
$$

## MONLTOR WILL, A1

| Gross Beta \& Gamma | $1.90 \times 10^{-6} \mathrm{uci} / \mathrm{ml}$ |
| :---: | :---: |
| U NAT | . $031 \times 10^{-5}$ uci/ml |
| Ra 226 | $1.77 \times 10^{-8}$ uci $/ \mathrm{ml}$ |
| Th 230 | . $0017 \times 10^{-12}$ uci/m1 |
| Pb 210 |  |
| Po 210 | . $024 \mathrm{pci} / \mathrm{ml}$ |
| $\mathrm{K}^{+}$ | 175 PPM |
| $\mathrm{Na}^{+}$ | 5500 PPM |
| $\mathrm{Cl}^{-}$ | 4230.38 PPM |


| $\mathrm{SO}_{4}$ | $=856 \mathrm{PPM}$ |
| ---: | :--- |
| $\mathrm{NO}_{3}$ | $=\frac{10.35 \mathrm{~g} \mathrm{NO}}{3} / \mathrm{1}$ |
| Fe | $=\frac{6.1 \mathrm{PPM}}{\mathrm{Mn}}$ |
| As | $=\frac{1.65 \mathrm{PPM}}{\mathrm{Se}}$ |
| TDS | $=\frac{6.1 \mathrm{PPM}}{34200 \mathrm{PPM}}$ |
| TDPM |  |
| Conductivity | $=45,000$ micromhos |
| Ph | $=7.3$ |
| Cu | $=\langle .1 \mathrm{PPM}$ |

## MONITOR VELL ${ }^{3} 2$

Gross Beta \&


| $\mathrm{SO}_{4}$ | $=\frac{434 \mathrm{PPM}}{\mathrm{NO}_{3}}$ |
| ---: | :--- |
| Fe | $=1.37 \mathrm{~g} \mathrm{NO} / 1$ |
| Mn | $=\frac{2.1 \mathrm{PPM}}{3.80 \mathrm{PPM}}$ |
| As | $=\langle .01 \mathrm{PPM}$ |
| Se | $=\langle .1 \mathrm{PPM}$ |
| TDS | $=10486 \mathrm{PPM}$ |
| Conductivity | $=14,000 \mathrm{micromhos}$ |
| Ph | $=7.3$ |
| Cu | $=\langle .1 \mathrm{PPM}$ |

MONITOR WELL \#3

|  <br> Gamma | $=\frac{1.30 \times 10^{-6} \mathrm{uci} / \mathrm{ml}}{.042 \times 10^{-5} \mathrm{uci} / \mathrm{ml}}$ |
| ---: | :--- |
| U MMT | $=\frac{.62 \times 10^{-8} \mathrm{uci} / \mathrm{ml}}{\mathrm{ut}}$ |
| Ra 226 | $=.0031 \times 10^{-12} \mathrm{uc} / \mathrm{ml}$ |
| Th 230 | $=$ |
| Pb 210 | $=.0049 \mathrm{pci} / \mathrm{ml}$ |
| Po 210 | $=120 \mathrm{PPM}$ |
| $\mathrm{K}^{+}$ | $=865 \mathrm{PPM}$ |
| $\mathrm{Na}^{+}$ | $=2726.07 \mathrm{PPM}$ |
| $\mathrm{Cl}^{-}$ |  |



RIVER 1 MILE BELOW MILL


| $\mathrm{SO}_{4}$ | $=2.00 \mathrm{PPM}$ |
| ---: | :--- |
| $\mathrm{NO}_{3}$ | $=\frac{.0082 \mathrm{~g} \mathrm{NO}}{3} / 1$ |
| Fe | $=\langle .1 \mathrm{PPM}$ |
| Mn | $=\langle .1 \mathrm{PPM}$ |
| As | $=\langle .01 \mathrm{PPM}$ |
| Se | $=\langle .1 \mathrm{PPM}$ |
| TDS | $=380 \mathrm{PPM}$ |
| Conductivity | $=500$ micromhos |
| Ph | $=7.9$ |
| Cu | $=\langle .1 \mathrm{PPM}$ |

RIVER 5 MILES BELOW MILL
Gross Beta \&

| Gamma | $=$ |
| ---: | :--- |
| U NAT | $=$ |
| Ra 226 | $=$ |
| Th 230 | $=$ |
| Pb 210 | $=$ |
| Po 210 | $=.0014 \mathrm{pci} / \mathrm{ml}$ |
| $\mathrm{K}^{+}$ | $=3.10 \mathrm{PPM}$ |
| $\mathrm{Na}^{+}$ | $=4.05 \mathrm{PPM}$ |
| $\mathrm{Cl}^{-}$ | $=88.65 \mathrm{PPM}$ |



RIVER 10 MILES BELOW MILL

| Gross Beta $\&$ <br> Gamma | $=$ |
| ---: | :--- |
| U NaT | $=$ |
| Ra 226 | $=$ |
| Th 230 | $=$ |
| Pb 210 | $=$ |
| Po 210 | $=.00064 \mathrm{pci} / \mathrm{ml}$ |
| $\mathrm{K}^{+}$ | $=3.10 \mathrm{PPM}$ |
| $\mathrm{Na}^{+}$ | $=4.05 \mathrm{PPM}$ |
| $\mathrm{Cl}^{-}$ |  |


| $\mathrm{SO}_{4}$ | $=2.23 \mathrm{PPM}$ |
| ---: | :--- |
| $\mathrm{NO}_{3}$ | $=\frac{.0083 \mathrm{~g} \mathrm{NO}}{3} / 1$ |
| Fe | $=\langle .1 \mathrm{PPM}$ |
| Mn | $=\langle .1 \mathrm{PPM}$ |
| As | $=\langle .01 \mathrm{PPM}$ |
| Se | $=\langle .1 \mathrm{PPM}$ |
| TDS | $=380 \mathrm{PPM}$ |
| Conductivity | $=500 \mathrm{micromhos}$ |
| Ph | $=8.0$ |
| Cu | $=\langle .1 \mathrm{PPM}$ |

RIVER ABOVE MILL

Gross Be-ta \&

| Gamma | $=$ |
| ---: | :--- |
| U NAT | $=$ |
| Ra 226 | $=$ |
| Th 230 | $=$ |
| Pb 210 | $=$ |
| Po 210 | $=$ |
| $\mathrm{K}^{+}$ | $=$ |
| $\mathrm{Na}^{+}$ | $=\frac{.00064 \mathrm{Pci} / \mathrm{ml}}{}$ |
| $\mathrm{Cl}^{-}$ | $=8.10 \mathrm{PPM}$ |



RIVER $1 / 4$ MILE BELOW MILL


RIVER $1 / 2$ MILE BELOW MILL

| U NAT | = |
| :---: | :---: |
| Ra 226 | = |
| Th 230 | $=$ |
| Pb 210 | $=$ |
| Po 210 | . $0013 \mathrm{pci} / \mathrm{ml}$ |
| $\mathrm{K}^{+}$ | $=3.10 \mathrm{PPM}$ |
| $\mathrm{Na}^{+}$ | $=4.05 \mathrm{PPM}$ |
| $\mathrm{Cl}^{-}$ | $=88.65 \mathrm{PPM}$ |



```
1/17/80
        08:00
    speed - 1 mph
direction - out of the south 180
1/17/80 15:00
speed - 1 mph
direction - out of the southwest 2100
1/18/80 08:30
speed - 2 mph
direction - out of the southeast 140
1/18/80 15:00
speed - 3 mph
direction - out of the southeast 120员
1/19/80
                                    08:30
speed - 2 mph
direction - out of the south 190
1/19/80 15:30
speed - }8\mathrm{ mph
direction - out of the west 250%
1/20/80 08:00
speed - }15\textrm{mph
direction - out of the southeast 150
1/20/80 15:00
speed - 4\frac{1}{2} mph
direction - out of the south 170 
1/21/80 08:00
speed - 4\frac{1}{2} mph
direction - out of the south 150
1/21/80 15:30
speed - 4\frac{1}{2}}\textrm{mph
direction - Out of the south 150
1/22/80 08:00
speed - 4\frac{1}{2}}\textrm{mph
direction - out of the south 180
1/22/80 15:00
speed - 4\frac{1}{2}}\textrm{mph
direction - out of the south 180
```

```
1/23/80
    08:00
speed - 4\frac{1}{2}}\mathrm{ mph 
1/23/80 15:30
speed - 4\frac{1}{2}}\textrm{mph
direction - out of the south 2000
1/24/80 08:30
speed - 3 mph
direction - out of the southwest 230
1/24/80 15:00
speed - 3 mph
direction - out of the east 1000
1/25/80 08:00
speed - 1 mph
direction - out of the northwest 330
1/25/80 15:00
speed - 2\frac{1}{2}}\textrm{mph
direction - out of the southeast 1200
1/26/80 08:30
speed - 1 mph
direction - out of the north 360%
1/26/80 15:30
speed - 2 mph
direction - out of the west 250
1/27/80 08:30
speed - 1 mph
direction - out of the southeast 150
1/27/80
15:30
speed - 1\frac{1}{2}}\mathrm{ mph
direction - out of the east 90
1/28/80 08:30
speed - 1 mph
direction - out of the southeast 140
1/28/80 15:30
speed - 1 mph
direction - out of the east 100 
1/29/80 08:00
speed - 4 mph
direction - out of the southwest 2500
```

```
2/1/80
        08:00
speed - 1 mph
direction - out of the southwest 200 
2/1/80 15:00
speed - 1\frac{1}{2}}\textrm{mph
direction - out of the south 180
2/2/80 08:00
speed - 1 mph
direction - out of the south 180 
2/2/80 15:00
speed - 1 mph
direction - out of the south 180
2/3/80 08:00
speed - 1 mph
direction - out of the west 270
2/3/80 15:00
speed - }7\mathrm{ mph
direction - out of the east 900
2/4/80 08:00
speed - 5 mph
direction - out of the south 180
2/4/80 15:00
speed - 4 mph
direction - out of the southeast 120
2/5/80 08:00
speed - 3 mph
direction - out of the south 180
2/5/80 15:00
speed - 3 mph
direction - out of the southwest 210
2/6/80 08:00
speed - 1 mph
direction - out of the south 180
2/6/80 15:00
speed - 3\frac{1}{2}}\mathrm{ mph
direction - out of the east 90
```

```
2/7/80 08:00
speed - 15 mph
direction - out of the southeast }15\mp@subsup{0}{}{\circ
2/7/80 15:30
speed - 6 mph
direction - out of the south 170
2/8/80 08:30
speed - 7 mph
direction - out of the southwest 240
2/8/80 15:00
speed - 3 mph
direction - out of the north 340
2/9/80 08:00
speed - 9 mph 
2/9/80 15:00
speed - }5\textrm{mph
direction - out of the southeast }17\mp@subsup{0}{}{\circ
2/10/80 08:30
speed - 3 mph
direction - out of the west 270
2/10/80 15:00
speed - 3 mph
direction - out of the west 270
2/11/80 08:00
speed - 3 mph
direction - out of the west 270
2/11/80 15:00
speed - 3 mph
direction - out of the west 270
2/12/80 08:00
speed - 3 mph
direction - out of the west 270
2/12/80 15:00
speed - 3 mph
direction - out of the west 270
```

| 2/13/80 | 08:00 chart repaired |
| :---: | :---: |
| $\begin{aligned} & \text { speed - } \\ & \text { directior } \end{aligned}$ | of the west $250^{\circ}$ |
| 2/13/80 | 15:00 chart repaired |
| $\begin{aligned} & \text { speed - } \\ & \text { directio } \end{aligned}$ | of the southwest $230^{\circ}$ |
| 2/14/80 | 08:00 |
| $\begin{aligned} & \text { speed - } \\ & \text { directio } \end{aligned}$ | of the north $90^{\circ}$ |

speed - 4 mph
direction - out of the southwest 2100
3/14/80 15:00
speed - 1.5 mph
direction - out of the west 290
3/15/80 08:00
speed - 4 mph
direction - out of the west 270
3/15/80 15:00
speed - 7 mph
direction - out of the west 320

```
3/16/80 ..... 08:00
speed - 5 mph
direction - out of the north \(360^{\circ}\)
\(3 / 16 / 80\) ..... 15:30
speed - 3 mph
direction - out of the north \(360^{\circ}\),
\(3 / 17 / 80\) ..... 08:30
speed - 2 mph direction - out of the east \(100^{\circ}\)
\(3 / 17 / 80\) ..... 15:00
speed - 1 mph
direction - out of the east \(110^{\circ}\)
3/18/80 09:00
speed - 2 mph
direction - out of the south ..... \(150^{\circ}\)
\(3 / 18 / 80\) ..... 15:00
speed - 2 mph
direction - out of the south \(180^{\circ}\)
3/19/80 ..... 08:00
speed - 1 mph
```direction - out of the east \(80^{\circ}\)
```

3/19/80 ..... 15:30
speed - 1 mph
direction - out of the east $80^{\circ}$
speed - 3 mph
direction - out of the north $10^{\circ}$
$3 / 20 / 80$
15:30
speed - 4.5 mph
direction - out of the northeast $50^{\circ}$
3/21/80 08:30
speed - 10 mph
direction - out of the south $170^{\circ}$
3/21/80 15:30
speed - 7 mph
direction - out of the south $170^{\circ}$
3/22/80 08:00
speed - 2 mph
direction - out of the southwest $210^{\circ}$
3/22/80 15:30
speed - 2 mph
direction - out of the southwest $210^{\circ}$
3/23/80 08:30
speed - 3 mph
direction - out of the west $250^{\circ}$
3/23/80 17:00
speed - 3 mph
direction - out of the west $260^{\circ}$
3/24/80 08:00
speed - 3 mph
direction - out of the north $350^{\circ}$
3/24/80 15:30
speed - 3 mph
direction - out of the north $350^{\circ}$
3/25/80 08:30
speed - 3 mph
direction - out of the north $350^{\circ}$
3/25/80 15:30
speed - 3 mph
direction - out of the north $350^{\circ}$

```
3/26/80
speed - 3 mph
direction - out of the north \(350^{\circ}\)
3/26/80 15:30
speed - 3 mph
direction - out of the north \(350^{\circ}\)
3/27/80 09:00
speed - 3 mph
direction - out of the north \(350^{\circ}\)
3/27/80 14:30
speed - 3 mph
direction - out of the north \(350^{\circ}\)
```

```
4/11/80 08:00
speed - 8 mph
direction - out of the northwest 340
4/11/80 15:00
speed - 8 mph
direction - out of the north 360
4/12/80 08:00
speed - 2 mph
directinn - out of the north 360%
4/12/80 15:00
speed - 6 mph
direction - out of the north 350
4/13/80 08:00
speed - 3 mph
direction - out of the northeast }3\mp@subsup{0}{}{\circ
4/13/80 15:30
speed - }3\mathrm{ mph
direction - out of the south 180
4/14/80 08:30
speed - 1 mph
direction - out of the northeast 60%
4/14/80 15:00
speed - 1 mph
direction - out of the southesst }15\mp@subsup{0}{}{\circ
4/15/80
                                    08:00
speed - 1 mph
direction - out of the east 90
4/15/8C 15:00
speed - 2 mph
direction - out of the southeast }13\mp@subsup{0}{}{\circ
4/16/80 08:00
speed - 1 mph
direction - out of the southeast 150
4/16/80
                                    15:30
speed - }3\mathrm{ mph
direction - out of the northwest 200%
4/17/80 08:00
speed - 1 mph
direction - out of the southeast 150
4/17/80 15:30
speed - 2 mph
direction - out of the southwest 250%
```

```
4/18/80
                            08:00
speed - 1 mph
direction - out of the east 90
4/18/80 15:30
speed - 2 mph
direction - out of the northwest 290
4/19/80 08:30
speed - 1 mph
direction - out of the northeast 50
4/19/80
                                    15:00
speed - 3 mph
direction - out of the northeast 40
4/20/80 08:00
speed - 1 mph
direction - out of the northeast }8\mp@subsup{0}{}{\circ
4/20/80 15:00
speed = 9 mph
direction - out of the southeast 150
4/21/80 08:00
speed - 2 mph
direction - out of the south 180
4/21/80
15:30
speed - 8mph
direction - out of the southeast }15\mp@subsup{0}{}{\circ
4/22/80
                                    08:30
speed - 1/\frac{1/2 mph}{}
direction - out of the northeast }6\mp@subsup{0}{}{\circ
4/22/80 15:00
speed - 16 mph
direction - out of the southeast 160
4/23/80 08:00
speed - 4 mph
direction - out of the southwest 140
4/23/80 15:30
speed - 2 mph
direction - out of the northwest 270
4/24/80 08:00
speed - 1 mph
direction - out of the southeast 150%
4/24/80 15:30
speed - 2 mph
direction - cut of the southeast 160
```

```
5/7/80
                                09:00
speed - 3 &ph
direction - out of the northeast 60,
5/7/80 15:00
speed - 3 mph
direction - out of the north 30
5/8/80 08:00
speed - 1 mph
direction - out of the east }8\mp@subsup{0}{}{\circ
5/8/80 15:30
speed - 1 mph
direction - out of the northeast 40
5/9/80 08:00
speed - 4 mph
direction - out of the northeast 40
5/9/80 15:00
speed - }15\textrm{mph
direction - out of the southeast 150
5/10/80 08:00
speed - 5 mph
direction - out of the southeast 150
5/10/80 15:00
speed - 6 mph
direction - out of the southeast 150
5/11/80
                                    08:30
speed - 6 mph
direction - out of the southeast 150
5/11/80 15:30
speed - 6 mph
directzun - out of the southeast 150
5/12/80 08:00
speed - }7\textrm{mph
direction - out of the southeast 150
5/12/80 15:00
speed - 4 mph
direction - out of the southwest 2400
5/13/80 08:00
speed - 1 mph
direction - out of the east 90%
5/13/80 15:30
speed - 2 mph
direction - out of the northeast 60%
```

```
5/14/80 08:00
speed - 1 mph
direction - out of the northeast 40
5/14/80 15:00
speed - 3 mph
direction - out of the northeast 50.
5/15/80 08:30
speed - 1 mph
direction - out of the northeast }5\mp@subsup{0}{}{\circ
5/15/80 15:00
speed - 8 mph
direction - out of the southeast 140
5/16/80 08:00
speed - 1 mph
direction - out of the northeast 60%
5/16/80 15:00
speed - 8 mph
direction - out of the southeast 150
5/17/80 08:00
speed - 3 mph
direction - out of the southeast 150
5/17/80 15:30
speed - 4 mph
direction - out of the southeast 140
5/18/80 08:00
speed - 6 mph
direction - out of the southeast 110
5/18/80 15:00
speed - 3 mph
direction - out of the northeast 60%
3/19/80 08:00
speed - 1 mph
direction - out of the northeast }6\mp@subsup{0}{}{\circ
5/19/80 15:00
speed - 3 mph
direction - out of the southeast }14\mp@subsup{0}{}{\circ
5/20/80 08:00
speed - 1 mph
direction - out of the southeast 150
5/20/80
                                    15:00
speed - 2 mph
direction - out of the north 360
```

```
6/12/80
                                    08:30
speed - 1 mph
direction - out of the east }10\mp@subsup{0}{}{\circ
6/12/80 15:00
speed - 1 mph
direction - out of the east 90
6/13/80 08:00
speed - 1 mph
direction - out of the east }8\mp@subsup{0}{}{\circ
6/13/80 15:00
speed - 4 mph
direction - out of the east 90
6/14/80 08:00
speed - 1 mph
direction - out of the northwest }33\mp@subsup{0}{}{\circ
6/14/80
                                    15:00
speed - 3 mph
direction - out of the southeast 150
6/15/80
                                    08:00
speed - 1 mph
direction - out of the west 290
6/15/80
                                    15:00
speed - }15\mathrm{ mph
direction - out of the southeast 150
6/16/80 08:00
speed - 1 mph
direction - out of the east }9\mp@subsup{0}{}{\circ
6/16/80 15:00
speed - 11 mph
direction - out of the southeast 130
```

$6 / 17 / 80$ ..... 08:30
speed - 1 mph

```
direction - out of the northeast }6\mp@subsup{0}{}{\circ
6/17/80 15:00
speed - 5 mph
direction - out of the southeast 150
6/18/80
                                    09:00
speed - }7\textrm{mph
direction - out of the south 180
6/18/80
                                    15:00
speed - 1 mph
direction - out of the southeast 140
```

```
6/19/80
    08:30
speed - 9 mph
direction - out of the south 180
6/19/80 15:30
speed - 4 mph
direction - out of the southeast 150
6/20/80 08:00
speed - 1 mph
direction - out of the northeast }5\mp@subsup{0}{}{\circ
6/20/80 15:00
speed - 4 mph
direction - out of the southeast 140
6/21/80 08:30
speed - }3\textrm{mph
direction - out of the northeast 50
6/21/80 15:30
speed - }10\mathrm{ mph
direction - out of the southeast 150
6/22/80 08:30
speed - 1 mph
direction - out of the northwest 340%
6/22/80 15:00
speed - 1 mph
direction - out of the southeast }12\mp@subsup{0}{}{\circ
6/23/80 08:30
speed - 1 mph
direction - out of the southeast 120
6/23/80 15:30
spced - 2 mph
direction - out of the south 180
6/24/80 08:00
speed - 1 mph
direction - out of the southeast 130
6/24/80 15:00
speed - 3 mph 
6/25/80 09:00
speed - 8 mph
direction - out of the southwest 240%
    6/25/80 15:00
    speed - }4\textrm{mph
    direction - out of the north 360
```

