



Annual Offsite Dose to Individuals and Populations from Liquid Effluent Releases from the U.S. EPR at BBNPP

```
+ IN1=ladtap2-BB-POP-A.inp
+ IFL=1
+ getopts a:i:j:o: OPTION
+ IN2=ladtap2.lib
+ JFL=1
+ getopts a:i:j:o: OPTION
+ OUL=ladtap2-BB-POP-A.out
+ OFL=1
+ getopts a:i:j:o: OPTION
+ [ 1 -eq 1 -a 1 -eq 1 -a 1 -eq 1 -eq 1 -eq 1 ]
+ ERR=0
+ [ 0 -ne 0 ]
+ + pwd
TDIR=/home/users14/cnaugle/BBNPP/LADTAP-II
+ RUND=/tmp/ladtap2.11136
+ mkdir /tmp/ladtap2.11136
+ cd /tmp/ladtap2.11136
+ ln -s /home/users14/cnaugle/BBNPP/LADTAP-II/ladtap2-BB-POP-A.inp ftn09
+ ln -s /home/users14/cnaugle/BBNPP/LADTAP-II/ladtap2.lib ftn20
+ . /SCL/scladmin/sciproc
+ sclproc ladtap2
+ 1> ladtap2.ban
+ whence ladtap2
+ timex /SCL/ladtap2/ladtap2.e
+ 1> ftn16

real      0.04
user      0.04
sys       0.01

+ STATUS=0
+ echo 1
+ 1> /home/users14/cnaugle/BBNPP/LADTAP-II/ladtap2-BB-POP-A.out
+ cat ladtap2.ban
+ 1>> /home/users14/cnaugle/BBNPP/LADTAP-II/ladtap2-BB-POP-A.out
+ cat ftn16
+ 1>> /home/users14/cnaugle/BBNPP/LADTAP-II/ladtap2-BB-POP-A.out
+ copysbf /home/users14/cnaugle/BBNPP/LADTAP-II/dayladtap2.11099 out2 LADTAP2 dayfile
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7

7

| | | | | | | | | | | |
|------|-------|------|-------|-----|------|-------|-------|---|-------|-------|
| L | AAA | DDDD | TTTTT | AAA | PPPP | IIIII | IIIII | | | |
| L | A | A | D | D | T | A | P | P | I | I |
| L | A | A | D | D | T | A | A | P | P | I |
| L | AAAAA | D | D | D | T | AAAAA | PPPP | | I | I |
| L | A | A | D | D | T | A | A | P | I | I |
| LLLL | A | A | DDDD | | T | A | A | P | IIIII | IIIII |

Annual Offsite Dose to Individuals and Populations from Liquid Effluent Releases from the U.S. EPR at BBNPP

[illegible]



Annual Offsite Dose to Individuals and Populations from Liquid Effluent Releases from the U.S. EPR at BBNPP

| NUCLIDE | CURIE/YEAR | INGESTION DOSE FACTORS | | | | | | | | | | SHORELINE | | | |
|---------|------------|------------------------|----------|------------|----------|----------|----------|----------|----------|------------|----------|------------------------|----------|--|--|
| | | (MREM/PCI INTAKE) | | | | | | | | | | (MREM/HR) / (PCI/M**2) | | | |
| | | BONE | LIVER | TOTAL BODY | THYROID | KIDNEY | LUNG | GI-LLI | SKIN | TOTAL BODY | RECON | | | | |
| 24CR | 51 | 9.60E-04 | .00E+00 | .00E+00 | 2.66E-09 | 1.59E-09 | 5.86E-10 | 3.53E-09 | 6.69E-07 | 2.60E-10 | 2.20E-10 | 1.00E+00 | | | |
| 25MN | 54 | 5.10E-04 | .00E+00 | 4.57E-06 | 8.72E-07 | .00E+00 | 1.36E-06 | .00E+00 | 1.40E-05 | 6.80E-09 | 5.80E-09 | 1.00E+00 | | | |
| 26FE | 55 | 3.80E-04 | 2.75E-06 | 1.90E-06 | 4.43E-07 | .00E+00 | .00E+00 | 1.06E-06 | 1.09E-06 | .00E+00 | .00E+00 | 1.00E+00 | | | |
| 26FE | 59 | 9.00E-05 | 4.34E-06 | 1.02E-05 | 3.91E-06 | .00E+00 | .00E+00 | .00E+00 | 2.85E-06 | 3.40E-05 | 9.40E-09 | 8.00E-09 | 1.00E+00 | | |
| 27CO | 58 | 1.44E-03 | .00E+00 | 7.45E-07 | 1.67E-06 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | 1.51E-05 | 8.20E-09 | 7.00E-09 | 1.00E+00 | | |
| 27CO | 60 | 1.70E-04 | .00E+00 | 2.14E-06 | 4.72E-06 | .00E+00 | .00E+00 | .00E+00 | 4.02E-05 | 2.00E-08 | 1.70E-08 | 1.00E+00 | | | |
| 30ZN | 65 | 1.60E-04 | 4.84E-06 | 1.54E-05 | 6.96E-06 | .00E+00 | 1.03E-05 | .00E+00 | 9.70E-06 | 4.60E-09 | 4.00E-09 | 1.00E+00 | | | |
| 74W | 187 | 4.30E-04 | 1.03E-07 | 8.61E-08 | 3.01E-08 | .00E+00 | .00E+00 | .00E+00 | 2.82E-05 | 3.60E-09 | 3.10E-09 | 1.00E+00 | | | |
| 93NP | 239 | 5.40E-04 | 1.19E-09 | 1.17E-10 | 6.45E-11 | .00E+00 | 3.65E-10 | .00E+00 | 2.40E-05 | 1.10E-09 | 9.50E-10 | 1.00E+00 | | | |
| 38SR | 89 | 4.00E-05 | 3.08E-04 | .00E+00 | 8.84E-06 | .00E+00 | .00E+00 | .00E+00 | 4.94E-05 | 6.50E-13 | 5.60E-13 | 1.00E+00 | | | |
| 38SR | 91 | 7.00E-05 | 5.67E-06 | .00E+00 | 2.29E-07 | .00E+00 | .00E+00 | .00E+00 | 2.70E-05 | 8.30E-09 | 7.10E-09 | 1.00E+00 | | | |
| 39Y | 91M | 5.00E-05 | 9.09E-11 | .00E+00 | 3.52E-12 | .00E+00 | .00E+00 | .00E+00 | 2.67E-10 | 4.40E-09 | 3.80E-09 | 1.00E+00 | | | |
| 39Y | 93 | 3.30E-04 | 2.68E-09 | .00E+00 | 7.40E-11 | .00E+00 | .00E+00 | .00E+00 | 8.50E-05 | 7.80E-10 | 5.70E-10 | 1.00E+00 | | | |
| 40ZR | 95 | 1.20E-04 | 3.04E-08 | 9.75E-09 | 6.60E-09 | .00E+00 | 1.53E-08 | .00E+00 | 3.09E-05 | 5.80E-09 | 5.00E-09 | 1.00E+00 | | | |
| 41NB | 95 | 9.00E-05 | 6.22E-09 | 3.46E-09 | 1.86E-09 | .00E+00 | 3.42E-09 | .00E+00 | 2.10E-05 | 6.00E-09 | 5.10E-09 | 1.00E+00 | | | |
| 42MO | 99 | 1.63E-03 | .00E+00 | 4.31E-06 | 8.20E-07 | .00E+00 | 9.76E-06 | .00E+00 | 9.99E-06 | 2.20E-09 | 1.90E-09 | 1.00E+00 | | | |
| 43TC | 99M | 1.59E-03 | 2.47E-10 | 6.98E-10 | 8.89E-09 | .00E+00 | 1.06E-08 | 3.42E-10 | 4.13E-07 | 1.10E-09 | 9.60E-10 | 1.00E+00 | | | |
| 44RU | 103 | 2.34E-03 | 1.85E-07 | .00E+00 | 7.97E-08 | .00E+00 | 7.06E-07 | .00E+00 | 2.16E-05 | 4.20E-09 | 3.60E-09 | 1.00E+00 | | | |
| 44RU | 106 | 2.84E-02 | 2.75E-06 | .00E+00 | 3.48E-07 | .00E+00 | 5.31E-06 | .00E+00 | 1.78E-04 | 1.80E-09 | 1.50E-09 | 1.00E+00 | | | |
| 47AG | 110M | 4.10E-04 | 1.60E-07 | 1.48E-07 | 8.79E-08 | .00E+00 | 2.91E-07 | .00E+00 | 6.04E-05 | 2.10E-08 | 1.80E-08 | 1.00E+00 | | | |
| 52TE | 129M | 6.00E-05 | 1.15E-05 | 4.29E-06 | 1.82E-06 | 3.95E-06 | 4.80E-05 | .00E+00 | 5.79E-05 | 9.00E-10 | 7.70E-10 | 1.00E+00 | | | |
| 52TE | 129 | 4.00E-05 | 3.14E-08 | 1.18E-08 | 7.65E-09 | 2.41E-08 | 1.32E-07 | .00E+00 | 2.37E-08 | 8.40E-10 | 7.10E-10 | 1.00E+00 | | | |
| 52TE | 131M | 2.90E-04 | 1.73E-06 | 8.46E-07 | 7.05E-07 | 1.34E-06 | 8.57E-06 | .00E+00 | 8.40E-05 | 9.90E-09 | 8.40E-09 | 1.00E+00 | | | |
| 52TE | 131 | 5.00E-05 | 1.97E-08 | 8.23E-09 | 6.22E-09 | 1.62E-08 | 8.63E-08 | .00E+00 | 2.79E-09 | 2.60E-06 | 2.20E-09 | 1.00E+00 | | | |
| 53I | 131 | 3.54E-02 | 4.16E-06 | 5.95E-06 | 3.41E-06 | 1.95E-03 | 1.02E-05 | .00E+00 | 1.57E-06 | 3.40E-09 | 2.80E-09 | 1.00E+00 | | | |
| 52TE | 132 | 4.50E-04 | 2.52E-06 | 1.63E-06 | 1.53E-06 | 1.80E-06 | 1.57E-05 | .00E+00 | 7.71E-05 | 2.00E-09 | 1.70E-09 | 1.00E+00 | | | |
| 53I | 132 | 1.14E-03 | 2.03E-07 | 5.43E-07 | 1.90E-07 | 1.90E-05 | 8.65E-07 | .00E+00 | 1.02E-07 | 2.00E-08 | 1.70E-08 | 1.00E+00 | | | |
| 53I | 133 | 4.21E-02 | 1.42E-06 | 2.47E-06 | 7.53E-07 | 3.63E-04 | 4.31E-06 | .00E+00 | 2.22E-06 | 4.50E-09 | 3.70E-09 | 1.00E+00 | | | |
| 55CS | 134 | 2.45E-03 | 6.22E-05 | 1.48E-04 | 1.21E-04 | .00E+00 | 4.79E-05 | 1.59E-05 | 2.59E-06 | 1.40E-08 | 1.20E-08 | 1.00E+00 | | | |
| 53I | 135 | 1.69E-02 | 4.43E-07 | 1.16E-06 | 4.28E-07 | 7.65E-05 | 1.86E-06 | .00E+00 | 1.31E-06 | 1.40E-08 | 1.20E-08 | 1.00E+00 | | | |
| 55CS | 136 | 2.90E-04 | 6.51E-06 | 2.57E-05 | 1.85E-05 | .00E+00 | 1.43E-05 | 1.96E-06 | 2.92E-06 | 1.70E-08 | 1.50E-08 | 1.00E+00 | | | |
| 55CS | 137 | 3.25E-03 | 7.97E-05 | 1.09E-04 | 7.14E-05 | .00E+00 | 3.70E-05 | 1.23E-05 | 2.11E-06 | 4.90E-09 | 4.20E-09 | 1.00E+00 | | | |
| 56BA | 140 | 3.93E-03 | 2.03E-05 | 2.55E-08 | 1.33E-06 | .00E+00 | 8.67E-09 | 1.46E-08 | 4.18E-05 | 2.40E-09 | 2.10E-09 | 1.00E+00 | | | |
| 57LA | 140 | 7.12E-03 | 2.50E-09 | 1.26E-09 | 3.33E-10 | .00E+00 | .00E+00 | .00E+00 | 9.25E-05 | 1.70E-08 | 1.50E-08 | 1.00E+00 | | | |
| 58CE | 141 | 5.00E-05 | 9.36E-09 | 6.33E-09 | 7.18E-10 | .00E+00 | 2.94E-09 | .00E+00 | 2.42E-05 | 6.20E-10 | 5.50E-10 | 1.00E+00 | | | |
| 58CE | 143 | 5.70E-04 | 1.65E-09 | 1.22E-06 | 1.35E-10 | .00E+00 | 5.37E-10 | .00E+00 | 4.56E-05 | 2.50E-09 | 2.20E-09 | 1.00E+00 | | | |
| 59PR | 143 | 5.00E-05 | 9.20E-09 | 3.69E-09 | 4.56E-10 | .00E+00 | 2.13E-09 | .00E+00 | 4.03E-05 | .00E+00 | .00E+00 | 1.00E+00 | | | |
| 58CE | 144 | 1.23E-03 | 4.88E-07 | 2.04E-07 | 2.62E-08 | .00E+00 | 1.21E-07 | .00E+00 | 1.65E-04 | 3.70E-10 | 3.20E-10 | 1.00E+00 | | | |
| 59PR | 144 | 1.23E-03 | 3.01E-11 | * * * | * * * | * * * | * * * | * * * | 4.33E-18 | 2.30E-10 | 2.00E-10 | 1.00E+00 | | | |
| 0 | 0 | | | | | | | | | | | | | | |
| 0 | 0 | | | | | | | | | | | | | | |



Annual Offsite Dose to Individuals and Populations from Liquid Effluent Releases from the U.S. EPR at BBNPP

| NUCLIDE | CURIE/YEAR | BONE | LIVER | TOTAL BODY | (MREM/PCI INTAKE) | | | CHILD DOSE FACTORS | | | INGESTION DOSE FACTORS | | | SHORELINE | | |
|---------|------------|----------|----------|------------|-------------------|----------|----------|--------------------|------------|------------------------|------------------------|------------|----------|-----------|------------|---------|
| | | | | | LUNG | GI-LILI | RECON | SKIN | TOTAL BODY | (MREM/HR) / (PCI/M**2) | SKIN | TOTAL BODY | RECON | SKIN | TOTAL BODY | RECON |
| 26FE | 59 | 9.00E-05 | 5.87E-06 | 1.37E-05 | 5.29E-06 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | 4.32E-06 | 3.24E-05 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | .00E+00 |
| 27CO | 58 | 1.44E-03 | .00E+00 | 9.72E-07 | 2.24E-06 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | 1.34E-05 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | .00E+00 |
| 27CO | 60 | 1.70E-04 | .00E+00 | 2.81E-06 | 6.33E-06 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | 3.66E-05 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | .00E+00 |
| 30ZN | 65 | 1.60E-04 | 5.76E-06 | 2.00E-05 | 9.33E-06 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | 1.28E-05 | .00E+00 | 8.47E-06 | .00E+00 | .00E+00 | .00E+00 | .00E+00 |
| 74W | 187 | 4.30E-04 | 1.46E-07 | 1.19E-07 | 4.17E-08 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | 3.22E-05 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | .00E+00 |
| 93NP | 239 | 5.40E-04 | 1.76E-09 | 1.66E-10 | 9.22E-11 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | 5.21E-10 | .00E+00 | 2.67E-05 | .00E+00 | .00E+00 | .00E+00 | .00E+00 |
| 38SR | 89 | 4.00E-05 | 4.40E-04 | .00E+00 | 1.26E-05 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | 5.24E-05 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | .00E+00 |
| 38SR | 91 | 7.00E-05 | 8.07E-06 | .00E+00 | 3.21E-07 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | 3.66E-05 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | .00E+00 |
| 39Y | 91M | 5.00E-05 | 1.29E-10 | .00E+00 | 4.93E-12 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | 6.09E-09 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | .00E+00 |
| 39Y | 93 | 3.30E-04 | 3.83E-09 | .00E+00 | 1.05E-10 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | 1.17E-04 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | .00E+00 |
| 40ZR | 95 | 1.20E-04 | 4.12E-08 | 1.30E-08 | 8.94E-09 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | 1.91E-08 | .00E+00 | 3.00E-05 | .00E+00 | .00E+00 | .00E+00 | .00E+00 |
| 41NB | 95 | 9.00E-05 | 8.22E-09 | 4.56E-09 | 2.51E-09 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | 4.42E-09 | .00E+00 | 1.95E-05 | .00E+00 | .00E+00 | .00E+00 | .00E+00 |
| 42MO | 99 | 1.63E-03 | .00E+00 | 6.03E-06 | 1.15E-06 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | 1.38E-05 | .00E+00 | 1.08E-05 | .00E+00 | .00E+00 | .00E+00 | .00E+00 |
| 43TC | 99M | 1.59E-03 | 3.32E-10 | 9.26E-10 | 1.20E-08 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | 1.38E-08 | 5.14E-10 | 6.08E-07 | .00E+00 | .00E+00 | .00E+00 | .00E+00 |
| 44RU | 103 | 2.34E-03 | 2.55E-07 | .00E+00 | 1.09E-07 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | 8.99E-07 | .00E+00 | 2.13E-05 | .00E+00 | .00E+00 | .00E+00 | .00E+00 |
| 44RU | 106 | 2.84E-02 | 3.92E-06 | .00E+00 | 4.94E-07 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | 7.56E-06 | .00E+00 | 1.88E-04 | .00E+00 | .00E+00 | .00E+00 | .00E+00 |
| 47AG | 110M | 4.10E-04 | 2.05E-07 | 1.94E-07 | 1.18E-07 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | 3.70E-07 | .00E+00 | 5.45E-05 | .00E+00 | .00E+00 | .00E+00 | .00E+00 |
| 52TE | 129M | 6.00E-05 | 1.63E-05 | 6.05E-06 | 2.58E-06 | 5.26E-06 | 6.82E-05 | .00E+00 | .00E+00 | 6.12E-05 | .00E+00 | 6.12E-05 | .00E+00 | .00E+00 | .00E+00 | .00E+00 |
| 52TE | 129 | 4.00E-05 | 4.48E-08 | 1.67E-08 | 1.09E-08 | 3.20E-08 | 1.88E-07 | .00E+00 | .00E+00 | 2.45E-07 | .00E+00 | 2.45E-07 | .00E+00 | .00E+00 | .00E+00 | .00E+00 |
| 52TE | 131M | 2.90E-04 | 2.44E-06 | 1.17E-06 | 9.76E-07 | 1.76E-06 | 1.22E-05 | .00E+00 | .00E+00 | 1.22E-05 | .00E+00 | 9.39E-05 | .00E+00 | .00E+00 | .00E+00 | .00E+00 |
| 52TE | 131 | 5.00E-05 | 2.79E-08 | 1.15E-08 | 8.72E-09 | 2.15E-08 | 1.22E-07 | .00E+00 | .00E+00 | 1.22E-07 | .00E+00 | 2.29E-09 | .00E+00 | .00E+00 | .00E+00 | .00E+00 |
| 53I | 131 | 3.54E-02 | 5.85E-06 | 8.19E-06 | 4.40E-06 | 2.39E-03 | 1.41E-05 | .00E+00 | .00E+00 | 1.41E-05 | .00E+00 | 1.62E-06 | .00E+00 | .00E+00 | .00E+00 | .00E+00 |
| 53TE | 132 | 4.50E-04 | 3.49E-06 | 2.21E-06 | 2.08E-06 | 2.33E-06 | 2.12E-05 | .00E+00 | .00E+00 | 2.12E-05 | .00E+00 | 7.00E-05 | .00E+00 | .00E+00 | .00E+00 | .00E+00 |
| 53I | 132 | 1.14E-03 | 2.79E-07 | 7.30E-07 | 2.62E-07 | 2.46E-05 | 1.15E-06 | .00E+00 | .00E+00 | 1.15E-06 | .00E+00 | 3.18E-07 | .00E+00 | .00E+00 | .00E+00 | .00E+00 |
| 53I | 133 | 4.21E-02 | 2.01E-06 | 3.41E-06 | 1.04E-06 | 4.76E-04 | 5.98E-06 | .00E+00 | .00E+00 | 5.98E-06 | .00E+00 | 2.58E-06 | .00E+00 | .00E+00 | .00E+00 | .00E+00 |
| 55CS | 134 | 2.45E-02 | 8.37E-05 | 1.97E-04 | 9.14E-05 | .00E+00 | 6.26E-05 | 2.39E-05 | 2.45E-06 | .00E+00 | 1.74E-06 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | .00E+00 |
| 55CS | 136 | 1.69E-02 | 6.10E-07 | 1.57E-06 | 5.82E-07 | 1.01E-04 | 2.48E-06 | .00E+00 | .00E+00 | 2.48E-06 | .00E+00 | 2.72E-06 | .00E+00 | .00E+00 | .00E+00 | .00E+00 |
| 55CS | 137 | 2.90E-04 | 8.59E-06 | 3.38E-05 | 2.27E-05 | .00E+00 | 1.84E-05 | 2.90E-06 | 2.72E-06 | .00E+00 | 1.97E-05 | 2.12E-06 | .00E+00 | .00E+00 | .00E+00 | .00E+00 |
| 56BA | 140 | 3.25E-03 | 1.12E-04 | 1.49E-04 | 5.19E-05 | .00E+00 | 5.07E-05 | 1.97E-05 | 2.12E-06 | .00E+00 | 1.18E-08 | 4.38E-05 | .00E+00 | .00E+00 | .00E+00 | .00E+00 |
| 57LA | 140 | 7.12E-03 | 3.48E-09 | 1.71E-09 | 4.55E-10 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | 9.82E-05 | .00E+00 | .00E+00 | .00E+00 | .00E+00 |
| 58CE | 141 | 5.00E-05 | 1.33E-08 | 8.88E-09 | 1.02E-09 | .00E+00 | 4.18E-09 | .00E+00 | .00E+00 | 4.18E-09 | .00E+00 | 2.54E-05 | .00E+00 | .00E+00 | .00E+00 | .00E+00 |
| 58CE | 143 | 5.70E-04 | 2.35E-09 | 1.71E-06 | 1.91E-10 | .00E+00 | 7.67E-10 | .00E+00 | .00E+00 | 7.67E-10 | .00E+00 | 5.14E-05 | .00E+00 | .00E+00 | .00E+00 | .00E+00 |
| 59PR | 143 | 5.00E-05 | 1.31E-08 | 5.23E-09 | 6.52E-10 | .00E+00 | 3.04E-09 | .00E+00 | .00E+00 | 3.04E-09 | .00E+00 | 4.31E-05 | .00E+00 | .00E+00 | .00E+00 | .00E+00 |
| 58CE | 144 | 1.23E-03 | 6.96E-07 | 2.88E-07 | 3.74E-08 | .00E+00 | 1.72E-07 | .00E+00 | .00E+00 | 1.72E-07 | .00E+00 | 1.75E-04 | .00E+00 | .00E+00 | .00E+00 | .00E+00 |
| 59PR | 144 | 1.23E-03 | 4.30E-11 | 1.76E-11 | 2.18E-12 | .00E+00 | 1.01E-11 | .00E+00 | .00E+00 | 1.01E-11 | .00E+00 | 4.74E-14 | .00E+00 | .00E+00 | .00E+00 | .00E+00 |
| 0 | 0 | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 0 | 0 | | | | | | | | | | | | | | | |
| NUCLIDE | CURIE/YEAR | BONE | LIVER | TOTAL BODY | (MREM/PCI INTAKE) | | | CHILD DOSE FACTORS | | | INGESTION DOSE FACTORS | | | SHORELINE | | |
| | | | | | LUNG | GI-LILI | RECON | SKIN | TOTAL BODY | (MREM/HR) / (PCI/M**2) | SKIN | TOTAL BODY | RECON | SKIN | TOTAL BODY | RECON |
| 1H | 3 | 1.66E+03 | .00E+00 | 1.16E-07 | 1.16E-07 | 1.16E-07 | 1.16E-07 | .00E+00 | .00E+00 | 4.32E-06 | 3.24E-05 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | .00E+00 |
| 11NA | 24 | 5.72E-03 | 5.80E-06 | 5.80E-06 | 5.80E-06 | 5.80E-06 | 5.80E-06 | .00E+00 | .00E+00 | 5.80E-06 | 5.80E-06 | 5.80E-06 | 5.80E-06 | .00E+00 | .00E+00 | .00E+00 |
| 24CR | 51 | 9.60E-04 | .00E+00 | .00E+00 | 8.90E-09 | 4.94E-09 | 1.35E-09 | .00E+00 | .00E+00 | 9.02E-09 | 4.72E-07 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | .00E+00 |
| 25MN | 54 | 5.10E-04 | .00E+00 | 1.07E-05 | 2.85E-06 | .00E+00 | 3.00E-06 | .00E+00 | .00E+00 | .00E+00 | 8.98E-06 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | .00E+00 |
| 26FE | 55 | 3.80E-04 | 1.15E-05 | 6.10E-06 | 1.89E-06 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | 3.45E-06 | 1.13E-06 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | .00E+00 |
| 26FE | 59 | 9.00E-05 | 1.65E-05 | 2.67E-05 | 1.33E-05 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | 7.74E-06 | 2.78E-05 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | .00E+00 |
| 27CO | 58 | 1.44E-03 | .00E+00 | 1.80E-06 | 5.51E-06 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | 1.05E-05 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | .00E+00 |
| 27CO | 60 | 1.70E-04 | .00E+00 | 5.29E-06 | 1.56E-05 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | 2.93E-05 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | .00E+00 |



Annual Offsite Dose to Individuals and Populations from Liquid Effluent Releases from the U.S. EPR at BBNPP

| NUCLIDE | | CURIE/YEAR | INGESTION DOSE FACTORS (MREM/PCI INTAKE) | | | | | | | | | | SHORELINE (MREM/HR) / (PCI/M**2) | | |
|---------|------|------------|---|----------|------------|----------|----------|----------|----------|----------|------------|-------|-------------------------------------|--|--|
| | | | BONE | LIVER | TOTAL BODY | THYROID | KIDNEY | LUNG | GI-LLI | SKIN | TOTAL BODY | RECON | | | |
| | | | | | | | | | | | | | | | |
| 30ZN | 65 | 1.60E-04 | 1.37E-05 | 3.65E-05 | 2.27E-05 | .00E+00 | 2.30E-05 | .00E+00 | 6.41E-06 | .00E+00 | 6.41E-06 | | | | |
| 74W | 187 | 4.30E-04 | 4.29E-07 | 2.54E-07 | 1.14E-07 | .00E+00 | .00E+00 | .00E+00 | 3.57E-05 | .00E+00 | 3.57E-05 | | | | |
| 93NP | 239 | 5.40E-04 | 5.25E-09 | 3.77E-10 | 2.65E-10 | .00E+00 | 1.09E-09 | .00E+00 | 2.79E-05 | .00E+00 | 2.79E-05 | | | | |
| 38SR | 89 | 4.00E-05 | 1.32E-03 | .00E+00 | 3.77E-05 | .00E+00 | .00E+00 | .00E+00 | 5.11E-05 | .00E+00 | 5.11E-05 | | | | |
| 38SR | 91 | 7.00E-05 | 2.40E-05 | .00E+00 | 9.06E-07 | .00E+00 | .00E+00 | .00E+00 | 5.30E-05 | .00E+00 | 5.30E-05 | | | | |
| 39Y | 91M | 5.00E-05 | 3.82E-10 | .00E+00 | 1.39E-11 | .00E+00 | .00E+00 | .00E+00 | 7.48E-07 | .00E+00 | 7.48E-07 | | | | |
| 39Y | 93 | 3.30E-04 | 1.14E-08 | .00E+00 | 3.13E-10 | .00E+00 | .00E+00 | .00E+00 | 1.70E-04 | .00E+00 | 1.70E-04 | | | | |
| 40ZR | 95 | 1.20E-04 | 1.16E-07 | 2.55E-08 | 2.27E-08 | .00E+00 | 3.65E-08 | .00E+00 | 2.66E-05 | .00E+00 | 2.66E-05 | | | | |
| 41NB | 95 | 9.00E-05 | 2.25E-08 | 8.76E-09 | 6.26E-09 | .00E+00 | 8.23E-09 | .00E+00 | 1.62E-05 | .00E+00 | 1.62E-05 | | | | |
| 42MO | 99 | 1.63E-03 | .00E+00 | 1.33E-05 | 3.29E-06 | .00E+00 | 2.84E-05 | .00E+00 | 1.10E-05 | .00E+00 | 1.10E-05 | | | | |
| 43TC | 99M | 1.59E-03 | 9.23E-10 | 1.81E-09 | 3.00E-08 | .00E+00 | 2.63E-08 | 9.19E-10 | 1.03E-06 | .00E+00 | 1.03E-06 | | | | |
| 44RU | 103 | 2.34E-03 | 7.31E-07 | .00E+00 | 2.81E-07 | .00E+00 | 1.84E-06 | .00E+00 | 1.89E-05 | .00E+00 | 1.89E-05 | | | | |
| 44RU | 106 | 2.84E-02 | 1.17E-05 | .00E+00 | 1.46E-06 | .00E+00 | 1.58E-05 | .00E+00 | 1.82E-04 | .00E+00 | 1.82E-04 | | | | |
| 47AG | 110M | 4.10E-04 | 5.39E-07 | 3.64E-07 | 2.91E-07 | .00E+00 | 6.78E-07 | .00E+00 | 4.33E-05 | .00E+00 | 4.33E-05 | | | | |
| 52TE | 129M | 6.00E-05 | 4.87E-05 | 1.36E-05 | 7.56E-06 | 1.57E-05 | 1.43E-04 | .00E+00 | 5.94E-05 | .00E+00 | 5.94E-05 | | | | |
| 52TE | 129 | 4.00E-05 | 1.34E-07 | 3.74E-08 | 3.18E-08 | 9.56E-08 | 3.92E-07 | .00E+00 | 8.34E-06 | .00E+00 | 8.34E-06 | | | | |
| 52TE | 131M | 2.90E-04 | 7.20E-06 | 2.49E-06 | 2.65E-06 | 5.12E-06 | 2.41E-05 | .00E+00 | 1.01E-04 | .00E+00 | 1.01E-04 | | | | |
| 52TE | 131 | 5.00E-05 | 8.30E-08 | 2.53E-08 | 2.47E-08 | 6.35E-08 | 2.51E-07 | .00E+00 | 4.36E-07 | .00E+00 | 4.36E-07 | | | | |
| 53I | 131 | 3.54E-02 | 1.72E-05 | 1.73E-05 | 9.83E-06 | 5.72E-03 | 2.84E-05 | .00E+00 | 1.54E-06 | .00E+00 | 1.54E-06 | | | | |
| 52TE | 132 | 4.50E-04 | 1.01E-05 | 4.47E-06 | 5.40E-06 | 6.51E-06 | 4.15E-05 | .00E+00 | 4.50E-05 | .00E+00 | 4.50E-05 | | | | |
| 53I | 132 | 1.14E-03 | 8.00E-07 | 1.47E-06 | 6.76E-07 | 6.82E-05 | 2.25E-06 | .00E+00 | 1.73E-06 | .00E+00 | 1.73E-06 | | | | |
| 53I | 133 | 4.21E-02 | 5.92E-06 | 7.32E-06 | 2.77E-06 | 1.36E-03 | 1.22E-05 | .00E+00 | 2.95E-06 | .00E+00 | 2.95E-06 | | | | |
| 55CS | 134 | 2.45E-03 | 2.34E-04 | 3.84E-04 | 8.10E-05 | .00E+00 | 1.19E-04 | 4.27E-05 | 2.07E-06 | .00E+00 | 2.07E-06 | | | | |
| 53I | 135 | 1.69E-02 | 1.75E-06 | 3.15E-06 | 1.49E-06 | 2.79E-04 | 4.83E-06 | .00E+00 | 2.40E-06 | .00E+00 | 2.40E-06 | | | | |
| 55CS | 136 | 2.90E-04 | 2.35E-05 | 6.46E-05 | 4.18E-05 | .00E+00 | 3.44E-05 | 5.13E-06 | 2.27E-06 | .00E+00 | 2.27E-06 | | | | |
| 55CS | 137 | 3.25E-03 | 3.27E-04 | 3.13E-04 | 4.62E-05 | .00E+00 | 1.02E-04 | 3.67E-05 | 1.96E-06 | .00E+00 | 1.96E-06 | | | | |
| 56BA | 140 | 3.93E-03 | 8.31E-05 | 7.28E-08 | 4.85E-06 | .00E+00 | 2.37E-08 | 4.34E-08 | 4.21E-05 | .00E+00 | 9.84E-05 | | | | |
| 57LA | 140 | 7.12E-03 | 1.01E-08 | 3.53E-09 | 1.19E-09 | .00E+00 | .00E+00 | .00E+00 | 9.84E-05 | .00E+00 | 9.84E-05 | | | | |
| 58CE | 141 | 5.00E-05 | 3.97E-08 | 1.98E-08 | 2.94E-09 | .00E+00 | 8.68E-09 | .00E+00 | 2.47E-05 | .00E+00 | 2.47E-05 | | | | |
| 58CE | 143 | 5.70E-04 | 6.99E-09 | 3.79E-06 | 5.49E-10 | .00E+00 | 1.59E-09 | .00E+00 | 5.55E-05 | .00E+00 | 5.55E-05 | | | | |
| 59PR | 143 | 5.00E-05 | 3.93E-08 | 1.18E-08 | 1.95E-09 | .00E+00 | 6.39E-09 | .00E+00 | 4.24E-05 | .00E+00 | 4.24E-05 | | | | |
| 58CE | 144 | 1.23E-03 | 2.08E-06 | 6.52E-07 | 1.11E-07 | .00E+00 | 3.61E-07 | .00E+00 | 1.70E-04 | .00E+00 | 1.70E-04 | | | | |
| 59PR | 144 | 1.23E-03 | 1.29E-10 | 3.99E-11 | 6.49E-12 | .00E+00 | 2.11E-11 | .00E+00 | 8.59E-08 | .00E+00 | 8.59E-08 | | | | |
| 0 | 0 | | | | | | | | | | | | | | |
| NUCLIDE | | CURIE/YEAR | INGESTION DOSE FACTORS (MREM/PCI INTAKE) | | | | | | | | | | SHORELINE (MREM/HR) / (PCI/M**2) | | |
| | | | BONE | LIVER | TOTAL BODY | THYROID | KIDNEY | LUNG | GI-LLI | SKIN | TOTAL BODY | RECON | | | |
| | | | | | | | | | | | | | | | |
| 1H | 3 | 1.66E+03 | .00E+00 | 1.76E-07 | 1.76E-07 | 1.76E-07 | 1.76E-07 | 1.76E-07 | 1.76E-07 | 1.76E-07 | 1.76E-07 | | | | |
| 11NA | 24 | 5.72E-03 | 1.01E-05 | 1.01E-05 | 1.01E-05 | 1.01E-05 | 1.01E-05 | 1.01E-05 | 1.01E-05 | 1.01E-05 | 1.01E-05 | | | | |
| 24CR | 51 | 9.60E-04 | .00E+00 | .00E+00 | 1.41E-08 | 9.20E-09 | 2.01E-09 | 1.79E-08 | 4.11E-07 | .00E+00 | 4.11E-07 | | | | |
| 25MN | 54 | 5.10E-04 | .00E+00 | 1.99E-05 | 4.51E-06 | .00E+00 | 4.41E-06 | .00E+00 | 7.31E-06 | .00E+00 | 7.31E-06 | | | | |
| 26FE | 55 | 3.80E-04 | 1.39E-05 | 8.98E-06 | 2.40E-06 | .00E+00 | .00E+00 | 4.39E-06 | 1.14E-06 | .00E+00 | 1.14E-06 | | | | |
| 26FE | 59 | 9.00E-05 | 3.08E-05 | 5.38E-05 | 2.12E-05 | .00E+00 | .00E+00 | 1.59E-05 | 2.57E-05 | .00E+00 | 2.57E-05 | | | | |
| 27CO | 58 | 1.44E-03 | .00E+00 | 3.60E-06 | 8.98E-06 | .00E+00 | .00E+00 | .00E+00 | 8.97E-06 | .00E+00 | 8.97E-06 | | | | |
| 27CO | 60 | 1.70E-04 | .00E+00 | 1.08E-05 | 2.55E-05 | .00E+00 | .00E+00 | .00E+00 | 2.57E-05 | .00E+00 | 2.57E-05 | | | | |
| 30ZN | 65 | 1.60E-04 | 1.84E-05 | 6.31E-05 | 2.91E-05 | .00E+00 | 3.06E-05 | .00E+00 | 5.33E-05 | .00E+00 | 5.33E-05 | | | | |
| 74W | 187 | 4.30E-04 | 9.03E-07 | 6.28E-07 | 2.17E-07 | .00E+00 | .00E+00 | .00E+00 | 3.69E-05 | .00E+00 | 3.69E-05 | | | | |
| 93NP | 239 | 5.40E-04 | 1.11E-08 | 9.93E-10 | 5.61E-10 | .00E+00 | 1.98E-09 | .00E+00 | 2.87E-05 | .00E+00 | 2.87E-05 | | | | |

Annual Offsite Dose to Individuals and Populations from Liquid Effluent Releases from the U.S. EPR at BBNPP

| | | | | | | | | | | | | |
|-----------------------------|---------------------------|----------|----------|----------|-----------------------------|----------|-----------------------|----------|----------|--------|-----|--|
| T E N A G E R D O S E S | | | | | | | | | | | .00 | |
| BOATING | | | | | | | | | | | | |
| 0 | | | | | | | | | | | | |
| 0 | | | | | | | | | | | | |
| OPATHWAY | | SKIN | BONE | LIVER | DOSE (MREM PER YEAR INTAKE) | | | LUNG | | GI-LLI | | |
| FISH | | | 9.05E-02 | 1.62E-01 | 7.03E-02 | 1.09E-01 | 5.96E-02 | 2.65E-02 | 2.13E-02 | | | |
| INVERSETRATE | | | 1.24E-02 | 2.59E-02 | 1.07E-02 | 9.97E-03 | 1.25E-02 | 4.07E-03 | 6.23E-02 | | | |
| DRINKING | | | 2.71E-03 | 2.55E-01 | 2.53E-01 | 4.89E-01 | 2.54E-01 | 2.52E-01 | 2.68E-01 | | | |
| SHORELINE | | 2.15E-04 | 1.83E-04 | 1.83E-04 | 1.83E-04 | 1.83E-04 | 1.83E-04 | 1.83E-04 | 1.83E-04 | | | |
| SWIMMING | | | 2.11E-05 | 2.11E-05 | 2.11E-05 | 2.11E-05 | 2.11E-05 | 2.11E-05 | 2.11E-05 | | | |
| BOATING | | | 3.05E-05 | 3.05E-05 | 3.05E-05 | 3.05E-05 | 3.05E-05 | 3.05E-05 | 3.05E-05 | | | |
| TOTAL | | 2.15E-04 | 1.06E-01 | 4.42E-01 | 3.34E-01 | 6.09E-01 | 3.27E-01 | 2.82E-01 | 3.52E-01 | | | |
| 0 | USAGE (KG/YR,HR/YR) | | DILUTION | | TIME (HR) | | SHOREWIDTH FACTOR= .2 | | | | | |
| FISH | | 16.0 | 11.8 | 24.00 | | | | | | | | |
| INVERSETRATE | | 3.8 | 11.8 | 24.00 | | | | | | | | |
| DRINKING | | 510.0 | 11.8 | 12.00 | | | | | | | | |
| SHORELINE | | 67.0 | 44.0 | .00 | | | | | | | | |
| SWIMMING | | 67.0 | 44.0 | .00 | | | | | | | | |
| BOATING | | 52.0 | 11.8 | .00 | | | | | | | | |
| 0 | C H I L D D O S E S | | | | | | | | | | | |
| 0 | | | | | | | | | | | | |
| OPATHWAY | | SKIN | BONE | LIVER | DOSE (MREM PER YEAR INTAKE) | | | LUNG | | GI-LLI | | |
| FISH | | | 1.12E-01 | 1.41E-01 | 3.09E-02 | 1.14E-01 | 5.02E-02 | 2.12E-02 | 1.14E-02 | | | |
| INVERSETRATE | | | 1.59E-02 | 2.29E-02 | 6.23E-03 | 1.05E-02 | 1.08E-02 | 3.40E-03 | 2.64E-02 | | | |
| DRINKING | | | 7.88E-03 | 4.90E-01 | 4.85E-01 | 1.07E+00 | 4.89E-01 | 4.83E-01 | 4.99E-01 | | | |
| SHORELINE | | 4.49E-05 | 3.83E-05 | 3.83E-05 | 3.83E-05 | 3.83E-05 | 3.83E-05 | 3.83E-05 | 3.83E-05 | | | |
| SWIMMING | | | 4.41E-06 | 4.41E-06 | 4.41E-06 | 4.41E-06 | 4.41E-06 | 4.41E-06 | 4.41E-06 | | | |
| BOATING | | | 1.70E-05 | 1.70E-05 | 1.70E-05 | 1.70E-05 | 1.70E-05 | 1.70E-05 | 1.70E-05 | | | |
| TOTAL | | 4.49E-05 | 1.36E-01 | 6.53E-01 | 5.22E-01 | 1.19E+00 | 5.50E-01 | 5.08E-01 | 5.37E-01 | | | |
| 0 | USAGE (KG/YR,HR/YR) | | DILUTION | | TIME (HR) | | SHOREWIDTH FACTOR= .2 | | | | | |
| FISH | | 6.9 | 11.8 | 24.00 | | | | | | | | |
| INVERSETRATE | | 1.7 | 11.8 | 24.00 | | | | | | | | |
| DRINKING | | 510.0 | 11.8 | 12.00 | | | | | | | | |
| SHORELINE | | 14.0 | 44.0 | .00 | | | | | | | | |
| SWIMMING | | 14.0 | 44.0 | .00 | | | | | | | | |
| BOATING | | 29.0 | 11.8 | .00 | | | | | | | | |
| 0 | I N F A N T D O S E S | | | | | | | | | | | |
| 0 | | | | | | | | | | | | |
| OPATHWAY | | SKIN | BONE | LIVER | DOSE (MREM PER YEAR INTAKE) | | | LUNG | | GI-LLI | | |
| FISH | | | .00E+00 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | .00E+00 | | | |
| DRINKING | | | 9.29E-03 | 4.83E-01 | 4.76E-01 | 1.39E+00 | 4.81E-01 | 4.74E-01 | 4.84E-01 | | | |
| SHORELINE | | 3.85E-05 | 3.28E-05 | 3.28E-05 | 3.28E-05 | 3.28E-05 | 3.28E-05 | 3.28E-05 | 3.28E-05 | | | |
| SWIMMING | | | 3.78E-06 | 3.78E-06 | 3.78E-06 | 3.78E-06 | 3.78E-06 | 3.78E-06 | 3.78E-06 | | | |
| BOATING | | | 3.05E-05 | 3.05E-05 | 3.05E-05 | 3.05E-05 | 3.05E-05 | 3.05E-05 | 3.05E-05 | | | |
| TOTAL | | 3.85E-05 | 9.36E-03 | 4.83E-01 | 4.76E-01 | 1.39E+00 | 4.81E-01 | 4.74E-01 | 4.84E-01 | | | |
| 0 | USAGE (KG/YR,HR/YR) | | DILUTION | | TIME (HR) | | SHOREWIDTH FACTOR= .2 | | | | | |
| FISH | | .0 | 11.8 | 24.00 | | | | | | | | |
| DRINKING | | 330.0 | 11.8 | 12.00 | | | | | | | | |
| SHORELINE | | 12.0 | 44.0 | .00 | | | | | | | | |



Annual Offsite Dose to Individuals and Populations from Liquid Effluent Releases from the U.S. EPR at BBNPP

| | | | | | | | | | | | | | | | | | |
|---|---|--------------------------------|----------------|---------------|---|------------|----------|----------|----------|----------|--|--|--|--|--|--|--|
| 0 | COMMERCIAL HARVEST | | | | | | | | | | | | | | | | |
| 0 | -----DOSE (PERSON-REM)----- | | | | | | | | | | | | | | | | |
| 0 | OPATHWAY | AGE GROUP | USAGE | BONE | LIVER | TOTAL BODY | THYROID | KIDNEY | LUNG | GI-LLI | | | | | | | |
| | INVER | ADULT | 1.87E+06 | 2.18E-17 | 4.94E-17 | 3.19E-17 | 1.12E-17 | 2.23E-17 | 8.05E-18 | 1.21E-16 | | | | | | | |
| | INVER | TEENAGER | 2.18E+05 | 3.51E-18 | 7.50E-18 | 3.09E-18 | 1.49E-18 | 3.30E-18 | 1.19E-18 | 1.41E-17 | | | | | | | |
| | INVER | CHILD | 1.57E+05 | 7.27E-18 | 1.07E-17 | 2.84E-18 | 2.40E-18 | 4.60E-18 | 1.59E-18 | 9.61E-18 | | | | | | | |
| | INVER | TOTAL | 2.25E+06 | 3.26E-17 | 6.75E-17 | 3.79E-17 | 1.51E-17 | 3.02E-17 | 1.08E-17 | 1.45E-16 | | | | | | | |
| 0 | LOCATION | DILUTION | CATCH | TIME (HR) | -INCLUDES FOOD PROCESSING TIME OF 2.40E+02 HR | | | | | | | | | | | | |
| | Commercial Invert-NO | 9.99E+02 | 1.00E-09 | 2.40E+02 | POPULATION=2.64E+06 | | | | | | | | | | | | |
| 0 | OAVERAGE | INDIVIDUAL CONSUMPTION (KG/YR) | ADULT=1.00E+00 | TEEN=7.50E-01 | CHILD=3.30E-01 | | | | | | | | | | | | |
| 0 | NEPA DOSES | | | | | | | | | | | | | | | | |
| 0 | ONOTE--TOTAL NEPA DOSE INCLUDES SPORT CATCH | | | | | | | | | | | | | | | | |
| 0 | -----DOSE (PERSON-REM)----- | | | | | | | | | | | | | | | | |
| 0 | OPATHWAY | AGE GROUP | USAGE | BONE | LIVER | TOTAL BODY | THYROID | KIDNEY | LUNG | GI-LLI | | | | | | | |
| | INVER | ADULT | 1.67E-09 | 4.48E-17 | 1.01E-16 | 6.54E-17 | 2.50E-17 | 4.59E-17 | 1.65E-17 | 2.51E-16 | | | | | | | |
| | INVER | TEENAGER | 1.94E-10 | 7.20E-18 | 1.54E-17 | 6.33E-18 | 3.35E-18 | 6.82E-18 | 2.43E-18 | 2.92E-17 | | | | | | | |
| | INVER | CHILD | 1.39E-10 | 1.49E-17 | 2.18E-17 | 5.83E-18 | 5.44E-18 | 9.49E-18 | 3.26E-18 | 1.99E-17 | | | | | | | |
| | INVER | TOTAL | 2.00E-09 | 6.70E-17 | 1.38E-16 | 7.76E-17 | 3.38E-17 | 6.22E-17 | 2.22E-17 | 3.00E-16 | | | | | | | |
| 1 | * * * POPULATION WATER CONSUMPTION DOSES * * * | | | | | | | | | | | | | | | | |
| 0 | | | | | | | | | | | | | | | | | |
| 0 | OSUPPLIER-Danville MWA | | | | | | | | | | | | | | | | |
| 0 | -----DOSE (PERSON-REM)----- | | | | | | | | | | | | | | | | |
| 0 | OPATHWAY | AGE GROUP | USAGE | BONE | LIVER | TOTAL BODY | THYROID | KIDNEY | LUNG | GI-LLI | | | | | | | |
| | DRINKING | ADULT | 1.29E+06 | 2.71E-04 | 4.27E-02 | 4.26E-02 | 5.79E-02 | 4.26E-02 | 4.24E-02 | 4.47E-02 | | | | | | | |
| | DRINKING | TEENAGER | 1.40E+05 | 4.10E-05 | 4.70E-03 | 4.67E-03 | 6.72E-03 | 4.68E-03 | 4.65E-03 | 4.92E-03 | | | | | | | |
| | DRINKING | CHILD | 2.29E+05 | 1.95E-04 | 1.48E-02 | 1.47E-02 | 2.27E-02 | 1.47E-02 | 1.46E-02 | 1.50E-02 | | | | | | | |
| | DRINKING | TOTAL | 1.66E+06 | 5.07E-04 | 6.22E-02 | 6.19E-02 | 8.73E-02 | 6.20E-02 | 6.16E-02 | 6.46E-02 | | | | | | | |
| 0 | POPULATION=4.90E+03 | DILUTION=1.75E+02 | ADULT=3.70E+02 | TEEN=2.60E+02 | CHILD=2.60E+02 | | | | | | | | | | | | |
| 0 | OAVERAGE | INDIVIDUAL CONSUMPTION (L/YR) | ADULT=3.70E+02 | TEEN=2.60E+02 | CHILD=2.60E+02 | | | | | | | | | | | | |
| 0 | | | | | | | | | | | | | | | | | |
| 0 | OSUPPLIER-Sunbury MWA | | | | | | | | | | | | | | | | |
| 0 | -----DOSE (PERSON-REM)----- | | | | | | | | | | | | | | | | |
| 0 | OPATHWAY | AGE GROUP | USAGE | BONE | LIVER | TOTAL BODY | THYROID | KIDNEY | LUNG | GI-LLI | | | | | | | |
| | DRINKING | ADULT | 2.90E+06 | 6.10E-04 | 9.63E-02 | 9.60E-02 | 1.31E-01 | 9.60E-02 | 9.55E-02 | 1.01E-01 | | | | | | | |
| | DRINKING | TEENAGER | 3.16E+05 | 9.25E-05 | 1.06E-02 | 1.05E-02 | 1.52E-02 | 1.06E-02 | 1.05E-02 | 1.11E-02 | | | | | | | |
| | DRINKING | CHILD | 5.17E+05 | 4.40E-04 | 3.33E-02 | 3.30E-02 | 5.13E-02 | 3.32E-02 | 3.30E-02 | 3.39E-02 | | | | | | | |
| | DRINKING | TOTAL | 3.73E+06 | 1.14E-03 | 1.40E-01 | 1.40E-01 | 1.97E-01 | 1.40E-01 | 1.39E-01 | 1.46E-01 | | | | | | | |
| 0 | POPULATION=1.10E+04 | DILUTION=1.75E+02 | ADULT=3.70E+02 | TEEN=2.60E+02 | CHILD=2.60E+02 | | | | | | | | | | | | |
| 0 | OAVERAGE | INDIVIDUAL CONSUMPTION (L/YR) | ADULT=3.70E+02 | TEEN=2.60E+02 | CHILD=2.60E+02 | | | | | | | | | | | | |
| 0 | -----CUMULATIVE TOTAL----- | | | | | | | | | | | | | | | | |
| 0 | OPATHWAY | AGE GROUP | USAGE | BONE | LIVER | TOTAL BODY | THYROID | KIDNEY | LUNG | GI-LLI | | | | | | | |
| | DRINKING | CUMUL TOTAL | 5.39E+06 | 1.65E-03 | 2.02E-01 | 2.02E-01 | 2.84E-01 | 2.02E-01 | 2.01E-01 | 2.10E-01 | | | | | | | |
| 0 | | | | | | | | | | | | | | | | | |
| 0 | HYDROSPHERE TRITIUM DOSE | | | | | | | | | | | | | | | | |
| 0 | OAVERAGE INDIVIDUAL WATER CONSUMPTION = 3.0 L/DAY | | | | | | | | | | | | | | | | |
| 0 | OPATHWAY | AGE GROUP | USAGE | BONE | LIVER | TOTAL BODY | THYROID | KIDNEY | LUNG | GI-LLI | | | | | | | |
| | WATER | TOTAL | 2.86E+11 | .00E+00 | 1.27E-02 | 1.27E-02 | 1.27E-02 | 1.27E-02 | 1.27E-02 | 1.27E-02 | | | | | | | |
| 1 | * * * RECREATION POPULATION DOSES * * * | | | | | | | | | | | | | | | | |



Annual Offsite Dose to Individuals and Populations from Liquid Effluent Releases from the U.S. EPR at BBNPP

| | | | | |
|------|--------------------------|---------------------------|-------------------|----------------------|
| 0 | LOCATION- Shoreline-none | TRANSIT TIME= 9.99E+02 HR | SWF= .2 | DOSE (PERSON-REM) |
| 0 | ODIUITION= 9.99E+02 | | | |
| 0 | OPATHWAY AGE GROUP | USAGE | SKIN | TOTAL BODY |
| 0 | SHORELINE TOTAL POPUL | 1.00E-09 | 1.35E-19 | 1.15E-19 |
| 0 | LOCATION- Swimming-none | TRANSIT TIME= 9.99E+02 HR | DOSE (PERSON-REM) | |
| 0 | ODIUITION= 9.99E+02 | | | |
| 0 | OPATHWAY AGE GROUP | USAGE | SKIN | TOTAL BODY |
| 0 | SWIMMING TOTAL POPUL | 1.00E-09 | 1.61E-21 | 1.61E-21 |
| 0 | LOCATION- Boating | TRANSIT TIME= 2.90E+02 HR | DOSE (PERSON-REM) | |
| 0 | ODIUITION= 1.75E+02 | | | |
| 0 | OPATHWAY AGE GROUP | USAGE | SKIN | TOTAL BODY |
| 0 | BOATING TOTAL POPUL | 5.65E+05 | 3.80E-06 | 3.80E-06 |
| 1 | NUCLIDE | * COST-BENEFIT ANALYSIS | * * | * |
| 0 | CI/YR | PERSON-REM | DOSE | PERSON-REM PER CURIE |
| 1H | 3 | TOTAL BODY | THYROID | TOTAL BODY |
| 11NA | 24 | 2.08E-01 | 2.08E-01 | 1.25E-04 |
| 24CR | 51 | 4.61E-08 | 4.61E-08 | 8.07E-06 |
| 25MN | 54 | 4.86E-08 | 2.99E-08 | 5.07E-05 |
| 26FE | 55 | 1.74E-05 | 6.97E-08 | 3.41E-02 |
| 26FE | 55 | 3.80E-04 | 2.26E-12 | 5.53E-03 |
| 26FE | 59 | 3.74E-06 | 1.53E-02 | 4.15E-02 |
| 27CO | 58 | 1.61E-05 | 2.15E-07 | 1.12E-02 |
| 27CO | 60 | 5.73E-06 | 7.28E-08 | 3.37E-02 |
| 30ZN | 65 | 2.06E-04 | 1.59E-08 | 1.28E+00 |
| 74W | 187 | 1.17E-08 | 7.48E-12 | 2.71E-05 |
| 93NP | 239 | 3.63E-10 | 3.48E-10 | 6.72E-07 |
| 38SR | 89 | 1.80E-06 | 1.46E-11 | 4.50E-02 |
| 38SR | 91 | 3.10E-13 | .00E+00 | 4.43E-09 |
| 39Y | 91M | .00E+00 | .00E+00 | .00E+00 |
| 39Y | 93 | 9.05E-16 | 1.28E-17 | 2.74E-12 |
| 40ZR | 95 | 1.68E-08 | 1.48E-08 | 1.40E-04 |
| 41NB | 95 | 4.19E-07 | 9.29E-09 | 4.66E-03 |
| 42MO | 99 | 1.63E-03 | 3.40E-09 | 4.66E-04 |
| 43TC | 99M | 7.81E-17 | .00E+00 | 4.91E-14 |
| 44RU | 103 | 2.34E-03 | 1.57E-07 | 3.06E-04 |
| 44RU | 106 | 2.84E-02 | 9.87E-07 | 1.28E-03 |
| 47AG | 110M | 4.10E-04 | 1.82E-07 | 6.69E-04 |
| 52TE | 129M | 6.00E-05 | 8.45E-06 | 6.60E-02 |
| 52TE | 129 | 4.00E-05 | .00E+00 | .00E+00 |
| 52TE | 131M | 2.90E-04 | 3.22E-07 | 5.86E-04 |
| 52TE | 131 | 5.00E-05 | .00E+00 | .00E+00 |
| 53I | 131 | 3.54E-02 | 1.35E-01 | 6.69E-03 |
| | | 2.37E-04 | | 3.81E+00 |



Annual Offsite Dose to Individuals and Populations from Liquid Effluent Releases from the U.S. EPR at BBNPP

| | | | | | | | | | | | |
|----------|--|----------|--|----------|--|----------|--|----------|--|----------|--|
| 52TE 132 | | 4.50E-04 | | 6.23E-06 | | 7.33E-06 | | 1.38E-02 | | 1.63E-02 | |
| 53I 132 | | 1.14E-03 | | .00E+00 | | .00E+00 | | .00E+00 | | .00E+00 | |
| 53I 133 | | 4.21E-02 | | 3.81E-07 | | 1.84E-04 | | 9.04E-06 | | 4.36E-03 | |
| 55CS 134 | | 2.45E-03 | | 4.45E-02 | | 6.57E-07 | | 1.82E+01 | | 2.68E-04 | |
| 53I 135 | | 1.69E-02 | | 3.51E-13 | | 6.34E-11 | | 2.08E-11 | | 3.75E-09 | |
| 55CS 136 | | 2.90E-04 | | 6.51E-04 | | 5.87E-08 | | 2.24E+00 | | 2.02E-04 | |
| 55CS 137 | | 3.25E-03 | | 3.49E-02 | | 3.04E-07 | | 1.07E+01 | | 9.35E-05 | |
| 56BA 140 | | 3.93E-03 | | 1.02E-05 | | 9.36E-08 | | 2.59E-03 | | 2.38E-05 | |
| 57LA 140 | | 7.12E-03 | | 1.92E-08 | | 1.86E-08 | | 2.69E-06 | | 2.61E-06 | |
| 58CE 141 | | 5.00E-05 | | 5.53E-10 | | 4.70E-10 | | 1.11E-05 | | 9.40E-06 | |
| 58CE 143 | | 5.70E-04 | | 7.56E-11 | | 7.05E-11 | | 1.33E-07 | | 1.24E-07 | |
| 59PR 143 | | 5.00E-05 | | 8.51E-11 | | 4.04E-12 | | 1.70E-06 | | 8.08E-08 | |
| 58CE 144 | | 1.23E-03 | | 9.66E-08 | | 9.61E-09 | | 7.85E-05 | | 7.81E-06 | |
| 59PR 144 | | 1.23E-03 | | .00E+00 | | .00E+00 | | .00E+00 | | .00E+00 | |
| 0 TOTAL | | | | 2.89E-01 | | 3.43E-01 | | | | | |

1
1
1
1



Annual Offsite Dose to Individuals and Populations from Liquid Effluent Releases from the U.S. EPR at BBNPP

PNL VAX - OCTOBER 1985

12/05/22

```
1
OBAD VALUE GIVEN FOR CFS OR UML, MUST BE > 0.
CFS = .00E+00 UML = 1.00E+00
1 LADTAP2 dayfile
+ AFL=0
+ IFL=0
+ JFL=0
+ OFL=0
+ EFL=1
+ getopts a:i:j:o: OPTION
+ IN4=28032
+ AFL=1
+ getopts a:i:j:o: OPTION
+ IN1=ladtap2-BB-POP-A1.inp
+ IFL=1
+ getopts a:i:j:o: OPTION
+ IN2=ladtap2.lib
+ JFL=1
+ getopts a:i:j:o: OPTION
+ OU1=ladtap2-BB-POP-A1.out
+ OFL=1
+ getopts a:i:j:o: OPTION
+ [ 1 -eq 1 -a 1 -eq 1 -a 1 -eq 1 -a 1 -eq 1 ]
+ ERR=0
+ [ 0 -ne 0 ]
+ + pwd
TDIR=/home/users14/cnaugle/BBNPP/LADTAP-II
```



Annual Offsite Dose to Individuals and Populations from Liquid Effluent Releases from the U.S. EPR at BBNPP

```
+ RUND=/tmp/ladtap2.2946
+ mkdir /tmp/ladtap2.2946
+ cd /tmp/ladtap2.2946
+ ln -s /home/users14/cnaugle/BNPP/LADTAP-II/ladtap2-BB-POP-A1.inp ftn09
+ ln -s /home/users14/cnaugle/BNPP/LADTAP-II/ladtap2.lib ftn20
+ . /SCL/scladmin/sclproc
+ sclproc ladtap2
+ l> ladtap2.ban
+ whence ladtap2
+ timex /SCL/ladtap2/ladtap2.e
+ l> ftn16

real      0.05
user      0.04
sys       0.01

+ STATUS=0
+ echo 1
+ l> /home/users14/cnaugle/BNPP/LADTAP-II/ladtap2-BB-POP-A1.out
+ cat ladtap2.ban
+ l>> /home/users14/cnaugle/BNPP/LADTAP-II/ladtap2-BB-POP-A1.out
+ cat ftn16
+ l>> /home/users14/cnaugle/BNPP/LADTAP-II/ladtap2-BB-POP-A1.out
+ copyssf /home/users14/cnaugle/BNPP/LADTAP-II/dayladtap2.28032 out2 LADTAP2 dayfile
```