

US EPA ARCHIVE DOCUMENT

**MEMORANDUM:**

November 18, 1999

**SUBJECT:**

Review of supplemental study entitled "Supplement to EPA MRID No. 44597601: Cumulative Community Water Systems (CWS) Population and Exposure Distributions". Submitted by Norvatis in response to request from EFED (no MRID # or barcode)

**TO:**

Pam Noyes, Triazine Product Manager  
Special Review and Reregistration Division  
Office of Pesticide Programs

**FROM:**

Henry Nelson, Ph.D., Chemist *H. Nelson*  
Environmental Risk Branch III  
Environmental Fate and Effects Division/OPP

**THROUGH:**

Daniel Rieder, Chief *Daniel Rieder*  
Environmental Risk Branch III  
Environmental Fate and Effects Division/OPP

In a 10/7/98 letter from H. Nelson of EFED/OPP to J. McFarland of Norvatis, the EFED requested that some of the data on atrazine and simazine in CWSs in 21 states (contained in the Norvatis PLEXdatabase) be resubmitted to EFED/OPP in the form of cumulative distribution function (CDF) graphs (e.g., cumulative frequency curves).. The EFED requested that:

(1) Cumulative frequency curves for period or annual means be submitted for any chemical (atrazine or simazine), state, period or year, and source type (surface, ground, blend) having a period or annual time weighted mean concentration (TWMC) > than the MCL (3 ug/L for atrazine or 4 ug/L for simazine). A 1993-1997 period mean for a CWS is the longest mean that can be computed from 1993-1997 data in the PLEX database.

(2) Cumulative frequency curves be submitted for any chemical (atrazine or simazine), state, period or year, and source type (surface, ground, blend) having a maximum concentration > 4 X the MCL.

In a 12/2/98 report entitled "Supplement to EPA MRID No. 44597601: Cumulative Community Water Systems (CWS) Population and Exposure Distributions", Norvatis through their contractors (En. Fate, LLC and Montgomery Watson) submitted a number of cumulative frequency curves (CDF plots) and corresponding tables.

As attached, the cumulative frequency curves included all of the period mean and maximum ones requested by EFED. They also included period mean cumulative frequency curves for all 21

states together which were not requested by EFED, but should have been. Unfortunately, they did not include annual mean cumulative frequency curves probably because the EFED was not explicit enough in its request (see request "1" above). Although 1993-1997 period means may be of value in assessing chronic risks, annual means are more important in assessing compliance with the Safe Drinking Water Act which mandates comparisons of annual means to the MCL.

In retrospect the EFED should have requested the following for both atrazine and simazine:

- (1) Period mean cumulative frequency curves across all 21 states and water source types together (these were provided by Norvatis)
- (2) Annual mean cumulative frequency curves for 1993, 1994, 1995, 1996, and 1997 across all 21 states and water source types together.
- (3) Maximum concentration cumulative frequency curves for 1993, 1994, 1995, 1996, and 1997 maximums across all 21 states and water source types together.

In a memo dated 11/9/99 from H. Nelson of EFED/OPP to J. McFarland of Norvatis the EFED has recently requested that Norvatis also supply the types of cumulative frequency curves just listed or supply data electronically so that such curves can be generated by EFED.

### **Interpretation of Cumulative Frequency Curves**

The cumulative frequency curves in the report are plots of 1993-1997 period means or maximum concentrations on the y axis against the percentage of the "assessed" population exposed to a greater or equal period mean or maximum concentration on the x axis. The cumulative frequency curves are essentially plots of empirical cumulative distribution functions (CDFs) with the y and x axis transposed for clearer comparison to toxic effect levels such as the MCL. The intersection of a cumulative frequency curve with a MCL or 4 X MCL extrapolated down to the x axis gives the percentage of the assessed population exposed to a period mean  $\geq$  MCL or to a maximum concentration  $\geq$  4 X MCL.

Note that the assessed population for a geographical entity (such as the 21 major use states as a whole) or for a geographical entity, specific water source type and specific year (such as IL surface water source CWSs for 1997) is the population served by CWSs with data in the PLEX database, not the corresponding total population. The CWSs having no data in the PLEX database are generally those exempted from SDWA triazine monitoring due to limited triazine use on their watershed and CWSs serve a high % of the total population. Therefore, the cumulative frequency curves provided for CWSs with data in the PLEX database do not represent the entire population, but are probably conservatively biased. In other words, the exposure of the total population to triazines should be somewhat less than the exposure of the populations served by the CWSs with triazine data in the PLEX database from which the cumulative frequency curves are generated.

### **1993-1997 Atrazine Period Mean Cumulative Frequency Curves and Tables Across all 21 States and Water Source Types**

All of the 1993-1997 atrazine period means exceeding the atrazine MCL of 3 ug/L were in surface water source CWSs except for one in a blended water source CWS. No atrazine period means in ground water source CWSs exceeded 3 ug/L.

Based on atrazine data in the PLEX database, Norvatis provided 1993-1997 period mean cumulative frequency curves and tables across all 21 major use states and water source types:

- (1) 18024 CWSs with atrazine data regardless of water source type serving approximately 125 million people (Figure I-1, Table I-1; **Figure I-1 and the first page of Table I-1 are attached**). The highest and second highest atrazine period means in this group are 5.07 ug/L and 4.92 ug/L, respectively. Table I-1 indicates that 0.034% of the assessed population (42,597 people) served by 10 different CWSs were exposed to 1993-1997 atrazine period means  $\geq$  MCL of 3 ug/L.
- (2) 13950 ground water source CWSs with atrazine data serving approximately 49.4 million people (Figure I-2, Table I-2; **Figure I-2 and the first page of Table I-2 are attached**). The highest atrazine period mean of 1.54 ug/L in this group is < than the atrazine MCL of 3 ug/L.
- (3) 3705 surface water source CWSs with atrazine data serving approximately 67.1 million people (Figure I-3, Table I-3; **Figure I-3 and the first page of Table I-3 are attached**). The highest and second highest atrazine period means in this group are 5.07 ug/L and 4.92 ug/L, respectively. Table I-3 indicates that 0.048% of the assessed population (32,159 people) served by 9 different CWSs were exposed to 1993-1997 atrazine period means  $\geq$  MCL of 3 ug/L.
- (4) 369 blend source CWSs with atrazine data serving approximately 8.31 million people (Figure I-4, Table I-4; **Figure I-4 and the first page of Table I-4 are attached**). The highest and second highest atrazine period means in this group are 4.64 ug/L and 1.94 ug/L, respectively. Table I-4 indicates that 0.126% of the assessed population (10,478 people) served by one CWS were exposed to 1993-1997 atrazine period means  $\geq$  MCL of 3 ug/L.

### **1993-1997 Simazine Period Mean Cumulative Frequency Curves and Tables Across all 21 States and Water Source Types**

None of the 1993-1997 simazine period means exceeded the simazine MCL of 4 ug/L

Based on simazine data in the PLEX database, Norvatis provided 1993-1997 period mean cumulative frequency curves and tables across all 21 states and water source types:

- (1) 17863 CWSs with simazine data regardless of water source type serving approximately 128 million people (Figure II-1, Table II-1; **Figure II-1 and the first page of Table II-1 are**

attached). The highest simazine period mean of 1.89 ug/L in this group is < than the simazine MCL of 4 ug/L).

(2) 13657 ground water source CWSs with simazine data serving approximately 49.3 million people (Figure II-2, Table II-2; **Figure II-2 and the first page of Table II-2 are attached**). The highest simazine period mean of 1.89 ug/L in this group is < than the simazine MCL of 4 ug/L).

(3) 3806 surface water source CWSs with simazine data serving approximately 70.0 million people (Figure II-3, Table I-3; **Figure II-3 and the first page of Table II-3 are attached**). The highest simazine period mean of 1.70 ug/L in this group is < than the simazine MCL of 4 ug/L).

(4) 400 blend source CWSs with simazine data serving approximately 8.87 million people (Figure I-4, Table I-4; **Figure II-4 and the first page of Table II-4 are attached**). The highest simazine period mean of 1.00 ug/L in this group is < than the simazine MCL of 4 ug/L).

**1993-1997 Period Mean Cumulative Frequency Curves and Tables for Individual States and Water Source Types with at Least One CWS with an Atrazine Period Mean  $\geq 3$  ug/L (the Atrazine MCL) or a Simazine Mean Period  $\geq 4$  ug/L**

Based on atrazine data in the PLEX database, Norvatis provided the following 1993-1997 period mean cumulative frequency curves for specific states and water source types (**all attached**):

(1) 514 IL surface water CWSs with atrazine data serving approximately 7.72 million people (Figure III-1, Table III-1). The highest and second highest atrazine period means in this group are 4.67 ug/L and 4.08 ug/L, respectively. Table III-1 indicates that 0.033% of the assessed population (2,585 people) served by at least 3 different CWSs were exposed to 1993-1997 atrazine period means  $\geq$  MCL of 3 ug/L.

(2) 306 KY surface water CWSs with atrazine data serving approximately 3.25 million people (Figure III-2, Table III-2). The highest and second highest atrazine period means in this group are 4.92 ug/L and 2.50 ug/L, respectively. Table III-2 indicates that 0.058% of the assessed population (1,881 people) served by at least one CWS were exposed to 1993-1997 atrazine period means  $\geq$  MCL of 3 ug/L.

(3) 167 MO surface water CWSs with atrazine data serving approximately 1.81 million people (Figure III-3, Table III-3). The highest and second highest atrazine period means in this group are 3.72 ug/L and 3.12 ug/L, respectively. Table III-3 indicates that 0.085% of the assessed population (1,541 people) served by at least 2 different CWSs were exposed to 1993-1997 atrazine period means  $\geq$  MCL of 3 ug/L.

(4) 235 OH surface water CWSs with atrazine data serving approximately 4.70 million people (Figure III-4, Table III-4). The highest and second highest atrazine period means in this group are 5.07 ug/L and 4.15 ug/L, respectively. Table III-4 indicates that 0.556% of the assessed

population (26,152 people) served by at least 3 different CWSs were exposed to 1993-1997 atrazine period means  $\geq$  MCL of 3 ug/L.

(5) 20 KY blend source CWSs with atrazine data serving 158,803 people (Figure III-1, Table III-5). The highest and second highest atrazine period means in this group are 4.64 ug/L and 0.69 ug/L, respectively. Table III-5 indicates that 6.57% of the assessed population (10,438 people) served by at least one CWS were exposed to 1993-1997 atrazine period means  $\geq$  MCL of 3 ug/L.

Norvatis did not provide 1993-1997 period mean cumulative frequency curves for specific states and water source types for simazine because no simazine period means exceeded the MCL of 4 ug/L.

### **Maximum Atrazine Concentration Cumulative Frequency Curves and Tables for Some Individual States, Water Source Types, and Years**

Not all of the atrazine maximum concentration cumulative frequency curves and corresponding tables submitted by Norvatis have atrazine maximums  $\geq$  4 X MCL of 12 ug/L. When one or more years of a state and specific water type source had a maximum  $\geq$  4 X MCL, Norvatis submitted cumulative frequency curves and corresponding tables for each year. For example, atrazine maximums in KS surface water source CWSs exceeded 4 X MCL of 12 ug/L only in 1996, but cumulative frequency curves and corresponding tables were provided for KS surface water source CWSs for each year from 1993 through 1997.

Although all of the 37 atrazine maximum cumulative frequency curves and 37 corresponding tables submitted by Norvatis are listed below, only those 12 curves and 12 corresponding tables for individual states, water source types, and years with at least one CWS with an atrazine maximum  $\geq$  12 ug/L are attached.

The highest atrazine maximum concentration reported to date in the PLEX database (42.0 ug/L) is substantially less than the EPA Office of Drinking Water 1-day and 10-day Health Advisory Levels for atrazine of 100 ug/L

Based on atrazine data in the PLEX database, Norvatis provided the following maximum concentration cumulative frequency curves for specific states, water source types, and years:

(1) 359 IL surface water source CWSs with 1993 atrazine data serving approximately 2.36 million people (Figure IV-1, Table IV-1 **both attached**). The highest and second highest atrazine maximums in this group are 12.0 ug/L and 8.30 ug/L, respectively. Table IV-1 indicates that 0.639% of the assessed population (15,056 people) served by at least one CWS were exposed to a maximum atrazine concentration = to 4 X MCL of 12 ug/L.

(2) 369 IL surface water source CWSs with 1994 atrazine data serving approximately 2.26 million people (Figure IV-2, Table IV-2 **both attached**). The highest and second highest atrazine maximums in this group are 30.0 ug/L and 14.0 ug/L, respectively. Table IV-2 indicates that 6.745% of the assessed population (164,168 people) served by at least 8 different CWSs were exposed to a maximum atrazine concentration  $\geq$  to 4 X MCL of 12 ug/L.

(3) 494 IL surface water source CWSs with 1995 atrazine data serving approximately 7.59 million people (Figure IV-3, Table IV-3). The highest atrazine maximum in this group is 9.20 ug/L which is  $<$  4 X MCL of 12 ug/L.

(4) 491 IL surface water source CWSs with 1996 atrazine data serving approximately 7.58 million people (Figure IV-4, Table IV-4 **both attached**). The highest and second highest atrazine maximums in this group are 42.0 ug/L and 19.0 ug/L, respectively. Table IV-4 indicates that 0.130% of the assessed population (9,883 people) served by at least 3 CWSs were exposed to a maximum atrazine concentration = to 4 X MCL of 12 ug/L.

(5) 495 IL surface water source CWSs with 1997 atrazine data serving approximately 7.65 million people (Figure IV-5, Table IV-5). The highest atrazine maximum in this group is 7.80 ug/L which is  $<$  4 X MCL of 12 ug/L.

(6) 14 IL blend source CWSs with 1993 atrazine data serving 143,131 people (Figure IV-6, Table IV-6). The highest atrazine maximum in this group is 2.30 ug/L which is  $<$  4 X MCL of 12 ug/L.

(7) 20 IL blend source CWSs with 1994 atrazine data serving 307,733 people (Figure IV-7, Table IV-7 **both attached**). The highest and second highest atrazine maximums in this group are 12.0 and 1.40 ug/L, respectively. Table IV-7 indicates that 0.696% of the assessed population (2,142 people) served by at least one CWS were exposed to a maximum atrazine concentration = to 4 X MCL of 12 ug/L.

(8) 22 IL blend source CWSs with 1995 atrazine data serving 388,432 people (Figure IV-8, Table IV-8). The highest atrazine maximum in the group is 4.45 ug/L which is  $<$  4 X MCL of 12 ug/L.

(9) 20 IL blend source CWSs with 1996 atrazine data serving 386,662 people (Figure IV-9, Table IV-9). The highest atrazine maximum in the group is 7.8 ug/L which is  $<$  4 X MCL of 12 ug/L.

(10) 18 IL blend source CWSs with 1996 atrazine data serving 384,985 people (Figure IV-10, Table IV-10). The highest atrazine maximum in the group is 4.4 ug/L which is  $<$  4 X MCL of 12 ug/L.

- (11) 26 IN surface water source CWSs with 1993 atrazine data serving 740,333 people (Figure IV-11, Table IV-11 **both attached**). The highest and second highest atrazine maximums in the group are 14 ug/L and 2.30 ug/L. Table IV-11 indicates that 24.866% of the assessed population (184,092 people) served by at least one CWS were exposed to a maximum atrazine concentration > to 4 X MCL of 12 ug/L.
- (12) 108 IN surface water source CWSs with 1994 atrazine data serving approximately 2.31 million people (Figure IV-12, Table IV-12). The highest atrazine maximum in the group is 6.6 ug/L which is < 4 X MCL of 12 ug/L.
- (13) 62 IN surface water source CWSs with 1995 atrazine data serving approximately 1.93 million people (Figure IV-13, Table IV-13 ). The highest atrazine maximum in the group is 8.5 ug/L which is < 4 X MCL of 12 ug/L.
- (14) 46 IN surface water source CWSs with 1996 atrazine data serving approximately 1.83 million people (Figure IV-14, Table IV-14). The highest atrazine maximum in the group is 5.6 ug/L which is < 4 X MCL of 12 ug/L.
- (15) 98 IN surface water source CWSs with 1997 atrazine data serving approximately 2.28 million people (Figure IV-15, Table IV-15). The highest atrazine maximum in the group is 7.9 ug/L which is < 4 X MCL of 12 ug/L.
- (16) 35 KS surface water source CWSs with 1993 atrazine data serving approximately 331,541 people (Figure IV-16, Table IV-16). The highest atrazine maximum in the group is 2.2 ug/L which is < 4 X MCL of 12 ug/L.
- (17) 95 KS surface water source CWSs with 1994 atrazine data serving approximately 255,606 people (Figure IV-17, Table IV-17). The highest atrazine maximum in the group is 11.0 ug/L which is < 4 X MCL of 12 ug/L.
- (18) 169 KS surface water source CWSs with 1995 atrazine data serving approximately 587,818 people (Figure IV-18, Table IV-18). The highest atrazine maximum in the group is 7.8 ug/L which is < 4 X MCL of 12 ug/L.
- (19) 159 KS surface water source CWSs with 1996 atrazine data serving 410,630 people (Figure IV-19, Table IV-19 **both attached**). The highest and second highest atrazine maximums in the group are 16 ug/L and 12 ug/L, respectively. Table IV-19 indicates that 5.389% of the assessed population (22,129 people) served by at least two CWSs were exposed to a maximum atrazine concentration > to 4 X MCL of 12 ug/L.
- (20) 213 KS surface water source CWSs with 1997 atrazine data serving 587,818 people (Figure IV-20, Table IV-21). The highest atrazine maximum in the group is 6.5 ug/L which is < 4 X MCL of 12 ug/L.



(21) 7 KY blended water source CWSs with 1993 atrazine data serving 41,758 people (Figure IV-21, Table IV-21). The highest atrazine maximum in the group is 2.24 ug/L which is < 4 X MCL of 12 ug/L.

(22) 2 KY blended water source CWSs with 1994 atrazine data serving 76,067 people (Figure IV-22, Table IV-22). The highest atrazine maximum in the group is 0.30 ug/L which is < 4 X MCL of 12 ug/L.

(23) 9 KY blended water source CWSs with 1995 atrazine data serving 93,865 people (Figure IV-23, Table IV-23). The highest atrazine maximum in the group is 0.80 ug/L which is < 4 X MCL of 12 ug/L.

(24) 12 KY blended water source CWSs with 1995 atrazine data serving 74,522 people (Figure IV-24, Table IV-24). The highest atrazine maximum in the group is 1.0 ug/L which is < 4 X MCL of 12 ug/L.

(25) 7 KY blended water source CWSs with 1997 atrazine data serving 66,165 people (Figure IV-25, Table IV-25 **both attached**). The highest and second highest atrazine maximums in the group are 23.0 ug/L and 0.08 ug/L, respectively. Table IV-25 indicates that 15.776% of the assessed population (10,438 people) served by at least one CWS were exposed to a maximum atrazine concentration > to 4 X MCL of 12 ug/L.

(26) 60 LA surface water source CWSs with 1996 atrazine data serving approximately 1.84 million people (Figure IV-26, Table IV-26 **both attached**). The highest and second highest atrazine maximums in the group are 12.9 ug/L and 5.87 ug/L, respectively. Table IV-26 indicates that 0.861% of the assessed population (15,810 people) served by at least one CWS were exposed to a maximum atrazine concentration > to 4 X MCL of 12 ug/L.

(27) 62 LA surface water source CWSs with 1997 atrazine data serving approximately 1.83 million people (Figure IV-27, Table IV-27 **both attached**). The highest and second highest atrazine maximums in the group are 14.9 ug/L and 5.77 ug/L, respectively. Table IV-27 indicates that 0.570% of the assessed population (10,400 people) served by at least one CWS were exposed to a maximum atrazine concentration > to 4 X MCL of 12 ug/L.

(28) 14 MO surface water source CWSs with 1993 atrazine data serving 618,914 people (Figure IV-28, Table IV-28). The highest atrazine maximum in the group is 6.44 ug/L which is < 4 X MCL of 12 ug/L.

(29) 159 MO surface water source CWSs with 1994 atrazine data serving approximately 1.04 million people (Figure IV-29, Table IV-29 **both attached**). The highest and second highest atrazine maximums in the group are 27.0 ug/L and 19.0 ug/L, respectively. Table IV-29 indicates that 1.774% of the assessed population (18,376 people) served by at least 5 CWSs were exposed to a maximum atrazine concentration > to 4 X MCL of 12 ug/L.

(30) 159 MO surface water source CWSs with 1995 atrazine data serving approximately 1.80 million people (Figure IV-30, Table IV-30). The highest atrazine maximum in the group is 6.92 ug/L which is  $< 4 \times$  MCL of 12 ug/L.

(31) 158 MO surface water source CWSs with 1996 atrazine data serving 806,834 people (Figure IV-31, Table IV-31). The highest atrazine maximum in the group is 10.4 ug/L which is  $< 4 \times$  MCL of 12 ug/L.

(32) 151 MO surface water source CWSs with 1997 atrazine data serving 432,830 people (Figure IV-32, Table IV-32). The highest atrazine maximum in the group is 8.6 ug/L which is  $< 4 \times$  MCL of 12 ug/L.

(33) 11 OH surface water source CWSs with 1993 atrazine data serving 48,277 people (Figure IV-33, Table IV-33). The highest atrazine maximum in the group is 0.11 ug/L which is  $< 4 \times$  MCL of 12 ug/L.

(34) 231 OH surface water source CWSs with 1994 atrazine data serving approximately 4.62 million people (Figure IV-34, Table IV-34). The highest atrazine maximum in the group is 3.4 ug/L which is  $< 4 \times$  MCL of 12 ug/L.

(35) 58 OH surface water source CWSs with 1995 atrazine data serving approximately 2.47 million people (Figure IV-35, Table IV-35). The highest atrazine maximum in the group is 10.3 ug/L which is  $< 4 \times$  MCL of 12 ug/L.

(36) 92 OH surface water source CWSs with 1996 atrazine data serving approximately 2.62 million people (Figure IV-36, Table IV-36 **both attached**). The highest and second highest atrazine maximums in the group are 38.7 ug/L and 10.2 ug/L, respectively. Table IV-36 indicates that 0.036% of the assessed population (940 people) served by at least one CWS were exposed to a maximum atrazine concentration  $>$  to  $4 \times$  MCL of 12 ug/L.

(37) 66 OH surface water source CWSs with 1997 atrazine data serving approximately 2.50 million people (Figure IV-37, Table IV-37 **both attached**). The highest and second highest atrazine maximums in the group are 29.6 ug/L and 20.8 ug/L, respectively. Table IV-37 indicates that 4.249% of the assessed population (106,339 people) served by at least 6 CWSs were exposed to a maximum atrazine concentration  $>$  to  $4 \times$  MCL of 12 ug/L.

#### **Maximum Simazine Concentration Cumulative Frequency Curves and Tables for Some Individual States, Water Source Types, and Years**

Only one of the 5 simazine maximum concentration cumulative frequency curves and one of the 5 corresponding tables submitted by Norvatis have simazine maximums  $\geq 4 \times$  MCL of 16 ug/L. The other 4 cumulative frequency curves and 4 corresponding tables are for the same state (IL) and water source type (surface) but for different years.

Although all of the 5 simazine maximum cumulative frequency curves and corresponding tables submitted by Norvatis are listed below, only the one curve and corresponding table with at least one CWS with a simazine maximum  $\geq 16$  ug/L are attached.

Based on simazine data in the PLEX database, Norvatis provided the following maximum concentration cumulative frequency curves for specific states, water source types, and years.

(1) 348 IL surface water source CWSs with 1993 simazine data serving approximately 2.11 million people (Figure V-1, Table V-1). The highest simazine maximum in the group is 4.1 ug/L which is  $< 4 \times$  MCL of 16 ug/L.

(2) 353 IL surface water source CWSs with 1994 simazine data serving approximately 2.28 million people (Figure V-2, Table V-2 **both attached**). The highest and second highest simazine maximums in the group are 18 ug/L and 4.4 ug/L, respectively. Table V-2 indicates that 0.285% of the assessed population (6478 people) served by at least one CWS were exposed to a maximum simazine concentration  $>$  to  $4 \times$  MCL of 16 ug/L.

(3) 451 IL surface water source CWSs with 1995 simazine data serving approximately 7.05 million people (Figure V-3, Table V-3). The highest simazine maximum in the group is 7.4 ug/L which is  $< 4 \times$  MCL of 16 ug/L.

(4) 472 IL surface water source CWSs with 1996 simazine data serving approximately 7.41 million people (Figure V-4, Table V-4). The highest simazine maximum in the group is 4.3 ug/L which is  $< 4 \times$  MCL of 16 ug/L.

(5) 495 IL surface water source CWSs with 1997 simazine data serving approximately 7.65 million people (Figure V-5, Table V-5). The highest simazine maximum in the group is 3.1 ug/L which is  $< 4 \times$  MCL of 16 ug/L.

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