

Date: February 1, 1993

File Ref: 3200

To: Linda Talbot, WR/2

From: Jim Kreitlow, NCD

Subject: Initial Review of North Central District's 1992 Sediment Monitoring Results (Results Attached)

North Central District Water Resources Management staff has received all the analytical results for sediment samples collected in 1992. (Still awaiting particle size analysis.) These results were compared to the sediment contamination fact sheet (see attached) with the purpose of identifying sites where there may be a problem that warrants further review from Central Office staff.

Sites sampled and parameters analyzed include:

1. Big Eau Pleine Flowage - metals/pesticides/PCBs
- 2. Military Creek - pentachlorophenol
3. Big Rib River - mercury
4. Wisconsin River below Kings Dam - mercury
5. Wisconsin River above Hat Rapids Dam - mercury, arsenic
6. Minocqua Lake - cadmium, copper, lead, zinc

Big Eau Pleine Flowage

1. Field No. 01 - Big Eau Pleine Flowage (lower section) - portion of southern bay just above the Big Eau Pleine Dam.
2. Field No. 02 - Big Eau Pleine Flowage (middle section) south of County Park landing near Highway "C".
3. Field No. 03 - Big Eau Pleine Flowage (upper section) north side of first bay above Highway "S" bridge.

Sampling was conducted in response to the elevated concentrations of mercury in walleye that warranted inclusion on the Fish Advisory. Is there a relationship between sediment levels and mercury levels in fish? Sampling was also conducted to gather baseline data for the FERC relicensing process involving the Wisconsin Valley Improvement Company.

Metals - A review of the metals data indicates that all of the metals are below the levels indicated in the guidance with the exception of mercury which was .1 part per million (.1 part per million) at Field Site No. 1. Other metals that appear elevated but not above levels in guidance include arsenic - 4.79 parts per million (10 parts per million), cadmium - .78 part per million (1.0 part per million), selenium - .95 parts per million (1.0 part million), and zinc - 100 parts per million (100 parts per million). NOTE: Values in parentheses are those listed in the guidance as a level of concern.

... three sample sites, levels of pesticides and PCB were listed as not being found at the level of detection.

Military Creek

1. Field No. G-1-92 - Military Creek, upgradient of pole yard drying area (reference site).
2. Field No. G-2-92 - Military Creek, downstream of foot bridge below pole yard drying area (impact site).
3. Field No. G-3-92 - Military Creek, downstream of Highway "E" below pole yard drying area (impact site).
4. Field No. G-4-92 - Military Creek, 100 feet above confluence with North Twin lake (impact site).

This sampling was done in response to suspected contamination as a result of the operations of the now closed Christianson Wood Treating/Pole Yard Facility.

Pentachlorophenol - Pentachlorophenol was found at all three of the impact sites ranging from 30 to 640 parts per billion. The upgradient reference site was clean. I feel these levels are high and above those found in the Wisconsin River near the old SNE Corporation's groundwater contamination site. What is more alarming about the values is that Christianson's wood treating facility has been closed for approximately 10 years.

I would recommend future investigation for other compounds such as copper, chromium, arsenic, creosote compounds, dioxin, in both sediments and fish. Perhaps, some bioassay work should be done here.

In discussing the site with Bob Young (Water Resources Biologist) and Duke Andrews (District Fish Staff Specialist), aquatic macroinvertebrates and trout numbers from this stretch of creek are lower than you would expect to find. This is based on field investigation.

Big Rib River

1. Field No. 1 - Big Rib River, approximately 25 feet southwest of the northern end of Highway 51 bridge.
2. Field No. 2 - Big Rib River, at first slue northwest of Highway 51 bridge.

This sampling was conducted as a result of the recent inclusion of walleye in the Fish Advisory list. Again, to see if there is any correlation between sediment mercury levels and elevated levels of mercury in fish.

Mercury - The results indicate that mercury (.07 parts per million) levels were below the .10 part per million level of concern.

- dioxin-
- phenolic test-
tetra
di

30 - PAL
300 - ES

Dioxin .22 ppb/d - bioaccum
1600 - low detection level

[dro-][semi-volatiles]
- carbamates - Ag

- tetrachlorophenol - bioass bio. accum

Wisconsin River Below Kings Dam

This sampling was recommended as a follow-up to verify the high mercury values documented by Wisconsin Public Service Corporation (WPS) data which showed a range of .14 to 3.68 parts per million mercury in sediments.

Mercury - Our sample results indicate a level of .10 part per million which is right at the level of concern stated in the guidance but not near the levels found by WPS.

Wisconsin River Above Hat Rapids Dam

This sampling was recommended to gather baseline data.

Mercury - The results indicate that mercury (.92 parts per million) is elevated above the .1 part per million level of concern.

Arsenic - Arsenic (^{7.6}.76 parts per million) is elevated and approaches the 10 part per million level of concern.

Minocqua Lake

1. Field No. G-1-92 - Minocqua Lake, below storm water outfall (impact site).
2. Field No. G-2-92 - Minocqua Lake, southwest corner of island in northwest basin (reference site).

This sampling was conducted to evaluate sediment quality at a storm water outfall.

Cadmium/Copper/Lead/Zinc - Levels of these metals were higher at the impact site (.21 part per million cadmium, 18.8 parts per million copper, 17.7 parts per million lead, and 60 parts per million zinc) but still are lower than the guidance levels. The storm water discharge is the likely source.

Moens Chain

1. Field No. 01 - Gudagast Creek, approximately 50 feet above mouth to Moens Lake.
2. Field No. 02 - Moens Lake, deepest spot.
3. Field No. 03 - Second Lake, deepest spot.
4. Field No. 04 - Third Lake, deepest spot.
5. Field No. 05 - Fourth Lake, deepest spot.
6. Field No. 06 - Fifth Lake, deepest spot.

This sampling was conducted to determine if there is any correlation between levels of mercury in the sediment and elevated levels of mercury in the fish.

... sites have mercury levels greater than the .10 part per million level of concern. Results range from .19 part per million at Gudagast Creek to ~~1.1~~^{2.7} parts per million in Third and Fourth Lakes. The question is are these levels high enough to be considered as a source of mercury for bioaccumulation in fish tissue?

NCD feels that further assistance on interpretation of data is needed at Military Creek, Wisconsin River-Hat Rapids, and Moens Lake Chain. This is based on levels above the sediment contamination guidelines.

This is just a brief review of the data and highlights what metals and organics may be elevated and which sites may be of concern. I realize much more interpretation is needed (particle size, percent organic matter, etc.) to draw definite conclusions. North Central District is willing to provide any other information that is necessary to help in this interpretation.

JK:ck

cc: Larry Maltbey, Rhinelander
Bill Jaeger, Rhinelander
Bob Martini, Rhinelander
Tom Janisch, WR/2
Lee Liebenstein, WR/2
Chuck Ledin, WR/2
Tom Blake, Rhinelander
Jack Sullivan, WR/2
Duke Andrews, Rhinelander

Date: October 1, 1992
To: Linda Talbot, WR/2
From: Jim Kreitlow, NCD *JK*

Subject: Sediment Sampling on Military Creek

On September 28, 1992, Tom Blake and I collected sediment samples from Military Creek. We collected four samples (see attached map). The sites include:

1. G-1-92 - Collected upstream from the pole drying yard (reference site or nonimpact site).
2. G-2-92 - Collected downstream from the pole drying yard just below foot bridge above Highway "E" (impact sample).
3. G-3-92 - Collected below Highway "E" downstream from the pole drying area (impact sample).
4. G-4-92 - Collected 100 feet above confluence with North Twin Lake.

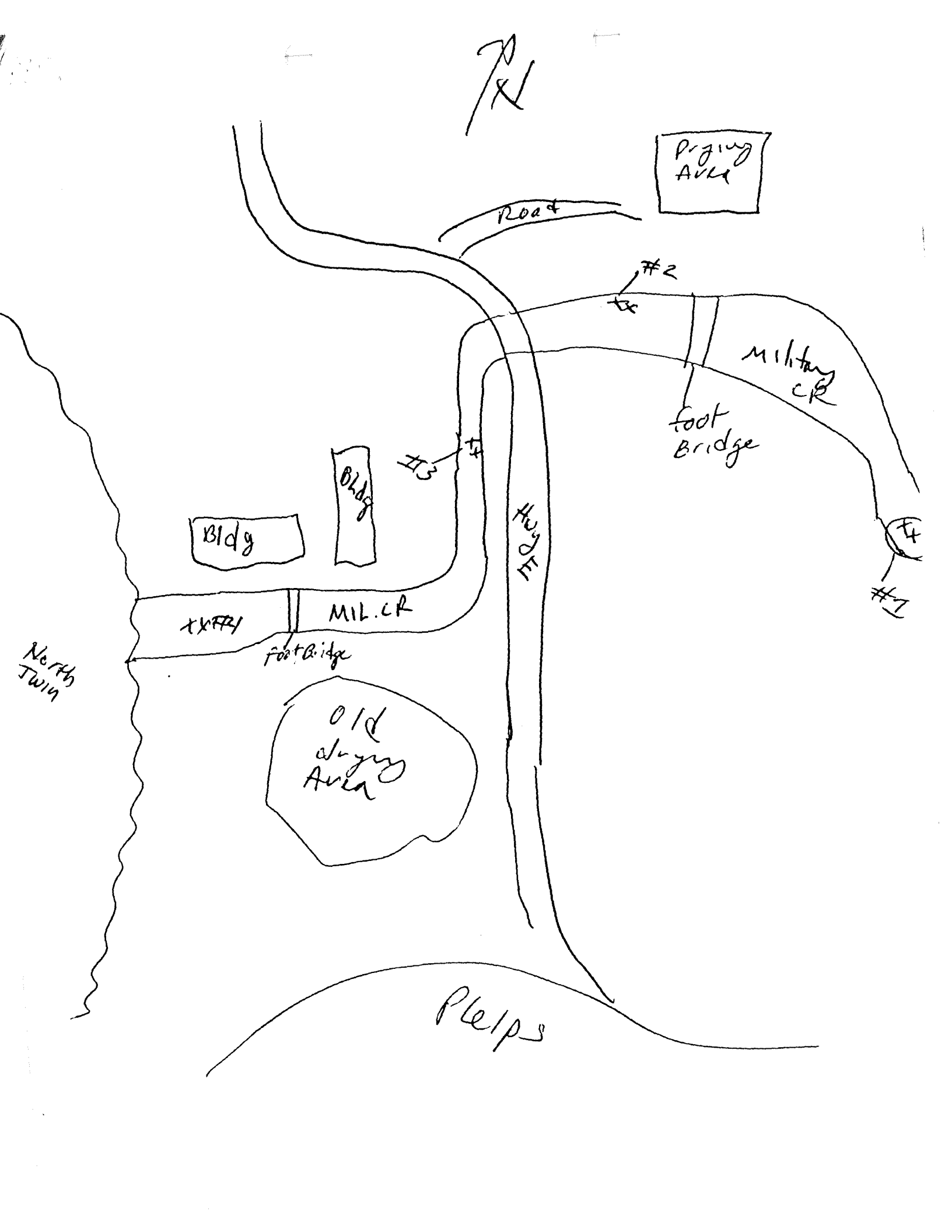
Three composite sediment samples were collected at each sampling site. These composite samples were mixed and two subsamples of sediment were collected for particle size analysis and contaminant analysis. After each sampling site, the Eckman dredge and sampling utensils were washed with alkanox, rinsed with tap water, then triple rinsed with distilled water. These four samples will be analyzed for PCP, total organic carbon and particle size.

We originally planned to collect five samples. We did not collect any samples out of North Twin Lake because of lack of organic sediments. Therefore, only four samples were collected (all from Military Creek). We will reserve sampling the lake until we find out what the results are for the stream samples.

If you have any questions concerning the sampling, please contact me in Rhinelander (715-369-8947).

JK:da
Attach.

cc: Larry Maltbey, Rhinelander
Duane Schuettpelez, WR/2
Duke Andrews, Rhinelander
Bill Jaeger, Rhinelander



State Laboratory of Hygiene
University of Wisconsin Center for Health Sciences
465 Henry Mall, Madison, WI 53706

R.H. Laessig, Ph.D., Director

S.L. Inhorn, M.D., Medical Director

Environmental Science Section (608) 262-2797 DNR LAB ID 113133790
Organic chemistry (#1 of 4 on 01/27/93, unseen)

Id: 643404 Point/Well/...: Field #: G-3-92 Route: WR70
Collection Date: 09/28/92 Time: 11:05 County: 64 (Vilas)
From: MILITARY CREEK, DOWNSTREAM OF HWY E BELOW POLE YD., DRYING AREA
Description: EAST SIDE OF STREAM - IMPACT SAMPLE
To: LINDA TALBOT

WR/2

Source: Sediment

MADISON, WI

Account number: WR166

Collected by: JIM KREITLOW

Date Received: 11/18/92

Labslip #: OD001743

Reported: 01/26/93

---- test: CHLOROPHENOLS IN SOILS - 1540

2,4,6-TRICHLOROPHENOL	<0.10	UG/G, DRY
2,4,5-TRICHLOROPHENOL	<0.10	UG/G, DRY
PENTACHLOROPHENOL (PCP)	+ 0.64	UG/G, DRY
PHENOLS EXTRACTION/DERIVATIZATION	C	
TOTAL ORGANIC CARBON IN SEDIMENT BY SLURRY METHOD	+ 126000.	UG/G, DRY
TOTAL ORGANIC CARBON IN SEDIMENT BY SLURRY - PREP	C	

--- Footnotes ---

+: Positive results are prefixed by a plus sign.

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Organic chemistry (#2 of 4 on 01/27/93, unseen)

Id: 643405 Point/Well/...: Field #: G-2-92 Route: WR70
Collection Date: 09/28/92 Time: 10:20 County: 64 (Vilas)
From: MILITARY CR, DOWNSTREAM OF FOOTBRIDGE BELOW POLE YD DRYING AREA
Description: NORTHSIDE OF CREEK ABOVE HWY E - IMPACT SAMPLE
To: LINDA TALBOT

WR/2

Source: Sediment

MADISON, WI

Account number: WR166

Collected by: JIM KREITLOW

Date Received: 11/18/92

Labslip #: OD001744

Reported: 01/26/93

---- test: CHLOROPHENOLS IN SOILS - 1540

2,4,6-TRICHLOROPHENOL	<0.10	UG/G, DRY
2,4,5-TRICHLOROPHENOL	<0.10	UG/G, DRY
PENTACHLOROPHENOL (PCP)	+ 0.05	UG/G, DRY
PHENOLS EXTRACTION/DERIVATIZATION	C	
TOTAL ORGANIC CARBON IN SEDIMENT BY SLURRY METHOD	+ 11400.	UG/G, DRY
TOTAL ORGANIC CARBON IN SEDIMENT BY SLURRY - PREP	C	

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Environmental Science Section (608) 262-2797 DNR LAB ID 113133790
Organic chemistry (#3 of 4 on 01/27/93, unseen)

Id: 643406 Point/Well/...: Field #: G-1-92 Route: WR70
Collection Date: 09/28/92 Time: 10:00 County: 64 (Vilas)
From: MILITARY CR, UP GRADIENT OF POLE YD. DRYING AREA
Description: NATURAL BACKGROUND SAMPLE - SOUTHSIDE OF STREAM
To: LINDA TALBOT
WR/2 Source: Sediment
MADISON, WI

Account number: WR166 Collected by: JIM KREITLOW
Date Received: 11/18/92 Labslip #: OD001745 Reported: 01/26/93

---- test: CHLOROPHENOLS IN SOILS - 1540

2,4,6-TRICHLOROPHENOL	<0.10	UG/G, DRY
2,4,5-TRICHLOROPHENOL	<0.10	UG/G, DRY
PENTACHLOROPHENOL (PCP)	<0.02	UG/G, DRY
PHENOLS EXTRACTION/DERIVATIZATION	C	
TOTAL ORGANIC CARBON IN SEDIMENT BY SLURRY METHOD +	224000.	UG/G, DRY
TOTAL ORGANIC CARBON IN SEDIMENT BY SLURRY - PREP	C	

--- Footnotes ---

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 Environmental Science Section (608) 262-2797 DNR LAB ID 113133790
 Organic chemistry (#4 of 4 on 01/27/93, unseen)

Id: 643403 Point/Well/..: Field #: G-4-92 Route: WR70
 Collection Date: 09/28/92 Time: 11:40 County: 64 (Vilas)
 From: MILITARY CREEK, 100 FEET ABOVE CONFLUENCE WITH N. TWIN LAKE - BELOW
 Description: WATERBODY 1623900
 To: LINDA TALBOT

WR/2

Source: Sediment

MADISON, WI

Account number: WR166

Collected by: JIM KREITLOW

Date Received: 11/18/92

Labslip #: OD001746

Reported: 01/26/93

 ---- test: CHLOROPHENOLS IN SOILS - 1540

2,4,6-TRICHLOROPHENOL	<0.10	UG/G, DRY
2,4,5-TRICHLOROPHENOL	<0.10	UG/G, DRY
PENTACHLOROPHENOL (PCP)	+ 0.03	UG/G, DRY
PHENOLS EXTRACTION/DERIVATIZATION	C	
TOTAL ORGANIC CARBON IN SEDIMENT BY SLURRY METHOD	+ 13700.	UG/G, DRY
TOTAL ORGANIC CARBON IN SEDIMENT BY SLURRY - PREP	C	

--- Footnotes ---

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