



DIVISION OF ENVIRONMENTAL QUALITY

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GOVERNOR
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December 1, 2023

Mark Meyer, Plant Manager
Baxter Healthcare Corporation
1900 Hwy 201 N
Mountain Home, AR 72653

RE: Industrial User Waste Survey

Dear Mr. Meyer:

This letter is in reference to the Industrial User Waste Survey dated January 5, 2021, for the Baxter Healthcare Corporation facility in Mountain Home, AR. 40 C.F.R. § 463 does not contain pretreatment standards for process wastewater from plastics molding and forming sources. Therefore, this facility is subject to the General and Specific Prohibitions within the National Pretreatment Standards at 40 C.F.R. §§ 403.5(a)–(b). Additionally, this facility is identified as an industrial user (IU) of the Mountain Home WWTP, which does not have a Pretreatment Program approved by DEQ. For cities without an approved Pretreatment Program, DEQ directly oversees compliance of IUs that discharge to those Publicly Owned Treatment Works (POTWs) to ensure the POTW and receiving waters are protected from the potential impacts of pollutants discharged from non-domestic sources.

1. Water Quality Criteria (WQC) evaluation

The following pollutants were reported in the Industrial User Waste Survey:

| Pollutant | Concentration (µg/l) | Water Quality Criteria (µg/l) |
|-----------------------------------|----------------------|-------------------------------|
| Copper, Total Recoverable | 263 | 41.4 ¹ |
| Nickel, Total Recoverable | 10 | 426 ¹ |
| Zinc, Total Recoverable | 111 | 374 ¹ |
| Bis(2-ethylhexyl)phthalate (DEHP) | 240 | 3.7 ² |

¹ Criteria from APC&EC Rule 2.508.

² Criteria adapted from “National Recommended Water Quality Criteria – Human Health Criteria Table,” EPA. The respective WQC from the noted reference are Consumption of Organism Only values. The values from the reference are for a lifetime risk factor of 10⁻⁶. These values have been multiplied by 10 to correspond to human health criteria lifetime risk factor of 10⁻⁵ as stated in Rule 2.508.

Nickel and Zinc were excluded from further analysis because the concentration in the IU discharge prior to treatment at the POTW was below the WQC.

The remaining IU pollutant (DEHP) will be diluted and removed by treatment processes at the POTW. DEHP is not known to cause interference. Reasonable potential for pass through of DEHP was evaluated as follows:

| Parameter | Value | Source |
|--|----------------------------|--|
| IU Discharge Flow | 0.112633 MGD = 0.17 cfs | IU Waste Survey |
| POTW Average Flow | 2.4 MGD = 3.85 cfs | DMR data ¹ |
| POTW receiving stream critical flow, 7Q10 | 0.1 cfs | USGS Streamstats |
| POTW receiving stream Long-term Average (LTA) Flow | 0.3 cfs | TSD ² (LTA = 3 × 7Q10) |
| Q _b background flow, Mixing zone flow for chronic toxicity | 0.67 of 7Q10 | Rule 2.508 and CPP- Appendix D |
| Q _b background flow, ZID flow for acute toxicity | 0.33 of 7Q10 | Rule 2.508 and CPP- Appendix D |
| Q _b background flow, for bioaccumulation criteria | LTA Flow | CPP-Appendix D |
| Q _b background flow, for drinking water criteria | 7Q10 | CPP-Appendix D |
| Total Recoverable Copper removal by POTW treatment | 86% | EPA Guidance Document ³ |
| DEHP removal by POTW treatment | 94% | Best Engineering Judgment, POTW permit application |
| Background (in-stream) concentration for total recoverable copper | 0 | CPP-Appendix D |
| Domestic wastewater concentration for Total Recoverable Copper | 61 µg/l | EPA Guidance Document ³ |
| Background & domestic wastewater concentration for DEHP | 0 | Assumed |

¹ Discharge Monitoring Report data from October 2021 through September 2023.

² Technical Support Document for Water Quality-based Toxics Control, EPA Document ID 505/2-90-001.

³ Median value from “Guidance Manual on the Development and Implementation of Local Discharge Limitations Under the Pretreatment Program,” EPA Document ID 833-B87-202.

The organic carbon/water partition coefficient (K_{oc}) for DEHP is estimated to be in the range of 10^4 to 10^5 by the EPA Technical Fact Sheet on: Di(2-ethylhexyl)phthalate (DEHP). The National Institutes of Health PubChem database states that “Based on a classification scheme, K_{oc} values ranging from 87,420 to 510,000 indicate that bis(2-ethylhexyl) phthalate is expected to adsorb to suspended solids and sediment.” Based on this information, at least 99.9% adsorption to suspended solids is expected in the wastewater treatment process. The POTW’s most recent permit application indicated that the facility is designed for 94% suspended solids removal. Therefore, it was assumed that approximately 94% of the DEHP would be removed through settling of suspended solids that have adsorbed the DEHP.

Instream Waste Concentrations (IWCs) were calculated in the manner described in Appendix D of the CPP and compared to the applicable Criteria. The following tables summarize the results of the analysis.

A. Aquatic Life Acute Criteria Evaluation:

| Pollutant | Concentration Reported (C_e) μg/l | $C_e \times 0.14 \times 2.13^1$ | Instream Waste Concentration (IWC) | Criteria ² | Reasonable Potential (Yes/No) |
|---------------------------|--|---------------------------------|------------------------------------|-----------------------|-------------------------------|
| Copper, Total Recoverable | 263 | 78 | 17 | 57 | No |

¹ Ratio of 0.14 used as estimate of removal by POTW treatment, statistical ratio of 2.13 used to estimate the 95th percentile using a single effluent concentration or the geometric mean of a dataset.

² Criteria from Rule 2.508.

B. Aquatic Life Chronic Criteria Evaluation:

| Pollutant | Concentration Reported (C_e) μg/l | $C_e \times 0.14 \times 2.13^1$ | Instream Waste Concentration (IWC) | Criteria ² | Reasonable Potential (Yes/No) |
|---------------------------|--|---------------------------------|------------------------------------|-----------------------|-------------------------------|
| Copper, Total Recoverable | 263 | 78 | 13 | 37 | No |

¹ Ratio of 0.14 used as estimate of removal by POTW treatment, statistical ratio of 2.13 used to estimate the 95th percentile using a single effluent concentration or the geometric mean of a dataset.

² Criteria from Rule 2.508.

C. Human Health (Bioaccumulation) Evaluation:

| Pollutant | Concentration Reported (C_e) μg/l | $C_e \times 0.06 \times 2.13^1$ | Instream Waste Concentration (IWC) | Criteria ² | Reasonable Potential (Yes/No) |
|-----------|--|---------------------------------|------------------------------------|-----------------------|-------------------------------|
| DEHP | 240 | 31 | 1.2 | 3.7 | No |

¹ Ratio of 0.06 used as estimate of removal by POTW treatment, statistical ratio of 2.13 used to estimate the 95th percentile using a single effluent concentration or the geometric mean of a dataset.

² Criteria adapted from “National Recommended Water Quality Criteria – Human Health Criteria Table,” EPA. The respective WQC from the noted reference are Consumption of Organism Only values. The values from the reference are for a lifetime risk factor of 10^{-6} . These values have been multiplied by 10 to correspond to human health criteria lifetime risk factor of 10^{-5} as stated in Rule 2.508.

D. Human Health (Drinking Water) Evaluation:

| Pollutant | Concentration Reported (C_e) μg/l | $C_e \times 0.06 \times 2.13^1$ | Instream Waste Concentration (IWC) | Criteria ² | Reasonable Potential (Yes/No) |
|-----------|--|---------------------------------|------------------------------------|-----------------------|-------------------------------|
| DEHP | 240 | 31 | 1.3 | 6 | No |

¹ Ratio of 0.06 used as estimate of removal by POTW treatment, statistical ratio of 2.13 used to estimate the 95th percentile using a single effluent concentration or the geometric mean of a dataset.

² National Primary Drinking Water Regulations Maximum Contaminant Level.

Additionally, the receiving POTW has monthly monitoring requirements and effluent limitations for Total Recoverable Copper. A review of the past 2 years of effluent data (October 2021 through September 2023) indicates that the POTW has been in compliance with the Total Recoverable Copper limit. The POTW reported 3 DEHP effluent samples in 2019 as part of the priority pollutant scan for the most recent permit renewal application. All of the DEHP effluent samples were non-detect at an MQL of 10 µg/l.

DEQ has determined from the submitted information that the discharge does not pose the reasonable potential to cause pass through of Copper or DEHP at the POTW.

2. Biosolids evaluation

The POTW may land apply biosolids if authorized under a state no-discharge permit and/or the federal Part 503 biosolids program.

The following pollutants were reported in the Industrial User Waste Survey:

| Pollutant | Concentration (µg/l) | Statistical Ratio ¹ | Percent Removal | Loading (lb/d) ⁴ |
|---------------------------|----------------------|--------------------------------|-----------------|-----------------------------|
| Copper, Total Recoverable | 263 | 2.13 | 86 ² | 0.45 |
| Nickel, Total Recoverable | 10 | 2.13 | 42 ² | 0.0084 |
| Zinc, Total Recoverable | 111 | 2.13 | 79 ² | 0.18 |
| DEHP | 240 | 2.13 | 94 ³ | 0.45 |

¹ Statistical ratio of 2.13 used to estimate the 95th percentile using a single effluent concentration or the geometric mean of a dataset.

² Median values from “Guidance Manual on the Development and Implementation of Local Discharge Limitations Under the Pretreatment Program,” EPA Document ID 833-B87-202.

³ See explanation in WQC evaluation.

⁴ Based on an average flow of 112,633 gallons per day.

Estimated loading from other industrial users

| Pollutant | Concentration (µg/l) ² | Statistical Ratio ¹ | Percent Removal | Loading (lb/d) ³ |
|---------------------------|-----------------------------------|--------------------------------|-----------------|-----------------------------|
| Copper, Total Recoverable | 433 | 2.13 | 86 ¹ | 0.0013 |
| Nickel, Total Recoverable | 21.7 | 2.13 | 42 ¹ | 0.000032 |
| Zinc, Total Recoverable | 294 | 2.13 | 79 ¹ | 0.00082 |
| DEHP | N/A | N/A | N/A | N/A |

² EZ Loader June 2023 Semiannual Report. This is the only categorical industrial user for the POTW. This facility recently implemented new BMPs to reduce metals concentrations in the discharge, so reports prior to 2023 were not included in this evaluation.

¹ Statistical ratio of 2.13 used to estimate the 95th percentile using a single effluent concentration or the geometric mean of a dataset.

¹ Median values from “Guidance Manual on the Development and Implementation of Local Discharge Limitations Under the Pretreatment Program”, EPA Document ID 833-B87-202.

³ Based on an average flow of 200 gallons per day.

Estimated loading from domestic wastewater

| Pollutant | Concentration (µg/l) | Percent Removal | Loading (lb/d) ⁴ |
|---------------------------|----------------------|-----------------|-----------------------------|
| Copper, Total Recoverable | 61 ³ | 86 ¹ | 1.04 |
| Nickel, Total Recoverable | 21 ³ | 42 ¹ | 0.175 |
| Zinc, Total Recoverable | 175 ³ | 79 ¹ | 2.74 |
| DEHP | N/A ⁵ | N/A | N/A |

¹ Median values from “Guidance Manual on the Development and Implementation of Local Discharge Limitations Under the Pretreatment Program,” EPA Document ID 833-B87-202.

² See explanation in WQC evaluation.

³ “Guidance Manual on the Development and Implementation of Local Discharge Limitations Under the Pretreatment Program,” EPA Document ID 833-B87-202.”

⁴ Based on the IU flow subtracted from the POTW average flow (2.49 MGD – 0.11 MGD = 2.38 MGD).

⁵ DEHP in domestic wastewater was assumed to be negligible.

The most recent process flow diagram provided by the POTW indicates that the POTW produces approximately 0.5 tons (1,000 lbs) of biosolids per day. Estimated concentrations in biosolids are shown in the following table:

| Pollutant | Total Loading (lb/d) | Concentration (mg/kg) ¹ | 40 C.F.R. § 503.13 Ceiling Concentration (mg/kg) |
|---------------------------|----------------------|------------------------------------|--|
| Copper, Total Recoverable | 1.5 | 1,500 | 4,300 |
| Nickel, Total Recoverable | 0.18 | 180 | 420 |
| Zinc, Total Recoverable | 2.9 | 2,900 | 7,500 |
| DEHP | 0.45 | 450 | N/A |

¹ ((Total Loading)/(1,000 lb/d))×10⁶.

DEQ has determined from the submitted information that the discharge does not pose the reasonable potential to cause exceedance of the ceiling concentrations for Copper, Nickel, or Zinc in biosolids.

There are currently no standards for DEHP in biosolids.

3. Summary

Based on the above analysis, the IU discharge from the Baxter Healthcare Corporation facility in Mountain Home does not show reasonable potential to cause pass through of pollutants, or to cause an exceedance of ceiling concentrations in biosolids. Therefore, DEQ has determined that local limits are not necessary at this time, and that General and Specific Prohibitions within the National Pretreatment Standards at 40 C.F.R. §§ 403.5(a)–(b) continue to be appropriate for this facility.

If new information is received that actual or potential exceedance of State water quality criteria and/or narrative criteria are determined to be the result of the IU’s discharge to the POTW, the necessity of local limits may be reevaluated.

If there are further questions, please contact Zachary Carroll, PhD, P.E. at (501) 682-0625, or by email at zachary.carroll@adeq.state.ar.us.

Sincerely,



Digitally signed by Stacie R. Wassell
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