

# Case Study

## Working for a Solution to Iron Discharge Limits, 2006



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The National Pollutant Discharge Elimination System (NPDES) permit program seeks to reduce the amount of water pollution to surface waters. This is accomplished by regulating point sources such as pipes or man-made ditches that discharge pollutants into public waters.

In the summer of 2005, the Iowa Department of Natural Resources (IDNR) began to issue increasingly stringent discharge regulations to ethanol plants throughout the state in response to federal guidelines. These new regulations included reduced maximum concentrations for iron discharged in the receiving water stream.

In September 2005, US Water Services learned the limits placed on the levels of iron discharged to water sources in the NPDES permits were as low as 0.16 ppm. This would have a dramatic effect not only on ethanol plants, but industrial plants throughout the state of Iowa.

In order to comply with such limit, a plant's water treatment system would face increased equipment needs. Depending on the geographic location of a plant, limits as low as .16 ppm may be unachievable. In these cases, it might be necessary to redesign the plant so that no water is discharged. Situations such as these would

increase construction and operational costs by hundreds of thousands or possible millions of dollars.

By the early autumn of 2005, US Water Services and the Iowa Renewable Fuels Association (RFA), in conjunction with other industry professionals led an effort to uncover the cause of the new limitations. The IDNR was contacted and a collaborative effort to resolve the inquiry began.

The IDNR promptly responded to US Water Services' request for information. It was discovered that the statewide limitations for iron discharge developed by IDNR were based on the Environmental Pollution Control Agency's (EPA) recommendations. The major concern cited in the report was the possible effects high levels of iron had on aquatic invertebrates such as caddis, fly, stonefly and mayfly in receiving streams.

After reviewing the information, US Water Services contacted interested parties to discuss the IDNR rationale, and a summary of the iron limitations in states surrounding Iowa was prepared for reference.

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The major question which needed to be answered was as follows: based on good science, are the iron discharge limitations to Iowa's waterways necessary to protect the environment? After thorough review of the IDNR's findings it was the group's opinion that the scientific reasonings behind the iron discharge limitations due to the possible effects on aquatic invertebrates was questionable. A further review on the scientific data and rationale behind the limitations by the IDNR was requested.

In an effort to further assist the IDNR, US Water Services began preparations to conduct stream surveys on several creeks throughout the state to check for the presence of aquatic invertebrates. These surveys would also evaluate the impact of the proposed iron limits on the customer's plant based on the anticipated raw water quality.

By late autumn 2005, US Water Services and the IRFA were informed that after significant scientific review the IDNR Water Bureau Chief had decided to issue permits with an iron discharge limit of 1.0 ppm making stream surveys unnecessary. In the following month, the IDNR reported that all ethanol plants in Iowa will be given an iron discharge limit of 1.0 ppm.

While this was a favorable outcome, the question of further increasing the plant's NPDES permits with iron limitations higher than 1.0 ppm was discussed. This in turn led to higher NPDES permit levels. By April 2006, some NPDES permits issued had a total iron limitation of 1.02 ppm.

When the iron limitations were first announced in the summer of 2005, our company's goal was two fold: continued environmental leadership, while working as a collective to address the technical reasoning behind limitations. As a former IDNR employee and current US Water Services Design Engineer, John Lapointe said, "this was never a political finger pointing match. Using good science didn't argue the merits of the restrictions, just the technical reasoning."

This is one of the several examples of US Water Services' ability to assist ethanol producers overcome challenges as the industry continues to grow. Challenges such as state and federal water discharge restrictions, shortages of available water resources and the increased sizes of plants are making water one of the most important considerations in ethanol plant construction or expansion.

