

Use Attainability Analysis

1 Water Body Name	Unnamed Tributary to Nickolson Creek
2 Segment Description	Just upstream of 190th St. (C Level Road) to headwaters
3 Segment Length (mi)	1.2
4 Drainage Area (sq. mi.)	0.86
5 Segment Start Latitude, Longitude (DD)	42.07856, -92.84044
6 Segment End Latitude, Longitude (DD)	42.09141, -92.82650
7 Route of Flow (Next Downstream Adopted Designated Use)	Unnamed Tributary (General Use, proposed, to A2, BWW2, existing)
8 NPDES Facility and Permit Number (If Applicable)	Koch Nitrogen Company, LLC (6400112)
9 Sample Site ID(s)	182-5
10 Segment County Name(s)	Marshall
11 Field Work Date(s)	12/9/2014

12 Aquatic Life Use Attainability Analysis - Conclusion

Recommended Highest Attainable Use: Aquatic Life Use	General Use
40 CFR 131.10(g)(2) (Flow)	The natural low flow conditions of the stream segment are insufficient to create the habitat necessary to support a community of fish (see Site Observations Table). A BWW1 designation requires multiple species and age ranges of game fish to be viable. A BWW2 designation requires permanent flow. A BWW3 designation requires intermittent flow with perennial pools. This segment has none of those. Therefore, the highest attainable use for this stream segment is general use. As this stream segment was identified as perennial by the U.S. Geological Survey 1:100,000 DLG Hydrography Data Map (published July 1993) as described in 567 IAC 61.3(1)“b”, it requires rulemaking for the removal of the presumed aquatic life designation (BWW1).
40 CFR 131.10(g)(5) (Physical Conditions)	Physical conditions related to the natural features of the water body are insufficient to support a community of fish (see Site Observations Table). Drainage area, stream width, average depth, and maximum depth fall within the “consistently negative” game fish indicator responses (see Table 2 in Appendix I). A BWW1 designation requires multiple species and age ranges of game fish to be viable. A BWW2 designation requires enough habitat beyond non-flowing perennial pools to support an aquatic community. A BWW3 designation requires habitat in perennial pools to support an aquatic community. This segment has none of those. Therefore, the highest attainable use for this stream segment is general use. As this stream segment was identified as perennial by the U.S. Geological Survey 1:100,000 DLG Hydrography Data Map (published July 1993) as described in 567 IAC 61.3(1)“b”, it requires rulemaking for the removal of the presumed aquatic life designation (BWW1).

13 Recreational Use Attainability Analysis - Conclusion

Recommended Highest Attainable Use: Recreational Use	General Use
40 CFR 131.10(g)(2) (Flow)	The natural low flow conditions and water levels of the stream segment prevent the attainment of any recreational use (see Site Observations Table). A1, A2, and A3 designations require the ability to recreate in and

	on the water. This segment has no water. Therefore, the highest attainable use for this segment is general use. As this stream segment was identified as perennial by the U.S. Geological Survey 1:100,000 DLG Hydrography Data Map (published July 1993) as described in 567 IAC 61.3(1)“b”, it requires rulemaking for the removal of the presumed recreational use (A1).
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14 Flow

Field Work Date	Description
12/9/2014	USGS stream gage 05451700 data for the area indicated stream flows were normal at the time of assessment.

Use Attainability Analysis - Data

Site Observations

Use	Site parameter	Site ID #182-5
AL/R	15 Latitude, Longitude (DD)	42.08683, -92.83476
AL/R	16 Average Depth (in)	2
AL/R	17 Maximum Depth (in)	3
AL/R	18 Stream Width (ft)	5
AL/R	19 Pools Observed?	Yes
AL only	20 Non-Game Fish Present and Counts (Species: Number)	Not sampled
	21 Game Fish Present and Counts (Species (Size Range): Number)	Not sampled
	22 Stream Habitat (See also: #29 Site Photos)	Shallow frozen pool. 5' x 30'. No definable stream channel up or down of the pool.
R only	23 Evidence of Use for Primary Contact Recreation? (Yes*/No)	No
	24 Evidence of Use by Children? (Yes*/No)	No
	25 Evidence of Use for Secondary Contact Recreation? (Yes*/No)	No
AL/R	26 Additional Description	N/A

AL = Aquatic Life

R = Recreation

*If yes, elaborate.

27 Supplemental Data

Desktop review verified that the UAA field work is still valid.

28 Map of Segment, Outfall, and Site(s)



29 Site Photos



Figure 1. 182-5 looking upstream towards facility from the pool.



Figure 2. 182-5 Looking downstream at pool.



Figure 3. 182-5 Downstream of pooled area looking southwest at drainage way.

Appendix I.

c. Stream Flow and Habitat Data

Data analysis results for stream flow and habitat variables were similar to game fish indicator results. Stream width, average thalweg depth, maximum depth, and flow appear to be the characteristics that correlate the best with consistently positive game fish indicators. Stream flow and habitat dimensions (where available) were consistently larger for streams with watershed sizes exceeding 275 square miles. Habitat measurements are not available for the largest sample sites that were sampled by boat instead of the typical wading method.

Ranges of stream size, habitat and flow associated with varying levels of game fish indicator responses are listed in Table 2. These are general statewide values, which may assist in decision making related to the recommendation of warm water aquatic life use designations. In general terms, stream segments that have watershed area, flow and habitat characteristics in the green shaded boxes have a greater probability that game fish indicators will be consistently positive (i.e., consistent with Class B(WW-1)), while stream habitat and flow levels that equate to the red boxes are much less likely to support game fish populations (i.e., Class B(WW-2) or Class B(WW-3)). Stream segments that have a mixture of characteristics, mainly in the yellow range, may require consideration of the additional habitat features collected during the field assessment, to determine the appropriate aquatic life use designation.

Table 2. Generalized statewide ranges of stream habitat indicator levels and associated game fish indicator responses.

Game Fish Indicator Responses	Stream Watershed Area (sq.mi.)	Stream Flow (typical base flow - cfs)	Stream Width Average (ft)	Average Depth (ft)	Avg. Thalweg Depth (ft)	Maximum Depth (ft)
Consistently Positive	>275	>30	>65	>1.2	>2.2	>4.4
Mixed	25-275	0.8-30	11-65	0.2-1.2	0.8-2.2	1.8-4.4
Consistently Negative	<25	<0.8	<11	<0.2	<0.8	<1.8

Iowa uses U.S. EPA's Level IV Ecoregions as a template for wadeable stream biological condition assessment. Stream flow and habitat characteristics can vary from ecoregion to ecoregion. To provide additional insight into where the area of overlap exists between Class B(LR/WW-2) and Class B(WW/WW-1) streams, a query of Iowa's bioassessment database produced 476 habitat assessment records from which a summary of habitat characteristics was prepared (Table 3a-f) (see appendix for full spreadsheet). The summary is grouped by ecoregion and former designated uses in order to illustrate the extremes and ranges of overlap in habitat characteristics.