

Ammonia Calculations

Facility Name	ADoC - N. Central Unit - IZARD COUNTY
Major or Minor	minor
Permit Number	AR0044016
Receiving Stream	Moccasin Creek
7Q10, cfs	0
0.25/0.67 multiplier	0.67
Qb, cfs	0.00
Qe, MGD	0.09
Qe, cfs	0.14
Cb, mg/l	0

Ecoregion or River name	Ozark Highlands	
Watershed area (mi ²)	6.34	
Regulation No. 2 Chronic Toxicity Criteria (Instream Concentration)		
	AML, mg/l	DML, mg/l
April	3.9	3.9
May - October	3.9	3.9
November - March	10.3	10.3

Allowable Effluent Conc., mg/l

$$(Q_e * C_e) + (Q_b * C_b) = (Q_e + Q_b) * IWC$$

Qe	Effluent Flow
Ce	Allowable Effluent Concentration
Qb	% of Low Flow of Receiving Stream
Cb	Background Concentration
IWC	Instream Waste Concentration Chronic Toxicity Criteria

Allowable Effluent Conc. (Ce), mg/l

$C_e = (IWC (Q_e + Q_b) - C_b \times Q_b) / Q_e$		
	Monthly Avg.,mg/l	Daily Max, mg/l
April	3.90	3.90
May - October	3.90	3.90
November - March	10.30	10.30

Chronic Toxicity Criteria vs. D.O. Model Limits

Month	Monthly Average, mg/l		Permit Limits	Daily Maximum,mg/l		Permit Limits
	Toxicity limit	D.O. limit		Toxicity limit	D.O. limit	
April	3.90	5	3.90	3.90	7.5	3.90
May - October*	3.90	3	3.00	3.90	4.5	3.90
November - March	10.30	5	5.00	10.30	7.5	7.50

*At the discharge location, Moccasin Creek has a perennial aquatic life use(set by UAA), so aquatic toxicity standards apply during May-Oct.