

Compressed Natural Gas (CNG) Fracturing Facility Removes Ammonia

The Southwestern Energy (SWN) Damascus Campus – Damascus, AR

Southwestern Energy’s Damascus Campus is a compressed natural gas harvesting facility located in the Fayetteville shale region of central Arkansas. When SWN built the facility in 2010 they needed a wastewater treatment facility to handle 50,000 gpd from a dormitory, cafeteria, laundry facility and truck washing station. The Arkansas Department of Environmental Quality (ADEQ) required that a wastewater treatment facility be designed and installed to comply with the state’s stream discharge standards. High oil, grease and grit concentrations from the laundry and truck washing facilities required that multi-staged grease and grit traps be installed for pre-treatment at both cleaning operations.

The project engineer selected a packaged AquaPoint AquaCELL™ moving bed biofilm reactor (MBBR) treatment system for its proven nitrification performance capability, modularity and minimal day to day operation and maintenance requirements. Effluent from the biological process is polished through dual pressure sand filters and parallel UV disinfection units prior to re-aeration and ultimately discharge to a holding pond that overflows to a stream.



DESIGN CHARACTERISTICS

	INFLUENT	EFFLUENT
DESIGN FLOW (GPD)	50,000	50,000
DESIGN TEMP (C)	13	-
BOD ₅ (mg/l)	250	< 10
TSS (mg/l)	250	< 15
TKN (mg/l)	40	-
AMMONIA-N (mg/l)	35	< 5
OIL & GREASE (mg/l)	150	< 10
DISSOLVED O ₂ (mg/l)	-	> 5
FECAL (MPN/100ml)	-	< 200

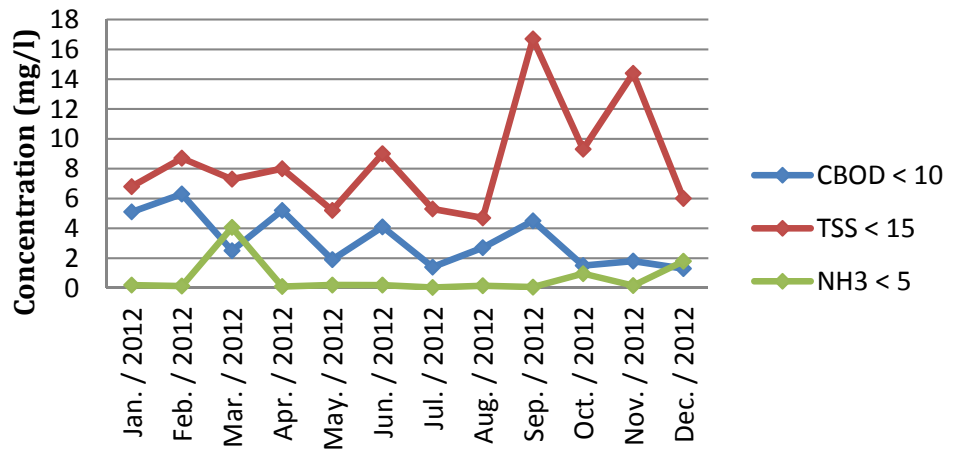


System Layout & Performance

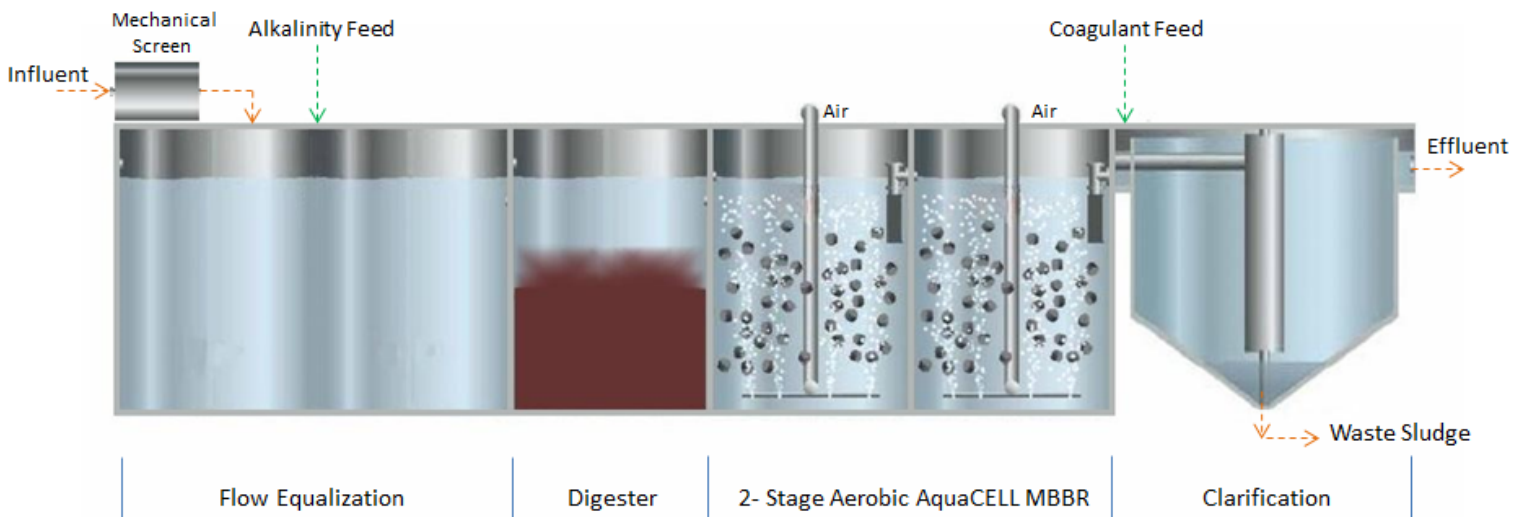
Southwestern Energy WWTP – Damascus, AR

DATE	BOD ₅ (mg/l)	TSS (mg/l)	NH ₃ (mg/l)
Jan. / 2012	5.1	6.8	0.19
Feb. / 2012	6.3	8.7	0.13
Mar. / 2012	2.5	7.3	4.06
Apr. / 2012	5.2	8	0.1
May. / 2012	1.9	5.2	0.2
Jun. / 2012	4.1	9	0.19
Jul. / 2012	1.4	5.3	0.03
Aug. / 2012	2.7	4.7	0.15
Sep. / 2012	4.5	16.7	0.06
Oct. / 2012	1.5	9.3	0.96
Nov. / 2012	1.8	14.4	0.16
Dec. / 2012	1.3	6	1.79
Average	3.2	8.5	0.7

Southwestern Energy Performance Data



System commissioned February 2011
 Detectable limit for BOD & TSS = 1 mg/l
 Data from Arkansas DEQ Records



AQUAPOINT
Advanced Wastewater Treatment Systems & Services

39 Tarkiln Place
 New Bedford, MA 02745
 T (508) 985-9050 | F (508) 985-9072
 www.aquapoint.com

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