

Biogas Digester Construction Photos & Details

Courtesy to R.L. Crosby, Biorealis Systems, Inc.

2" PUMPED WASTE IN.
CONNECT TO FEED PUMP
DISCHARGE

CUT HOLE IN 4" CAP, FOR
2" SxS FPT BULKHEAD FTG

2" EFFLUENT OUT. OVERFLOW TO
DISPOSAL OR POST-PROCESSING

4x4x2 SAN TEE GLUED TO LID

4" PVC COUPLING GLUE
TO UNDERSIDE OF LID
SLIP 4" SEWER PIPE INTO
COUPLING (NOT GLUED)

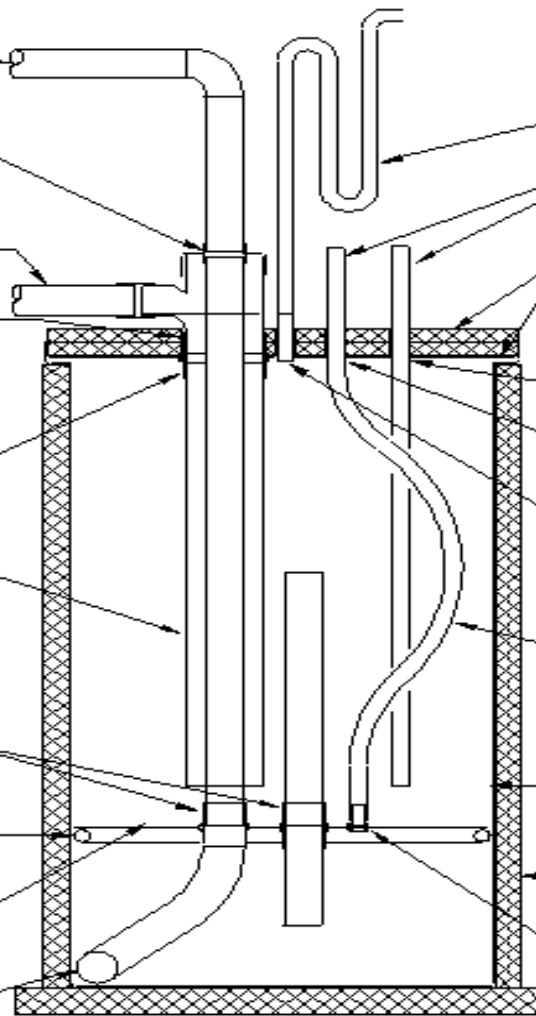
4" CELLULAR CORE ABS. (OR
COAT W/ WP INSULATION?)

2" BULKHEAD FITTING, SxS
TYP. SLIP PIPE INTO
FITTING. DO NOT GLUE.

3/4" HDPE TUBE BENT INTO
HOOP, WELDED TO TANK

1/4" HDPE SHEET, FASTEN
TO BLKG W/ SS SCREWS

2" PVC HOSE BENT TO FRICTION
FIT INTO TANK PERIMETER



NOTE: PIPE & FITTING LOCATIONS
SHOWN OFFSET FROM ACTUAL, FOR
CLARITY (SEE PLAN VIEW.)

3/4" VINYL HOSE

3/4" PVC

2" RIGID INS. SECTIONS, TRIM
FOR TIGHT FIT AROUND PIPES

3/8" HDPE TOP, GASKETED,
BOLTED TO TANK FLANGE.

3/4" BULKHEAD FITTING, SxS

3/4" MPT X SLIP
3/4" MPT X HOSE BARB.

3/4" BULKHEAD FITTING,
3/4" MPT X HOSE BARB

3/4" HOSE. PROMDE SLACK TO
EASE CONNECTION TO LID FITTING
AND ALLOW LID REMOVAL.

24" DIA X 48" HIGH, 90 GAL
OPEN-TOPPED HDPE TANK.

INSULATION: 2 LAYERS REFLECTIX,
1" FOIL-FACED RIGID KERFED TO
BEND AROUND TANK & STRAPPED.

3/4" BULKHEAD FITTING, W/
3/4" MPT X HOSE BARB.

Acid/Methane Tank Baffle Construction:

Tools required for welding plastic: Welder, small air compressor, HDPE welding rod.



Looking down into open tank, showing 3/4" HDPE tube bent into hoop and welded into tank. Hoop acts as support blocking for baffle partitioning vertical tank into two chambers.



Closeup of hoop welded to wall of HDPE tank.



Assembled baffle plate, top view: Disk is cut from 1/4" HDPE sheet, holes/fittings in baffle are for 3/4" gas vent, 2" transfer pipe (center), 2" influent in.



Assembled baffle plate ready for installation in tank.

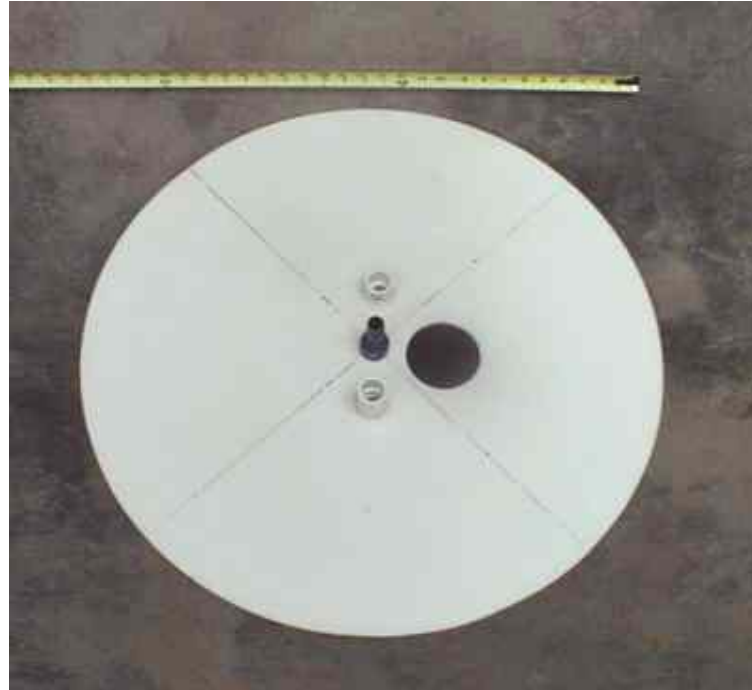


Looking down in tank with completed baffle plate in place. Baffle is attached to support blocking (3/4" tube hoop) with self-tapping stainless steel screws, sealed with silicone caulk. (Note: 3/4" hose connecting gas vent to lid is not shown.)



Digester Lid Construction

Cut tank lid from 3/8" thick HDPE sheet to fit inside flange of open top HDPE tank. (Diameter varies depending on tank selected -- which will depend on amount of material to be digested. Use [design tool](#) to select tank.) Holes cut in tank are for influent/effluent heat exchanger assembly, biogas out, biogas recirculation, and gas vent from acid reactor. Top view.



Closeup view of underside of lid showing silicone caulk bead and fittings. Large hole is caulked in preparation for inserting 4" ABS heat exchanger assembly (see photos below).



Assembled lid with gas vent hose and gas recirculation conduit attached to fittings.



Influent/effluent heat exchanger, assembled from 4" ABS pipe with 2" PVC inside



Closeup of top of HX assembly showing 2" PVC bulkhead fitting inserted into hole drilled through 4" ABS cap.



Completed digester prior to final installation of lid and wrapping with insulation. Heat tape is wrapped around tank and attached with aluminum tape.

(Note also an immersion well installed in lid, for temperature measurement -- not included in construction drawings.)



