

*Mail to Elk River

ZONING PERMIT APPLICATION

NAME Lloyd & Lois Welsh TELE # 763-441-3747
 MAIL ADDRESS 14150 90th St. NE. Elk River 55330
 911 ADDRESS 51141 207th Place McGregor 55760
 TOWNSHIP Shamrock
 LEGAL DESCRIPTION Lot 11 Double S Acres 2nd Addn
 SECTION 5 TOWNSHIP 49 RANGE 23

OFFICE USE ONLY	
DATE	APPROVE / DENY
PERMIT# <u>29201</u>	
PARCEL# <u>29-1-490100</u>	
RECEIPT# <u>10997</u>	
CONFORMING SEPTIC <u>replacement</u>	
YES P#	NO <u>NEW</u>

(circle) RESIDENTIAL COMMERCIAL ACCESSORY NEW BUILDING ALTERATION
 BUILDING CONTRACTOR AND LICENSE NUMBER: _____
 SIZE OF ALL BUILDINGS COVERED BY THIS APPLICATION _____

COMMENTS: _____

DESIGNER: AJM Associates
 DATA FOR SEWER CONSTRUCTION: INSTALLER Ritter or Darlow #BEDROOMS/GPD 2/300

DO NOT WRITE BELOW THIS LINE

ZONING DISTRICT & FLOOD PLAIN
 ZONING DISTRICT S1L
 LAKE/STREAM/RIVER NAME Big Sandy
 LAKE/RIVER ID NUMBER 1-001e2
 LAKE/RIVER/STREAM CLASSIF. G1D
 PARCEL LOCATED IN FLOOD PLAIN? Y ___ N Plz verify
 10/100 YR FLOOD ELEVATION _____
 LOWEST FLOOR ELEVATION _____
 ELEV. CERTIFICATE REQUIRED Y ___ N ___
 BEFORE CONSTRUCTION Y ___ N ___
 AFTER CONSTRUCTION Y ___ N ___

STRUCTURE SETBACK DISTANCE REQUIREMENTS
 (Measure from eaves or overhang)
 OHW TO LAKE/RIVER/STREAM 75'
 PROPERTY LINE SETBACK 10'
 SETBACK TO ROAD R-O-W 30' township 50' County
 SETBACK TO BLUFF 30'

SEPTIC SYSTEM SETBACK DISTANCES
 SETBACK TO STRUCTURES 10' tank 20' dm fld
 OHW TO LAKE/RIVER 75'
 PROPERTY LINE SETBACK 10'
 SETBACK TO ROAD R-O-W 10'

****ATTACH COPY OF ELEVATION CERTIFICATES****

SOIL BORINGS yes SEPTIC DESIGN "Other" pressure bed GARBAGE DISP/HOT TUB
 PERK RATES 6-15 Mpi DEPTH TO RESTRICTING LAYER 1.5 ft YES ___ NO X
 MIN. SIZE SEPTIC TANK _____ MIN. SIZE PUMP TANK 1230
 DRAINFIELD: MINIMUM SQ.FT _____ WITH _____ INCHES ROCK BELOW PIPE Existing
 MOUND: MINIMUM ROCK BED SQ.FT _____ WITH 9 INCHES ROCK BELOW PIPE 1200 gallons
 MIN. UPSLOPE SAND WIDTH _____ MIN. DOWNSLOPE SAND WIDTH _____ END SAND WIDTHS _____
 RECOMMENDATIONS: _____

X Lloyd M. Welsh \$ 25.00 June 6-3-02
 SIGNATURE APPLICANT/AGENT FEE RECEIVED BY DATE

EXPIRES IN ONE YEAR
 Aitkin County Zoning, Courthouse — AITKIN, MINNESOTA 56431 — Telephone 218/927-7342

A. M. & Associates, Inc.

29465 442nd Lane
Palsade, MN 56469
(218) 768-4430

Michael D. O'Keeffe
Annette M. O'Keeffe

Septic Systems
Designs & Inspections
MPCA #1357

**THE ENCLOSED INDIVIDUAL SEWAGE TREATMENT SYSTEM (ISTS)
IS DESIGNED SPECIFICALLY FOR:**

Lloyd & Lois Welsh
14150 90th St. NE
Elk River, MN 55330
(763) 441-3747 (home)
(218) 426-4388 (cabin)

For property located at;
51141 207th Place
McGregor, MN 55760

Lot 11 of Double "S" Acres Second Addition
Big Sandy Lake
Shamrock Township
Sec 5, Twp 49, Rge 23
Parcel# 29-1-490100

June 1, 2002

APPROVED

ONSITE INSPECTION

NO ONSITE INSPECTION

SIGN RPC DATE 6-3-02

OSI AX-10 TEXTILE FILTER, DISPERSING INTO 10' x 38' PRESSURE BED WITH 18" SEPARATION

Note to Property Owner:

Please be advised that with the installation of the enclosed designed septic system, the Property Owner(s) understands and accepts full responsibility of that which is outlined below.

The State of Minnesota has classified the attached ISTS Design as a "Performance Based System", because of the pretreatment device used to fulfill the required 3 feet of vertical separation. Therefore the Property Owner(s) accepts all responsibility and risks involved with the installation and hydraulic performance of this Septic System, and holds A.M. & Associates, Inc. harmless from all liability for this Sewage Treatment System whatsoever.

An Operating Permit for Wastewater Treatment and Dispersal is required.

A Maintenance Service, Monitoring and Inspection Contract is required *before* Aitkin Planning & Zoning will accept an application for an Operating Permit.

The Property Owner(s) accepts the responsibility of installing a Water Meter and recording the readings on a monthly basis.

The Property Owner(s) accepts the responsibility of all costs involved for the servicing, monitoring, maintenance and mitigation of this system, that may occur.

Note to Property Owner and Installer:

1. This ISTS is to gravity from the dwelling into the existing 1200 gallon concrete septic tank. From there the liquids will gravity into a new 1860 precast septic/lift tank. An OSI AdvanTex AX-10 Series, Mode 1b Textile Filter is to be placed on top of the 1860 septic/lift tank. Wastewater will percolate through the Textile Filter which will recirculate through the tank and the filter treating the liquids. The treated liquids will then be pumped into a 10' x 38' Pressure Bed with 18 inches of separation. The pressure Bed is to be constructed on "clean sand" with 6 foot dikes at a 3:1 slope.
2. Installer *must* verify all measurements and elevations on jobsite.
3. This system *must* be installed according to *current* Minnesota Chapter 7080 and Aitkin County's ISTS & Wastewater Ordinance No.1 requirements.
4. Tanks *must* be water tested for watertightness. If tank(s) are *not* watertight it *must* be corrected or replaced.
5. Minnesota Onsite Specialties is to provide the required AX-10 Textile Filter and related equipment, *onsite* expertise of installation, start-up, maintenance and all other related requirements when installing the OSI AdvanTex Treatment System.
(contact John Walsh, 12428 Tamarack Road, Floodwood, MN 55736, (218) 476-2201)
NOTE: Be sure you understand any *additional* supplies *you* *must* provide.
6. Installer *must* schedule installation date with John Walsh with Minnesota Onsite Specialties (218) 476-2201 and Annette O'Keeffe with A.M. & Associates, Inc. (218) 768-4430 of whom *must* be present at time of installation.
7. Installer *must* schedule an Electrician to be on site *during* installation of Textile Filter to wire Control Panel.
8. An OSI Telemetry Control Panel *must* be installed.
9. Long distance phone service is REQUIRED for OSI Telemetry Control Panel.
10. Installer should have on site for the installation of Textile Filter and Control Panel the following supplies;
1-9/16" hole saw to drill the grommet hole for the pump transport pipe.
3-7/8" hole saw to drill the grommet hole for the pipe for the RSV bracket on the riser.
5/16" drill bit to mount the RSV bracket.
1" and 2" PVC pipe and elbows. (get details from John Walsh).
An 8-10 foot green treated 4 x 4 to mount Control Panel.
Contact John Walsh for any other required supplies.
11. All manufacturer's requirements and specifications *must* be used when installing the OSI AdvanTex Treatment System.
12. The OSI AdvanTex AX-10 Recirculating Textile Filter is to be installed on top of the 1860 combination tank.
13. Tank lids *must* be installed at ground level for monitoring and maintenance purposes.
14. The AX-10 lid *must* have 2 inches of insulation attached to the bottom.
15. Suggest installing insulation around the sides of the filter pods.

17. Suggest backfilling around risers with pea rock for insulation purposes.
18. The 1860 Combo Tank and a portion of the Pressure Bed is to be installed at same location of current drainfield.
19. Excavate out 22' x 50' NEW Drainfield area until sand layer is reached at approximately 52 inches below the ground surface.
20. Fill in excavated area with "Clean Sand" to a MINIMUM of 6 inches ABOVE the current ground surface (to the elevation of 98.85). This elevation MUST be met in order to maintain the required 18 inches of separation. (Mottling is 1 foot below ground surface).
21. Control panel *must* be a minimum of 4 feet from the ground surface for easy access.
22. Pumps and Alarms *must* be on separate circuits.
23. A WATER METER MUST BE INSTALLED.
24. Installer is to inform property owner of known supplies, contractors, and expenses required in order to make this ISTS operational -that is *not* covered in his contract.
25. Installer is to contact Designer for questions and/or prior to making any changes to the enclosed design.

**OSI AX-10 TEXTILE FILTER
with
10' x 38' ELEVATED PRESSURE BED
with 6' DIKES**

6 Inches of Rock
6 Inches above Ground

Bottom of Rocklayer Elev = 98.85
Distribution Device Elev = 98.35
Elevation of Mottles = 100.35

Existing 1200 Gallon Septic Tank

Gr. Elev. = 98.55
Approx Outlet = 103.3

NEW 1860 Combination Tank

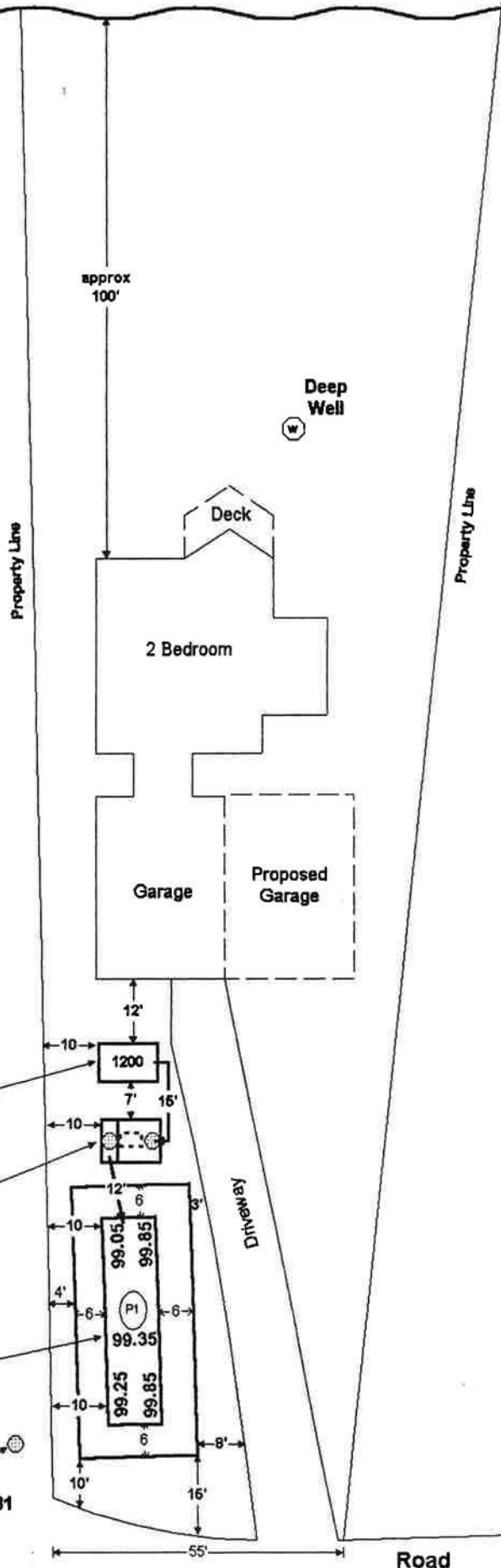
Gr. Elev. = 98.85
Top of Tank = 101.4 (2.6 ft below ground surface)
Inlet = 102.35
Pump = 106.35

NOTE: 1860 Combo Tank and a portion of the NEW Drainfield is to be installed in "current" Drainfield.

Excavate out 22' x 50' NEW Drainfield area until sand layer is reached at approximately 52 inches below ground surface.

Fill in excavated area with "Clean Sand" to a MINIMUM of 6 inches ABOVE the current ground surface (to elevation of 98.85). This elevation MUST be met in order to maintain the required 18" of separation.

- Reuse Existing 1200 Gallon Septic Tank
- New 1860 Combo Tank with OSI AX-10 Textile Filter
- 10' x 38' "Raised" Pressure Bed with 6 foot dikes at 3:1 Slope
- Benchmark = 100.0 = 1222.31 (nail in telephone pole 1 ft below ground surface)



P# = Pit

Scale: 1" = 30'

PRESSURE BED DESIGN

PROPERTY OWNER: Lloyd Welsh TWP: Shamrock

PERMIT#: _____ PIN#: 29-1-490100 DATE: _____

DESIGNER NAME: Michael D. and Annette M. O'Keeffe LICENCE#: 1357

SIGNATURE: *Michael D. O'Keeffe* DATE: 06/01/2002

OF BEDROOMS: 2 TYPE I GARBAGE DISPOSAL No AIR TEST: No
 WELL: Deep (50+) x Shallow _____ SETBACKS: Tank 112' Drainfield 135' Sewer Line 100'

FLOW

- A. ESTIMATED 300 GPD OR MEASURED GPD _____
 B. SEPTIC TANK VOLUME EXISTING 1200 GALLONS
 C. MINIMUM PUMP TANK VOLUME = 630 GALLONS
 C1. ALARM TYPE = OSI

EST SEWAGE FLOW IN GALLONS / DAY (GPD)			
NUMBER OF BEDROOMS	TYPE I	TYPE II	TYPE III
2	300	225	180
3	450	300	218
4	600	375	256
5	750	450	294
6	900	525	332
7	1050	600	372
8	1200	675	408

SOILS

- D. DEPTH TO RESTRICTING LAYER = 1.5 FEET = 18 INCHES
 E. MAXIMUM SYSTEM DEPTH = _____ INCHES OR 98.85 ELEV
 F. SOIL TEXTURE = Sandy Loam (see next page for designed depth)
 F1. PERCOLATION RATE = 6 to 15 MPI
 G. SOIL SIZING FACTOR = 1.27 SQ FT/GPD

SEPTIC TANK CAPACITIES/VOLUME (gallons)		
NUMBER OF BEDROOMS	MINIMUM CAPACITIES	
	TANK	GARBAGE DISPOSAL
2 OR LESS	1000	1500
3 OR 4	1000	1500
5 OR 6	1500	2250
7 OR 8	2000	3000
OVER 9	SEE FIG C-6	(x 1.5)

TRENCH BOTTOM AREA

- H. 6 IN. OF ROCK OR GRAVELLESS:
 (A) _____ x (G) _____ = _____ SQ FT
 I. 12 IN OF ROCK: (A) _____ x (G) _____ x .8 = _____ SQ FT
 J. 18 IN OF ROCK: (A) _____ x (G) _____ x .66 = _____ SQ FT
 K. 24 IN OF ROCK: (A) _____ x (G) _____ x .6 = _____ SQ FT

BED BOTTOM AREA (6 OR 12 INCHES OF ROCK)

- L. GRAVITY BEDS: 1.5 x (A) _____ x (G) _____ = _____ SQ FT
 M. PRESSURE BEDS: (A) 300 x (G) 1.27 = 381 SQ FT

ROCK VOLUME IN CU FT

- N. ROCK DEPTH BELOW PIPE (FT) + .5 ft. x (H-M) = CU FT
0.5 + .25 x 381 = 286 CU FT

ROCK VOLUME IN CU YDS

- O. (N) 286 + 27 = 10.6 CU YDS

ROCK WEIGHT

- P. (O) 10.58 x 1.4 = 14.82 TONS

SYSTEM LENGTH

- Q. BOTTOM AREA 381 + TRENCH WIDTH 10 = 38.1 FT
 Q1. GRAVELLESS DESIGN:

(A) x (G) ~ (3 for 10" pipe, or 2 for 8" pipe or width of Chamber)
 (A) _____ x (G) _____ + _____ = _____ FT

LAWN AREA

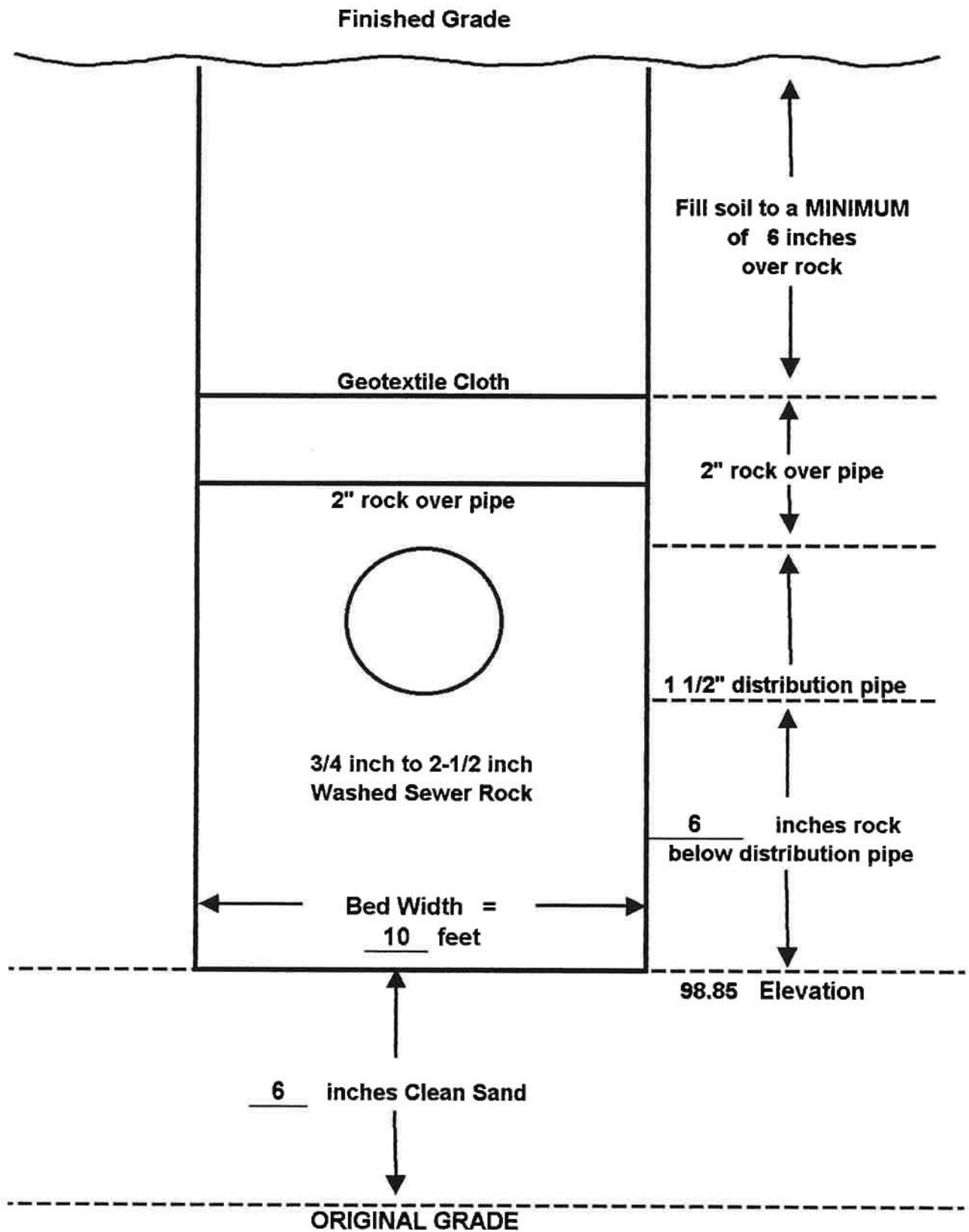
- R. SELECT TRENCH SPACING, CENTER TO CENTER = _____ FT
 S. (R) 10 x (Q) 38.1 = 381 SQ FT OF LAWN AREA

SIZING TABLE		
PERC RATE	SOIL TEXTURE	(SSF) SQ FT GAL/DAY
< THAN 0.1	COARSE SAND	—
0.1 TO 5	SAND	0.83
0.1 TO 5	FINE SAND	1.67
<u>6 TO 15</u>	<u>SANDY LOAM</u>	<u>1.27</u>
16 TO 30	LOAM	1.67
31 TO 45	SILT LOAM	2.00
46 TO 60	CLAY LOAM	2.20
> THAN 60	CLAY	—

Sizing for Gravelless Trench	
6 inches	= 0% Reduction
12 inches	= 20% Reduction
18 inches	= 34% Reduction
24 inches	= 40% Reduction

PRESSURE BED CROSS-SECTION

10 x 38 Pressure Bed



AITKIN COUNTY ENVIRONMENTAL SERVICES

OPERATING PERMIT FOR WASTEWATER TREATMENT AND DISPERSAL

OPERATING PERMIT #: 89

PERMITTEE: Lloyd and Lois Welsh

ADDRESS: 14150 90th Street NE
Elk River, MN 55330-

ZONING PERMIT # 29201

LEGALDESCRIPTION: Lot 11 Double S Acres Second Addition

ISSUE DATE 1/1/2004

EXPIRATION DATE 12/31/2004

RECEIVED MAR 08 2004

FEE: \$50.00

PHONE: (763) 441-3747

PARCEL #: 29-1-490100

Aitkin County Environmental Services authorizes the Permittee to operate a wastewater treatment and dispersal system located on the above described property in accordance with the requirements of this permit.

This permit is effective on the issuance date identified above.

This permit and the authorization to treat and disperse from the above system shall expire on the above expiration date. The Permittee is not authorized to discharge after the date of expiration. The Permittee shall submit such information and forms as required by Aitkin County Environmental Services no later than thirty (30) days prior to the expiration date. When the required information is submitted and approved by Aitkin County Environmental Services, the permit may be renewed. This permit is not transferable from owner to owner.

I hereby certify with my signature as the permittee that I understand the provisions of this permit including the maintenance and monitoring requirements. I agree to indemnify and hold Aitkin County harmless from all loss, damages, costs and charges that may be incurred by use of this system and if I fail to comply with the provisions of this Operating Permit. If I sell this property during the life of the permit, I will inform the new owner(s) of the permit requirements and the need to renew the permit.


Signature of Permittee

3-4-04
Date


Signature of Permitting Authority

3-9-04
Date

If You have any questions regarding this permit, including the specific permit requirements, permit reporting or permit compliance status, please contact Aitkin County Environmental Services at 218-927-7342.

MAINTENANCE, MONITORING AND INSPECTION REPORT
FOR INDIVIDUAL SEWAGE TREATMENT SYSTEM
1st YEAR SERVICE
2002 - 2003

Property Owner(s): **LLOYD & LOIS WELSH**
 Home Address: **51141 207TH PLACE** Site Address: **SAME**
McGREGOR, MN 55760 (BIG SANDY LAKE)
 Phone: **(218) 430-3396**
 Parcel Code: **29-1-490100** Township: **SHAMROCK**

DESCRIPTION OF INDIVIDUAL SEWAGE TREATMENT SYSTEM

OSI AX-10 TEXTILE FILTER, DISPERSING INTO A 10' X 38' PRESSURE BED

This ISTS is to gravity from the dwelling into the existing 1200 gallon concrete septic tank. From there the liquids will gravity into a new 1860 precast septic/lift tank. An OSI AdvanTex AX-10 Series, Mode 1b Textile Filter is to be placed on top of the 1860 septic/lift tank. Wastewater will percolate through the Textile Filter which will recirculate through the tank and the filter treating the liquids. The treated liquids will then be pumped into a 10' x 38' Pressure Bed with 18 inches of separation. The pressure Bed is to be constructed on "clean sand" with 6 foot dikes at a 3:1 slope.

Installation Date: August 2002 Installer: Ernie Darlow Phone#: (218) 426-4320

MAINTENANCE & MONITORING RESULTS

CONTROL/ALARM PANEL	RESULTS
1. Check pump operations in manual mode	Good
2. Check timer settings	Good
3. Record elapsed time meter and counter readings.	ST ETM = 37255 min CNT = 35887 AX10 ETM = 472 CNT = 327
4. Confirm operation of audible and visual alarms	Good

LIFT PUMPING STATION	RESULTS
1. Verify no leaks in riser	Good
2. Inspect splice box for moisture and secure connections	Good
3. Verify condition of and correct operation of all floats	Good
4. Verify neat wrap of float cords	Good
5. Pull pump and clean intake screen if necessary	Good
6. Check general appearance	Good

EFFLUENT FILTERS/PUMP SCREENS	RESULTS
1. Check effluent filter for buildup of biomat growth.	Build-up on Bio Tube
2. Clean (if needed)	CLEANED

SEPTIC TANK	RESULTS
1. Measure sludge and scum level	Sludge Level = 0", Clear Zone = 2" - 36", Scum Level = 2"
2. Tank(s) should be pumped if the sludge layer is closer than 12" to the bottom of the inlet baffel or whenever the scum is closer than 3" to the bottom of the outlet baffel.	Not necessary at this time.
3. Check general appearance	Good

MAINTENANCE & MONITORING RESULTS

PRETREATMENT DEVICE	RESULTS
1. Inspect for ponding; assess character and color of biomat	Good
2. Test pressurization of laterals (squirt test)	Good
3. Verify proper orifice position, equal spray under orifices no clogged orifices	Good
4. Check for odors: adjust recirculating time (if necessary)	Good
5. Clean and flush manifold (if necessary)	Good
6. Re-check squirt height (if necessary)	Not necessary at this time.
7. Inspect the appearance of the wastewater inside the unit for color and turbidity.	Effluent Clear

DISPERSAL FIELD	RESULTS
1. Inspect for visible signs of failure (surface discharge, soggy ground, wet spots, settling, etc.)	No signs of failure.
2. Check for required separation	Not checked at this time.

MISCELLANEOUS	RESULTS		
1. Review water usage from water meter records.	<u>DATE</u>	<u>READING</u>	<u>GALLONS</u>
	01/26/2003	865	
	02/23/2003	961	96
	03/22/2003	1068	107
	04/25/2003	1195	127
	05/25/2003	1412	217
	06/26/2003	1697	285
	07/28/2003	1975	278
	08/26/2003	2202	227
	09/19/2003	2584	382
	FULL TIME RESIDENCE AS OF 10/03		

COMMENTS: ALL COMPONENTS LOOK GOOD.

Date Maintained: 08/23/2003

Performed By: A.M. & Associates, Inc.

29465 442nd Lane

Palisade, MN 56469

(218) 768-4430

Michael & Annette O'Keeffe

**MAINTENANCE, MONITORING AND INSPECTION REPORT
FOR INDIVIDUAL SEWAGE TREATMENT SYSTEM
1st YEAR SERVICE
2002 - 2003**

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COMMENTS: ALL COMPONENTS LOOK GOOD.

Date Maintained: 08/23/2003

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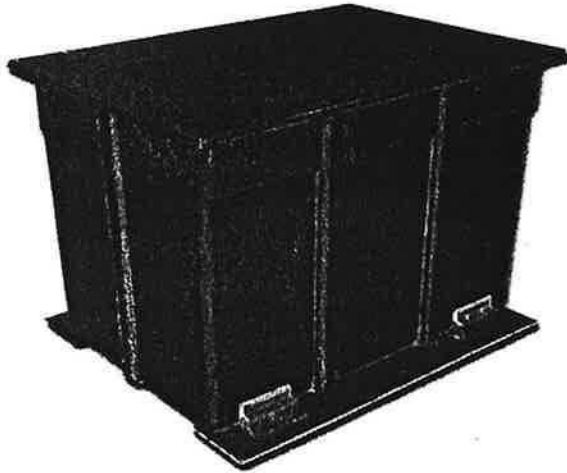
AdvanTex™ -AX Filter

Applications

Orenco's AdvanTex™-AX Treatment System is an innovative technology for onsite treatment of residential wastewater. The heart of the System is the AdvanTex™-AX Filter, a sturdy, watertight fiberglass basin filled with an engineered textile material. This lightweight, highly absorbent textile material treats a tremendous amount of wastewater in a small space. The AdvanTex™-AX Treatment System is ideal for:

- Small sites
- System upgrades and repairs
- New construction
- Poor soils
- Nitrogen reduction
- Price-sensitive markets
- Pretreatment

For sizing, see "Design Criteria," EDA-ATX-2.



The heart of the AdvanTex™-AX Treatment System is this sturdy, watertight fiberglass basin filled with an engineered textile material.

Features/Unique Specifications

To specify this product, require the following:

- Wastewater treatment to better than "Secondary" Treatment Standards
- Consistent treatment, even during peak flows
- Timer operation for flow monitoring, flow modulation, and surge control
- Fixed film textile media (a polyester plastic), operated in an unsaturated condition
- Consistent media quality
- Low maintenance beyond annual servicing
- Low energy consumption (under \$5/month power cost at national average electric rate of \$.08 kWh)
- Complete pre-manufactured package, ready-to-install
- Watertight construction, corrosion-proof materials, tamper-proof lid bolts
- Optional anti-flotation flanges
- Quiet operation

Standard Models

AX10, AX20

Physical Specifications

Approximate Dimensions*

	AX10	AX20
Filter Basin Length	4 ft.	7.5 ft.
Width	2.5 ft.	3 ft.
Height	2.5 ft.	2.5 ft.
Area (footprint)	10 sq. ft.	20 sq. ft.
Filter Dry Weight	150 lbs.	300 lbs.

*See AdvanTex™ Treatment System drawings for exact dimensions



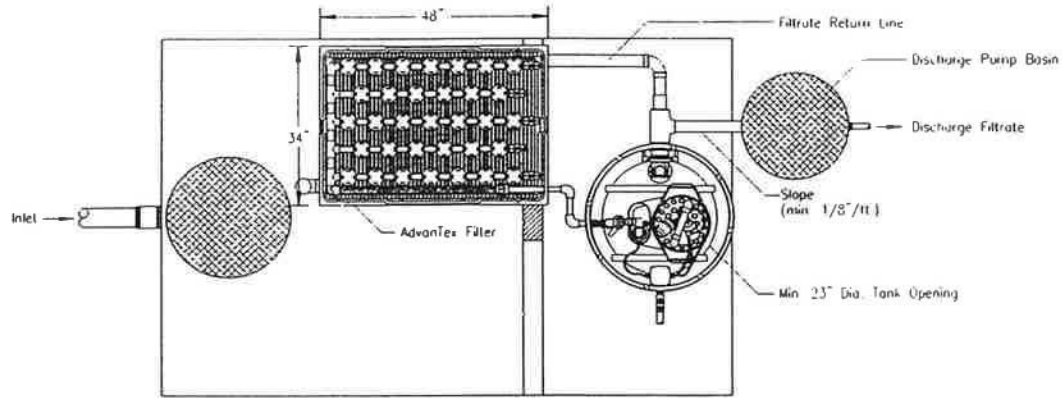
Orenco Systems*
Incorporated

*Changing the Way the
World Does Wastewater**

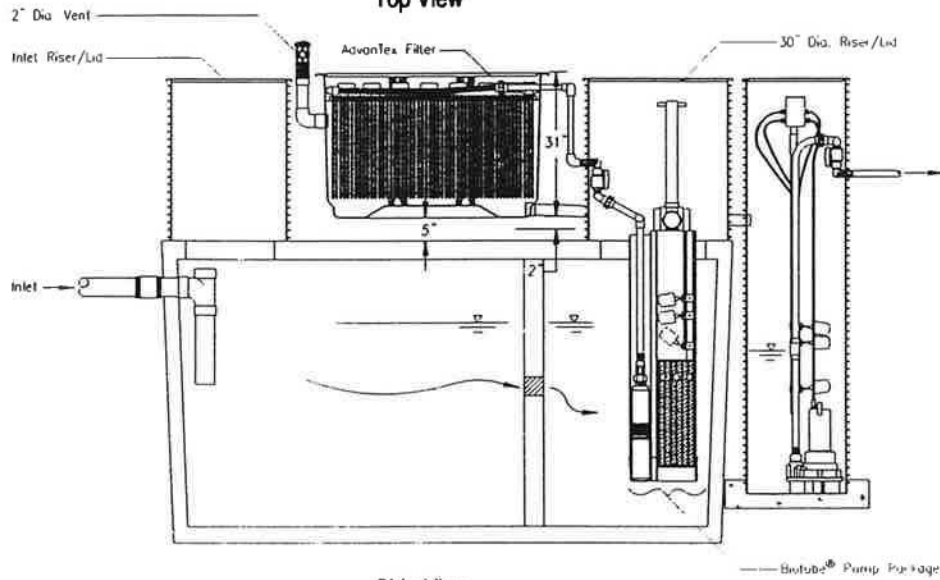
www.orenco.com

AdvanTex™ Treatment System

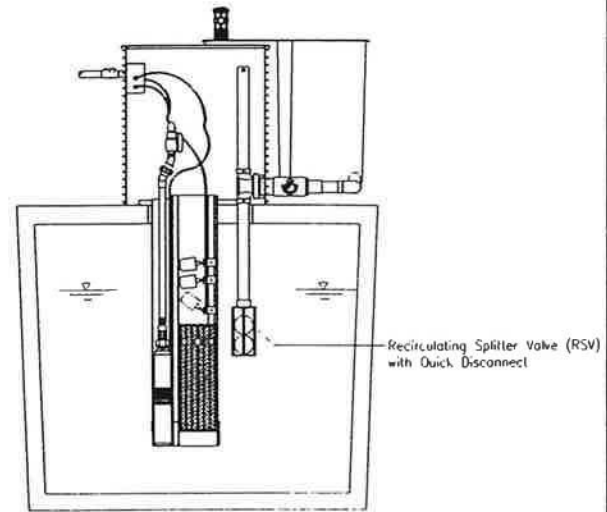
AX 10 Series - Mode 1b



Top View



Side View



End View



Oreco Systems
Incorporated

Title: AdvanTex™ - AX 10 Mode 1B

Drawn By: CHAS JORDAN

Designed By: ENGINEERING

Drawing No. 1 OF 1

Approved By:

Date: 6/18/01

Date Approved:

Scale: 1" = 2'-0"

Revision:

U.S. Patents
5,480,561
4,239,233 and 5,197,635
Other Patents Pending
© 2001 Oreco Systems, Inc

Design Criteria

AdvanTex™ Treatment Systems for Residential Applications

System Selection

The AX Series of the AdvanTex™ Treatment System treats residential strength wastewater to better than “secondary” standards.

The treatment system can be configured in two Modes. Mode 1 recirculates only through the second compartment of the Processing Tank. Mode 3 recirculates through the entire tank for maximum nitrogen reduction. The final discharged effluent can be either “Filtrate Discharge” or “Blend Discharge.”

Refer to AdvanTex™ Treatment System drawings for further details on Mode and discharge options. To help select the Mode best suited for your application, use the following chart and treatment criteria:

Table 1. Typical Effluent Quality

<u>AdvanTex™ Mode</u>	<u>BOD (mg/L)</u>	<u>TSS (mg/L)</u>
AX-Mode 1*		
X Filtrate Discharge - Residential	15	15
Blend Discharge - Residential	20-40	20-30
AX-Mode 3*		
Filtrate Discharge - Residential	15	15
Blend Discharge - Residential	30-45	20-40

* These numbers are conservative expectations of system performance based on typical flow rates, recirc ratios between 3 1/2:1 and 5:1, and the average waste strength described further in this document.

Nitrogen reduction in Mode 1 will typically exceed 50 percent, with total nitrogen in the filtrate ranging between 25 and 35 mg/L±. In Mode 3, nitrogen reduction can reach 85 percent or better, depending on wastewater strength and other characteristics like grease and oils, pH, and alkalinity concentrations. Nitrification can be inhibited if the buffering capacity (alkalinity) of the wastewater is too low. On a theoretical basis, 7.14 mg/L of alkalinity as CaCO₃ is needed to nitrify 1 mg/L of NH₄⁺.

Performance will vary with loading rates. By lowering the typical design loading rate shown in Table 3, discharge characteristics of 10/10 may be achieved.

System Operation: Description of Treatment Process

Raw sewage enters the two-compartment Processing Tank through its inlet tee. In the first compartment, the raw sewage separates into three distinct zones: a scum layer, a sludge layer, and a clear layer. A flow-through port(s) in the Tank’s baffle wall allows effluent from the clear layer to flow into the second compartment of the tank. The Biotube® Pump Package, in the second compartment, pumps filtered effluent to a distribution manifold in the AdvanTex™ Filter. Effluent percolates down through the textile media and is collected

Design Criteria, cont

in the bottom of the filter pod. The treated effluent flows out of the filter pod through the Filtrate Return Line that returns the treated effluent to the Recirculating Splitter Valve (RSV). The RSV automatically splits or diverts the flow between the Processing Tank and the final discharge. The RSV also controls the liquid level within the Processing Tank. During extended periods of no flow, 100% of the treated effluent is returned to the Processing Tank. The residential AX Series filters have a passive vent system and do not require the use of a fan.

Filter Sizing

The AX Series textile filter is currently available in two sizes. Model AX10 is designed to handle residential waste for homes up to three bedrooms with a design flow of up to 450 gallons per day per Table 3. Model AX20 is designed to handle larger homes and commercial systems with a peak design flow of up to 900 gallons per day per single AX20. Residential waste must meet the criteria in the "Residential Strength Wastewater" table, below. A four-bedroom home requires two AX10 pods or one AX20. Consult Orenco or an authorized Dealer for larger system designs.

Table 2. Residential Strength Wastewater (Influent Characteristics)

<u>Characteristic</u>	<u>Average</u> mg/L	<u>Weekly Peak</u> mg/L	<u>Rarely Exceed</u> mg/L
BOD	150	200	300
TSS	40	60	150
TKN-n	65	75	150
G&O	20	25	25

Maximum allowable wastewater strength pumped to an AdvanTex™ Treatment System is "Residential Strength Wastewater." Residential strength wastewater is defined as primary sewage effluent from a septic tank that does not exceed the above parameters.

Processing Tank Requirements

Homes up to four bedrooms require a minimum two-compartment, 1500 gallon tank with minimum 12-square-inch flow-through port(s) at 60-70% of the lowest normal liquid level (see "Typical Liquid Level Positions" drawing). The first compartment should have a minimum 1000 gallon volume. In larger residential systems, the first compartment should be sized at approximately 2/3 to 3/4 of the total processing tank volume.

All tanks must meet minimum structural requirements and be completely watertight, including the riser/tank connection. See structural and watertightness criteria in Orenco's "General Specifications," document NDA-DG-SPEC-1, for detailed recommended specifications.

Recommended Tankage and Filter Units

The following chart summarizes the recommended tankage and number of textile filter units based on the number of bedrooms in the home. Recommendations are based on typical average daily flows of 50 gpcd. (The typical range is 40-60 gpcd.)

Recommendations also assume that residential peak weekly average flows are typically two times normal average daily flows (i.e., $Q_{pwa} = 2Q_a$) and peak weekly average flows meet typical regulations governing gpd-to-bedroom ratios.

Design Criteria, cont

Table 3. Recommended Tankage and Filter Units

<u>Bedrooms</u> <i>maximum</i>	<u>Occupants*</u> <i>maximum</i>	<u>Max. Peak</u> <i>gpd</i>	<u>Max. Average</u> <i>gpd</i>	<u>Processing Tank**</u> <i>minimum size (gals.)</i>	<u>AX Units</u> <i>models</i>
3	4	450	225	1500	AX10
4	8	900	450	1500	AX20
5	10	1200	600	2000	AX10+AX20
6	12	1400	700	3000	Two-AX20

**Systems with occupancies greater than the maximums shown or greater than eight occupants require a design with multiple units based on a minimum of 2.5 ft² of surface loading area per capita.*

***In Mode 3 designs for cluster and commercial systems, the primary compartment also becomes a recirc compartment. Consequently, the processing tank capacity should be increased by at least a factor of two. Call Orenco for assistance.*

Design Loading Rates

Orenco's suggested design loading rates are based on typical per capita flow rates and average strength characteristics expected from residential type installations, as shown above. Performance (i.e., filter sizing) is a function of the expected typical loads with periodic weekly highs. (Typically, the daily mass loading is based on the expected daily flows and parameter strength.)

The void capacity, surface area per unit volume, and moisture-holding capacity of textile are many times greater than that of sands or gravels; thereby enabling equal treatment at higher loading rates. If the loading rate (or mass load) needs to be reduced to meet discharge limits, it's a simple matter of adding additional modular units. Operationally, the module's flexible and easily serviceable features make AdvanTex™ units an ideal, efficient, and effective solution for all wastewater treatment applications with domestic waste characteristics.

For residential, cluster, and commercial applications in which wastewater strengths exceed the average (because of low water use, special cooking or food processing practices, or other special circumstances), system sizing can be made proportionate based on the actual or expected mass loads vs. typical mass loads. AdvanTex™ is an excellent treatment system for commercial applications. Call Orenco's Systems Engineering Department for information on commercial applications.

Pumping Equipment

Pumping equipment shall be an Orenco Biotube® pump package.

Timer Settings and Recirculation Ratios

The operation of the pump in the second compartment is controlled by a programmable timer in the control panel, which allows the pump to dose the filter for short periods (usually less than a minute), from a minimum of 72 to a maximum of 300 times a day. This frequent "micro-dosing," which optimizes the treatment process, occurs 24 hours a day to maintain the proper biological environment. At startup, the timer should be set to achieve a 4 to 1 recirculation ratio, based on the expected actual average daily flow. Depending on the system's performance and measured actual flow, the recirculation ratio can be adjusted.

Design Criteria, cont

AdvanTex™ Control System

Critical to the success of the AdvanTex Treatment System is the method in which the effluent is loaded onto the AdvanTex Textile Filter. Timer controlled applications have proven over the past three decades to play an essential role in optimization of the performance of both fixed and suspended growth biological systems. A timer-controlled pump in the processing tank periodically doses effluent to a distribution system on top of the AdvanTex Filter. Each time the filter is dosed, effluent percolates through the filter media and is treated by naturally-occurring microorganisms that populate the filter. During periods of high flow, a timer override float will temporarily modify the timer settings to process the additional flow. Conversely, during periods of low flow, the timer settings can be modified to reduce loading onto the AdvanTex filter.

VeriComm remote telemetry control panels and web-based monitoring system are recommended but not required for all AdvanTex Treatment Systems. VeriComm gives wastewater system operators and maintenance organizations the ability to monitor and control each individual system's performance remotely. There are several additional operational benefits associated with telemetry-based controls, including Advanced Control Logic — functions that activate in the event of component malfunction to diagnose the system using pre-established trend data and, if necessary, modify the operation of the system until it can be serviced. VeriComm also provides additional alert and alarm functions to notify the operator in the event that trend data indicate potential problem conditions (e.g. high flows).

Surge Volume

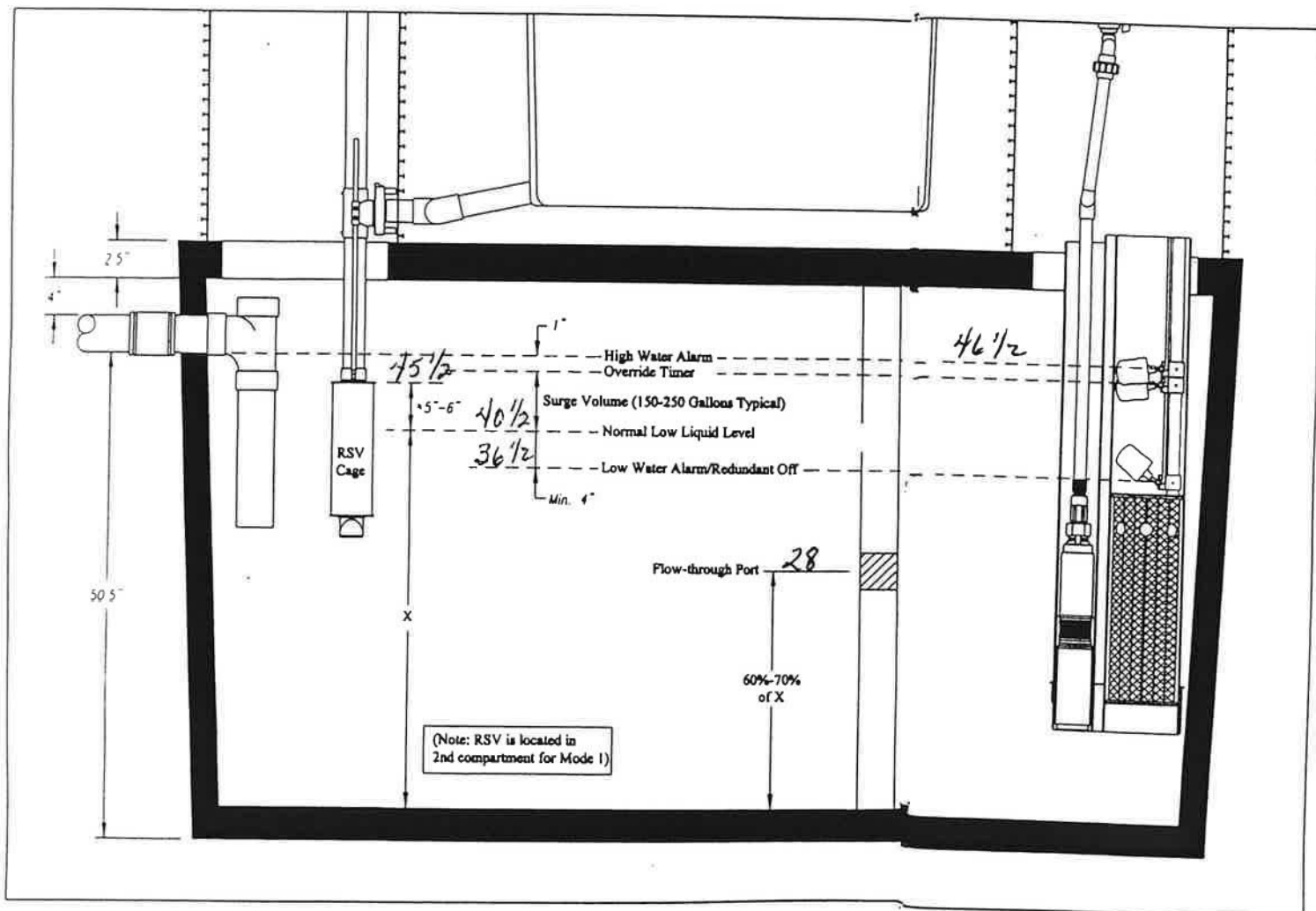
For most residential applications, the recommended surge volume is approximately 150 to 250 gallons. The actual surge volume used should be approximately 50 to 100% of the actual average daily flow. The surge volume is the volume between the normal low liquid level and the high water alarm float. The normal low liquid level is the level at which 100% of the filtrate returns to the tank. For most residential installations, the low liquid level will be approximately 5 to 6 inches below the top of the RSV Cage. See the "Typical Liquid Level Positions" drawing for description of typical RSV and float settings for residential systems installed in two-compartment tanks.

Cold Weather Considerations

Both the AX10 and AX20 are available, with two inches of insulation attached to the bottom of the lid. Installing insulation around the sides of the filter pods themselves is optional and is done onsite as needed.

Other cold weather considerations include standard practices used with most onsite pump systems, such as allowing all lines to drain, insulating processing tank lids, and backfilling risers with pea gravel if frost-heave is a concern. Consult Orenco if supplementary options need to be considered.

Appendix 2: RSV and Float Level Diagram

**Determining RSV and Float Levels****RSV Level**

For Stinger Pipe lengths up to 24" long, the low liquid level will be approximately 5"-6" below the top of the RSV Cage. (The low liquid level is the level at which 100% of the filtrate returns to the tank.) For most residential applications, the recommended surge volume is approximately 150 to 250 gallons (approx. 50% to 100% of actual flow). The surge volume is the volume between the low liquid level and the high water alarm float. For Mode 3 installations, the duckbill model RSV is required, which has a flexible PVC tube that vents the RSV Cage to atmosphere.

Float Levels

Typically the bottom float should be positioned as close to the top of the Biotube Cartridge as possible. The top float is normally set one to two inches below the invert of the tank inlet. For most residential applications, the recommended surge volume is approximately 150 to 250 gallons. The surge volume is the volume between the low liquid level and the high water alarm float. Be sure to check the plans for any site-specific or tank-specific float settings.

1860 GALLON TANK

INLET = 48 1/2

GALLONS PER INCH = 38

SURGE = 228 GALLONS

Appendix 1: Timer Settings Worksheet

Typical timer settings for startup are calculated based on the following criteria:

Parameter	Typical Value ¹
Recirculation Ratio	4 to 1 (based on <u>actual</u> daily flow)
Dose Frequency	72 to 300 cycles per day
Cycle Time	5 to 20 minutes
Recirculation Pump Rate	15 gpm - 30 gpm (AX10 - AX20)
Timer "On" Time	30 seconds ± (less than one minute)
Timer "Off" Time	Cycle Time - Timer "On"
Override Timer "On" Time	Same as Timer "On"
Override Timer "Off" Time	1/2 Timer "Off"

¹ These values are intended to help determine appropriate startup settings. As experience with a system is gained, adjustments may be required, sometimes significant ones.

Example: Single family residence with an expected actual average daily flow of 225 gallons²

Parameter	Calculation	Result
Recirculation Ratio	4 x 225 gpd 4 x 300 gpd = 1200 gal	900 gal
Pump Run Time	900 gal / 15 gpm 1200 gal ÷ 15 gpm = 80 min	60 min
Timer "On"	60 min / 144 cycles 80 x 60 = 4800 sec 4800 sec ÷ 144 cycles = 33 sec	25 sec
Timer "Off"	10 min - 25 sec 10 min - 33 sec = 9 min 27 sec	9 min: 35 sec
Override Timer "On"	Same as Timer "On" = 33 sec	25 sec
Override Timer "Off"	9 min: 35 sec / 2 9 min 27 sec ÷ 2 = 5 min ±	5 min ±

² Typical actual water usage is 50 to 60 gallons per person per day.

Note: Default setting will be 25 sec "on," 9 min: 35 sec "off"

PUMP SELECTION PROCEDURE

Property Owner: Lloyd Welsh

A. Determine Pump Capacity:

Gravity Distribution

1. Minimum suggested is 20 gpm
2. Maximum suggested is 45 gpm

Pressure Distribution

3. a. Select number of Perforated Laterals = 3
- b. Select Perforation Spacing = 3 feet
- c. Rock Layer Length 38.1 - 2 = 36.1 feet
- d. Determine the number of spaces between perforations:
 (c) 36.1 ÷ (b) 3 = 12 Spaces
- e. (d) 12 + 1 = 13 Perforations/Lateral
- f. (a) 3 x (e) 13 = 39 Total # of Perforations
- g. (f) 39 x gpm/perf 0.56 = 22 gpm

Head (feet)	Perforation Discharges (gpm)			
	Perforation diameter (inches)			
	1/8	3/16	7/32	1/4
1.0a	0.18	0.42	0.56	0.74
2.0b	0.26	0.59	0.80	1.04
5.0	0.41	0.94	1.26	1.85

a Use 1.0 foot residential systems
 b Use 2.0 feet for other establishments
 * Potential for plugging

SELECTED PUMP CAPACITY = 22 gpm

B. Determine Head Requirements:

1. Elevation difference between pump and point of discharge = 8 feet
2. Feet of pressure at manifold = 5 feet
 5 ft - for pressure required at manifold
 0 ft - for gravity distribution

Perforation Spacing (feet)	Pipe Diameter		
	1 1/4	1 1/2	2
2.5	14	18	28
3.0	13	17	26
3.3	12	16	25
4.0	11	15	23
5.0	10	14	22

3. Friction Loss
 - a. Enter friction loss table with gpm and pipe diameter
 F.L. = 1.11 ft./100 feet of pipe
 - b. Determine Total Pipe Length from pump to discharge point
 Pipe length 12 x 1.25 = 15 feet

Flow Rate gpm	Nominal pipe diameter		
	1.5"	2"	3"
20	2.47	0.73	0.11
25	3.73	1.11	0.16
30	5.23	1.55	0.23
35	6.96	2.06	0.30
40	8.91	2.64	0.39
45	11.07	3.28	0.48
50	13.46	3.99	0.58
55		4.76	0.70
60		5.60	0.82
65		6.48	0.95
70		7.44	1.09

C. Pump Selection

A pump must be selected to deliver at least 22 gpm with at least 13 feet of total head

SIZING OF DOSING CHAMBER

Property Owner: Lloyd Welsh

1. Select gallons per inch = 12

2. Calculate Gallons to cover pump (with 2 inches of water covering pump)

$$\text{Height (in)} + 2 \times \text{gallons per inch (1)}$$

$$\underline{14} + 2 \times \underline{12} = \underline{192} \text{ gallons}$$

3. Calculate Total Pumpout Volume

A. Sump size for 6 pump operations per day

$$\underline{300} \text{ gpd} \div 6 = \underline{50} \text{ gallons per dose}$$

B. Calculate Drainback

a. Total pipe length = 12 feet

b. Liquid volume of pipe = 17.43 gallons per 100 feet

c. Drainback quantity =

$$\text{Total Pipe Length (3Ba)} \times \text{Pipe Liquid Volume (3Bb)} \div 100$$

$$\underline{12} \times \underline{17.43} \div 100 = \underline{2} \text{ gallons}$$

C. Total Pump out Volume

$$\text{Gallons/dose (3A)} + \text{Drainback (3Bc)}$$

$$\underline{50} + \underline{2} = \underline{52} \text{ Total Gallons}$$

4. Calculate Volume for Alarm (typically 2 to 3 inches)

$$2 \times \text{Gallons/inch (1)}$$

$$2 \times \underline{12} = \underline{24} \text{ gallons}$$

5. Total Gallons

$$\text{Gallons to cover pump (2)} + \text{Total Pumpout Volume (3)} + \text{Alarm Volume (4)}$$

$$\underline{192} + \underline{52} + \underline{24} = \underline{268} \text{ Total Gallons}$$

6. Total Depth

$$\text{Total Gallons (5)} \div \text{Gallons/inch (1)}$$

$$\underline{268} \div \underline{12} = \underline{22} \text{ inches}$$

7. Float Separation Distance

$$\text{Total Pumpout Volume (3c)} \div \text{Gallons/inch (1)}$$

$$\underline{52} \div \underline{12} = \underline{4} \text{ inches}$$

Tank Size	gal/inch
1960 Combo	14
1860 Combo	12
1500	33
1350	34
1000	34
730	14
630	12
600	25
350	

Liquid Volume of Pipe	
Pipe diameter (inches)	Gallons Per 100 ft.
1	4.49
1.25	7.77
1.5	10.58
2	17.43
2.5	24.87
3	38.40
4	66.10

SOIL BORING / PIT LOG

PROPERTY OWNER: Lloyd Welsh PARCEL CODE: 29-1-490100 06/01/2002

NOTE: A MINI-EXCAVATOR WITH A MAXIMUM 4 FOOT DEPTH IS USED TO DIG SOIL PITS.
SOIL BORINGS THEN TAKEN AT BOTTOM OF PITS FOR FURTHER DEPTH SOIL ANALYSIS.

<u>Depth</u>	<u>Color</u>	<u>Texture</u>
<u>Soil Boring #1</u>		
0 - 10	10YR 3/2	Top Soil -Sandy Loam
10 - 12	10YR 6/2	E Horizon -Sandy Loam
12 - 40	10YR 4/4	Loam -with 10YR 5/2 Mottles & few 10YR 5/6 Mottles
40 - 52	10YR 4/4	Sandy Loam -with 10YR 5/2 Mottles & 10YR 5/6 Mottles
52 - 58	10YR 5/4	Sand -with 10YR 5/2 Mottles & 10YR 5/6 Mottles
58	10YR 5/1	Lake Bottom - Blue Sand

A. M. & Associates, Inc.

29465 442nd Lane
Palsade, MN 56469
(218) 768-4430

Michael D. O'Keeffe
Annette M. O'Keeffe

SEPTIC SYSTEMS
DESIGNS & INSPECTIONS
MPCA #1357

**ONE YEAR
MAINTENANCE, MONITORING AND INSPECTION SERVICE CONTRACT
FOR INDIVIDUAL SEWAGE TREATMENT SYSTEM**

It is hereby agreed this 3 day of June, 20 02 by and between A.M. & Associates, Inc. and

Property Owner(s):	<u>LLOYD & LOIS WELSH</u>	Parcel Code:	<u>29-1-490100</u>
Home Address:	<u>14150 90TH ST. NE</u> <u>ELK RIVER, MN 55330</u>	Site Address:	<u>51141 207TH PLACE</u> <u>McGREGOR, MN 55760</u> <u>(BIG SANDY LAKE)</u>
Phone (home)	<u>(651) 430-3396</u>	Township	<u>SHAMROCK</u>
(work)	_____	Phone:	<u>(218) 426-4388</u>
(cell)	_____		
(fax)	_____		

DESCRIPTION OF INDIVIDUAL SEWAGE TREATMENT SYSTEM

This ISTS is to gravity from the dwelling into the existing 1200 gallon concrete septic tank. From there the liquids will gravity into a new 1860 precast septic/lift tank. An OSI AdvanTex AX-10 Series, Mode 1b Textile Filter is to be placed on top of the 1860 septic/lift tank. Wastewater will percolate through the Textile Filter which will recirculate through the tank and the filter treating the liquids. The treated liquids will then be pumped into a 10' x 38' Pressure Bed with 18 inches of separation. The pressure Bed is to be constructed on "clean sand" with 6 foot dikes at a 3:1 slope.

Installation Date: _____ Installer: _____ Phone#: _____

That A.M. & Associates, Inc. will provide the services to perform Preventative Maintenance, Monitoring and Inspection of the parameters and frequency described herein as your Operating Permit requires for your Individual Sewage Treatment System (ISTS).

Each inspection includes an examination of the ISTS followed by a written report to the Property Owner. This inspection report shall contain recommendations for operation and maintenance for failure-preventative measures, if any are deemed appropriate by the inspector, and a list of recommended corrective measures or replacement parts. A.M. & Associates, Inc. is authorized to submit a copy of the report to the pertaining County's Environmental Services Department.

This contract does not assume any responsibilities or obligations, which are normally the responsibilities of the Property Owner, or as related to parts or labor and *does not* extend to cover any costs that may be associated with any recommendations made under this contract.

A.M. & Associates, Inc. can only contract or subcontract for parts or labor after authorization by you. Billings for service calls shall be made on a case by case basis. This contract only covers maintenance, monitoring and inspection services per current pertaining County Operating Permit and *does not* cover alarm calls of any kind.

All additional cost, time and labor required from A.M. & Associates, Inc. due to modifications made by the pertaining County's Environmental Services Department, is the responsibility of the Property Owner.

In no event shall A.M. & Associates, Inc. or the Inspector be responsible for special or consequential damages, including but not limited to, loss of time, injury to personal property or any other consequential damages or incidental or economic loss due to equipment failure or for any other reason.

A.M. & Associates, Inc. shall be provided access to the site and the system in order to perform the following services that are marked:

CONTROL/ALARM PANEL (3 Months after Startup, Annually Thereafter)

- 1. Check pump operations in manual mode
- 2. Check timer settings
- 3. Record elapsed time meter and counter readings
- 4. Confirm operation of audible and visual alarms

LIFT PUMPING STATION (3 Months after Startup, Annually Thereafter)

- 1. Verify no leaks in riser
- 2. Inspect splice box for moisture and secure connections
- 3. Verify condition of and correct operation of all floats
- 4. Verify neat wrap of float cords
- 5. Pull pump and clean intake screen if necessary
- 6. Visually inspect recirculating splitter valve (if applicable) and liquid level
- 7. Check general appearance

EFFLUENT FILTERS/PUMP SCREENS (3 Months after Startup, Annually Thereafter)

- 1. Check effluent filter for buildup of biomat growth
- 2. Clean (if needed)

SEPTIC TANK (3 Months after Startup, Annually Thereafter)

- 1. Measure sludge and scum level
- 2. Tank(s) should be pumped if the sludge layer is closer than 12" to the bottom of the inlet baffel or whenever the scum is closer than 3" to the bottom of the outlet baffel
 - * (If the test results determine a need for solids removal, the Property Owner will bear the cost and responsibility for doing so)
- 3. Check general appearance

This contract shall remain in force for a period of one year, beginning on date of installation and ending December 31st of the following year.

FEES

Maintenance, Monitoring & Inspection Service Contract	\$250.00	Due at time of signing contract
Sample Analysis Fees & Supplies	(approx) \$ 50.00	Due at time of sampling
*Time & Mileage to Deliver Samples for Analysis	\$100.00	Due at time of sampling

*If at time of sampling, the Property Owner wishes to transport the samples to Brainerd himself for analysis, within the *required time limit*, A.M. & Associates, Inc. will wave the time, mileage delivery fees of \$100.00.

A.M. & Associates, Inc. agrees to provide inspection, monitoring and routine maintenance service only under this contract. If the Property Owner wishes to void this contract prior to the expiration date of this contract, the Property Owner must do so in writing. A full refund of amounts paid in advance for non-rendered services, less a \$50.00 non-refundable fee, will be made payable to the Property Owner within 30 days of receiving such written notice.

This contract is non transferable from owner to owner.

This contract may be renewed 30 days from the ending date.

I hereby certify with my signature as the Property Owner that I understand the provisions, requirements and responsibilities of this Maintenance, Monitoring and Inspection Service Contract.

Property Owner(s):

Name: Lloyd Welsh (please print) _____ (signature) Date: _____

Spouse: Lois Welsh (please print) Lois M. Welsh (signature) Date: 6/3/02

A.M. & Associates, Inc.:

Michael D. O'Keefe (please print) Michael D. O'Keefe (signature) Date: 6/3/02

AITKIN COUNTY ENVIRONMENTAL SERVICES

59

APPLICATION for an OPERATING PERMIT FOR WASTEWATER TREATMENT AND DISPERSAL

PERMITTEE Lloyd & Lois Welsh PARCEL NUMBER 29-1-490100
ADDRESS 14150 90th St. NE CITY Elk River STATE MN ZIP 55330
SEC 5 TWP 49 RGE 23 BLOCK _____ LOT 11 ACRES _____
TELEPHONE (763) 441-3747 GIS LOCATION _____
SITE LOCATION 51141 207th Place, McGregor, MN 55760

A. DESCRIPTION OF WASTEWATER TREATMENT AND DISPERSAL SYSTEM:

This ISTS is to gravity from the dwelling into the existing 1200 gallon concrete septic tank. From there the liquids will gravity into a new 1860 precast septic/lift tank. An OSI AdvanTex AX-10 Series, Mode 1b Textile Filter is to be placed on top of the 1860 septic/lift tank. Wastewater will percolate through the Textile Filter which will recirculate through the tank and the filter treating the liquids. The treated liquids will then be pumped into a 10' x 38' Pressure Bed with 18 inches of separation. The pressure Bed is to be constructed on "clean sand" with 6 foot dikes at a 3:1 slope.

Number of Bedrooms 2

Flow = 300 gpd

Hydraulic Loading Rate = 1.0 - 1.2 gpd/ft²

Organic Loading Rate = 0.00015 BOD/sqft

$$\text{Flow} \times \text{BOD}(\text{mg}/1) \times 8.35 \div 1,000,000 = \# \text{BOD}$$
$$(300 \times 15 \times 8.35 \div 1,000,000 = .038 \text{ BOD})$$

$$\text{System Loading} = \text{organic loading} \div \text{area} = \text{BOD}/\text{sqft}$$
$$(.038 \div 380 = 0.00010 \text{ BOD}/\text{sqft})$$

Anticipated System Life = 20 + years

Estimated Cost of:

System Construction = \$8,000.00 +
Operation = \$10.00 per month
Monitoring, Testing & Service = \$200.00 - \$400.00 per year

B. PERFORMANCE STANDARD REQUIREMENTS:

During the period beginning on the date of the Operating Permit and lasting until the Permit's expiration date, the Permittee is authorized to discharge from the wastewater treatment unit to subsurface dispersal. No surface discharge is permitted.

The discharge from the wastewater treatment unit shall be limited by the Permittee as specified below:

PARAMETER	COMPLIANCE LIMIT	SAMPLE LOCATION	SAMPLE FREQUENCY	SAMPLE TYPE	REPORTING FREQUENCY
Flow	300 gpd	Water Meter	Weekly	Record on Log Sheet	At time of Operating Permit Renewal
5-Day BOD	15/220 mg/l	Filtrate Splitter Valve	As Deemed Necessary	Take Sample for Testing	Annually
Total Nitrogen					
Total Phosphorus					
TSS	15/65 mg/l	Filtrate Splitter Valve	As Deemed Necessary	Take Sample for Testing	Annually
Fats, Oils, Grease (FOG)	30 mg/l	Filtrate Splitter Valve	As Deemed Necessary	Take Sample for Testing	Annually
Fecal Coliform	Less than 1,000 cfu / 100 ml	Filtrate Splitter Valve	Annually	Take Sample for Testing	Annually
Separation Distance	18 Inches Separation beneath Rock layer	Pressure Bed	Annually	Soil Borings	Annually

C. MAINTENANCE REQUIREMENTS

PARAMETER	LOCATION	FREQUENCY
Daily Flow	Water Meter	Monthly (record on log sheet)
Sludge & Scum Level	Septic Tank	3 months after startup Annually thereafter
Pump, Timers, Alarm, Floats, etc	Lift Tank	3 months after startup Annually thereafter
Ponding, Orifices, Pressurization (squirt test), Biomat, Odor from Filter	Textile Filter	3 months after startup Annually thereafter
Acceptance of Effluent into ground and 1 foot of separation to water table.	Pressure Bed	3 months after startup Annually thereafter
Overall visual of entire system for landscaping, drainage and cover material	Pressure Bed, Textile Filter, Tanks	3 months after startup Annually thereafter

D. MONITORING AND REPORTING REQUIREMENTS:

1. Monitoring results obtained during each calendar year shall be submitted no later than December 31st of each year to:
Aitkin County Environmental Services
209 2nd St NW
Aitkin, MN 56431
2. The monitoring reports shall be signed by the Permittee. Copies are to be retained for your records.
3. The Permittee or designated agent shall notify Aitkin County Environmental Services within thirty (30) days when monitoring results do not meet the monitoring plan requirements of the Operating Permit.
4. Monitoring plans may be modified as necessary and reapproved by Aitkin County Environmental Services.
5. Sampling and laboratory testing procedures shall be performed in accordance with Standard Methods and the testing shall be performed by a Minnesota Department of Health approved laboratory.

E. MITIGATION PLAN:

1. If ponding problems should occur due to build-up of oil & grease, have biomat analyzed.
2. If ponding problems should occur of indeterminate cause, coupled with a pungent odor, it may be necessary to clean the textile media.
3. If weeping problems should occur; lower dosing rate, lower water usage, increase distribution and absorption area.
4. If OSI Textile Filter experiences problems, fix or repair at recommendations of Manufacturer, or replace.
5. A different or another Performance or Other System may be installed at the owner's expense.
6. If in the event that this system should fail and if there is no other ISTS option available, then Holding Tanks must be installed, to be pumped by Licensed Pumper. A contract must be entered into with a Licensed Pumper.

F. SPECIAL REQUIREMENTS:

1. A.M. & ASSOCIATES, a licensed ISTS firm, has agreed to perform all monitoring responsibilities, as outlined within this Operating Permit Application, for a period of 1 Year(s).

I hereby certify with my signature as the designer, that all data for the operating permit application is true and correct to the best of my knowledge.

MICHAEL O'KEEFFE
(Name)


(Signature)

1357
(License #)

06/01/2002
(Date)

A.M. & ASSOCIATES, INC.
(Company Name)

29465 442nd LANE PALISADE, MN 56469
(Address)

(218) 768-4430
(Telephone)

Notes: No

Parcel number/Tax year: 29-1-490100
Owner(s): 25454
WELSH, LLOYD B & LOIS M
14150 90TH ST NE
ELK RIVER MN 55330

2003 Reference parcel: 00229046490100
Parcel type : RE Hold tax stmt:
Com district: 4 Misc1/2:
Escrow agent:
Mortgage hld:
UTA: Twp/City School **** *
029 0004 00 00 00 00

Taxpayer: 25454 FALCO: 1 F.O.
WELSH, LLOYD B & LOIS M
14150 90TH ST NE
ELK RIVER MN 55330

TIF district: 000 000
Lake#/name : 1-0062 BIG SANDY
Property adr: 20778 207TH PLACE
MCGREGOR MN

Alternate taxpayer:

Emergency# : 55760-0000
Twp/City Plt: SHAMROCK TWP 46
Sec/twp/rge : 5 49.0 23 Acres:
Plat: DOUBLE S ACRES 2ND ADDN
Description: Lot/Block . :

LOT 11

Press Enter to continue or enter new parcel/tax year. 29-1-490100 2003
F1=Full desc F2=Trans hist F3=Exit F6=Prcl hist F7=Backward F9=Escrow hist
F12=Cancel F17=Display notes F18=Rebate

Parcel number/Tax Year: 11-0-000805 1998 Reference parcel#:

Owner(s): 16399

MARQUETTE BANK MPLS
 JOHN W THOMPSON TRUST
 6TH ST & MARQUETTE AVE
 MPLS MN 55480

Taxpayer: 8757 FALCOI & C.D.
 PHIL'S MAR MAR MARINA INC
 RT 2 BOX 825
 AITKIN MN 56431

Emergency# :
 Twp/city Plt: HAZELTON TWP
 Sec/twp/rge : 5 44.0 27
 Address: *96

Property adr:
 Lake#/name : 48-0002 WILLE LACS
 TIF district:
 011
 0001 00 00 00

UTL: Twp/city School **** **

Escrow agent:
 Mortgage hld:
 Parcel type : RE Hold tax stnt:
 Can district: 2 Misc1/2:

Description:
 Lot/Riock : *96 AC OF LOT 1 S OF HWY 169 IN DOC 270264

Press Enter to continue or enter new parcel/tax Year. 11-0-000805 1998

F1=Full desc F2=Trans hist F3=Exit F4=Prcl hist F7=Backward F9=Escrow hist
 F10=More owners F12=Cancel F17=Display notes

22-62 SA MM KS IM II ST AITKIN KB

45,000 built 10/22/97

AITKIN COUNTY ENVIRONMENTAL SERVICES

OPERATING PERMIT FOR WASTEWATER TREATMENT AND DISPERSAL

OPERATING PERMIT #: 89

FEE PAID: 25.00

PERMITTEE: Lloyd and Lois Welsh

PHONE: (763) 441-3747

ADDRESS: 14150 90th Street NE
Elk River, MN 55330-

ZONING PERMIT # 29201

PARCEL #: 29-1-490100

ISSUE DATE: 6/3/02

RENEW DATE: 12/31/02

LEGALDESCRIPTION: Lot 11 Double S Acres Second Addition

Aitkin County Environmental Services authorizes the Permittee to construct, install and operate a wastewater treatment and dispersal system located on the above described property in accordance with the requirements of this permit.

This permit is effective on the issuance date identified above.

This permit and the authorization to treat and disperse from the above system shall expire on the above expiration date. The Permittee is not authorized to discharge after the date of expiration. The Permittee shall submit such information and forms as required by Aitkin County Environmental Services no later than thirty (30) days prior to the expiration date. When the required information is submitted and approved by Aitkin County Environmental Services, the permit may be renewed. This permit is not transferable from owner to owner.

I hereby certify with my signature as the permittee that I understand the provisions of this permit including the maintenance and monitoring requirements. I agree to indemnify and hold Aitkin County harmless from all loss, damages, costs and charges that may be incurred by use of this system and if I fail to comply with the provisions of this Operating Permit. If I sell this property during the life of the permit, I will inform the new owner(s) of the permit requirements and the need to renew the permit.



Signature of Permittee

6-7-02
Date



Signature of Permitting Authority

6-4-02
Date

If You have any questions regarding this permit, including the specific permit requirements, permit reporting or permit compliance status, please contact Aitkin County Environmental Services at 218-927-7342.

A. DESCRIPTION OF WASTEWATER TREATMENT AND DISPERSAL SYSTEM

This ISTS is to gravity from the dwelling into the existing 1200 gallon concrete septic tank. From there the liquids will gravity into a new 1860 precast septic/lift tank. An OSI AdvanTex AX-10 Series, Mode 1b Textile Filter is to be placed on top of the 1860 septic/lift tank. Wastewater will percolate through the Textile Filter which will recirculate through the tank and the filter treating the liquids. The treated liquids will then be pumped into a 10' x 38' Pressure Bed with 18 inches of separation. The Pressure Bed is to be constructed on "clean sand" with 6 foot dikes at a 3:1 slope.

B. PERFORMANCE STANDARD REQUIREMENTS:

During the period beginning on the effective date (issuance date) of this permit and lasting until this permits expiration date, the Permittee is authorized to discharge from the wastewater treatment unit to subsurface dispersal. No surface discharge is permitted. The following parameters must be monitored and the results must be found within the compliance limits.

PARAMETER	COMPLIANCE LIMIT	SAMPLE LOCATION	SAMPLE FREQUENCY	SAMPLE TYPE	REPORTING FREQUENCY
					ANNUALLY
BOD5	15/220 mg/l	Filtrate Splitter Valve	As Necessary	Measure in Field	ANNUALLY
Fats, Oil and Greases	< 30 mg/l	Filtrate Splitter Valve	As Necessary	Measure in Field	ANNUALLY
Fecal Coliform	< 1000 mg/l	Filtrate Splitter Valve	ANNUALLY	Measure in Field	ANNUALLY
Flow	300 gpd	Water Meter	Weekly	Record on Log Sheet	ANNUALLY
Separation	18 inches	Dispersal System	ANNUALLY	Measure in Field	ANNUALLY
TSS	15/65 mg/l	Filtrate Splitter Valve	As Necessary	Measure in Field	ANNUALLY

C. MAINTENANCE REQUIREMENTS:

PARAMETER	LOCATION	FREQUENCY
Flow	Water Meter	MONTHLY
Inspect Effluent Filters	Dispersal System	ANNUAL
Odor	Textile Filter	ANNUAL
Pumps, Floats & Alarms	Lift Tank	ANNUAL
Solids Removal & Water Tightness	Septic tank(s)	ANNUAL
Vegetative Cover	Dispersal System	ANNUAL

D. MONITORING AND REPORTING REQUIREMENTS:

Monitoring results obtained during each calendar year shall be submitted no later than December 31st of that year to:

Aitkin County Environmental Services
209 2nd Street NW
Aitkin, MN 56431

The monitoring reports shall be signed by the Permittee. Copies are to be retained by the Permittee.

The Permittee shall notify Aitkin County Environmental Services within thirty (30) days when monitoring results do not meet the monitoring plan requirements of this permit.

Monitoring plans may be modified as necessary and reapproved by Aitkin County Environmental Services.

Sampling and laboratory testing procedures shall be performed in accordance with Standard Methods and the testing shall be performed by a Minnesota Department of Health approved laboratory. All sampling and testing costs shall be the responsibility of the Permittee.

Monitoring will be done by A.M. & Associates.

E. MITIGATION PLAN:

1. If ponding problems should occur due to build-up of oil & grease, have biomat analyzed.
2. If ponding problems should occur of indeterminate cause, coupled with a pungent odor, it may be necessary to clean the textile media
3. If weeping problems should occur; lower dosing rate, lower water usage, increase distribution, and absorption area.
4. If OSI Textile Filter experiences problems, fix or repair at recommendations of Manufacturer or replace.
5. A different or another Performance or Other System may be installed at the owner's expense.
6. If in the event that this system should fail and if there is no other ISTS option available, then Holding Tanks must be installed, to be pumped by Licensed Pumper.

F. SPECIAL REQUIREMENTS:

A.M. Associates, a licensed ISTS firm, has agreed to perform all monitoring responsibilities, as outlined within this Operating Permit Application, for a period of 1 year.

A. M. & Associates, Inc.

29465 442nd Lane
Palisade, MN 56469
(218) 768-4430

Michael D. O'Keeffe
Annette M. O'Keeffe
SEPTIC SYSTEMS
DESIGNS & INSPECTIONS
MPCA #1357

**ONE YEAR
MAINTENANCE, MONITORING AND INSPECTION SERVICE CONTRACT
FOR INDIVIDUAL SEWAGE TREATMENT SYSTEM
FOR YEAR 2004**

It is hereby agreed this 24th day of DECEMBER, 20 03 by and between A.M. & Associates, Inc. and

Property Owner(s):	<u>LLOYD & LOIS WELSH</u>	Parcel Code:	<u>29-1-490100</u>
Home Address:	<u>14150 90TH ST. NE</u> <u>ELK RIVER, MN 55330</u>	Site Address:	<u>51141 207TH PLACE</u> <u>McGREGOR, MN 55760</u> <u>(BIG SANDY LAKE)</u>
Phone (home)	<u>(651) 430-3396</u>	Township	<u>SHAMROCK</u>
(work)	_____	Phone:	<u>(218) 426-4388</u>
(cell)	_____		
(fax)	_____		

DESCRIPTION OF INDIVIDUAL SEWAGE TREATMENT SYSTEM

This ISTS is to gravity from the dwelling into the existing 1200 gallon concrete septic tank. From there the liquids will gravity into a new 1860 precast septic/lift tank. An OSI AdvanTex AX-10 Series, Mode 1b Textile Filter is to be placed on top of the 1860 septic/lift tank. Wastewater will percolate through the Textile Filter which will recirculate through the tank and the filter treating the liquids. The treated liquids will then be pumped into a 10' x 38' Pressure Bed with 18 inches of separation. The pressure Bed is to be constructed on "clean sand" with 6 foot dikes at a 3:1 slope.

Installation Date: August 2002 Installer: Ernie Darlow Phone#: (218) 426-4320

That A.M. & Associates, Inc. will provide the services to perform Preventative Maintenance, Monitoring and Inspection of the parameters and frequency described herein as your Operating Permit requires for your Individual Sewage Treatment System (ISTS).

Each inspection includes an examination of the ISTS followed by a written report to the Property Owner. This inspection report shall contain recommendations for operation and maintenance for failure-preventative measures, if any are deemed appropriate by the inspector, and a list of recommended corrective measures or replacement parts. A.M. & Associates, Inc. is authorized to submit a copy of the report to the pertaining County's Environmental Services Department.

This contract does not assume any responsibilities or obligations, which are normally the responsibilities of the Property Owner, or as related to parts or labor and does not extend to cover any costs that may be associated with any recommendations made under this contract.

A.M. & Associates, Inc. can only contract or subcontract for parts or labor after authorization by you. Billings for service calls shall be made on a case by case basis. This contract **only** covers maintenance, monitoring and inspection services per current pertaining County Operating Permit and **does not** cover alarm calls of any kind.

On-site Service Calls cost of a minimum of \$50.00 plus \$50.00 per hour for time and labor required from A.M. & Associates, due to alarms; misuse or abuse of any portion of this System, is the responsibility of the Property Owner(s), payable at time of Service. Minnesota Onsite Specialties fees for Service calls are separate.

All cost for parts time and labor, required to analyze, fix or replace any portion of this system, for damages caused by winter freezing, is the responsibility of the Property Owner(s).

All additional cost, time and labor required from A.M. & Associates, Inc. and/or Minnesota Onsite Specialties due to modifications made by the pertaining County's Environmental Services Department, is the responsibility of the Property Owner(s), and is payable within 20 days of billing.

In no event shall A.M. & Associates, Inc., Minnesota Onsite Specialties, or the Inspector be responsible for special or consequential damages, including but not limited to, loss of time, injury to personal property or any other consequential damages or incidental or economic loss due to equipment failure or for any other reason.

A.M. & Associates, Inc. shall be provided access to the site and the system in order to perform the following services that are marked:

CONTROL/ALARM PANEL (Annually)

- 1. Check pump operations in manual mode
- 2. Check timer settings
- 3. Record elapsed time meter and counter readings
- 4. Confirm operation of audible and visual alarms

LIFT PUMPING STATION (Annually)

- 1. Verify no leaks in riser
- 2. Inspect splice box for moisture and secure connections
- 3. Verify condition of and correct operation of all floats
- 4. Verify neat wrap of float cords
- 5. Visually inspect recirculating splitter valve (if applicable) and liquid level
- 6. Check general appearance

EFFLUENT FILTERS/PUMP SCREENS (Annually)

- 1. Check effluent filter for buildup of biomat growth
- 2. Clean (if needed)

SEPTIC TANK (Annually)

- 1. Measure sludge and scum level
- 2. Tank(s) should be pumped if the sludge layer is closer than 12" to the bottom of the inlet baffel or whenever the scum is closer than 3" to the bottom of the outlet baffel
 - * (If the test results determine a need for solids removal, the Property Owner will bear the cost and responsibility for doing so)
- 3. Check general appearance

PRETREATMENT DEVICE (Annually)

- 1. Inspect for ponding; assess character and color of biomat
- 2. Test pressurization of laterals (squirt test)
- 3. Verify proper orifice position, equal spray under orifices, no clogged orifices
- 4. Check for odors: adjust recirculating time (if necessary)
- 5. Clean and flush manifold (if necessary)
- 6. Re-check squirt height (if necessary)
- 7. Inspect the appearance of the wastewater inside the unit for color and turbidity.

DISPERSAL FIELD (Annually)

- 1. Inspect for visible signs of failure (surface discharge, soggy ground, wet spots, settling, etc.)
- 2. If liquid level monitors are installed, levels will be observed and recorded.
- 3. Flush filters and clean cartridges, if applicable
- 4. Check field control unit solenoid operations or manual control, if applicable
- 5. Check for required separation

SAMPLING (As Deemed Necessary)

- 1. Acquire and deliver samples for analysis of BODs, TSS, Fats Oils and Grease, and Fecal Coliform (cost of sampling analysis plus delivery charges is the responsibility of the Property Owner. If more than one analysis is recommended and required within the duration of this contract, the additional labor costs acquired by A.M. & Associates, Inc. along with sampling analysis fees and delivery charges is the responsibility of the Property Owner).

MISCELLANEOUS (Annually)

- 1. Review water usage from water meter records kept by the Property Owner.

***** PROPERTY OWNER'S RESPONSIBILITIES (Monthly and/or as Required)**

During the term hereof, I/we as the current Property Owner(s) understand that I/we;

- 1. Will provide A.M. & Associates, Inc. with access to the System. Access includes electrical controls & disconnects, hose hookup water supply and sufficient workspace to perform the necessary maintenance services
- 2. Will be responsible for recording water meter readings on a *monthly* basis.
- 3. Must *notify* A.M. & Associates, Inc. *immediately* when signs of weeping problems, sewage smell or any other indication that the system may not be functioning properly.
- 4. Will provide A.M. & Associates, Inc. copies of the water meter records, upon request.
- 5. Must acquire pre-authorization from A.M. & Associates, Inc., *prior* to the Property Owner or any other individual performing or attempts to:
 - a. make alterations or modifications to the System, or
 - b. misuse the System, or
 - c. attach devices to it, or
 - d. execute any type of Maintenance services to the system or any portion thereof
- 6. Will notify A.M. & Associates, Inc. of new ownership of property if within the duration of this contract.
- 7. Will accept all responsibility and risks involved with the installation and hydraulic performance of this Septic System and hold A.M. & Associates, Inc. harmless from all liability for this Sewage Treatment System whatsoever.
- 8. May be required to perform additional maintenance responsibilities as deemed necessary by A.M. & Associates, Inc.

This contract shall remain in force for a period of one year, beginning January 1st 2004 and ending December 31st 2004.

FEES

Maintenance, Monitoring & Inspection Service Contract **\$150.00** **Due at time of signing contract**

Sample Analysis Fees & Supplies (approx) **N/A** **Due at time of sampling**

***Time & Mileage to Deliver Samples for Analysis** **N/A** **Due at time of sampling**

NOTE: SAMPLING OF FECAL COLIFORM, BOD, TSS, AND FATS OIL AND GREASE IS NOT REQUIRED AT THIS TIME. IF SAMPLING IS FOUND TO BE NECESSARY DURING THE DURATION OF THE USE OF THIS SEPTIC SYSTEM, THE PROPERTY OWNER(S) IS RESPONSIBLE FOR ALL COSTS INVOLVED, AND IS DUE AT TIME THE SAMPLES ARE TO BE TAKEN.

*If at time of sampling, the Property Owner(s) wishes to transport the samples to Brainerd himself for analysis, within the *required time limit*, A.M. & Associates, Inc. will wave the time, mileage delivery fees of \$100.00.

A.M. & Associates, Inc. agrees to provide inspection, monitoring and routine maintenance service only under this contract.

I hereby certify with my signature as the Property Owner(s) that I understand the provisions, requirements and responsibilities of this Maintenance, Monitoring and Inspection Service Contract. I also understand failure to comply with the requirements outlined in my Operating Permit, this Contract, along with any future requirements that may arise, set forth by Aitkin County Environmental Services, Orenco Systems, Inc. (OSI) or A.M. & Associates, Inc., could result in the condemning of my septic system, removal of the use of the drainfield, and require the use of Holding Tanks with a pumping Contract.

Property Owner(s):

Name: Lloyd Welsh
(please print)


(signature)

Date: 12/22/03

Spouse: Lois Welsh
(please print)


(signature)

Date: 12/22/03

A.M. & Associates, Inc.:

Michael D. O'Keeffe
(please print)


(signature)

Date: 12-24-03

29201 29-1-490100

AITKIN COUNTY ENVIRONMENTAL SERVICES-PLANNING & ZONING

**209 Second Street, NW
Aitkin, Minnesota 56431**

PH: (218) 927-7342
FX: (218) 927-4372



June 6, 2005

RE: Renewed Operating Permit

To Whom It May Concern:

This letter is to inform you that your Operating Permit (No. 89) has been renewed until May 31, 2006. You should note that all renewal dates that were formerly on December 31 have been moved forward to allow your Operation and Maintenance provider suitable time to complete the monitoring report.

Please adhere to your monitoring and maintenance contract including monitoring your water use. Failure to do so would violate the agreement to operate your system and could void the operating permit. You should contact your Operation and Maintenance provider directly with questions that you may have during the year.

Thank you for your good stewardship and we hope that your system continues to operate well, protecting groundwater for you and the environment.

Sincerely,

Richard Courtemanche
Assistant Zoning Administrator
Aitkin County

AITKIN COUNTY ENVIRONMENTAL SERVICES

**OPERATING PERMIT FOR WASTEWATER
TREATMENT AND DISPERSAL**

OPERATING PERMIT #: 89
PERMITTEE: Lloyd and Lois Welsh
ADDRESS: 51141 207TH PL
McGregor, MN 55760-

FEE: \$50.00
PHONE: (218) 426-4388

ZONING PERMIT # 29201

PARCEL #: 29-1-490100

LEGALDESCRIPTION: Lot 11 Double S Acres Second Addition

ISSUE DATE 1/ 1/05

EXPIRATION DATE ~~12/31/05~~ ⁵⁻³¹⁻⁰⁶

Aitkin County Environmental Services authorizes the Permittee to operate a wastewater treatment and dispersal system located on the above described property in accordance with the requirements of this permit.

This permit is effective on the issuance date identified above.

This permit and the authorization to treat and disperse from the above system shall expire on the above expiration date. The Permittee is not authorized to discharge after the date of expiration. The Permittee shall submit such information and forms as required by Aitkin County Environmental Services no later than thirty (30) days prior to the expiration date. When the required information is submitted and approved by Aitkin County Environmental Services, the permit may be renewed. This permit is not transferable from owner to owner.

I hereby certify with my signature as the permittee that I understand the provisions of this permit including the maintenance and monitoring requirements. I agree to indemnify and hold Aitkin County harmless from all loss, damages, costs and charges that may be incurred by use of this system and if I fail to comply with the provisions of this Operating Permit. If I sell this property during the life of the permit, I will inform the new owner(s) of the permit requirements and the need to renew the permit.


Signature of Permittee

3-12-05
Date


Signature of Permitting Authority

3-29-05
Date

If You have any questions regarding this permit, including the specific permit requirements, permit reporting or permit compliance status, please contact Aitkin County Environmental Services at 218-927-7342.

A. DESCRIPTION OF WASTEWATER TREATMENT AND DISPERSAL SYSTEM

This ISTS is to gravity from the dwelling into the existing 1200 gallon concrete septic tank. From there the liquids will gravity into a new 1860 precast septic/lift tank. An OSI AdvanTex AX-10 Series, Mode 1b Textile Filter is to be placed on top of the 1860 septic/lift tank. Wastewater will percolate through the Textile Filter which will recirculate through the tank and the filter treating the liquids. The treated liquids will then be pumped into a 10' x 38' Pressure Bed with 18 inches of separation. The Pressure Bed is to be constructed on "clean sand" with 6 foot dikes at a 3:1 slope.

B. PERFORMANCE STANDARD REQUIREMENTS:

During the period beginning on the effective date (issuance date) of this permit and lasting until this permits expiration date, the Permittee is authorized to discharge from the wastewater treatment unit to subsurface dispersal. No surface discharge is permitted. The following parameters must be monitored and the results must be found within the compliance limits.

PARAMETER	COMPLIANCE LIMIT	SAMPLE LOCATION	SAMPLE FREQUENCY	SAMPLE TYPE	REPORTING FREQUENCY
BOD5	15/220 mg/l	Filtrate Splitter Valve	As Necessary	Measure in Field	ANNUALLY
Fats, Oil and Greases	< 30 mg/l	Filtrate Splitter Valve	As Necessary	Measure in Field	ANNUALLY
Fecal Coliform	< 1000 mg/l	Filtrate Splitter Valve	ANNUALLY	Measure in Field	ANNUALLY
Flow	300 gpd	Water Meter	Weekly	Record on Log Sheet	ANNUALLY
Separation	18 inches	Dispersal System	ANNUALLY	Measure in Field	ANNUALLY
TSS	15/65 mg/l	Filtrate Splitter Valve	As Necessary	Measure in Field	ANNUALLY

C. MAINTENANCE REQUIREMENTS:

PARAMETER	LOCATION	FREQUENCY
Flow	Water Meter	MONTHLY
Inspect Effluent Filters	Dispersal System	ANNUAL
Odor	Textile Filter	ANNUAL
Pumps, Floats & Alarms	Lift Tank	ANNUAL
Solids Removal & Water Tightness	Septic tank(s)	ANNUAL
Vegetative Cover	Dispersal System	ANNUAL

D. MONITORING AND REPORTING REQUIREMENTS:

Monitoring results obtained during each calendar year shall be submitted no later than December 31st of that year to:

Aitkin County Environmental Services
209 2nd Street NW
Aitkin, MN 56431

The monitoring reports shall be signed by the Permittee. Copies are to be retained by the Permittee.

The Permittee shall notify Aitkin County Environmental Services within thirty (30) days when monitoring results do not meet the monitoring plan requirements of this permit.

Monitoring plans may be modified as necessary and reapproved by Aitkin County Environmental Services.

Sampling and laboratory testing procedures shall be performed in accordance with Standard Methods and the testing shall be performed by a Minnesota Department of Health approved laboratory. All sampling and testing costs shall be the responsibility of the Permittee.

Monitoring will be done by A.M. & Associates.

E. MITIGATION PLAN:

1. If ponding problems should occur due to build-up of oil & grease, have biomat analyzed. 2. If ponding problems should occur of indeterminate cause, coupled with a pungent odor, it may be necessary to clean the textile media. 3. If weeping problems should occur; lower dosing rate, lower water usage, increase distribution, and absorption area. 4. If OSI Textile Filter experiences problems, fix or repair at recommendations of Manufacturer or replace. 5. A different or another Performance or Other System may be installed at the owner's expense. 6. If in the event that this system should fail and if there is no other ISTS option available, then Holding Tanks must be installed, to be pumped by Licensed Pumper.

F. SPECIAL REQUIREMENTS:

A.M. Associates, a licensed ISTS firm, has agreed to perform all monitoring responsibilities, as outlined within this Operating Permit Application, for a period of 1 year.

A. M. & Associates, Inc.

29465 442nd Lane
Palisade, MN 56469
(218) 768-4430

Michael D. O'Keeffe
Annette M. O'Keeffe
SEPTIC SYSTEMS
DESIGNS * INSPECTIONS * MAINTENANCE
MPCA #1357

ONE YEAR MAINTENANCE, MONITORING AND INSPECTION SERVICE CONTRACT FOR INDIVIDUAL SEWAGE TREATMENT SYSTEM FOR YEAR 2005

It is hereby agreed this 4th day of March, 20 05 by and between A.M. & Associates, Inc. and

Property Owner(s): LLOYD & LOIS WELSH
Home Address: 14150 90TH ST. NE
ELK RIVER, MN 55330

Parcel Code: 29-1-490100
Site Address: 51141 207TH PLACE
McGREGOR, MN 55760
(BIG SANDY LAKE)

Phone (home) (651) 430-3396
(work) _____
(cell) _____

Township SHAMROCK
Phone: (218) 426-4388

DESCRIPTION OF INDIVIDUAL SEWAGE TREATMENT SYSTEM

OSI AX-10 TEXTILE FILTER, DISPERSING INTO A 10' X 38' PRESSURE BED

This ISTS is to gravity from the dwelling into the existing 1200 gallon concrete septic tank. From there the liquids will gravity into a new 1860 precast septic/lift tank. An OSI AdvanTex AX-10 Series, Mode 1b Textile Filter is to be placed on top of the 1860 septic/lift tank. Wastewater will percolate through the Textile Filter which will recirculate through the tank and the filter treating the liquids. The treated liquids will then be pumped into a 10' x 38' Pressure Bed with 18 inches of separation. The Pressure Bed is to be constructed on "clean sand" with 6 foot dikes at a 3:1 slope. 2 Bedrooms, 300 gpd, 9,000 gallons per month.

Installation Date: August 2002 Installer: Ernie Darlow Phone#: (218) 426-4320

That A.M. & Associates, Inc. will provide the services to perform Preventative Maintenance, Monitoring and Inspection of the parameters and frequency described herein as your Operating Permit requires for your Individual Sewage Treatment System (ISTS).

Each inspection includes an examination of the ISTS followed by a written report to the Property Owner. This inspection report shall contain recommendations for operation and maintenance for failure-preventative measures, if any are deemed appropriate by the inspector, and a list of recommended corrective measures or replacement parts. A.M. & Associates, Inc. is authorized to submit a copy of the report to the pertaining County's Environmental Services Department.

This contract does not assume any responsibilities or obligations, which are normally the responsibilities of the Property Owner, or as related to parts or labor and does not extend to cover any costs that may be associated with any recommendations made under this contract.

A.M. & Associates, Inc. can only contract or subcontract for parts or labor after authorization by you. Billings for service calls shall be made on a case by case basis. This contract **only** covers maintenance, monitoring and inspection services per current pertaining County Operating Permit and **does not** cover alarm calls of any kind.

On-site Service Calls cost of a minimum of \$50.00 plus \$50.00 per hour for time and labor required from A.M. & Associates, due to alarms, misuse or abuse of any portion of this System, is the responsibility of the Property Owner(s), payable at time of Service. Minnesota Onsite Specialties fees for Service calls are separate.

All cost for parts time and labor, required to analyze, fix or replace any portion of this system, for damages caused by winter freezing, is the responsibility of the Property Owner(s).

All additional cost, time and labor required from A.M. & Associates, Inc. and/or Minnesota Onsite Specialties due to modifications made by the pertaining County's Environmental Services Department, is the responsibility of the Property Owner(s), and is payable within 20 days of billing.

In no event shall A.M. & Associates, Inc., Minnesota Onsite Specialties, or the Inspector be responsible for special or consequential damages, including but not limited to, loss of time, injury to personal property or any other consequential damages or incidental or economic loss due to equipment failure or for any other reason.

A.M. & Associates, Inc. shall be provided access to the site and the system in order to perform the following services that are marked:

CONTROL/ALARM PANEL (Annually)

- 1. Check pump operations in manual mode
- 2. Check timer settings
- 3. Record elapsed time meter and counter readings
- 4. Confirm operation of audible and visual alarms

LIFT PUMPING STATION (Annually)

- 1. Verify no leaks in riser
- 2. Inspect splice box for moisture and secure connections
- 3. Verify condition of and correct operation of all floats
- 4. Verify neat wrap of float cords
- 5. Visually inspect recirculating splitter valve (if applicable) and liquid level
- 6. Check general appearance

EFFLUENT FILTERS/PUMP SCREENS (Annually)

- 1. Check effluent filter for buildup of biomat growth
- 2. Clean (if needed)

SEPTIC TANK (Annually)

- 1. Measure sludge and scum level
- 2. Tank(s) should be pumped if the sludge layer is closer than 12" to the bottom of the inlet baffel or whenever the scum is closer than 3" to the bottom of the outlet baffel
* (If the test results determine a need for solids removal, the Property Owner will bear the cost and responsibility for doing so)
- 3. Check general appearance

PRETREATMENT DEVICE (Annually)

- 1. Inspect for ponding; assess character and color of biomat
- 2. Test pressurization of laterals (squirt test)
- 3. Verify proper orifice position, equal spray under orifices, no clogged orifices
- 4. Check for odors: adjust recirculating time (if necessary)
- 5. Clean and flush manifold (if necessary)
- 6. Re-check squirt height (if necessary)
- 7. Inspect the appearance of the wastewater inside the unit for color and turbidity.

DISPERSAL FIELD (Annually)

- 1. Inspect for visible signs of failure (surface discharge, soggy ground, wet spots, settling, etc.)
- 2. If liquid level monitors are installed, levels will be observed and recorded.
- 3. Flush filters and clean cartridges, if applicable
- 4. Check field control unit solenoid operations or manual control, if applicable
- 5. Check for required separation

SAMPLING (As Deemed Necessary)

- 1. Acquire and deliver samples for analysis of BODs, TSS, Fats Oils and Grease, and Fecal Coliform (cost of sampling analysis plus delivery charges is the responsibility of the Property Owner. If more than one analysis is recommended and required within the duration of this contract, the additional labor costs acquired by A.M. & Associates, Inc. along with sampling analysis fees and delivery charges is the responsibility of the Property Owner).

MISCELLANEOUS (Annually)

- 1. Review water usage from water meter records kept by the Property Owner.

***** PROPERTY OWNER'S RESPONSIBILITIES (Monthly and/or as Required)**

During the term hereof, I/we as the current Property Owner(s) understand that I/we;

- 1. Will provide A.M. & Associates, Inc. with access to the System. Access includes electrical controls & disconnects, hose hookup water supply and sufficient workspace to perform the necessary maintenance services
- 2. Will be responsible for recording water meter readings on a *monthly* basis.
- 3. Must *notify* A.M. & Associates, Inc. *immediately* when signs of weeping problems, sewage smell or any other indication that the system may not be functioning properly.
- 4. Will provide A.M. & Associates, Inc. copies of the water meter records, upon request.
- 5. Must acquire pre-authorization from A.M. & Associates, Inc., *prior* to the Property Owner or any other individual performing or attempts to:
 - a. make alterations or modifications to the System, or
 - b. misuse the System, or
 - c. attach devices to it , or
 - d. execute any type of Maintenance services to the system or any portion thereof
- 6. Will notify A.M. & Associates, Inc. of new ownership of property if within the duration of this contract.
- 7. Will accept all responsibility and risks involved with the installation and hydraulic performance of this Septic System and hold A.M. & Associates, Inc. harmless from all liability for this Sewage Treatment System whatsoever.
- 8. May be required to perform additional maintenance responsibilities as deemed necessary by A.M. & Associates, Inc.

This contract shall remain in force for a period of one year, beginning January 1st 2005 and ending December 31st 2005.

FEES

Maintenance, Monitoring & Inspection Service Contract	\$150.00	Due at time of signing contract
Sample Analysis Fees & Supplies	(approx) N/A	Due at time of sampling
*Time & Mileage to Deliver Samples for Analysis	N/A	Due at time of sampling


NOTE: SAMPLING OF FECAL COLIFORM, BOD, TSS, AND FATS OIL AND GREASE IS NOT REQUIRED AT THIS TIME. IF SAMPLING IS FOUND TO BE NECESSARY DURING THE DURATION OF THE USE OF THIS SEPTIC SYSTEM, THE PROPERTY OWNER(S) IS RESPONSIBLE FOR ALL COSTS INVOLVED, AND IS DUE AT TIME THE SAMPLES ARE TO BE TAKEN.

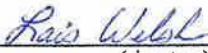
*If at time of sampling, the Property Owner(s) wishes to transport the samples to Brainerd himself for analysis, within the *required time limit*, A.M. & Associates, Inc. will wave the time, mileage delivery fees of \$100.00.

A.M. & Associates, Inc. agrees to provide inspection, monitoring and routine maintenance service only under this contract.

I hereby certify with my signature as the Property Owner(s) that I understand the provisions, requirements and responsibilities of this Maintenance, Monitoring and Inspection Service Contract. I also understand failure to comply with the requirements outlined in my Operating Permit, this Contract, along with any future requirements that may arise, set forth by Aitkin County Environmental Services, Orenco Systems, Inc. (OSI) or A.M. & Associates, Inc., could result in the condemning of my septic system, removal of the use of the drainfield, and require the use of Holding Tanks with a pumping Contract.

Property Owner(s):

Name: Lloyd Welsh (please print)  (signature) Date: 3/12/05

Spouse: Lois Welsh (please print)  (signature) Date: 3/12/05

A.M. & Associates, Inc.:

Michael D. O'Keefe (please print)  (signature) Date: 03/04/2005

**MAINTENANCE, MONITORING AND INSPECTION REPORT
FOR INDIVIDUAL SEWAGE TREATMENT SYSTEM
2nd YEAR SERVICE
2004**

Property Owner(s): **LLOYD & LOIS WELSH**
 Home Address: **51141 207TH PLACE** Site Address: **SAME**
McGREGOR, MN 55760 (BIG SANDY LAKE)
 Phone: **(218) 430-3396**
 Parcel Code: **29-1-490100** Township: **SHAMROCK**

DESCRIPTION OF INDIVIDUAL SEWAGE TREATMENT SYSTEM

OSI AX-10 TEXTILE FILTER, DISPERSING INTO A 10' X 38' PRESSURE BED

**This ISTS is to gravity from the dwelling into the existing 1200 gallon concrete septic tank. From there the liquids will gravity into a new 1860 precast septic/lift tank. An OSI AdvanTex AX-10 Series, Mode 1b Textile Filter is to be placed on top of the 1860 septic/lift tank. Wastewater will percolate through the Textile Filter which will recirculate through the tank and the filter treating the liquids. The treated liquids will then be pumped into a 10' x 38' Pressure Bed with 18 inches of separation. The pressure Bed is to be constructed on "clean sand" with 6 foot dikes at a 3:1 slope.
2 Bedrooms, 300 gpd, 9,000 gallons per month.**

Installation Date: August 2002 Installer: Ernie Darlow Phone#: (218) 426-4320

2004 MAINTENANCE & MONITORING RESULTS

CONTROL/ALARM PANEL	RESULTS
1. Check pump operations in manual mode	Good
2. Check timer settings	Good
3. Record elapsed time meter and counter readings.	Downloaded
4. Confirm operation of audible and visual alarms	Good

LIFT PUMPING STATION	RESULTS
1. Verify no leaks in riser	Good
2. Inspect splice box for moisture and secure connections	Drilled hole in bottom of box for drainage
3. Verify condition of and correct operation of all floats	Good
4. Verify neat wrap of float cords	Good
5. Pull pump and clean intake screen if necessary	Good
6. Check general appearance	Good

EFFLUENT FILTERS/PUMP SCREENS	RESULTS
1. Check effluent filter for buildup of biomat growth.	Build-up on Bio Tube
2. Clean (if needed)	CLEANED

SEPTIC TANK	RESULTS
1. Measure sludge and scum level	Sludge Level = 1" Scum Level = 2"
2. Tank(s) should be pumped if the sludge layer is closer than 12" to the bottom of the inlet baffel or whenever the scum is closer than 3" to the bottom of the outlet baffel.	Not necessary at this time.
3. Check general appearance	Good

2004 MAINTENANCE & MONITORING RESULTS

PRETREATMENT DEVICE	RESULTS
1. Inspect for ponding, assess character and color of biomat	Good
2. Test pressurization of laterals (squirt test)	Good
3. Verify proper orifice position, equal spray under orifices no clogged orifices	Good
4. Check for odors: adjust recirculating time (if necessary)	Good
5. Clean and flush manifold (if necessary)	Good
6. Re-check squirt height (if necessary)	Not necessary at this time.
7. Inspect the appearance of the wastewater inside the unit for color and turbidity.	Effluent Clear

DISPERSAL FIELD	RESULTS
1. Inspect for visible signs of failure (surface discharge, soggy ground, wet spots, settling, etc.)	No signs of failure.
2. Check for required separation	37" of Separation below bottom of Rock

MISCELLANEOUS	RESULTS	
1. Review water usage from water meter records.	Date	Gallons Used
	December '03	1452
	January '04	1513
	February	1042
	March	1599
	April	1357
	May	1782
	June	1153
	July	1384
	August	1432
	September	734
	October	928
	November	1054

COMMENTS: ALL COMPONENTS LOOK GOOD.

Drainfield meets the required separation.

Drainfield is sized for 2 Bedrooms, 300 gpd, 9,000 gallons per month. Full time residence shows water usage is well within limitations.

Date Maintained: **08/03/2004**

Performed By: **A.M. & Associates, Inc.**
29465 442nd Lane
Palisade, MN 56469
(218) 768-4430

Michael & Annette O'Keeffe

AITKIN COUNTY ENVIRONMENTAL SERVICES

OPERATING PERMIT FOR WASTEWATER TREATMENT AND DISPERSAL

OPERATING PERMIT #: 89

FEE: \$50.00

PERMITTEE: Lloyd and Lois Welsh

PHONE: (218) 426-4388

ADDRESS: 51141 207TH PL
McGregor, MN 55760-

ZONING PERMIT # 29201

PARCEL #: 29-1-490100

LEGALDESCRIPTION: Lot 11 Double S Acres Second Addition

ISSUE DATE 5/31/2006

EXPIRATION DATE 5/31/2007

Aitkin County Environmental Services authorizes the Permittee to operate a wastewater treatment and dispersal system located on the above described property in accordance with the requirements of this permit.

This permit is effective on the issuance date identified above.

This permit and the authorization to treat and disperse from the above system shall expire on the above expiration date. The Permittee is not authorized to discharge after the date of expiration. The Permittee shall submit such information and forms as required by Aitkin County Environmental Services no later than thirty (30) days prior to the expiration date. When the required information is submitted and approved by Aitkin County Environmental Services, the permit may be renewed. This permit is not transferable from owner to owner.

I hereby certify with my signature as the permittee that I understand the provisions of this permit including the maintenance and monitoring requirements. I agree to indemnify and hold Aitkin County harmless from all loss, damages, costs and charges that may be incurred by use of this system and if I fail to comply with the provisions of this Operating Permit. If I sell this property during the life of the permit, I will inform the new owner(s) of the permit requirements and the need to renew the permit.

Lois M. Welsh
Signature of Permittee

5-19-06
Date

M. Kingsley
Signature of Permitting Authority

5/19/06
Date

If You have any questions regarding this permit, including the specific permit requirements, permit reporting or permit compliance status, please contact Aitkin County Environmental Services at 218-927-7342.

A. DESCRIPTION OF WASTEWATER TREATMENT AND DISPERSAL SYSTEM

This ISTS is to gravity from the dwelling into the existing 1200 gallon concrete septic tank. From there the liquids will gravity into a new 1860 precast septic/lift tank. An OSI AdvanTex AX-10 Series, Mode 1b Textile Filter is to be placed on top of the 1860 septic/lift tank. Wastewater will percolate through the Textile Filter which will recirculate through the tank and the filter treating the liquids. The treated liquids will then be pumped into a 10' x 38' Pressure Bed with 18 inches of separation. The Pressure Bed is to be constructed on "clean sand" with 6 foot dikes at a 3:1 slope.

B. PERFORMANCE STANDARD REQUIREMENTS:

During the period beginning on the effective date (issuance date) of this permit and lasting until this permits expiration date, the Permittee is authorized to discharge from the wastewater treatment unit to subsurface dispersal. No surface discharge is permitted. The following parameters must be monitored and the results must be found within the compliance limits.

PARAMETER	COMPLIANCE LIMIT	SAMPLE LOCATION	SAMPLE FREQUENCY	SAMPLE TYPE	REPORTING FREQUENC
BOD5	15/220 mg/l	Filtrate Splitter Valve	As Necessary	Measure in Field	ANNUALLY
Fats, Oil and Greases	< 30 mg/l	Filtrate Splitter Valve	As Necessary	Measure in Field	ANNUALLY
Fecal Coliform	< 1000 mg/l	Filtrate Splitter Valve	ANNUALLY	Measure in Field	ANNUALLY
Flow	300 gpd	Water Meter	Weekly	Record on Log Sheet	ANNUALLY
Separation	18 inches	Dispersal System	ANNUALLY	Measure in Field	ANNUALLY
TSS	15/65 mg/l	Filtrate Splitter Valve	As Necessary	Measure in Field	ANNUALLY

C. MAINTENANCE REQUIREMENTS:

PARAMETER	LOCATION	FREQUENCY
Flow	Water Meter	MONTHLY
Inspect Effluent Filters	Dispersal System	ANNUAL
Odor	Textile Filter	ANNUAL
Pumps, Floats & Alarms	Lift Tank	ANNUAL
Solids Removal & Water Tightness	Septic tank(s)	ANNUAL
Vegetative Cover	Dispersal System	ANNUAL

D. MONITORING AND REPORTING REQUIREMENTS:

Monitoring results obtained during each calendar year shall be submitted no later than December 31st of that year to:

Aitkin County Environmental Services
209 2nd Street NW
Aitkin, MN 56431

The monitoring reports shall be signed by the Permittee. Copies are to be retained by the Permittee.

The Permittee shall notify Aitkin County Environmental Services within thirty (30) days when monitoring results do not meet the monitoring plan requirements of this permit.

Monitoring plans may be modified as necessary and reapproved by Aitkin County Environmental Services.

Sampling and laboratory testing procedures shall be performed in accordance with Standard Methods and the testing shall be performed by a Minnesota Department of Health approved laboratory. All sampling and testing costs shall be the responsibility of the Permittee.

Monitoring will be done by A.M. & Associates I

E. MITIGATION PLAN:

1. If ponding problems should occur due to build-up of oil & grease, have biomat analyzed. 2. If ponding problems should occur of indeterminate cause, coupled with a pungent odor, it may be necessary to clean the textile media 3. If weeping problems should occur; lower dosing rate, lower water usage, increase distribution, and absorption area. 4. If OSI Textile Filter experiences problems, fix or repair at recommendations of Manufacturer or replace. 5. A different or another Performance or Other System may be installed at the owner's expense. 6. If in the event that this system should fail and if there is no other ISTS option available, then Holding Tanks must be installed, to be pumped by Licensed Pumper.

F. SPECIAL REQUIREMENTS:

A.M. Associates, a licensed ISTS firm, has agreed to perform all monitoring responsibilities, as outlined within this Operating Permit Application, for a period of 1 year.

A. M. & Associates, Inc.

29465 442nd Lane
Palisade, MN 56469
(218) 768-4430

Michael D. O'Keeffe
Annette M. O'Keeffe
SEPTIC SYSTEMS
DESIGNS * INSPECTIONS * MAINTENANCE
MPCA #1357

**TWO YEAR
MAINTENANCE, MONITORING AND INSPECTION SERVICE CONTRACT
FOR INDIVIDUAL SEWAGE TREATMENT SYSTEM
FOR June 1st 2006 thru May 31st 2008**

It is hereby agreed this 13th day of MAY, 20 06 by and between A.M. & Associates, Inc. and

Property Owner(s): LLOYD & LOIS WELSH
Home Address: 14150 90TH ST. NE
ELK RIVER, MN 55330

Parcel Code: 29-1-490100
Site Address: 51141 207TH PLACE
McGREGOR, MN 55760
(BIG SANDY LAKE)

Phone (home) (651) 430-3396
(work) _____
(cell) _____

Township SHAMROCK
Phone: (218) 426-4388

DESCRIPTION OF INDIVIDUAL SEWAGE TREATMENT SYSTEM

OSI AX-10 TEXTILE FILTER, DISPERSING INTO A 10' X 38' PRESSURE BED

This ISTS is to gravity from the dwelling into the existing 1200 gallon concrete septic tank. From there the liquids will gravity into a new 1860 precast septic/lift tank. An OSI AdvanTex AX-10 Series, Mode 1b Textile Filter is to be placed on top of the 1860 septic/lift tank. Wastewater will percolate through the Textile Filter which will recirculate through the tank and the filter treating the liquids. The treated liquids will then be pumped into a 10' x 38' Pressure Bed with 18 inches of separation. The Pressure Bed is to be constructed on "clean sand" with 6 foot dikes at a 3:1 slope.
2 Bedrooms, 300 gpd, 9,000 gallons per month.

Installation Date: August 2002

Installer: Ernie Darlow

Phone#: (218) 426-4320

That A.M. & Associates, Inc. will provide the services to perform Preventative Maintenance, Monitoring and Inspection of the parameters and frequency described herein as your Operating Permit requires for your Individual Sewage Treatment System (ISTS).

Each inspection includes an examination of the ISTS followed by a written report to the Property Owner. This inspection report shall contain recommendations for operation and maintenance for failure-preventative measures, if any are deemed appropriate by the inspector, and a list of recommended corrective measures or replacement parts. A.M. & Associates, Inc. is authorized to submit a copy of the report to the pertaining County's Environmental Services Department.

This contract does not assume any responsibilities or obligations, which are normally the responsibilities of the Property Owner, or as related to parts or labor and does not extend to cover any costs that may be associated with any recommendations made under this contract.

A.M. & Associates, Inc. can only contract or subcontract for parts or labor after authorization by you. Billings for service calls shall be made on a case by case basis. This contract **only** covers maintenance, monitoring and inspection services per current pertaining County Operating Permit and **does not** cover alarm calls of any kind.

On-site Service Calls cost of a minimum of \$50.00 plus \$50.00 per hour for time and labor required from A.M. & Associates, due to alarms, misuse or abuse of any portion of this System, is the responsibility of the Property Owner(s), payable at time of Service. Minnesota Onsite Specialties fees for Service calls are separate.

All cost for parts time and labor, required to analyze, fix or replace any portion of this system, for damages caused by winter freezing, is the responsibility of the Property Owner(s).

All additional cost, time and labor required from A.M. & Associates, Inc. and/or Minnesota Onsite Specialties due to modifications made by the pertaining County's Environmental Services Department, is the responsibility of the Property Owner(s), and is payable within 20 days of billing.

In no event shall A.M. & Associates, Inc., Minnesota Onsite Specialties, or the Inspector be responsible for special or consequential damages, including but not limited to, loss of time, injury to personal property or any other consequential damages or incidental or economic loss due to equipment failure or for any other reason.

A.M. & Associates, Inc. shall be provided access to the site and the system in order to perform the following services that are marked:

CONTROL/ALARM PANEL (Annually)

- 1. Check pump operations in manual mode
- 2. Check timer settings
- 3. Record elapsed time meter and counter readings
- 4. Confirm operation of audible and visual alarms

LIFT PUMPING STATION (Annually)

- 1. Verify no leaks in riser
- 2. Inspect splice box for moisture and secure connections
- 3. Verify condition of and correct operation of all floats
- 4. Verify neat wrap of float cords
- 5. Visually inspect recirculating splitter valve (if applicable) and liquid level
- 6. Check general appearance

EFFLUENT FILTERS/PUMP SCREENS (Annually)

- 1. Check effluent filter for buildup of biomat growth
- 2. Clean (if needed)

SEPTIC TANK (Annually)

- 1. Measure sludge and scum level
- 2. Tank(s) should be pumped if the sludge layer is closer than 12" to the bottom of the inlet baffel or whenever the scum is closer than 3" to the bottom of the outlet baffel
* (If the test results determine a need for solids removal, the Property Owner will bear the cost and responsibility for doing so)
- 3. Check general appearance

PRETREATMENT DEVICE (Annually)

- 1. Inspect for ponding; assess character and color of biomat
- 2. Test pressurization of laterals (squirt test)
- 3. Verify proper orifice position, equal spray under orifices, no clogged orifices
- 4. Check for odors: adjust recirculating time (if necessary)
- 5. Clean and flush manifold (if necessary)
- 6. Re-check squirt height (if necessary)
- 7. Inspect the appearance of the wastewater inside the unit for color and turbidity.

DISPERSAL FIELD (Annually)

- 1. Inspect for visible signs of failure (surface discharge, soggy ground, wet spots, settling, etc.)
- 2. If liquid level monitors are installed, levels will be observed and recorded.
- 3. Flush filters and clean cartridges, if applicable
- 4. Check field control unit solenoid operations or manual control, if applicable
- 5. Check for required separation

SAMPLING (As Deemed Necessary)

- 1. Acquire and deliver samples for analysis of BODs, TSS, Fats Oils and Grease, and Fecal Coliform (cost of sampling analysis plus delivery charges is the responsibility of the Property Owner. If more than one analysis is recommended and required within the duration of this contract, the additional labor costs acquired by A.M. & Associates, Inc. along with sampling analysis fees and delivery charges is the responsibility of the Property Owner).

MISCELLANEOUS (Annually)

- 1. Review water usage from water meter records kept by the Property Owner.

***** PROPERTY OWNER'S RESPONSIBILITIES (Monthly and/or as Required)**

During the term hereof, I/we as the current Property Owner(s) understand that I/we;

- 1. Will provide A.M. & Associates, Inc. with access to the System. Access includes electrical controls & disconnects, hose hookup water supply and sufficient workspace to perform the necessary maintenance services
- 2. Will be responsible for recording water meter readings on a *monthly* basis.
- 3. Must *notify* A.M. & Associates, Inc. *immediately* when signs of weeping problems, sewage smell or any other indication that the system may not be functioning properly.
- 4. Will provide A.M. & Associates, Inc. copies of the water meter records, upon request.
- 5. Must acquire pre-authorization from A.M. & Associates, Inc., *prior* to the Property Owner or any other individual performing or attempts to:
 - a. make alterations or modifications to the System, or
 - b. misuse the System, or
 - c. attach devices to it, or
 - d. execute any type of Maintenance services to the system or any portion thereof
- 6. Will notify A.M. & Associates, Inc. of new ownership of property if within the duration of this contract.
- 7. Will accept all responsibility and risks involved with the installation and hydraulic performance of this Septic System and hold A.M. & Associates, Inc. harmless from all liability for this Sewage Treatment System whatsoever.
- 8. May be required to perform additional maintenance responsibilities as deemed necessary by A.M. & Associates, Inc.

This contract shall remain in force for a period of one year, beginning June 1st 2006 and ending May 31st 2008.

Maintenance, Monitoring & Inspection Service Contract	\$100.00	Due at time of signing contract
Sample Analysis Fees & Supplies	(approx) N/A	Due at time of sampling
*Time & Mileage to Deliver Samples for Analysis	N/A	Due at time of sampling

NOTE: SAMPLING OF FECAL COLIFORM, BOD, TSS, AND FATS OIL AND GREASE IS NOT REQUIRED AT THIS TIME. IF SAMPLING IS FOUND TO BE NECESSARY DURING THE DURATION OF THE USE OF THIS SEPTIC SYSTEM, THE PROPERTY OWNER(S) IS RESPONSIBLE FOR ALL COSTS INVOLVED, AND IS DUE AT TIME THE SAMPLES ARE TO BE TAKEN.

*If at time of sampling, the Property Owner(s) wishes to transport the samples to Brainerd himself for analysis, within the *required time limit*, A.M. & Associates, Inc. will wave the time, mileage delivery fees of \$100.00.

A.M. & Associates, Inc. agrees to provide inspection, monitoring and routine maintenance service only under this contract.

I hereby certify with my signature as the Property Owner(s) that I understand the provisions, requirements and responsibilities of this Maintenance, Monitoring and Inspection Service Contract. I also understand failure to comply with the requirements outlined in my Operating Permit, this Contract, along with any future requirements that may arise, set forth by Aitkin County Environmental Services, Orenco Systems, Inc. (OSI) or A.M. & Associates, Inc., could result in the condemning of my septic system, removal of the use of the drainfield, and require the use of Holding Tanks with a pumping Contract.

Property Owner(s):

Name: Lloyd Welsh
(please print)

Lloyd Welsh
(signature)

Date: 5/18/06

Spouse: Lois Welsh
(please print)

Lois Welsh
(signature)

Date: 5/18/06

A.M. & Associates, Inc.:

Michael D. O'Keeffe
(please print)

Michael D. O'Keeffe
(signature)

Date: 05/13/2006

**MAINTENANCE, MONITORING AND INSPECTION REPORT
FOR INDIVIDUAL SEWAGE TREATMENT SYSTEM**

**3rd YEAR SERVICE
June 1, 2005 thru May 31, 2006**

Property Owner(s): **LLOYD & LOIS WELSH**
 Home Address: **51141 207TH PLACE** Site Address: **SAME**
McGREGOR, MN 55760 (BIG SANDY LAKE)
 Phone: **(218) 430-3396**
 Parcel Code: **29-1-490100** Township: **SHAMROCK**

DESCRIPTION OF INDIVIDUAL SEWAGE TREATMENT SYSTEM

OSI AX-10 TEXTILE FILTER, DISPERSING INTO A 10' X 38' PRESSURE BED

This ISTS is to gravity from the dwelling into the existing 1200 gallon concrete septic tank. From there the liquids will gravity into a new 1860 precast septic/lift tank. An OSI AdvanTex AX-10 Series, Mode 1b Textile Filter is to be placed on top of the 1860 septic/lift tank. Wastewater will percolate through the Textile Filter which will recirculate through the tank and the filter treating the liquids. The treated liquids will then be pumped into a 10' x 38' Pressure Bed with 18 inches of separation. The pressure Bed is to be constructed on "clean sand" with 6 foot dikes at a 3:1 slope.
 2 Bedrooms, 300 gpd, 9,000 gallons per month.

Installation Date: August 2002 Installer: Ernie Darlow Phone#: (218) 426-4320

JUNE 2005 THRU MAY 2006 MAINTENANCE & MONITORING RESULTS

Date Maintained: 07/21/2005

CONTROL/ALARM PANEL	RESULTS
1. Check pump operations in manual mode	Good
2. Check timer settings	Good
3. Record elapsed time meter and counter readings.	Not done at this time
4. Confirm operation of audible and visual alarms	Good

LIFT PUMPING STATION	RESULTS
1. Verify no leaks in riser	Good
2. Inspect splice box for moisture and secure connections	Good
3. Verify condition of and correct operation of all floats	Good
4. Verify neat wrap of float cords	Good
5. Pull pump and clean intake screen if necessary	Good
6. Check general appearance	Good

EFFLUENT FILTERS/PUMP SCREENS	RESULTS
1. Check effluent filter for buildup of biomat growth.	Some build-up on Bio Tube
2. Clean (if needed)	CLEANED

JUNE 2005 THRU MAY 2006 MAINTENANCE & MONITORING RESULTS

SEPTIC TANK	RESULTS
1. Measure sludge and scum level	Sludge Level = 2" Scum Level = 3"
2. Tank(s) should be pumped if the sludge layer is closer than 12" to the bottom of the inlet baffel or whenever the scum is closer than 3" to the bottom of the outlet baffel.	Not necessary at this time.
3. Check general appearance	Good

PRETREATMENT DEVICE	RESULTS
1. Inspect for ponding; assess character and color of biomat	Good
2. Test pressurization of laterals (squirt test)	Good
3. Verify proper orifice position, equal spray under orifices no clogged orifices	Good
4. Check for odors: adjust recirculating time (if necessary)	Good
5. Clean and flush manifold (if necessary)	Good
6. Re-check squirt height (if necessary)	Not necessary at this time.
7. Inspect the appearance of the wastewater inside the unit for color and turbidity.	Effluent Clear

DISPERSAL FIELD	RESULTS
1. Inspect for visible signs of failure (surface discharge, soggy ground, wet spots, settling, etc.)	No signs of failure.
2. Check for required separation	37" of Separation below bottom of Rock

JUNE 2005 THRU MAY 2006 MAINTENANCE & MONITORING RESULTS

MISCELLANEOUS	RESULTS	
	Date	Gallons Used
1. Review water usage from water meter records.	December 2003	1452
	January 2004	1513
	February	1042
	March	1599
	April	1357
	May	1782
	June	1153
	July	1384
	August	1432
	September	734
	October	928
	November	1054
	Dec - Mar 2005	3178 (avg)
	April	2559
	May - Aug	3834 (avg)
	September	3262
	Oct - Nov	3542 (avg)
	December	3449
	Jan - Feb 2006	3733 (avg)
	March	2723
April	3763	

COMMENTS: ALL COMPONENTS LOOK GOOD.

Drainfield meets the required separation.

Drainfield is sized for 2 Bedrooms, 300 gpd, 9,000 gallons per month. Full time residence shows water usage is well within limitations.

THIS SYSTEM HAS BEEN IN USE 3-4 YEARS AND IS OPERATING AS DESIGNED. BECAUSE THIS IS A SEASONAL RESIDENCE AND THE MINIMAL USAGE OF THIS SEPTIC SYSTEM, A.M. & ASSOCIATES RECOMMENDS THAT THE OPERATING PERMIT AND MAINTENANCE & MONITORING BE CHANGED TO EVERY 2 YEARS.

THEREFORE, THE OPERATING PERMIT RENEWAL DUE MAY 31, 2006 SHOULD BE GOOD FOR JUNE 1, 2006 THRU MAY 31, 2008. THE NEXT MAINTENANCE WILL BE PERFORMED DURING THE SUMMER OF 2007.



5/13/2006

A. M. & Associates, Inc.

29465 442nd Lane
Palisade, MN 56469
(218) 768-4430

Michael D. O'Keeffe
SEPTIC SYSTEMS
DESIGNS * INSPECTIONS * MAINTENANCE
MPCA #1357

**MAINTENANCE, MONITORING AND INSPECTION SERVICE CONTRACT
FOR INDIVIDUAL SEWAGE TREATMENT SYSTEM**

FOR June 1st 2009 thru May 31st 2014

Renew to 2014 paid \$100 #89 413854 receipt

It is hereby agreed this 14th day of AUGUST, 20 09 by and between A.M. & Associates, Inc. and

Property Owner(s): LLOYD & LOIS WELSH
Home Address: 51141 207TH PLACE
McGREGOR, MN 55760

Parcel Code: 29-1-490100
Site Address: SAME
(BIG SANDY LAKE)

Phone (home) (218) 426-4388

Township SHAMROCK

DESCRIPTION OF INDIVIDUAL SEWAGE TREATMENT SYSTEM

OSI AX-10 TEXTILE FILTER, DISPERSING INTO A 10' X 38' PRESSURE BED

This ISTS is to gravity from the dwelling into the existing 1200 gallon concrete septic tank. From there the liquids will gravity into a new 1860 precast septic/lift tank. An OSI AdvanTex AX-10 Series, Mode 1b Textile Filter is to be placed on top of the 1860 septic/lift tank. Wastewater will percolate through the Textile Filter which will recirculate through the tank and the filter treating the liquids. The treated liquids will then be pumped into a 10' x 38' Pressure Bed with 18 inches of separation. The Pressure Bed is to be constructed on "clean sand" with 6 foot dikes at a 3:1 slope. 2 Bedrooms, 300 gpd, 9,000 gallons per month.

Installation Date: August 2002 Installer: Ernie Darlow Phone#: (218) 426-4320

That A.M. & Associates, Inc. will provide the services to perform Preventative Maintenance, Monitoring and Inspection of the parameters and frequency described herein as your Operating Permit requires for your Individual Sewage Treatment System (ISTS).

Each inspection includes an examination of the ISTS followed by a written report to the Property Owner. This inspection report shall contain recommendations for operation and maintenance for failure-preventative measures, if any are deemed appropriate by the inspector, and a list of recommended corrective measures or replacement parts. A.M. & Associates, Inc. is authorized to submit a copy of the report to the pertaining County's Environmental Services Department.

This contract does not assume any responsibilities or obligations, which are normally the responsibilities of the Property Owner, or as related to parts or labor and does not extend to cover any costs that may be associated with any recommendations made under this contract.

A.M. & Associates, Inc. can only contract or subcontract for parts or labor after authorization by you. Billings for service calls shall be made on a case by case basis. This contract **only** covers maintenance, monitoring and inspection services per current pertaining County Operating Permit and **does not** cover alarm calls of any kind.

On-site Service Calls cost of a minimum of \$50.00 plus \$50.00 per hour for time and labor required from A.M. & Associates, due to alarms, misuse or abuse of any portion of this System, is the responsibility of the Property Owner(s), payable at time of Service. Minnesota Onsite Specialties fees for Service calls are separate.

All cost for parts time and labor, required to analyze, fix or replace any portion of this system, for damages caused by winter freezing, is the responsibility of the Property Owner(s).

All additional cost, time and labor required from A.M. & Associates, Inc. and/or Minnesota Onsite Specialties due to modifications made by the pertaining County's Environmental Services Department, is the responsibility of the Property Owner(s), and is payable within 20 days of billing.

In no event shall A.M. & Associates, Inc., Minnesota Onsite Specialties, or the Inspector be responsible for special or consequential damages, including but not limited to, loss of time, injury to personal property or any other consequential damages or incidental or economic loss due to equipment failure or for any other reason.

A.M. & Associates, Inc. shall be provided access to the site and the system in order to perform the following services that are marked:

CONTROL/ALARM PANEL (Annually)

- 1. Check pump operations in manual mode
- 2. Check timer settings
- 3. Record elapsed time meter and counter readings
- 4. Confirm operation of audible and visual alarms

LIFT PUMPING STATION (Annually)

- 1. Verify no leaks in riser
- 2. Inspect splice box for moisture and secure connections
- 3. Verify condition of and correct operation of all floats
- 4. Verify neat wrap of float cords
- 5. Visually inspect recirculating splitter valve (if applicable) and liquid level
- 6. Check general appearance

EFFLUENT FILTERS/PUMP SCREENS (Annually)

- 1. Check effluent filter for buildup of biomat growth
- 2. Clean (if needed)

SEPTIC TANK (Annually)

- 1. Measure sludge and scum level
- 2. Tank(s) should be pumped if the sludge layer is closer than 12" to the bottom of the inlet baffel or whenever the scum is closer than 3" to the bottom of the outlet baffel
 - * (If the test results determine a need for solids removal, the Property Owner will bear the cost and responsibility for doing so)
- 3. Check general appearance

PRETREATMENT DEVICE (Annually)

- 1. Inspect for ponding; assess character and color of biomat
- 2. Test pressurization of laterals (squirt test)
- 3. Verify proper orifice position, equal spray under orifices, no clogged orifices
- 4. Check for odors: adjust recirculating time (if necessary)
- 5. Clean and flush manifold (if necessary)
- 6. Re-check squirt height (if necessary)
- 7. Inspect the appearance of the wastewater inside the unit for color and turbidity.

DISPERSAL FIELD (Annually)

- 1. Inspect for visible signs of failure (surface discharge, soggy ground, wet spots, settling, etc.)
- 2. If liquid level monitors are installed, levels will be observed and recorded.
- 3. Flush filters and clean cartridges, if applicable
- 4. Check field control unit solenoid operations or manual control, if applicable
- 5. Check for required separation

SAMPLING (As Deemed Necessary)

- 1. Acquire and deliver samples for analysis of BODs, TSS, Fats Oils and Grease, and Fecal Coliform (cost of sampling analysis plus delivery charges is the responsibility of the Property Owner. If more than one analysis is recommended and required within the duration of this contract, the additional labor costs acquired by A.M. & Associates, Inc. along with sampling analysis fees and delivery charges is the responsibility of the Property Owner).

MISCELLANEOUS (Annually)

- 1. Review water usage from water meter records kept by the Property Owner.

***** PROPERTY OWNER'S RESPONSIBILITIES (Monthly and/or as Required)**

During the term hereof, I/we as the current Property Owner(s) understand that I/we;

- 1. Will provide A.M. & Associates, Inc. with access to the System. Access includes electrical controls & disconnects, hose hookup water supply and sufficient workspace to perform the necessary maintenance services
- 2. Will be responsible for recording water meter readings on a monthly basis.
- 3. Must *notify* A.M. & Associates, Inc. *immediately* when signs of weeping problems, sewage smell or any other indication that the system may not be functioning properly.
- 4. Will provide A.M. & Associates, Inc. copies of the water meter records, upon request.
- 5. Must acquire pre-authorization from A.M. & Associates, Inc., *prior* to the Property Owner or any other individual performing or attempts to:
 - a. make alterations or modifications to the System, or
 - b. misuse the System, or
 - c. attach devices to it, or
 - d. execute any type of Maintenance services to the system or any portion thereof
- 6. Will notify A.M. & Associates, Inc. of new ownership of property if within the duration of this contract.
- 7. Will accept all responsibility and risks involved with the installation and hydraulic performance of this Septic System and hold A.M. & Associates, Inc. harmless from all liability for this Sewage Treatment System whatsoever.
- 8. May be required to perform additional maintenance responsibilities as deemed necessary by A.M. & Associates, Inc.

This contract shall remain in force for beginning June 1st 2009 and ending May 31st 2014.

Routine Maintenance Check
(Recommended every other year 2011)
Maintenance, Monitoring & Inspection Service
(for Aitkin County –due by May 31, 2014)

Payment Due at time of Service is performed

Payment Due at time of Service is performed

A.M. & Associates, Inc. agrees to provide inspection, monitoring and routine maintenance service only under this contract.

I hereby certify with my signature as the Property Owner(s) that I understand the provisions, requirements and responsibilities of this Maintenance, Monitoring and Inspection Service Contract. I also understand failure to comply with the requirements outlined in my Operating Permit, this Contract, along with any future requirements that may arise, set forth by Aitkin County Environmental Services, Orenco Systems, Inc. (OSI) or A.M. & Associates, Inc., could result in the condemning of my septic system, removal of the use of the drainfield, and require the use of Holding Tanks with a pumping Contract.

Property Owner(s):

Name: Lloyd Welsh
(please print)  (signature)

Date: 8/29/09

Spouse: Lois Welsh
(please print)  (signature)

Date: 8/29/09

A.M. & Associates, Inc.:

Michael D. O'Keefe
(please print)  (signature)

Date: 08/14/2009

A. M. & Associates, Inc.

29465 442nd Lane
Palisade, MN 56469
(218) 768-4430

Michael D. O'Keeffe
SEPTIC SYSTEMS
DESIGNS * INSPECTIONS * MAINTENANCE
MPCA #1357

August 14, 2009

OP # 89

Aitkin County Environmental Services
209 2nd St NW
Aitkin, MN 56431

r.e. Lloyd & Lois Welsh's Operating Permit
Parcel # 29-1-490100
Located at:
51141 207th Place
McGregor, MN 55760

All components of the Welsh's Septic System is performing as designed. Therefore we are recommending to Aitkin County that their Operating Permit be renewed every 5 years instead of every other year. This means the Operating Permit the Welshs are about to renew will be good until May 31st 2014. The Operating Permit fee of \$100.00, required by Aitkin County should cover all 5 years.

Sincerely,



Michael D. O'Keeffe
Septic Systems Designer/Inspector
MPCA #1357

A. M. & Associates, Inc.

29465 442nd Lane
Palisade, MN 56469
(218) 768-4430

Michael D. O'Keeffe
SEPTIC SYSTEMS
DESIGNS * INSPECTIONS * MAINTENANCE
MPCA #1357

MAINTENANCE, MONITORING AND INSPECTION REPORT FOR INDIVIDUAL SEWAGE TREATMENT SYSTEM

June 1, 2006 thru May 31, 2009

Property Owner(s): **LLOYD & LOIS WELSH**
Home Address: **51141 207TH PLACE** Site Address: **SAME**
McGREGOR, MN 55760 (BIG SANDY LAKE)
Phone: **(218) 430-3396**
Parcel Code: **29-1-490100** Township: **SHAMROCK**

DESCRIPTION OF INDIVIDUAL SEWAGE TREATMENT SYSTEM

OSI AX-10 TEXTILE FILTER, DISPERSING INTO A 10' X 38' PRESSURE BED

This ISTS is to gravity from the dwelling into the existing 1200 gallon concrete septic tank. From there the liquids will gravity into a new 1860 precast septic/lift tank. An OSI AdvanTex AX-10 Series, Mode 1b Textile Filter is to be placed on top of the 1860 septic/lift tank. Wastewater will percolate through the Textile Filter which will recirculate through the tank and the filter treating the liquids. The treated liquids will then be pumped into a 10' x 38' Pressure Bed with 18 inches of separation. The pressure Bed is to be constructed on "clean sand" with 6 foot dikes at a 3:1 slope. 2 Bedrooms, 300 gpd, 9,000 gallons per month.

Installation Date: August 2002 Installer: Ernie Darlow Phone#: (218) 426-4320

JUNE 2006 THRU MAY 2009 MAINTENANCE & MONITORING RESULTS

Date Maintained: 08/04/2009

CONTROL/ALARM PANEL	RESULTS
1. Check pump operations in manual mode	Good
2. Check timer settings	Good
3. Confirm operation of audible and visual alarms	Good

LIFT PUMPING STATION	RESULTS
1. Verify no leaks in riser	Good
2. Inspect splice box for moisture and secure connections	Good
3. Verify condition of and correct operation of all floats	Good
4. Verify neat wrap of float cords	Good
5. Pull pump and clean intake screen if necessary	Good
6. Check general appearance	Good

EFFLUENT FILTERS/PUMP SCREENS	RESULTS
1. Check effluent filter for buildup of biomat growth.	Some build-up on Bio Tube
2. Clean (if needed)	CLEANED

JUNE 2006 THRU MAY 2009 MAINTENANCE & MONITORING RESULTS

SEPTIC TANK	RESULTS
1. Measure sludge and scum level	Sludge Level = 6" Scum Level = 8"
2. Tank(s) should be pumped if the sludge layer is closer than 12" to the bottom of the inlet baffel or whenever the scum is closer than 3" to the bottom of the outlet baffel.	RECOMMEND PUMPING
3. Check general appearance	Good

PRETREATMENT DEVICE	RESULTS
1. Inspect for ponding; assess character and color of biomat	Good
2. Test pressurization of laterals (squirt test)	Good
3. Verify proper orifice position, equal spray under orifices no clogged orifices	Good
4. Check for odors; adjust recirculating time (if necessary)	Good
5. Clean and flush manifold (if necessary)	Good
6. Re-check squirt height (if necessary)	Not necessary at this time.
7. Inspect the appearance of the wastewater inside the unit for color and turbidity.	Effluent Clear

DISPERSAL FIELD	RESULTS
1. Inspect for visible signs of failure (surface discharge, soggy ground, wet spots, settling, etc.)	No signs of failure.
2. Check for required separation	37" of Separation below bottom of Rock

MISCELLANEOUS	RESULTS	
	Date	Gallons Used
1. Review water usage from water meter records.	2003	
	December	1452
	2004	
	January 2004	1513
	February	1042
	March	1599
	April	1357
	May	1782
	June	1153
	July	1384
	August	1432
	September	734
	October	928
	November	1054
	2005	
	Dec – Mar	3178 (avg)
	April	2559
	May – Aug	3834 (avg)
	September	3262
	Oct - Nov	3542 (avg)
December	3449	

Continued

JUNE 2006 THRU MAY 2009 MAINTENANCE & MONITORING RESULTS

MISCELLANEOUS	RESULTS	
	Date	Gallons Used
2. Review water usage from water meter records. Continued	2006	
	Jan - Feb	3733 (avg)
	March	2723
	April	3763
	May - June	3591 (avg)
	July	5820
	August	1309
	September	3150
	October	2977
	November	3823
	December	4242
	2007	
	Jan - Feb	3157 (avg)
	March - April	2379 (avg)
	May - July	3641 (avg)
	Aug - November	3802 (avg)
	December	5184
	2008	
	Jan - Feb	2188 (avg)
	March - April	3535 (avg)
	May - June	4477 (avg)
	July	4608
	Aug - November	3598 (avg)
	December	3346
	2009	
	Jan - May	3489 (avg)
	June - July	4840 (avg)

COMMENTS: ALL COMPONENTS LOOK GOOD.

Drainfield meets the required separation.

Drainfield is sized for 2 Bedrooms, 300 gpd, 9,000 gallons per month. Full time residence shows water usage is well within limitations.

A.M. & ASSOCIATES RECOMMENDS THAT THE OPERATING PERMIT BE BE CHANGED TO EVERY 5 YEARS.

THEREFORE, THE OPERATING PERMIT RENEWAL DUE MAY 31, 2009 SHOULD BE GOOD FOR JUNE 1, 2009 THRU MAY 31, 2014.

THE REQUIRED MAINTENANCE & MONITORING FOR THE OPERATING PERMIT WILL BE PERFORMED IN THE FALL OF 2013 OR SPRING OF 2014.

A ROUTINE MAINTENANCE CHECK SHOULD BE PERFORMED IN 2011.



8/14/2009

AITKIN COUNTY ENVIRONMENTAL SERVICES-PLANNING & ZONING

209 Second Street, NW
Aitkin, Minnesota 56431

PH: (218) 927-7342
FX: (218) 927-4372



September 1, 2009

RE: Renewed Operating Permit

Dear Lloyd Welsh,

This letter is to inform you that your Operating Permit (No. 89) has been renewed until May 31, 2014. You should note that all renewal dates that were formerly on December 31 have been moved forward to allow your Operation and Maintenance provider suitable time to complete the monitoring report.

Please adhere to your monitoring and maintenance contract including monitoring your water use. Failure to do so would violate the agreement to operate your system and could void the operating permit. You should contact your Operation and Maintenance provider directly with questions that you may have during the year.

Thank you for your good stewardship and we hope that your system continues to operate well, protecting groundwater for you and the environment.

Sincerely,

A handwritten signature in cursive script that reads "Pete Gansen".

Pete Gansen
Aitkin County Planning & Zoning and
Environmental Services

**AITKIN COUNTY ENVIRONMENTAL SERVICES
OPERATING PERMIT FOR WASTEWATER
TREATMENT AND DISPERSAL RENEWAL**

ISSUANCE DATE: 5 /31/2014

RENEWAL PERIOD: 5 YEAR

OPERATING PERMIT #: 89

ZONING PERMIT #: 29201

PARCEL #: 29-1-490100

PERMITTEE: Lloyd and Lois Welsh

TELEPHONE: (218) 426-4388

MAILING ADDRESS:

51141 207TH PL

McGregor, MN 55760-

PROPERTY ADDRESS:

51141 207th Pl.

McGregor, MN 55760

LEGAL DESCRIPTION: Lot 11 Double S Acres Second Addition

Aitkin County Environmental Services authorizes the Permittee to operate a wastewater treatment and dispersal system located on the above described property in accordance with the requirements of this permit.

This permit is effective on the issuance date identified above.

This permit and the authorization to treat and disperse from the above system is valid through the renewal period identified above. The Permittee is not authorized to discharge after the renewal period. The Permittee shall submit such information and forms as required by Aitkin County Environmental Services no later than thirty (30) days prior to the expiration date. When the required information is submitted and approved by Aitkin County Environmental Services, the permit may be renewed. This permit is not transferable from owner to owner.

I hereby certify with my signature as the permittee that I understand the provisions of this permit including the maintenance and monitoring requirements. I agree to indemnify and hold Aitkin County harmless from all loss, damages, costs and charges that may be incurred by use of this system and if I fail to comply with the provisions of this Operating Permit. If I sell this property during the life of the permit, I will inform the new owner(s) of the permit requirements and the need to renew the permit.

Lloyd M. Welsh
Signature of Permittee

5/28/14
Date

H. Kunz
Signature of Permitting Authority

5-28-14
Date

If you have any questions regarding this permit, including the specific permit requirements, permit reporting or permit compliance status, please contact Aitkin County Environmental Services at 218-927-7342.

OK# 4827, Receipt # 199229 5/28/14 \$ 100.00

A. DESCRIPTION OF WASTEWATER TREATMENT AND DISPERSAL SYSTEM

This ISTS is to gravity from the dwelling into the existing 1200 gallon concrete septic tank. From there the liquids will gravity into a new 1860 precast septic/lift tank. An OSI AdvanTex AX-10 Series, Mode 1b Textile Filter is to be placed on top of the 1860 septic/lift tank. Wastewater will percolate through the Textile Filter which will recirculate through the tank and the filter treating the liquids. The treated liquids will then be pumped into a 10' x 38' Pressure Bed with 18 inches of separation. The Pressure Bed is to be constructed on "clean sand" with 6 foot dikes at a 3:1 slope.

B. PERFORMANCE STANDARD REQUIREMENTS:

During the period beginning on the effective date (issuance date) of this permit and lasting until this permit's expiration date, the Permittee is authorized to discharge from the wastewater treatment unit to subsurface dispersal. No surface discharge is permitted. The following parameters must be monitored and the results must be found within the compliance limits.

PARAMETER	COMPLIANCE LIMIT	SAMPLE LOCATION	SAMPLE FREQUENCY	SAMPLE TYPE	REPORTING FREQUENC
Separation	18 inches	Dispersal System	ANNUALLY	Measure in Field	ANNUALLY
Fecal Coliform	< 1000 mg/l	Filtrate Splitter Valve	ANNUALLY	Measure in Field	ANNUALLY
Fats, Oil and Greases	< 30 mg/l	Filtrate Splitter Valve	As Necessary	Measure in Field	ANNUALLY
TSS	15/65 mg/l	Filtrate Splitter Valve	As Necessary	Measure in Field	ANNUALLY
BOD5	15/220 mg/l	Filtrate Splitter Valve	As Necessary	Measure in Field	ANNUALLY
Flow	300 gpd	Water Meter	Weekly	Record on Log Sheet	ANNUALLY

C. MAINTENANCE REQUIREMENTS:

PARAMETER	LOCATION	FREQUENCY
Flow	Water Meter	MONTHLY
Inspect Effluent Filters	Dispersal System	ANNUAL
Odor	Textile Filter	ANNUAL
Pumps, Floats & Alarms	Lift Tank	ANNUAL
Solids Removal & Water Tightness	Septic tank(s)	ANNUAL
Vegetative Cover	Dispersal System	ANNUAL

D. MONITORING AND REPORTING REQUIREMENTS:

Monitoring results obtained during each calendar year shall be submitted no later than May 31st of that year to:

Aitkin County Environmental Services
209 2nd Street NW, Room 100
Aitkin, MN 56431

The monitoring reports shall be signed by the Permittee. Copies are to be retained by the Permittee.

The Permittee shall notify Aitkin County Environmental Services within thirty (30) days when monitoring results do not meet the monitoring plan requirements of this permit.

Monitoring plans may be modified as necessary and reapproved by Aitkin County Environmental Services.

Sampling and laboratory testing procedures shall be performed in accordance with Standard Methods and shall be performed by a Minnesota Department of Health approved laboratory. All sampling and testing costs shall be the responsibility of the Permittee.

Monitoring will be performed by: ~~A.M. & Associates~~ *John Walsh*

E. MITIGATION PLAN:

1. If ponding problems should occur due to build-up of oil & grease, have biomat analyzed. 2. If ponding problems should occur of indeterminate cause, coupled with a pungent odor, it may be necessary to clean the textile media 3. If weeping problems should occur; lower dosing rate, lower water usage, increase distribution, and absorption area. 4. If OSI Textile Filter experiences problems, fix or repair at recommendations of Manufacturer or replace. 5. A different or another Performance or Other System may be installed at the owner's expense. 6. If in the event that this system should fail and if there is no other ISTS option available, then Holding Tanks must be installed, to be pumped by Licensed Pumper.

D. MONITORING AND REPORTING REQUIREMENTS:

Monitoring results obtained during each calendar year shall be submitted no later than May 31st of that year to:

Aitkin County Environmental Services
209 2nd Street NW, Room 100
Aitkin, MN 56431

The monitoring reports shall be signed by the Permittee. Copies are to be retained by the Permittee.

The Permittee shall notify Aitkin County Environmental Services within thirty (30) days when monitoring results do not meet the monitoring plan requirements of this permit.

Monitoring plans may be modified as necessary and reapproved by Aitkin County Environmental Services.

Sampling and laboratory testing procedures shall be performed in accordance with Standard Methods and shall be performed by a Minnesota Department of Health approved laboratory. All sampling and testing costs shall be the responsibility of the Permittee.

Monitoring will be performed by: ~~A.M. & Associates~~ — *John Walsh*

E. MITIGATION PLAN:

1. If ponding problems should occur due to build-up of oil & grease, have biomat analyzed.
2. If ponding problems should occur of indeterminate cause, coupled with a pungent odor, it may be necessary to clean the textile media
3. If weeping problems should occur; lower dosing rate, lower water usage, increase distribution, and absorption area.
4. If OSI Textile Filter experiences problems, fix or repair at recommendations of Manufacturer or replace.
5. A different or another Performance or Other System may be installed at the owner's expense.
6. If in the event that this system should fail and if there is no other ISTS option available, then Holding Tanks must be installed, to be pumped by Licensed Pumper.

CUSTOMER COPY!

Lloyd Welsh 5-21-14

5 year O&M
5 year Service

AdvanTex® Treatment Systems

While regional regulations may vary, Orenco Systems requires that the following inspection and maintenance activities be performed, by a qualified provider, on all AdvanTex® Treatment Systems sold. All activities are to be performed three-to-six months after system start-up; and an annual field-service inspection, including sampling, is to be scheduled in late spring or in early summer. For AXN systems, there is to be a minimum of four inspections during the first two years, and then annual inspections thereafter. Copies of inspection and maintenance reports and additional comments/documentation are to be forwarded to the AdvanTex® Dealer, or if no Dealer, to Orenco Systems, 814 Airway Avenue, Sutherlin, OR 97479.

Maintenance Activity

System
OK!

Activity Check-Off/Notes

A) Inspect Control/Alarm Panel

- 1) Check pump operations in manual mode
- 2) Check/record pump amperage and voltage
- 3) Check timer settings
- 4) Record elapsed time meter and counter readings (if applicable)
- 5) Confirm operation of audible and visual alarms

- OK
- OK
- OK
- OK
- OK

B) Inspect/Test Pumping System

- 1) Verify no leaks in riser
- 2) Inspect splice box for moisture and secure connections
- 3) Verify condition of and correct operation of all floats
- 4) Verify neat wrap of float cords
- 5) Pull pump and clean intake screen if necessary
- 6) Visually inspect recirculating splitter valve and liquid level

- OK
- OK
- OK
- OK
- OK
- OK

C) Inspect Effluent Filters/Pump Screens

- 1) Clean as needed
- 2) Visually inspect and comment on biomat growth

- cleaned
- good

D) Inspect Processing Tank

- 1) Verify no inlet flow
- 2) Inspect liquid depth, odor, scum color, effluent characteristics
- 3) Measure sludge and scum; recommend tank pumping, if necessary

- OK
- OK
- OK

E) Inspect AdvanTex® Filter

- 1) Inspect for ponding; assess character and color of biomat
- 2) Check squirt height
- 3) Verify proper orifice position, equal spray under orifices, no clogged orifices
- 4) Check for odors; adjust recirculating time if necessary
- 5) Clean and flush manifold (if necessary)
- 6) Re-check squirt height
- 7) Flush underdrain
- 8) Inspect intake vent and clean as necessary

- OK
- OK 36
- OK
- OK
- OK
- OK
- OK
- OK

F) Miscellaneous

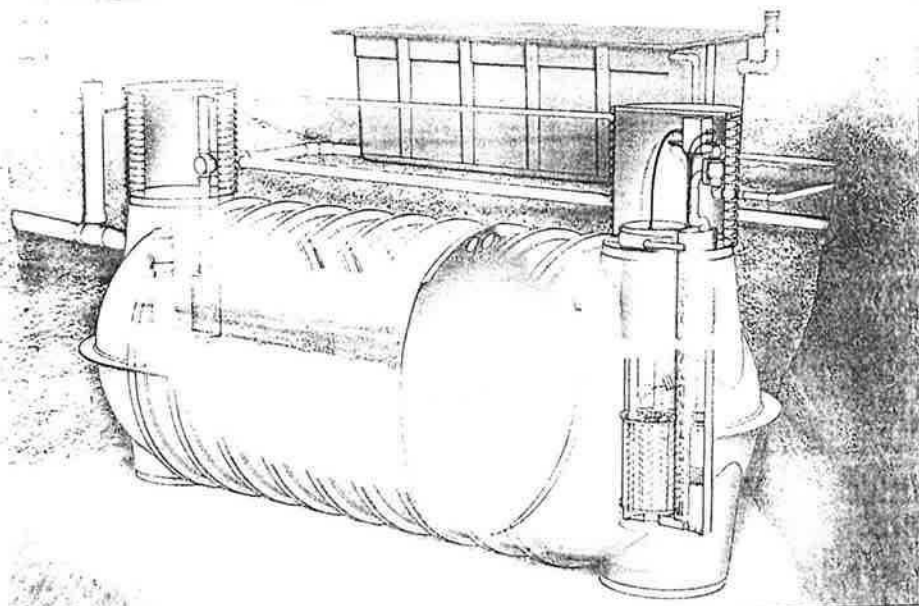
- 1) Exercise all iron, metal, and mechanical valves
- 2) Return valves, control panel to proper settings
- 3) Submit required documentation

- OK
- OK
- OK

Scum & Sludge Monitoring

Walsh

Two-Compartment Tank



First Compartment Scum

Date	Depth (Inches)	Rate of Accumulation
------	----------------	----------------------

ST Tank

First Compartment Sludge

Date	Depth (Inches)	Rate of Accumulation
------	----------------	----------------------

3" Scum - 6.7" Sludge

Second Compartment Scum

Date	Depth (Inches)	Rate of Accumulation
------	----------------	----------------------

Rec Tank

Pump tank

Second Compartment Sludge

Date	Depth (Inches)	Rate of Accumulation
------	----------------	----------------------

0" Scum - 12" Sludge (sluff)

0" Scum - 0" Sludge

Rec tank should be pumped in one - two years (5-21-14)

Field Sampling Report Form

25

Date: 5-21-14
 Inspector: John Walsh
 Address: Welsh
 System Type: AX-10

The following effluent tests can be easily and routinely performed in the field. Perform annually, or as frequently as necessary per the methodology indicated. For AXN systems, there is to be a minimum of four sampling events the first two years and then annual sampling thereafter. Record your results/observations in the space provided:

Parameter	Methodology	Typical	Field Observations	Pre-Test Lab Concurrence
Clarity	Visual ¹	Clear (15± JTUs or NTUs)	<u>clear</u>	_____
Odor	Sniff	Non-offensive (no smell of rotten eggs or cabbage; a musty, earthy, or moldy odor is normal)	<u>OK</u>	_____
Oily film	Visual; inside tank	None (no red, blue, green, or orange sheen)	<u>NO</u>	_____
Foam	Visual; inside tank	None	<u>NO</u>	_____
pH	Field	6-9	<u>—</u>	_____

Date: _____ Date: _____

[Signature] _____
 Signature Signature
 Field Sampler Lab Technician

¹ To check for clarity, service providers can carry a lab-prepared sample bottle, or bottles with known turbidities of 15 JTUs and 30 JTUs, to compare against, or can use a portable turbidity meter. Always put effluent sample in a clear glass container or beaker to evaluate clarity. Using a small, removable sticker, write the date, place it low on the beaker, and photograph for documentation.

² To check for odor, service providers can simply sniff the effluent sample with the assistance of an olfactory sniffer device and/or sulfide odor measuring packet. Whenever possible, interview system users about odor occurrences and request user's assistance in verifying or detecting odors.

Meter Readings

10	5/27/14	0544.20	20	128.57/gpd
21	7/11/13	0514.20	53.83	109.86/gpd
17	10/3/11	0460.37	61.25	154.41/gpd
	5/8/10	0399.12		

event = 1200 gal

AITKIN COUNTY ENVIRONMENTAL SERVICES-PLANNING & ZONING
209 Second Street, NW Room# 100
Aitkin, Minnesota 56431

PH: (218) 927-7342
FX: (218) 927-4372



5/28/2014

Lloyd and Lois Welsh
51141 207TH PL
McGregor, MN 55760-

Re: Operating Permit # 89
Zoning Permit # 29201
Parcel # 29-1-490100

Dear Permittee:

This letter is to inform you that your Operating Permit has been renewed until 5/31/2019 .

Please adhere to your monitoring and maintenance contract including monitoring your water use. Failure to do so would violate the agreement to operate your system and could void the operating permit. You should contact your Operation and Maintenance provider directly with questions that you may have during the year.

Thank you for your good stewardship and we hope that your system continues to operate well, protecting groundwater for you and the environment.

Sincerely,

A handwritten signature in blue ink that reads "Kristi K." with a stylized flourish at the end.

Aitkin County Planning & Zoning

A. M. & Associates, Inc.

29465 442nd Lane
Palisade, MN 56469
(218) 768-4430

Michael D. O'Keeffe
SEPTIC SYSTEMS
DESIGNS * INSPECTIONS * MAINTENANCE
MPCA #1357

**MAINTENANCE, MONITORING AND INSPECTION SERVICE CONTRACT
FOR INDIVIDUAL SEWAGE TREATMENT SYSTEM**

FOR June 1st 2009 thru May 31st 2014

Renew to 2014 paid \$100 #89 413854 receipt

It is hereby agreed this 14th day of AUGUST, 20 09 by and between A.M. & Associates, Inc. and

Property Owner(s): LLOYD & LOIS WELSH
Home Address: 51141 207TH PLACE
McGREGOR, MN 55760

Parcel Code: 29-1-490100
Site Address: SAME
(BIG SANDY LAKE)

Phone (home) (218) 426-4388

Township SHAMROCK

DESCRIPTION OF INDIVIDUAL SEWAGE TREATMENT SYSTEM

OSI AX-10 TEXTILE FILTER, DISPERSING INTO A 10' X 38' PRESSURE BED

This ISTS is to gravity from the dwelling into the existing 1200 gallon concrete septic tank. From there the liquids will gravity into a new 1860 precast septic/lift tank. An OSI AdvanTex AX-10 Series, Mode 1b Textile Filter is to be placed on top of the 1860 septic/lift tank. Wastewater will percolate through the Textile Filter which will recirculate through the tank and the filter treating the liquids. The treated liquids will then be pumped into a 10' x 38' Pressure Bed with 18 inches of separation. The Pressure Bed is to be constructed on "clean sand" with 6 foot dikes at a 3:1 slope. 2 Bedrooms, 300 gpd, 9,000 gallons per month.

Installation Date: August 2002

Installer: Ernie Darlow

Phone#: (218) 426-4320

That A.M. & Associates, Inc. will provide the services to perform Preventative Maintenance, Monitoring and Inspection of the parameters and frequency described herein as your Operating Permit requires for your Individual Sewage Treatment System (ISTS).

Each inspection includes an examination of the ISTS followed by a written report to the Property Owner. This inspection report shall contain recommendations for operation and maintenance for failure-preventative measures, if any are deemed appropriate by the inspector, and a list of recommended corrective measures or replacement parts. A.M. & Associates, Inc. is authorized to submit a copy of the report to the pertaining County's Environmental Services Department.

This contract does not assume any responsibilities or obligations, which are normally the responsibilities of the Property Owner, or as related to parts or labor and does not extend to cover any costs that may be associated with any recommendations made under this contract.

A.M. & Associates, Inc. can only contract or subcontract for parts or labor after authorization by you. Billings for service calls shall be made on a case by case basis. This contract **only** covers maintenance, monitoring and inspection services per current pertaining County Operating Permit and **does not** cover alarm calls of any kind.

On-site Service Calls cost of a minimum of \$50.00 plus \$50.00 per hour for time and labor required from A.M. & Associates, due to alarms, misuse or abuse of any portion of this System, is the responsibility of the Property Owner(s), payable at time of Service. Minnesota Onsite Specialties fees for Service calls are separate.

All cost for parts time and labor, required to analyze, fix or replace any portion of this system, for damages caused by winter freezing, is the responsibility of the Property Owner(s).

All additional cost, time and labor required from A.M. & Associates, Inc. and/or Minnesota Onsite Specialties due to modifications made by the pertaining County's Environmental Services Department, is the responsibility of the Property Owner(s), and is payable within 20 days of billing.

In no event shall A.M. & Associates, Inc., Minnesota Onsite Specialties, or the Inspector be responsible for special or consequential damages, including but not limited to, loss of time, injury to personal property or any other consequential damages or incidental or economic loss due to equipment failure or for any other reason.

A.M. & Associates, Inc. shall be provided access to the site and the system in order to perform the following services that are marked:

CONTROL/ALARM PANEL (Annually)

- 1. Check pump operations in manual mode
- 2. Check timer settings
- 3. Record elapsed time meter and counter readings
- 4. Confirm operation of audible and visual alarms

LIFT PUMPING STATION (Annually)

- 1. Verify no leaks in riser
- 2. Inspect splice box for moisture and secure connections
- 3. Verify condition of and correct operation of all floats
- 4. Verify neat wrap of float cords
- 5. Visually inspect recirculating splitter valve (if applicable) and liquid level
- 6. Check general appearance

EFFLUENT FILTERS/PUMP SCREENS (Annually)

- 1. Check effluent filter for buildup of biomat growth
- 2. Clean (if needed)

SEPTIC TANK (Annually)

- 1. Measure sludge and scum level
- 2. Tank(s) should be pumped if the sludge layer is closer than 12" to the bottom of the inlet baffel or whenever the scum is closer than 3" to the bottom of the outlet baffel
* (If the test results determine a need for solids removal, the Property Owner will bear the cost and responsibility for doing so)
- 3. Check general appearance

PRETREATMENT DEVICE (Annually)

- 1. Inspect for ponding; assess character and color of biomat
- 2. Test pressurization of laterals (squirt test)
- 3. Verify proper orifice position, equal spray under orifices, no clogged orifices
- 4. Check for odors: adjust recirculating time (if necessary)
- 5. Clean and flush manifold (if necessary)
- 6. Re-check squirt height (if necessary)
- 7. Inspect the appearance of the wastewater inside the unit for color and turbidity.

DISPERSAL FIELD (Annually)

- 1. Inspect for visible signs of failure (surface discharge, soggy ground, wet spots, settling, etc.)
- 2. If liquid level monitors are installed, levels will be observed and recorded.
- 3. Flush filters and clean cartridges, if applicable
- 4. Check field control unit solenoid operations or manual control, if applicable
- 5. Check for required separation

SAMPLING (As Deemed Necessary)

- 1. Aquire and deliver samples for analysis of BODs, TSS, Fats Oils and Grease, and Fecal Coliform (cost of sampling analysis plus delivery charges is the responsibility of the Property Owner. If more than one analysis is recommended and required within the duration of this contract, the additional labor costs aquired by A.M. & Associates, Inc. along with sampling analysis fees and delivery charges is the responsibility of the Property Owner).

MISCELLANEOUS (Annually)

- 1. Review water usage from water meter records kept by the Property Owner.

***** PROPERTY OWNER'S RESPONSIBILITIES (Monthly and/or as Required)**

During the term hereof, I/we as the current Property Owner(s) understand that I/we;

- 1. Will provide A.M. & Associates, Inc. with access to the System. Access includes electrical controls & disconnects, hose hookup water supply and sufficient workspace to perform the necessary maintenance services
- 2. Will be responsible for recording water meter readings on a monthly basis.
- 3. Must *notify* A.M. & Associates, Inc. *immediately* when signs of weeping problems, sewage smell or any other indication that the system may not be functioning properly.
- 4. Will provide A.M. & Associates, Inc. copies of the water meter records, upon request.
- 5. Must aquire pre-authorization from A.M. & Associates, Inc., *prior* to the Property Owner or any other individual performing or attempts to:
 - a. make alterations or modifications to the System, or
 - b. misuse the System, or
 - c. attach devices to it, or
 - d. execute any type of Maintenance services to the system or any portion thereof
- 6. Will notify A.M. & Associates, Inc. of new ownership of property if within the duration of this contract.
- 7. Will accept all responsibility and risks involved with the installation and hydraulic performance of this Septic System and hold A.M. & Associates, Inc. harmless from all liability for this Sewage Treatment System whatsoever.
- 8. May be required to perform additional maintenance responsibilities as deemed necessary by A.M. & Associates, Inc.

This contract shall remain in force for beginning June 1st 2009 and ending May 31st 2014.

Routine Maintenance Check
(Recommended every other year 2011)
Maintenance, Monitoring & Inspection Service
(for Aitkin County –due by May 31, 2014)

Payment Due at time of Service is performed

Payment Due at time of Service is performed

A.M. & Associates, Inc. agrees to provide inspection, monitoring and routine maintenance service only under this contract.

I hereby certify with my signature as the Property Owner(s) that I understand the provisions, requirements and responsibilities of this Maintenance, Monitoring and Inspection Service Contract. I also understand failure to comply with the requirements outlined in my Operating Permit, this Contract, along with any future requirements that may arise, set forth by Aitkin County Environmental Services, Orenco Systems, Inc. (OSI) or A.M. & Associates, Inc., could result in the condemning of my septic system, removal of the use of the drainfield, and require the use of Holding Tanks with a pumping Contract.

Property Owner(s):

Name: Lloyd Welsh
(please print)

Lloyd Welsh
(signature)

Date: 8/29/09

Spouse: Lois Welsh
(please print)

Lois Welsh
(signature)

Date: 8/29/09

A.M. & Associates, Inc.:

Michael D. O'Keeffe
(please print)

Michael D. O'Keeffe
(signature)

Date: 08/14/2009

A. M. & Associates, Inc.

29465 442nd Lane
Palisade, MN 56469
(218) 768-4430

Michael D. O'Keeffe
SEPTIC SYSTEMS
DESIGNS * INSPECTIONS * MAINTENANCE
MPCA #1357

August 14, 2009

OP # 89

Aitkin County Environmental Services
209 2nd St NW
Aitkin, MN 56431

r.e. Lloyd & Lois Welsh's Operating Permit
Parcel # 29-1-490100
Located at:
51141 207th Place
McGregor, MN 55760

All components of the Welsh's Septic System is performing as designed. Therefore we are recommending to Aitkin County that their Operating Permit be renewed every 5 years instead of every other year. This means the Operating Permit the Welshs are about to renew will be good until May 31st 2014. The Operating Permit fee of \$100.00, required by Aitkin County should cover all 5 years.

Sincerely,



Michael D. O'Keeffe
Septic Systems Designer/Inspector
MPCA #1357

A. M. & Associates, Inc.

29465 442nd Lane
Palisade, MN 56469
(218) 768-4430

Michael D. O'Keeffe
SEPTIC SYSTEMS
DESIGNS * INSPECTIONS * MAINTENANCE
MPCA #1357

MAINTENANCE, MONITORING AND INSPECTION REPORT FOR INDIVIDUAL SEWAGE TREATMENT SYSTEM June 1, 2006 thru May 31, 2009

Property Owner(s): **LLOYD & LOIS WELSH**
Home Address: **51141 207TH PLACE** Site Address: **SAME**
McGREGOR, MN 55760 (BIG SANDY LAKE)
Phone: **(218) 430-3396**
Parcel Code: **29-1-490100** Township: **SHAMROCK**

DESCRIPTION OF INDIVIDUAL SEWAGE TREATMENT SYSTEM

OSI AX-10 TEXTILE FILTER, DISPERSING INTO A 10' X 38' PRESSURE BED

This ISTS is to gravity from the dwelling into the existing 1200 gallon concrete septic tank. From there the liquids will gravity into a new 1860 precast septic/lift tank. An OSI AdvanTex AX-10 Series, Mode 1b Textile Filter is to be placed on top of the 1860 septic/lift tank. Wastewater will percolate through the Textile Filter which will recirculate through the tank and the filter treating the liquids. The treated liquids will then be pumped into a 10' x 38' Pressure Bed with 18 inches of separation. The pressure Bed is to be constructed on "clean sand" with 6 foot dikes at a 3:1 slope.
2 Bedrooms, 300 gpd, 9,000 gallons per month.

Installation Date: August 2002 Installer: Ernie Darlow Phone#: (218) 426-4320

JUNE 2006 THRU MAY 2009 MAINTENANCE & MONITORING RESULTS

Date Maintained: 08/04/2009

CONTROL/ALARM PANEL	RESULTS
1. Check pump operations in manual mode	Good
2. Check timer settings	Good
3. Confirm operation of audible and visual alarms	Good

LIFT PUMPING STATION	RESULTS
1. Verify no leaks in riser	Good
2. Inspect splice box for moisture and secure connections	Good
3. Verify condition of and correct operation of all floats	Good
4. Verify neat wrap of float cords	Good
5. Pull pump and clean intake screen if necessary	Good
6. Check general appearance	Good

EFFLUENT FILTERS/PUMP SCREENS	RESULTS
1. Check effluent filter for buildup of biomat growth.	Some build-up on Bio Tube
2. Clean (if needed)	CLEANED

JUNE 2006 THRU MAY 2009 MAINTENANCE & MONITORING RESULTS

SEPTIC TANK	RESULTS
1. Measure sludge and scum level	Sludge Level = 6" Scum Level = 8"
2. Tank(s) should be pumped if the sludge layer is closer than 12" to the bottom of the inlet baffel or whenever the scum is closer than 3" to the bottom of the outlet baffel.	RECOMMEND PUMPING
3. Check general appearance	Good

PRETREATMENT DEVICE	RESULTS
1. Inspect for ponding; assess character and color of biomat	Good
2. Test pressurization of laterals (squirt test)	Good
3. Verify proper orifice position, equal spray under orifices no clogged orifices	Good
4. Check for odors: adjust recirculating time (if necessary)	Good
5. Clean and flush manifold (if necessary)	Good
6. Re-check squirt height (if necessary)	Not necessary at this time.
7. Inspect the appearance of the wastewater inside the unit for color and turbidity.	Effluent Clear

DISPERSAL FIELD	RESULTS
1. Inspect for visible signs of failure (surface discharge, soggy ground, wet spots, settling, etc.)	No signs of failure.
2. Check for required separation	37" of Separation below bottom of Rock

MISCELLANEOUS	RESULTS	
	Date	Gallons Used
1. Review water usage from water meter records.	2003	
	December	1452
	2004	
	January 2004	1513
	February	1042
	March	1599
	April	1357
	May	1782
	June	1153
	July	1384
	August	1432
	September	734
	October	928
	November	1054
	2005	
	Dec - Mar	3178 (avg)
	April	2559
	May - Aug	3834 (avg)
	September	3262
	Oct - Nov	3542 (avg)
December	3449	

Continued

JUNE 2006 THRU MAY 2009 MAINTENANCE & MONITORING RESULTS

MISCELLANEOUS	RESULTS	
2. Review water usage from water meter records. <p style="text-align: center;">Continued</p>	<u>Date</u>	<u>Gallons Used</u>
	2006	
	Jan – Feb	3733 (avg)
	March	2723
	April	3763
	May – June	3591 (avg)
	July	5820
	August	1309
	September	3150
	October	2977
	November	3823
	December	4242
	2007	
	Jan – Feb	3157 (avg)
	March – April	2379 (avg)
	May – July	3641 (avg)
	Aug – November	3802 (avg)
	December	5184
	2008	
	Jan – Feb	2188 (avg)
	March – April	3535 (avg)
	May – June	4477 (avg)
	July	4608
	Aug – November	3598 (avg)
	December	3346
	2009	
	Jan – May	3489 (avg)
	June – July	4840 (avg)

COMMENTS: ALL COMPONENTS LOOK GOOD.

Drainfield meets the required separation.

Drainfield is sized for 2 Bedrooms, 300 gpd, 9,000 gallons per month. Full time residence shows water usage is well within limitations.

A.M. & ASSOCIATES RECOMMENDS THAT THE OPERATING PERMIT BE BE CHANGED TO EVERY 5 YEARS.

THEREFORE, THE OPERATING PERMIT RENEWAL DUE MAY 31, 2009 SHOULD BE GOOD FOR JUNE 1, 2009 THRU MAY 31, 2014.

THE REQUIRED MAINTENANCE & MONITORING FOR THE OPERATING PERMIT WILL BE PERFORMED IN THE FALL OF 2013 OR SPRING OF 2014.

A ROUTINE MAINTENANCE CHECK SHOULD BE PERFORMED IN 2011.



8/14/2009

AITKIN COUNTY ENVIRONMENTAL SERVICES-PLANNING & ZONING

209 Second Street, NW
Aitkin, Minnesota 56431

PH: (218) 927-7342
FX: (218) 927-4372



September 1, 2009

RE: Renewed Operating Permit

Dear Lloyd Welsh,

This letter is to inform you that your Operating Permit (No. 89) has been renewed until May 31, 2014. You should note that all renewal dates that were formerly on December 31 have been moved forward to allow your Operation and Maintenance provider suitable time to complete the monitoring report.

Please adhere to your monitoring and maintenance contract including monitoring your water use. Failure to do so would violate the agreement to operate your system and could void the operating permit. You should contact your Operation and Maintenance provider directly with questions that you may have during the year.

Thank you for your good stewardship and we hope that your system continues to operate well, protecting groundwater for you and the environment.

Sincerely,

A handwritten signature in black ink that reads "Pete Gansen". The signature is written in a cursive, flowing style.

Pete Gansen
Aitkin County Planning & Zoning and
Environmental Services

**AITKIN COUNTY ENVIRONMENTAL SERVICES
OPERATING PERMIT FOR WASTEWATER
TREATMENT AND DISPERSAL RENEWAL**

ISSUANCE DATE: 5 /31/2014
RENEWAL PERIOD: 5 YEAR

OPERATING PERMIT #: 89
ZONING PERMIT #: 29201
PARCEL #: 29-1-490100

PERMITTEE: Lloyd and Lois Welsh

TELEPHONE: (218) 426-4388

MAILING ADDRESS:
51141 207TH PL
McGregor, MN 55760-

PROPERTY ADDRESS:
51141 207th Pl.
McGregor, MN 55760

LEGAL DESCRIPTION: Lot 11 Double S Acres Second Addition

Aitkin County Environmental Services authorizes the Permittee to operate a wastewater treatment and dispersal system located on the above described property in accordance with the requirements of this permit.

This permit is effective on the issuance date identified above.

This permit and the authorization to treat and disperse from the above system is valid through the renewal period identified above. The Permittee is not authorized to discharge after the renewal period. The Permittee shall submit such information and forms as required by Aitkin County Environmental Services no later than thirty (30) days prior to the expiration date. When the required information is submitted and approved by Aitkin County Environmental Services, the permit may be renewed. This permit is not transferable from owner to owner.

I hereby certify with my signature as the permittee that I understand the provisions of this permit including the maintenance and monitoring requirements. I agree to indemnify and hold Aitkin County harmless from all loss, damages, costs and charges that may be incurred by use of this system and if I fail to comply with the provisions of this Operating Permit. If I sell this property during the life of the permit, I will inform the new owner(s) of the permit requirements and the need to renew the permit.

Lloyd M. Welsh
Signature of Permittee

5/28/14
Date

K. Kurz
Signature of Permitting Authority

5-28-14
Date

If you have any questions regarding this permit, including the specific permit requirements, permit reporting or permit compliance status, please contact Aitkin County Environmental Services at 218-927-7342.

ck# 4827, Receipt # 199229 5/28/14 \$100.00

A. DESCRIPTION OF WASTEWATER TREATMENT AND DISPERSAL SYSTEM

This ISTS is to gravity from the dwelling into the existing 1200 gallon concrete septic tank. From there the liquids will gravity into a new 1860 precast septic/lift tank. An OSI AdvanTex AX-10 Series, Mode 1b Textile Filter is to be placed on top of the 1860 septic/lift tank. Wastewater will percolate through the Textile Filter which will recirculate through the tank and the filter treating the liquids. The treated liquids will then be pumped into a 10' x 38' Pressure Bed with 18 inches of separation. The Pressure Bed is to be constructed on "clean sand" with 6 foot dikes at a 3:1 slope.

B. PERFORMANCE STANDARD REQUIREMENTS:

During the period beginning on the effective date (issuance date) of this permit and lasting until this permit's expiration date, the Permittee is authorized to discharge from the wastewater treatment unit to subsurface dispersal. No surface discharge is permitted. The following parameters must be monitored and the results must be found within the compliance limits.

PARAMETER	COMPLIANCE LIMIT	SAMPLE LOCATION	SAMPLE FREQUENCY	SAMPLE TYPE	REPORTING FREQUENC
Separation	18 inches	Dispersal System	ANNUALLY	Measure in Field	ANNUALLY
Fecal Coliform	< 1000 mg/l	Filtrate Splitter Valve	ANNUALLY	Measure in Field	ANNUALLY
Fats, Oil and Greases	< 30 mg/l	Filtrate Splitter Valve	As Necessary	Measure in Field	ANNUALLY
TSS	15/65 mg/l	Filtrate Splitter Valve	As Necessary	Measure in Field	ANNUALLY
BOD5	15/220 mg/l	Filtrate Splitter Valve	As Necessary	Measure in Field	ANNUALLY
Flow	300 gpd	Water Meter	Weekly	Record on Log Sheet	ANNUALLY

C. MAINTENANCE REQUIREMENTS:

PARAMETER	LOCATION	FREQUENCY
Flow	Water Meter	MONTHLY
Inspect Effluent Filters	Dispersal System	ANNUAL
Odor	Textile Filter	ANNUAL
Pumps, Floats & Alarms	Lift Tank	ANNUAL
Solids Removal & Water Tightness	Septic tank(s)	ANNUAL
Vegetative Cover	Dispersal System	ANNUAL

D. MONITORING AND REPORTING REQUIREMENTS:

Monitoring results obtained during each calendar year shall be submitted no later than May 31st of that year to:

Aitkin County Environmental Services
209 2nd Street NW, Room 100
Aitkin, MN 56431

The monitoring reports shall be signed by the Permittee. Copies are to be retained by the Permittee.

The Permittee shall notify Aitkin County Environmental Services within thirty (30) days when monitoring results do not meet the monitoring plan requirements of this permit.

Monitoring plans may be modified as necessary and reapproved by Aitkin County Environmental Services.

Sampling and laboratory testing procedures shall be performed in accordance with Standard Methods and shall be performed by a Minnesota Department of Health approved laboratory. All sampling and testing costs shall be the responsibility of the Permittee.

Monitoring will be performed by: ~~A.M. & Associates~~ — *John Walsh*

E. MITIGATION PLAN:

1. If ponding problems should occur due to build-up of oil & grease, have biomat analyzed. 2. If ponding problems should occur of indeterminate cause, coupled with a pungent odor, it may be necessary to clean the textile media 3. If weeping problems should occur; lower dosing rate, lower water usage, increase distribution, and absorption area. 4. If OSI Textile Filter experiences problems, fix or repair at recommendations of Manufacturer or replace. 5. A different or another Performance or Other System may be installed at the owner's expense. 6. If in the event that this system should fail and if there is no other ISTS option available, then Holding Tanks must be installed, to be pumped by Licensed Pumper.

Maintenance Checklist

CUSTOMER COPY

Lloyd Welsh 5-21-14

AdvanTex® Treatment Systems

5 year O&M
5 year Service

While regional regulations may vary, Orenco Systems requires that the following inspection and maintenance activities be performed, by a qualified provider, on all AdvanTex® Treatment Systems sold. All activities are to be performed three-to-six months after system start-up; and an annual field-service inspection, including sampling, is to be scheduled in late spring or in early summer. For AXN systems, there is to be a minimum of four inspections during the first two years, and then annual inspections thereafter. Copies of inspection and maintenance reports and additional comments/documentation are to be forwarded to the AdvanTex® Dealer, or if no Dealer, to Orenco Systems, 814 Airway Avenue, Sutherlin, OR 97479.

Maintenance Activity

System
OK!

Activity Check-Off/Notes

A) Inspect Control/Alarm Panel

- 1) Check pump operations in manual mode
- 2) Check/record pump amperage and voltage
- 3) Check timer settings
- 4) Record elapsed time meter and counter readings (if applicable)
- 5) Confirm operation of audible and visual alarms

- OK
- OK
- OK
- OK
- OK

B) Inspect/Test Pumping System

- 1) Verify no leaks in riser
- 2) Inspect splice box for moisture and secure connections
- 3) Verify condition of and correct operation of all floats
- 4) Verify neat wrap of float cords
- 5) Pull pump and clean intake screen if necessary
- 6) Visually inspect recirculating splitter valve and liquid level

- OK
- OK
- OK
- OK
- OK
- OK

C) Inspect Effluent Filters/Pump Screens

- 1) Clean as needed
- 2) Visually inspect and comment on biomat growth

- cleaned
- good

D) Inspect Processing Tank

- 1) Verify no inlet flow
- 2) Inspect liquid depth, odor, scum color, effluent characteristics
- 3) Measure sludge and scum; recommend tank pumping, if necessary

- OK
- OK
- OK

E) Inspect AdvanTex® Filter

- 1) Inspect for ponding; assess character and color of biomat
- 2) Check squirt height
- 3) Verify proper orifice position, equal spray under orifices, no clogged orifices
- 4) Check for odors; adjust recirculating time if necessary
- 5) Clean and flush manifold (if necessary)
- 6) Re-check squirt height
- 7) Flush underdrain
- 8) Inspect intake vent and clean as necessary

- OK
- OK 36
- OK
- OK
- OK
- OK
- OK
- OK

F) Miscellaneous

- 1) Exercise all iron, metal, and mechanical valves
- 2) Return valves, control panel to proper settings
- 3) Submit required documentation

- OK
- OK
- OK

Field Sampling Report Form

25

Date: 5-21-14
 Inspector: John Walsh
 Address: Walsh
 System Type: AXN-10

The following effluent tests can be easily and routinely performed in the field. Perform annually, or as frequently as necessary per the methodology indicated. For AXN systems, there is to be a minimum of four sampling events the first two years and then annual sampling thereafter. Record your results/observations in the space provided:

Parameter	Methodology	Typical	Field Observations	Pre-Test Lab Concurrence
Clarity	Visual ¹	Clear (15± JTUs or NTUs)	<u>clear</u>	_____
Odor	Sniff ²	Non-offensive (no smell of rotten eggs or cabbage; a musty, earthy, or moldy odor is normal)	<u>OK</u>	_____
Oily film	Visual; inside tank	None (no red, blue, green, or orange sheen)	<u>NO</u>	_____
Foam	Visual; inside tank	None	<u>NO</u>	_____
pH	Field	6-9	<u>—</u>	_____

Date: _____ Date: _____

[Signature] _____
 Signature Signature
 Field Sampler Lab Technician

¹ To check for clarity, service providers can carry a lab-prepared sample bottle, or bottles with known turbidities of 15 JTUs and 30 JTUs, to compare against, or can use a portable turbidity meter. Always put effluent sample in a clear glass container or beaker to evaluate clarity. Using a small, removable sticker, write the date, place it low on the beaker, and photograph for documentation.

² To check for odor, service providers can simply sniff the effluent sample with the assistance of an olfactory sniffer device and/or sulfide odor measuring packet. Whenever possible, interview system users about odor occurrences and request user's assistance in verifying or detecting odors.

Meter Readings

10	5/27/14	0544.20	20	≈ 128.57/gpd
21	7/1/13	0514.20	53.83	≈ 109.86/gpd
17	10/3/11	0460.37	61.25	≈ 154.41/gpd
	5/8/10	0399.12		

event = 1200 gal

AITKIN COUNTY ENVIRONMENTAL SERVICES-PLANNING & ZONING
209 Second Street, NW Room# 100
Aitkin, Minnesota 56431

PH: (218) 927-7342
FX: (218) 927-4372



5/28/2014

Lloyd and Lois Welsh
51141 207TH PL
McGregor, MN 55760-

Re: Operating Permit # 89
Zoning Permit # 29201
Parcel # 29-1-490100

Dear Permittee:

This letter is to inform you that your Operating Permit has been renewed until 5/31/2019 .

Please adhere to your monitoring and maintenance contract including monitoring your water use. Failure to do so would violate the agreement to operate your system and could void the operating permit. You should contact your Operation and Maintenance provider directly with questions that you may have during the year.

Thank you for your good stewardship and we hope that your system continues to operate well, protecting groundwater for you and the environment.

Sincerely,

Kristi K.

Aitkin County Planning & Zoning

Analysis Report

May 29, 2019

REPORT TO:

Ritter Sewer & Excavating
 Mark Ritter
 34753 390th Place
 Aitkin MN 56431

INVOICE TO:

Ritter Sewer & Excavating
 Mark Ritter
 34753 390th Place
 Aitkin MN 56431

Date Rcvd-Brnd: 5/7/2019
 Time Rcvd-Brnd: 14:40

Sampled By: Mark Ritter
 Sample Type: WW
 Recv Temp°C: 2.3 on ice

LOCATION:
 Welsch - Operating #89

SITE / ANALYTE	Sample Date/Time	Analyzed Value	Units	Reporting Limit	Analytical Method	Analysis Date/Time	Analyst	Code #
Lift To Mound	5/7/2019 @ 12:30							
Biochemical Oxygen Demand, 5 Day		36	mg/L	2	SM 5210 B-2011	5/8/19 13:37	CJS	019872
Fecal Coliform		> 242000	MPN/100mL	1	COLILERT-18 (FECAL COLI.)	5/7/19 15:45	SK	019872
Residue-Nonfilterable (TSS)		14.3	mg/L	1	USGS I-3765-85	5/9/19 10:07	SK	019872

Approved By:



Date Approved: 5/29/2019

Sara Ahlers, Laboratory Director

A.W. Research Laboratories, Inc. is Certified by the Minnesota Department of Public Health and follows approved methods and procedures. Minnesota Laboratory Certification # 027-035-135. All data generated using certified methods noted as -C, all data generated using non-certified methods noted as -NC, and all analytes for which certification is unavailable - NA. The results above relate only to the samples tested. This report must not be reproduced, except in full, without the written approval of the laboratory. We appreciate your feedback, please email us at awlab@awlab.com with questions or comments. Thank you!

~End of Analysis Report~



MINNESOTA VALLEY TESTING LABORATORIES, INC.

1126 North Front St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890
2 North German St. ~ New Ulm, MN 56073 ~ 800-782-3557 ~ Fax 507-359-2890
2616 East Broadway Ave. ~ Bismarck, ND 58501 ~ 800-279-6885 ~ Fax 701-258-9724
1201 Lincoln Hwy. ~ Nevada, IA 50201 ~ 800-362-0855 ~ Fax 515-382-3885
www.mvtl.com



Page: 1 of 1

SARA
A W RESEARCH LABORATORIES
16326 AIRPORT RD
BRAINERD MN 56401

Report Date: 23 May 2019
Lab Number: 19-A21252
Work Order #: 12-8475
Account #: 002432
Sample Matrix: WASTEWATER
Date Sampled: 7 May 2019 12:30
Date Received: 9 May 2019 10:05
PO #: CREDIT CARD

Project Name: WELSCH #89 RITTER

Sample Description: 19872-3 LIFT TO MOUND

Temp at Receipt: 3.3C

	As Received Result		Method RL	Method Reference	Date Analyzed	Analyst
Oil and Grease	< 5	mg/L	5	EPA 1664B	22 May 19 11:45	MDK

Approved by:

Dan O'Connell

David Smahel

Chemistry Laboratory Managers New Ulm, MN

RL = Reporting Limit

Analyses performed under our Minnesota Department of Health Accreditation conform to the current TNI standards.

The reporting limit was elevated for any analyte requiring a dilution as coded below:

@ = Due to sample matrix

= Due to concentration of other analytes

| = Due to sample quantity

+ = Due to internal standard response

CERTIFICATION: MN LAB # 027-015-125 ND WW/DW # R-040

**AITKIN COUNTY ENVIRONMENTAL SERVICES
OPERATING PERMIT FOR WASTEWATER
TREATMENT AND DISPERSAL RENEWAL**

ISSUANCE DATE: 5/31/2019
RENEWAL PERIOD: 5 YEAR

OPERATING PERMIT #: 89
ZONING PERMIT #: 29201
PARCEL #: 29-1-490100

PERMITTEE: Lloyd and Lois Welsh

TELEPHONE: (218) 426-4388

MAILING ADDRESS:
51141 207TH PL
McGregor, MN 55760-

PROPERTY ADDRESS:
51141 207th Pl.
McGregor, MN 55760

LEGAL DESCRIPTION: Lot 11 Double S Acres Second Addition

Aitkin County Environmental Services authorizes the Permittee to operate a wastewater treatment and dispersal system located on the above described property in accordance with the requirements of this permit.

This permit is effective on the issuance date identified above.

This permit and the authorization to treat and disperse from the above system is valid through the renewal period identified above. The Permittee is not authorized to discharge after the renewal period. The Permittee shall submit such information and forms as required by Aitkin County Environmental Services no later than thirty (30) days prior to the expiration date. When the required information is submitted and approved by Aitkin County Environmental Services, the permit may be renewed. This permit is not transferable from owner to owner.

I hereby certify with my signature as the permittee that I understand the provisions of this permit including the maintenance and monitoring requirements. I agree to indemnify and hold Aitkin County harmless from all loss, damages, costs and charges that may be incurred by use of this system and if I fail to comply with the provisions of this Operating Permit. If I sell this property during the life of the permit, I will inform the new owner(s) of the permit requirements and the need to renew the permit.

Lois M. Welsh

Signature of Permittee

5-6-2019

Date

Shannon W.

Signature of Permitting Authority

8-5-2019

Date

If you have any questions regarding this permit, including the specific permit requirements, permit reporting or permit compliance status, please contact Aitkin County Environmental Services at 218-927-7342.

A. DESCRIPTION OF WASTEWATER TREATMENT AND DISPERSAL SYSTEM

This ISTS is to gravity from the dwelling into the existing 1200 gallon concrete septic tank. From there the liquids will gravity into a new 1860 precast septic/lift tank. An OSI AdvanTex AX-10 Series, Mode 1b Textile Filter is to be placed on top of the 1860 septic/lift tank. Wastewater will percolate through the Textile Filter which will recirculate through the tank and the filter treating the liquids. The treated liquids will then be pumped into a 10' x 38' Pressure Bed with 18 inches of separation. The Pressure Bed is to be constructed on "clean sand" with 6 foot dikes at a 3:1 slope.

B. PERFORMANCE STANDARD REQUIREMENTS:

During the period beginning on the effective date (issuance date) of this permit and lasting until this permit's expiration date, the Permittee is authorized to discharge from the wastewater treatment unit to subsurface dispersal. No surface discharge is permitted. The following parameters must be monitored and the results must be found within the compliance limits.

PARAMETER	COMPLIANCE LIMIT	SAMPLE LOCATION	SAMPLE FREQUENCY	SAMPLE TYPE	REPORTING FREQUENC
Separation	18 inches	Dispersal System	ANNUALLY	Measure in Field	ANNUALLY OK ✓
Fecal Coliform	< 1000 mg/l	Filtrate Splitter Valve	ANNUALLY	Measure in Field	ANNUALLY OK ✓
Fats, Oil and Greases	< 30 mg/l	Filtrate Splitter Valve	As Necessary	Measure in Field	ANNUALLY OK ✓
TSS	15/65 mg/l	Filtrate Splitter Valve	As Necessary	Measure in Field	ANNUALLY OK ✓
BOD5	15/220 mg/l	Filtrate Splitter Valve	As Necessary	Measure in Field	ANNUALLY OK ✓
Flow	300 gpd	Water Meter	Weekly	Record on Log Sheet	ANNUALLY

see attached sheets

C. MAINTENANCE REQUIREMENTS:

PARAMETER	LOCATION	FREQUENCY
Flow	Water Meter	MONTHLY
Inspect Effluent Filters	Dispersal System	ANNUAL
Odor	Textile Filter	ANNUAL
Pumps, Floats & Alarms	Lift Tank	ANNUAL
Solids Removal & Water Tightness	Septic tank(s)	ANNUAL
Vegetative Cover	Dispersal System	ANNUAL

cleaned all of them ✓
good ✓
good ✓
could empty all tanks ✓
good ✓

Invoice #48464 (08/05/2019)

2. Zoning/Land Use Permit Applications Misc. (OFFICE USE ONLY) Permit # 2019-4434, App. # App-2019-004942, UID # 198515

Lois Welsh

(218) 927-7342

na@na.com

51141 207th Pl, McGregor, MN 55760

Aitkin County Planning & Zoning / Environmental Services

209 2nd Street NW, Room 100

Aitkin, MN 56431

Phone: 218-927-7342

Fax: 218-927-4372

Email: aitkinpz@co.aitkin.mn.us

Charge		Cost	Quantity	Total	Note
Operating Permit Renewal added 08/05/2019 3:59 PM \$100		\$100.00	x 1	\$100.00	
Grand Total					
				Total	\$100.00
Payment #45551					
Method:	Check		5581		
Date:	08/05/2019	Note:	51141 207th Pl, McGregor, 55760		
Made By:	Lois M. Welsh				
Confirmed By:	Shannon Westerlund				



34753 390th Place • Aitkin, MN 56431

Phone: 218.97.4125 • Fax 218.927.4471

Toll Free: 800.450.4125

rittersewer@hotmail.com • www.rittersewer.com

SEPTIC SYSTEM REVIEW FOR

Lois Welsh

Parcel # 29-1-490100

Operating permit #89

Property located in Shamrock Township

Aug. 1 , 2019

The above mentioned property has a time dosing panel that keeps track of the events/elapsed times that the pump has been sending sewage out to the mound. At the present there is a problem with the metering device that will not give us past events/time. We are looking into solving this problem and will have new meter readings as soon as possible.

The system was cleaned and serviced and is operating within the standards set up in the operating permit (see attached) at the time and I believe that we can put this system on a 5 year operating permit.

The tanks, effluent filter, pumps, floats, alarms and control panel will still be inspected ever year.

We have entered into a Maintenance, Monitoring and Inspection Contract with said property owner.

Sincerely,

A handwritten signature in blue ink that reads "Mark P. Ritter".

Mark P. Ritter

Ritter Sewer & Excavating, Inc.

AITKIN COUNTY ENVIRONMENTAL SERVICES-PLANNING & ZONING
209 Second Street, NW Room# 100
Aitkin, Minnesota 56431

PH: (218) 927-7342

FX: (218) 927-4372



8/6/2019

Re: Operating Permit #89
Zoning Permit #29201
Parcel #29-1-490100

Lloyd and Lois Welsh
51141 207TH PL
McGregor, MN 55760-

Dear Permittee:

This letter is to inform you that your Operating Permit has been renewed until 5/31/2024 and the Operating Permit renewal period has been moved to a 5 YEAR based on the recommendation from your Operating and Maintenance provider.

Please adhere to your monitoring and maintenance contract including monitoring your water use. Failure to do so would violate the agreement to operate your system and could void the operating permit. You should contact your Operation and Maintenance provider directly with questions that you may have during the year.

Thank you for your good stewardship and we hope that your system continues to operate well, protecting groundwater for you and the environment.

Sincerely,

Shannon W.

Aitkin County Planning & Zoning