

MANAGEMENT ALTERNATIVES EVALUATION

AS PART OF

DECENTRALIZED WASTEWATER MANAGEMENT FACILITY PLAN

FOR

CANAAN VALLEY, TUCKER COUNTY, WV



March 8, 2006

Submitted to:

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Table of Contents

1. INTRODUCTION	1
2. OWNERSHIP	2
3. ADMINISTRATION	4
3.1. Ownership Management	4
3.2. Program Management for Capital Improvements.....	4
3.3. Use Regulation	5
3.4. Regulatory Compliance Reporting	5
3.5. Customer Service, Billing and Collections	5
3.6. User Charges	6
3.6.1 Capital Costs	6
3.6.2 Operation and Maintenance Costs	6
3.6.3 Repair Fund.....	7
3.6.4 Asset Replacement-Depreciation Fund	7
3.7. Financial	7
4. OPERATIONS MANAGEMENT – MONITORING, MAINTENANCE AND REPAIR	8
5. USEPA MANAGEMENT MODELS	10
6. EXISTING WASTEWATER MANAGEMENT UTILITIES	12
6.1. Hamrick PSD.....	12
6.1.1 Contact Information	12
6.1.2 Jurisdictional Area	12
6.1.3 Service Area	12
6.1.4 Governing Body	12
6.1.5 Financial	12
6.2. Timberline Four Seasons Utilities	15
6.2.1 Contact Information	15
6.2.2 Service Area	15
6.2.3 Governing Body	15
6.2.4 Financial	15
6.3. West Virginia Resort LLC.....	17
6.3.1 Contact Information	17
6.3.2 Service Area	18
6.3.3 Governing Body	18
6.3.4 Financial	18
6.4. Summary	19
7. CANAAN VALLEY MANAGEMENT OPTIONS	21
7.1. Challenges	21
7.1.1 Methods to Ensure Payment.....	21
7.1.2 Rate Structure	22
7.1.3 Reserve Capacity	23
7.1.4 NPDES Permit Issues	24
7.1.5 Extent of I/I.....	24

7.2. Recommended Ownership in Canaan Valley.....	24
7.2.1 Onsite Systems.....	24
7.2.2 UIC Systems.....	25
7.2.3 WWTFs.....	25
7.3. Recommended Administration in Canaan Valley.....	25
7.3.1 Legal Agreements.....	25
7.3.2 User Charges.....	25
7.4. Recommended MMR in Canaan Valley.....	26
7.5. Watershed Approach.....	26
7.5.1 Watershed-Based Permit Types.....	27
APPENDIX.....	28

List of Figures

Figure 2-1: Matrix of Ownership Options.....	3
Figure 4-1: Typical MMR Responsibilities*.....	9

List of Tables

Table 2-1: West Virginia Water and Sewer Utility Rules.....	2
Table 5-1: Summary of USEPA's Management Models*.....	11
Table 6-1: Hamrick PSD June 2005 Sewer Income Statement.....	13
Table 6-2: Hamrick PSD Sewer Rates.....	13
Table 6-3: Hamrick PSD June 2005 Water Income Statement.....	14
Table 6-4: Hamrick PSD Water Rates.....	14
Table 6-5: Timberline Four Seasons Utilities 2004 Sewer Income Statement.....	16
Table 6-6: Timberline Four Seasons Utilities Sewer Rates.....	16
Table 6-7: Timberline Four Seasons Utilities 2004 Water Income Statement.....	17
Table 6-8: Timberline Four Seasons Utilities Water Rates.....	17
Table 6-9: West Virginia Resorts LLC 2004 Sewer Income Statement.....	18
Table 6-10: West Virginia Resorts LLC 2004 Water Income Statement.....	19
Table 6-11: Existing Utilities Financial Summary.....	20
Table 7-1: WV Utilities with Different Rate Structures.....	22
Table A-1: Tucker County Sewer Utility Cost Ranking as of January 13, 2006.....	28

1. INTRODUCTION

Lombardo Associates, Inc. (LAI) have been retained to develop a Valley-wide Decentralized Wastewater Management Facility Plan, which meets the water quality standards and is protective of public health and safety. Wastewater management is a critical issue in Canaan Valley, since a total maximum daily load (TMDL) was developed and implemented for the Upper Blackwater River in 1998. The Upper Blackwater was identified as impaired due to low dissolved oxygen (DO), which prohibited it from meeting its designated use as a trout water.

The existing wastewater management practices in the Valley include the following sectors:

1. Individual onsite systems
2. Large subsurface dispersal septic systems, permitted by the Underground Injection Control (UIC) permitting program
3. Wastewater treatment facilities (WWTFs)

LAI identified management options for each of the wastewater sectors in Canaan Valley. Both public and private management options for operation, maintenance, repair, monitoring, and administration, or a combination of the two, were considered. Wastewater management programs consist of three elements:

1. Ownership
2. Administration
3. Operation

Types of management entities were identified and screened based on existing management tools, legal considerations, and public acceptability. Upon adoption of a Decentralized Wastewater Management Facility Plan, \$2.8 million in State and Tribal Assistance Grant (STAG) funds have been secured by Congressman Alan B. Mollohan for the implementation of a decentralized wastewater management plan. The grant can be used for 55 percent of eligible project costs. However, a public entity must apply for the grant, thus, for facilities to be eligible to receive the grant money they must be owned by a public management entity. Therefore the grant requirements influence the recommended management option.

Following is a discussion of what the ownership, administration, and operation elements entail and the full range of options available. Moreover, a brief synopsis of the management models for decentralized wastewater management systems developed by USEPA to assure the proper operation and maintenance of decentralized systems is presented. Finally, recommended management options are then presented for Canaan Valley.

2. OWNERSHIP

Ownership describes the entity that has legal responsibility, liability and authority regarding all aspects of a wastewater management system. Ownership is sometimes referred to as the Institutional Structure of a wastewater management system.

The range of ownership structures in West Virginia includes:

- Public
 - Sanitary District
 - Public Service District – new or existing
 - Assessment Districts
 - Regional Wastewater Authorities
 - Municipal Corporations
 - County Commission
- Private
 - Private individuals
 - Utilities
 - For-Profit Corporation
 - Non-Profit Corporation
 - Cooperative Association

The ownership options are usually defined by existing enabling legislation that defines the responsibilities, authorities, composition and functioning of the ownership entity. West Virginia Code Chapter 16, Article 13A is the legislation in West Virginia pertaining to public service districts for water, sewerage, stormwater and gas services. Moreover, Table 2-1 lists the rules that govern water and sewer utilities per West Virginia Code.

TABLE 2-1: WEST VIRGINIA WATER AND SEWER UTILITY RULES

Rule	Effective Date	Scope
Title 150 Series 7 Rules for the Government of Water Utilities	October 24, 2003	Govern the operation and service of jurisdiction of the PSC pursuant to West Virginia Code §24-2-1.
Title 150 Series 5 Rules for the Government of Sewer Utilities	August 25, 2003	Govern the operation and service jurisdiction of the PSC pursuant to West Virginia Code §24-2-1

Traditionally, centralized wastewater systems have been publicly owned and managed while onsite and cluster systems have been privately owned and managed with public oversight. Today these are not the only options. Onsite and cluster systems have successfully been implemented using public innovative ownership structures. Figure 2-1 describes the range of possible ownership structures.

FIGURE 2-1: MATRIX OF OWNERSHIP OPTIONS

Ownership Institution	Infrastructure	Centralized	Cluster	Onsite
Public	<ul style="list-style-type: none"> • Sanitary District • Public Service District – new or existing • Assessment districts • Regional wastewater authorities • Municipal corporations • County commissions 	Traditional	Innovative	Innovative
Combination Public / Private	<ul style="list-style-type: none"> • Combinations 	Innovative	Innovative	Innovative
Private	<ul style="list-style-type: none"> • Private Individuals • For-Profit Corporation • Non-Profit Corporation • Cooperative Association 	Innovative	Innovative	Traditional

The ownership of a wastewater system may constrain the available financial and institutional management system options available. For example, privately owned systems have traditionally been unable to obtain public funding in the form of grants and this is the case here with the STAG funds. The grants can only be applied for and received by a public entity. Loans using State Revolving Funds (SRF) have been made available for privately owned systems.

The administration and monitoring, maintenance and repair (MMR) options are discussed in the following Sections. An owner can either perform some or all of these activities internally, or have them performed by others (outsourced).

3. ADMINISTRATION

The administration element is comprised of the following functions:

- Ownership Management
- Program Management for Implementation of Capital Improvements
- Use Regulation
- Regulatory Compliance Reporting
- Customer Service, Billing and Collections
- User Charge System
 - Capital costs
 - Operation and maintenance costs
 - Repair fund
 - Replacement-depreciation fund
- Financial

3.1. Ownership Management

The ownership management function can consist simply of oversight of the activities of others to whom all activities have been outsourced or the performance of the activities by the owner's manager directly, or a wide variety of combinations. At a minimum, ownership management maintains records on the wastewater management system and submits required compliance performance reports, as the owner's agent, to regulatory agencies, as well as education of system users.

Community-wide wastewater management systems require a RME in the form of an existing or specific purpose entity with specific powers to make and enforce rules that provide regulators assurance of sustainable compliance.

Ownership administration management costs include:

- General administration
- Professional services of engineering, legal and accounting
- Insurance
- Office space, etc.
- Customer service, billing and collection

3.2. Program Management for Capital Improvements

During wastewater management system creation and during major expenditures, there is a significant need for management of the proposed system's capital facilities implementation. For smaller RMEs, this activity is usually outsourced to an experienced engineering or program management-type firm.

3.3. Use Regulation

Any wastewater management system will have regulations regarding its authorized use. Use regulations are typically included in the state and/or local code for smaller systems. It may, however, be necessary to adopt special regulations on use and practices.

As an example, certain disinfecting chemicals and floor cleaning products will be toxic to wastewater treatment systems and cause them to malfunction. Prohibiting the discharge of certain chemicals to small wastewater management systems may be necessary, as the low flow does not provide the dilution that would mitigate the toxic effects of certain waste discharges. It may also be necessary to set pre-treatment requirements on high-strength wastewater generators to protect the wastewater collection and treatment systems.

Since the issue of capacity is so important in Canaan Valley, it may be necessary to have agreements between the existing owners of the WWTFs and the chosen RME limiting the amount of wastewater flow each of the facilities can accept.

3.4. Regulatory Compliance Reporting

As wastewater management systems increase in size and proximity to environmentally sensitive areas, their regulatory reporting requirements generally increase. Owners need to provide for gathering and submittal of the required regulatory compliance reporting information.

3.5. Customer Service, Billing and Collections

Customer service is a required activity for cluster and centralized wastewater management systems. Issues will range from responding to odor complaints to change of use, including service termination and the addition of new service connections.

Billing and collections are vital functions of any RME. Many utility organizations and private and public entities provide outsourcing services for this activity. A key issue is the ability of the RME to take enforcement action for non-payment of fees.

The typical enforcement options include:

- Lien on property
- Water shut-off
- Civil actions (e.g. small claims court)

Owners must be sure that all stakeholders understand the legal mechanisms and proper notification procedures as well as the impact of non-payments of fees on the financial viability of the system. Owners can contract with private organizations that guarantee user charge payments. These organizations provide the revenue cash flow and will place liens (or use other legal instruments) on the property of non-paying users. This issue as it applies to Canaan Valley will be discussed in more detail in Section 5.

3.6. User Charges

The primary cost categories associated with wastewater systems are:

- Capital costs
- Administration
- Annual operation and maintenance costs
- Repair funds
- Replacement-Depreciation funds

In West Virginia, user rates are regulated by the Public Service Commission (PSC).

3.6.1 Capital Costs

Capital costs are the total installed costs of the wastewater system, including engineering (design and construction management), land easements, legal, financing and capital improvement program administration and construction costs. Capital costs for systems have been raised in one or more of the following ways:

- Federal or state grants and loans
- User charges, in which a portion or all of the capital costs are amortized over a fixed term (*i.e.*, 20 years)
- Connection charges, in which users pay a fee when the wastewater system is constructed or when they connect
- Property taxes in which property owners in an entire community, finance some or all of the wastewater system
- Unique taxing mechanisms, whose revenues are restricted for payment of capital and/or O&M costs – such as targeted sales tax
- Private entity building the system, as in a New Parcel Development
- Private entity in a design, build, own and operate (DBOO) situation.

A key determinant of which financing options are available is the ownership of the system, as many public funding sources are restricted from being used for private property.

3.6.2 Operation and Maintenance Costs

Operation and maintenance (O&M) costs include the annual cost of operating and maintaining the system arising from:

- Electricity use
- Labor
- Chemicals

- Equipment servicing
- Residuals removal and ultimate disposal
- Routine repair/parts replacement
- Equipment and major component replacement

3.6.3 Repair Fund

A Repair Fund should be established for equipment with a useful life of less than 10 years. This fund would be used to pay for small equipment repair/replacement when it fails or on a scheduled basis (to avoid damaging impacts). Establishing an annual repair fund contribution will ensure that funds are available when needed. A repair fund also levels impacts on the user charge rates from repair costs that vary from year to year.

3.6.4 Asset Replacement-Depreciation Fund

A major challenge with wastewater management systems is the funding of future replacements of major capital equipment. This is sometimes referred to as a depreciation fund.

Typically, funding of future major equipment replacement has been a challenge for RMEs. It is strongly recommended the Replacement-Depreciation Fund contributions be included in user charge systems, so that funds are available when major repairs are required. An affordability challenge exists when the user charge includes some capital amortization. When this occurs, it is suggested that Replacement-Depreciation Fund contributions be programmed to occur in later years, say after year 10, and fully funded when the initial capital is fully paid. Replacement-Depreciation funding and asset management are intertwined issues.

3.7. Financial

The financial issues are budgeting, accounts payable, and accounts receivable, and capital resources procurement. The owner needs to establish a budget for any wastewater management system (in particular for user charge determination), and revenues and expenses need to match the budget parameters. Cash flow difficulties arise when the timing of expenses outpaces revenue receipts. In part for this reason, capitalizing the first year or two of operating expenses may be wise for new systems. The procurement of capital resources is a significant issue that usually requires professional assistance.

4. OPERATIONS MANAGEMENT – MONITORING, MAINTENANCE AND REPAIR

The operations element consists of the following activities:

- Monitoring
- Maintenance
- Repair – Replacement

The MMR activities required for wastewater systems are heavily influenced by system capacity, with larger systems having more requirements than smaller systems. The equipment dictates maintenance and repair activities, while monitoring requirements are dictated by permits.

Figure 4-1 presents typical MMR responsibilities for the range of wastewater management system sizes.

FIGURE 4-1: TYPICAL MMR RESPONSIBILITIES*

MMRA Activity	Onsite Systems	Small Systems <i>< 2,000 gpd</i>	Medium Systems <i>2,000 – 10,000 gpd</i>	Large Systems <i>10,000 – 50,000 gpd</i>	Very Large Systems <i>50,000+ gpd</i>	Centralized Systems
Maintenance	Periodic residuals removal		Treatment, collection system maintenance	Treatment, collection, dispersal system maintenance activities	On-going treatment, collection, dispersal system maintenance activities	
Monitoring	Periodic Inspections	Periodic Inspections Remote monitoring systems may be appropriate	Regular inspections Regular sampling On-call personnel Remote monitoring systems	Regular inspections Regular sampling On-call personnel SCADA system	Regular inspections Regular sampling Full time personnel SCADA system	
Repair	Component repair as needed		Component repair as needed On-call personnel	Preventative repair and replacement program On-call personnel	Preventative repair and replacement program Full time personnel Redundant systems	
Administration	Varies by degree of oversight (Education, Permit Applications, Inspections, etc.) System use regulation		Discharge permit Compliance reporting System use regulation	Discharge permit Compliance reporting Minimal customer service System use regulation	Discharge permit Compliance reporting Full customer service System use regulation	

*Taken from the 2004 Cluster Wastewater Systems Planning Handbook, by Lombardo Associates, Inc.

5. USEPA MANAGEMENT MODELS

USEPA has developed Voluntary National Guidelines for the Management of On-Site and Clustered Wastewater Treatment Systems. The management guidelines consist of five management models, with progressively increasing management controls as the sensitivity of the environment and/or treatment system complexity increases. The purpose of the models is to provide a guide to match the needed management controls to the potential public health and water quality risks presented by decentralized systems in a particular area. The models are flexible to allow for customization by substituting elements of one model into another to accommodate local needs, practices, and conditions. The key elements of the five models are summarized in Table 5-1.

Currently in Canaan Valley, it appears that the management of most of the WWTFs fall under Level 3. Management of the onsite systems generally falls under Level 1.

TABLE 5-1: SUMMARY OF USEPA'S MANAGEMENT MODELS*

Management Model	Objectives	Basic features
Management Model 1 <i>Inventories and maintenance reminders</i>	<ul style="list-style-type: none"> ▪ Owner awareness of permitting program, installation, and O/M needs. ▪ Compliance with codes, regulations. 	<ul style="list-style-type: none"> ▪ Only conventional on-site systems. ▪ Prescriptive design/site requirements. ▪ Owner education to improve O/M. ▪ Inspections only during construction and complaint evaluations. ▪ Create and maintain system inventory.
Management Model 2 <i>Maintenance contracts</i>	<ul style="list-style-type: none"> ▪ Maintain prescriptive program for sites that meet code criteria (MP 1). ▪ Permit only approved alternative systems on sites not quite meeting criteria. 	<ul style="list-style-type: none"> ▪ Prescriptive design/site requirements. ▪ Allowances for specified alternatives where code not met. ▪ O/M contracts and reporting required for alternative systems. ▪ Inspections and owner education as in MP 1. ▪ Create and maintain inventory.
Management Model 3 <i>Operating Permits</i>	<ul style="list-style-type: none"> ▪ Onsite system designs based on site conditions and performance requirements. ▪ System performance assumed by O/M task completion and verified through permit renewal inspections. 	<ul style="list-style-type: none"> ▪ Wider variety of designs allowed. ▪ Performance of required O/M tasks governs operating permit renewal. ▪ OWTS monitoring/inspections required. ▪ Property sale and change-of-use compliance-assurance inspections. ▪ Create and maintain inventory.
Management Model 4 <i>Responsible management entity operation and maintenance</i>	<ul style="list-style-type: none"> ▪ Responsible public or private entity assumes O/M and inspection/monitoring responsibilities for all systems in management area. 	<ul style="list-style-type: none"> ▪ Performance governs acceptability. ▪ Operating permits ensure compliance. ▪ All systems are inspected regularly. ▪ Monthly/yearly fees support program. ▪ Owner responsible for all costs. ▪ Create and maintain inventory.
Management Model 5 <i>Responsible management entity ownership</i>	<ul style="list-style-type: none"> ▪ Public or private RME owns and operates all systems in management area. ▪ Similar to centralized sewer system service approach. 	<ul style="list-style-type: none"> ▪ Performance governs acceptability. ▪ All systems are inspected regularly. ▪ Monthly/yearly fees support program. ▪ Users relieved of all O&M responsibilities. ▪ RME funds installation & repairs. ▪ Create and maintain inventory.

* Taken from the USEPA Voluntary National Guidelines for Management of Onsite and Clustered (Decentralized) Wastewater Treatment Systems, Federal Register: March 28, 2003, Volume 68, Number 60, Notices, Page 15172-15173.

6. EXISTING WASTEWATER MANAGEMENT UTILITIES

6.1. Hamrick PSD

6.1.1 Contact Information

Contact Information:

Hamrick PSD
Box 228
Hendricks, WV 26271

6.1.2 Jurisdictional Area

The Hamrick Service District was created by the Tucker County Commission for the purpose of providing both water and sewage service.

The District presently owns and operates both water and sewage facilities.

6.1.3 Service Area

6.1.3.1 Wastewater

Hamrick PSD provides wastewater collection services to approximately 400 residential customers, 16 commercial customers, and 7 industrial customers. The collection system serves the Hambleton, Hendricks, Bretz, and Blackmon Flats areas of Tucker County. The collection system discharges to the Parsons collection and treatment system.

6.1.3.2 Water

Hamrick PSD provides water service to 696 residential customers, 25 commercial customers, and 8 public authorities in the communities of Hambleton, Hendricks, Bretz, Blackmon Flats, Holly Meadows, St. George, Leadmine, and Shaffer.

6.1.4 Governing Body

A three-member board governs the Hamrick PSD. The members are as follows:

Chairman – James Suesli
Member – Jeffrey Kiess
Member – Robert Summerfield

The General Manager is Michael Helmick.

6.1.5 Financial

6.1.5.1 Sewer

Hamrick PSD is currently classified as a Class C sewer utility. Its operating revenues for the year ended June 30, 2005 were \$154,827. Class C utilities have a revenue level that ranges from \$100,000 to \$399,999. The operating revenues and expenses are listed in Table 6-1. The sewer utility had a net loss of \$40,764 for the period ending June 30, 2005.

TABLE 6-1: HAMRICK PSD JUNE 2005 SEWER INCOME STATEMENT

Sewer Income Statement	
Operating Revenues	
Domestic Service	\$139,932
Commercial Service	\$4,388
Industrial Service	\$7,729
Customers' Forfeited Discounts and Penalties	\$2,778
TOTAL	\$154,827
Operating Expenses	
Collecting System	\$11,859
Pumping System	\$5,906
Treatment & Disposal System	\$16,078
Billing & Collecting	\$5,000
Administration & General	\$21,040
TOTAL	\$59,883
Depreciation	\$105,066
Taxes	\$2,297
Net Operating Revenues	(\$12,419)
Other Income	\$1,943
Income Deductions	
Interest	\$30,288
NET INCOME (LOSS)	(\$40,764)

The sewer rates for the Hamrick PSD, effective March 13, 2002, are presented in Table 6-2.

TABLE 6-2: HAMRICK PSD SEWER RATES

Usage (gallons)	Rate (\$/1,000 gal)	Minimum (\$/mo)	Tap Fee (\$)	Charge for 4,500 Gallons
1,000	8.41	16.82	250	37.85

Parsons City Council is in the process of raising the cost of sewer service. The new minimum sewer bill is expected to increase from \$8.50 to \$13.80. Officials from Hamrick PSD have indicated that they plan to appeal the rate increase on behalf of its customers. The Hamrick PSD rates are higher than the City's because the PSD is still paying for its newer collection system.

6.1.5.2 Water

Hamrick PSD is also a Class C water utility. For the period ending June 30, 2005, the water utility had a net loss of \$47,539 as shown in Table 6-3.

TABLE 6-3: HAMRICK PSD JUNE 2005 WATER INCOME STATEMENT

Water Income Statement	
Operating Revenues	
Unmetered Sales	\$8,549
Metered Sales	\$258,981
Forfeited Discounts	\$4,179
Other	\$2,195
TOTAL	\$273,904
Operating Expenses	
Source of Supply	
Pumping	\$10,247
Water Treatment	\$32,372
Transmission & Distribution	\$24,392
Customer Accounts	\$22,638
Sales Promotion	
Administration & General	\$86,381
TOTAL	\$176,030
Depreciation	\$121,456
Taxes other than Income Taxes	\$10,388
Net Operating Revenues	(\$33,970)
Other Income	\$7,296
Income Deductions	
Interest	\$20,865
NET INCOME (LOSS)	(\$47,539)

Effective April 8, 2004 the water rates for the Hamrick PSD are as presented in Table 6-4.

TABLE 6-4: HAMRICK PSD WATER RATES

Usage (gallons)	Rate (\$/1,000 gal)	Minimum (\$/mo)	Tap Fee (\$)	Charge for 4,500 Gallons
first 3,000	9.61	23.55 ^a	300	37.94
nxt 3,000	6.07			
nxt 4,000	4.56			
nxt 10,000	4.01			
nxt 20,000	3.83			

a. 5/8 inch meter

Parsons City Council recently finalized plans to increase its water rates. Combined with the proposed sewer rate increase, the residents will see an increase of nearly \$10 a

month on the minimum amount of water. The water rate increase is planned to go into effect in April 2006.

6.2. Timberline Four Seasons Utilities

6.2.1 Contact Information

Contact Information:

Timberline Four Seasons Utilities Co., Inc.
HC 70 Box 488
Davis, WV 26260

Tel: (304) 866-4801

6.2.2 Service Area

The utility presently owns and operates both water and sewage facilities. While there is no delineated boundary of the service area, Timberline Four Seasons Utilities provides service to the residents of the Timberline subdivisions (Northface, Cedarplace, Northwoods, Spruce Glades, Woodsend, Herzwoods, Mountainside, Winterset, Cabin Mountain, Yoakum Run). There are approximately 368 sewer customers and 368 water customers.

6.2.3 Governing Body

A three-member board governs the Timberline Four Seasons Utilities. The members are as follows:

President – Frederick Reichle
Vice President – Frederick Herz
Secretary/Treasurer – Rose Marie Herz

The General Manager is Thomas Blanzky.

6.2.4 Financial

6.2.4.1 Sewer

Timberline Four Seasons Utilities is currently classified as a Class C sewer utility. Its operating revenues for the year ended December 31, 2004 were \$149,609. Class C utilities have a revenue level that ranges from \$100,000 to \$399,999. The 2004 operating revenues and expenses are listed in Table 6-5. The sewer utility had a net income of \$61,529.

TABLE 6-5: TIMBERLINE FOUR SEASONS UTILITIES 2004 SEWER INCOME STATEMENT

Sewer Income Statement	
Operating Revenues	
Domestic Service	\$129,458
Other Sewerage Service	\$20,151
TOTAL	\$149,609
Operating Expenses	
<i>Pumping</i>	
Power and Fuel	\$3,051
<i>Treatment & Disposal</i>	
Supplies and Expenses	\$556
Maintenance of Structures and Equipment	\$6,185
<i>Subtotal</i>	<i>\$6,741</i>
<i>Administration & General</i>	
General and Misc Supplies and Expenses	\$31,172
TOTAL	\$40,964
Depreciation	\$38,957
Taxes other than Income Taxes	\$8,159
NET INCOME (LOSS)	\$61,529

The sewer rates for Timberline Four Seasons Utilities, effective February 9, 1993, are based on metered water service as presented in Table 6-6.

TABLE 6-6: TIMBERLINE FOUR SEASONS UTILITIES SEWER RATES

Water Usage (gallons)	Rate (\$/1,000 gal)	Minimum (\$/mo)	Charge for 4,500 Gallons
first 4,000	7.51	30.04	33.21
nxt 6,000	6.34		
all over 10,000	4.88		

6.2.4.2 Water

Similarly, Timberline Four Seasons Utilities water utility is classified as a Class C utility. In 2004, the water utility had a net loss of \$179,049 as shown in Table 6-7.

TABLE 6-7: TIMBERLINE FOUR SEASONS UTILITIES 2004 WATER INCOME STATEMENT

Water Income Statement	
Operating Revenues	
Unmetered Sales	
Metered Sales	\$158,369
Forfeited Discounts	
Other	
TOTAL	\$158,369
Operating Expenses	
Source of Supply	\$169,762
Pumping	\$4,543
Water Treatment	\$9,074
Transmission & Distribution	\$67,769
Customer Accounts	
Sales Promotion	
Administration & General	\$17,241
TOTAL	\$268,389
Depreciation	\$50,112
Taxes other than Income Taxes	\$7,956
Net Operating Revenues	(\$168,088)
Other Income	
Income Deductions	
Interest	\$10,961
NET INCOME (LOSS)	(\$179,049)

The water rates for Timberline Four Seasons Utilities effective February 9, 1993 are shown in Table 6-8.

TABLE 6-8: TIMBERLINE FOUR SEASONS UTILITIES WATER RATES

Usage (gallons)	Rate (\$/1,000 gal)	Minimum (\$/mo)	Charge for 4,500 Gallons
first 4,000	7.06	28.24 ^a	30.96
nxt 6,000	5.44		
all over 10,000	4.07		

a. 5/8 inch meter

6.3. West Virginia Resort LLC

6.3.1 Contact Information

Contact Information:

West Virginia Resorts LLC DBA The New Windwood Fly-In Resort
 100 Harris Drive
 Poca, WV 25159

Tel: (304) 755-9435

6.3.2 Service Area

The utility presently owns and operates both water and sewage facilities. The number of water and sewer customers, as well as, the boundary of its service area is unknown at this time. However, the West Virginia Resorts LLC utility provides service to the residents of Windwood and Talheim Resort subdivisions.

6.3.3 Governing Body

A two-member board governs the West Virginia Resorts LLC utility. The members are as follows:

Managing Member – Joe Beam
Member – David Church

6.3.4 Financial

6.3.4.1 Sewer

West Virginia Resorts LLC is currently classified as a Class D sewer utility. Its operating revenues for the year ended December 31, 2004 were \$11,759. Class D utilities have a revenue level less than \$100,000. The 2004 operating revenues and expenses are listed in Table 6-9. The sewer utility had a net loss of \$6,614.

Effective September 25, 2001 the West Virginia Resorts LLC sewer rate is a flat rate of \$21.60 per month.

TABLE 6-9: WEST VIRGINIA RESORTS LLC 2004 SEWER INCOME STATEMENT

Sewer Income Statement	
Operating Revenues	
Domestic Service	\$11,759
TOTAL	\$11,759
Operating Expenses	
<i>Pumping</i>	
Operation Supervision and Labor	\$2,740
<i>Treatment & Disposal</i>	
Operation Supervision and Labor	\$1,542
Supplies and Expenses	\$4,757
Maintenance of Structures and Equipment	\$1,188
<i>Subtotal</i>	<i>\$7,487</i>
TOTAL	\$10,227
Depreciation	\$8,148
NET INCOME (LOSS)	(\$6,616)

6.3.4.2 Water

West Virginia Resorts LLC is also a Class D water utility. In 2004, the water utility had a net income of \$1,269 as shown in Table 6-10.

TABLE 6-10: WEST VIRGINIA RESORTS LLC 2004 WATER INCOME STATEMENT

Water Income Statement	
Operating Revenues	
Unmetered Sales	\$14,370
Metered Sales	
Forfeited Discounts	
Other	
TOTAL	\$14,370
Operating Expenses	
Plant Operation & Maintenance	\$9,253
General Expenses	
TOTAL	\$9,253
Depreciation	\$3,848
Taxes other than Income Taxes	
Net Operating Revenues	\$1,269
Other Income	
Income Deductions	
Interest	
NET INCOME (LOSS)	\$1,269

Effective September 25, 2001, the flat rate for water service provided by the West Virginia Resorts LLC utility is \$24.54 per month.

6.4. Summary

Table 6-11 summarizes the financial information presented at the existing water and sewer utilities. Hamrick PSD is currently primarily a water utility. The Hamrick sewer utility is approximately the same size as the combined Timberline Four Season and West Virginia Resort sewer utilities.

The fact that many of the utilities show a net loss is primarily because the existing rates do not adequately cover the depreciation expenses.

TABLE 6-11: EXISTING UTILITIES FINANCIAL SUMMARY

Utility	No. Sewer Customers	No. Water Customers	Service Area	Sewer Operating Revenues	Water Operating Revenues	Total Operating Revenues	Sewer Rate		Water Rate	
							(\$/1,000 gal)	Min (\$)	(\$/1,000 gal)	Min (\$)
Hamrick PSD	423	729	Hambleton, Hendricks, Bretz, Blackmon Flats	\$154,827	\$273,904	\$428,731	8.41	16.82	9.61	23.55
Timberline Four Seasons	368	368	unk	\$149,609	\$158,369	\$307,978	7.51	30.04	7.06	28.24
West Virginia Resort LLC	unk	unk	unk	\$11,759	\$14,370	\$26,129	21.60	21.60	24.54	24.54

7. CANAAN VALLEY MANAGEMENT OPTIONS

The management options were screened for implementation in Canaan Valley based on criteria developed in consultation with the Project Advisory Committee. These criteria included, among others:

- Existing management systems options
- Legal considerations
- Acceptability to public

7.1. Challenges

There are a number of challenges to implementing the public management entity for the management and oversight of wastewater management in the Valley. Some of the issues have regulatory, legal and institutional concerns that require creative solutions and buy-in from a number of stakeholders (PSC, Hamrick PSD, DEP, WWTF owners, etc.). The proposed wastewater management system for Canaan Valley is innovative and unlike the typical systems found in West Virginia. The Canaan Valley system is unique because of the decentralized approach of having multiple smaller systems rather than one large centralized sewer system. Moreover, all of the discharges are in the Upper Blackwater River watershed and the Upper Blackwater River is impaired. Therefore, the amount of pollutants that can be discharged to the river is limited. The importance of these unique features in setting up the management entity is discussed further below.

Conversely, the issue regarding the inflow and infiltration (I/I) evaluation is a technical issue that is easily addressed by performing sewer system evaluation studies (SSES) for each of the existing sewer systems.

All the challenges identified can overcome. Proposed solutions are offered below. Title 150 Series 5 provides for the establishment of special rules for utilities.

7.1.1 Methods to Ensure Payment

Typically, sewer service charges are based on metered water usage for each customer. However, in Canaan Valley the water service is provided by private individuals, homeowner associations, private utilities, etc. In instances where there is a private water utility, water shut off can occur, as the PSD could contract, as provided for in law, with the private utility for water shut off for delinquent wastewater bills.

For the case where the mechanism of terminating water service for non-payment of sewer bills does not exist there are other methods that can be implemented to ensure payment.

1. A lien can be placed on the property and foreclosure scheduled for non-payment. The wastewater system loans would include allowances for these events. Usually it is required that one year's loan payment be maintained in escrow and the net revenue/debt service ratio is a minimum of 115 to 125

percent so there is coverage. However, per WV Code, the PSD must wait two years to foreclose on the property so two years loan payment would be required in escrow.

2. Alternately, there are companies that will guarantee sewer bill payments, for a fee, and deal with all the collection issues. Whether they are willing to offer this service in Canaan Valley would need to be investigated.

7.1.2 Rate Structure

7.1.2.1 Parsons Area vs. Canaan Valley

There is a need for a different rate structure for the Hamrick PSD customers in the Parsons area of the District and the customers in Canaan Valley. Items supporting the need for separate rate structures include:

1. The two wastewater systems are in geographically different areas of the County. Parsons is more than 20 miles from the Valley.
2. The Parsons area system is a centralized collection system only. There is not treatment plant. In contrast, wastewater management in Canaan Valley will consist of numerous decentralized systems with small collection and treatment systems.
3. The Parsons system is existing and the Canaan Valley systems will be new construction requiring program management for the Capital Improvement Plan (CIP).

There will be different capital, operational, and management requirements for the Parsons area system and Canaan Valley's systems necessitating the different rate structures to ensure fair user charges.

A municipality and two PSDs in West Virginia currently have different rate structures in place. Table 7-1 presents the names and rates for those utilities.

TABLE 7-1: WV UTILITIES WITH DIFFERENT RATE STRUCTURES

Utility Type	Name	Cost/4500 Gal	Minimum	Rate Type	County	Rank*
MUN	MORGANTOWN, CITY OF (COUNCIL)	13.83	6.70	BLOCK	MON	22
		37.50	17.50	BLOCK	MON	277
PSD	BERKELEY COUNTY PUB SER SEW DIST	42.10	-	BLOCK	BER	297
		34.68	24.15	BLOCK	BER	262
PSD	SHADY SPRING PUBLIC SERVICE DIST	27.99	12.44	BLOCK	RAL	160
		37.99	12.44	BLOCK	RAL	279

*from 1 (lowest) to 330 (highest)

For Shady Springs PSD, the lower rate is for an older, existing system that was built in the early 1980s. The higher rate is for a system serving a new development and ski resort near Flat Top Lake. The different rate structures were implemented so the lower income customers of the older system were not subsidizing the new development. Also, the separate rate structure allowed the new system user charges to meet the affordability requirement for cost as a percent of the median household income (MHI) for

a loan through the SRF program. If the cost is less than 2 percent of MHI, then the system is affordable.

Similarly in Morgantown, the lower rate is for the older system in the downtown area and the higher rate is for a newer system 11 miles away in the Cheat Lake area. Again the second rate structure was created so the existing rates would not have to be raised. The Berkley PSD serves two separate, distinct areas necessitating separate rate structures.

The situation in Canaan Valley is similar to the aforementioned examples. The customers in the low income Parsons area should not have to subsidize the wastewater management in the developing Canaan Valley area or vice versa.

7.1.2.2 Within Canaan Valley

In addition to having a rate structure for Canaan Valley different than the one for Hamrick's other customers, there may be a need to have a varying rate structure in the Valley for the different WWTF service areas and current versus future users. A detailed user charge analysis to examine the various options to determine the optimal needs to be performed to determine if that is necessary.

7.1.3 Reserve Capacity

Canaan Valley is located in the Upper Blackwater River watershed. The 17 existing WWTFs in the Valley are permitted under the National Pollutant Discharge Elimination System (NPDES) program. Prior to issuance of their permits the facilities are required to apply for and obtain a WLA for the discharge. The permitted capacity of the WWTF is governed by its WLA. Due to the TMDL for the Upper Blackwater River, no additional WLAs can be issued in the watershed. Thus, there is no more wasteload capacity available in Canaan Valley.

Some of the existing WWTFs are not currently using their total permitted capacity because of seasonal use (low intensity of use) and incomplete development. However, allowing others to connect to the WWTFs would prevent the subdivisions to reach their total buildout and potentially limit increased intensity of use (i.e. there would not be enough wastewater capacity for a seasonal resident to become a permanent resident). Thus, by allowing others to connect to the facilities would take away the development potential of the owners of the WWTFs (WLAs) and dictate the allowable intensity of use for the existing development.

This issue has been addressed in other locales by assigning capacity "rights" to each parcel - for which the parcel owners are assessed appropriate fees. This would need to be integrated with the buildout analysis. Onsite system management needs to be integrated, as well, since that is another wastewater management option.

It is our understanding that the issue of reserve capacity was addressed in Jefferson County, West Virginia.

7.1.4 NPDES Permit Issues

None of the WWTFs are currently operating near their permitted capacity. An analysis was performed to determine the impact of designing and building the new WWTFs based on actual usage and including provisions to expand the facilities as necessary to accommodate increased intensity of use or future buildout. Building the new WWTFs based on existing flows versus permitted flows would result in significant cost savings.

However, discussions with EPA and WVDEP indicate that this approach would be acceptable under current policies with the understanding that the facility must be fully expanded within 10 years, or the allocation will be lost and the permitted flow will become the current design flow. The potential for loss of capacity may not be acceptable to the existing owners. Further discussions with EPA and WVDEP may be warranted to attempt to come up with a way that would allow for the cost savings to be realized by building for existing flows now and not put the existing permitted capacity at risk.

7.1.5 Extent of I/I

Another issue of concern is that there is little information regarding the extent of I/I in the collection systems. Based on site visits and conversations with the WWTF operator have indicated that the Canaan Valley State Park (CVSP) Campground facility and the Land of Canaan Homeowners Association (LOCHOA) facility may have excessive I/I. The other systems have varying degrees of I/I and there is no data to reasonably estimate it.

Sewer system evaluation studies (SSES) are required for all systems to accurately identify the quantity and location of I/I. Once the sources of I/I have been identified corrective measures need to be taken.

7.2. Recommended Ownership in Canaan Valley

7.2.1 Onsite Systems

LAI recommends that Canaan Valley develop and implement a Level 3 or 5 management system for the onsite systems. This would most efficiently track the installation and performance of these systems. Given the decentralized approach advocated in Canaan Valley, it is especially important that the onsite systems receive sufficient attention to ensure their performance.

Recommended ownership options include:

- Private Individual (existing)
- Hamrick PSD
- Homeowners Association
- Private Utility

7.2.2 UIC Systems

LAI recommends Canaan Valley develop and implement a Level 5 management program on a voluntary basis for UIC systems. All existing systems would have the option of joining the RME that is created or designated. Those who do not volunteer to join the RME would continue to operate as Level 3 management programs.

Ownership options that warrant consideration include:

- Private Individual
- Hamrick PSD
- Homeowners Association
- Private Utility

7.2.3 WWTFs

Based on LAI's work to date, we recommend that Canaan Valley develop and implement a Level 5 management program for the WWTFs. A Level 5 management system is all encompassing and would help ensure that the best performance from the systems.

Recommended ownership option is:

- Hamrick PSD

However, further discussions and consideration by the Hamrick PSD and stakeholders may warrant the establishment of a new PSD. It is observed that the size of the proposed Canaan Valley decentralized system, even with limited participation, will be greater than Hamrick PSD's current wastewater operations. Also, the watershed management approach requirements may suggest a new PSD may be appropriate.

7.3. Recommended Administration in Canaan Valley

The administration element of the management entity would be performed by the owner. The following discussion will address administration issues relevant only to Hamrick PSD's management of the WWTFs since, at this time, that is the primary focus.

7.3.1 Legal Agreements

There are a number of legal agreements, which need to be drafted and signed prior to adoption of the Facility Plan. They include the following:

1. Agreements between WWTF owners and the PSD
2. Agreement between PSD and contract operator
3. Agreements between PSD and private water suppliers in the Valley for termination of water service for non-payment of sewer bills

7.3.2 User Charges

A user charge system based on the Canaan Valley capital costs, O&M costs, and appropriate repair/replacement fund needs to be implemented. Discussion with PSC indicate that they would be amenable to separate rate structures for the existing Hamrick PSD sewer customers and the new Canaan Valley customers. The proposed user charge system will be presented in the Preferred Plan report.

7.4. Recommended MMR in Canaan Valley

It is recommended that Harmick PSD outsource the operation and maintenance of the WWTFs. It is possible to include the first two years of operations in the construction contract to increase accountability of the engineer and contractor. This would minimize the potential for cash flow difficulties during the first years of operation. Capitalizing O&M costs is not grant or SRF loan eligible.

The contract operator would be responsible for the sampling, inspection, routine repairs, compliance reporting, and remote monitoring of the facilities.

7.5. Watershed Approach

LAI advocates that a watershed permitting approach also be examined versus the current individual discharge NPDES permitting approach for wastewater management in Canaan Valley.

In the watershed approach it would be important to have a wastewater management plan for every parcel in Canaan Valley and a mechanism for dealing with changes in the future as they occur. In the watershed approach there would be a need to establish a watershed management entity not solely a wastewater utility. Wastewater utility operations are a subset of watershed management.

Watershed-based permitting is defined as an approach that produces NPDES permits that are issued to point sources on a geographic or watershed basis to meet watershed goals. This holistic watershed management approach provides a framework for addressing all stressors within the watershed instead of viewing individual sources in isolation. The approach is a community-based environmental protection approach and includes the following benefits:

- Leads to more environmentally effective results
- Emphasizes measuring the effectiveness of targeted actions on improvements in water quality
- Provides flexibility for communities to achieve local goals for watershed protection
- Provides greater opportunities for trading and other market based approaches
- Reduces the cost of improving water quality
- Fosters more effective implementation of watershed plans, including TMDLs

The ultimate objective of implementing a watershed permit is to enhance both the environmental and cost effectiveness of watershed management by providing more

options and greater flexibility to communities in meeting water quality standards and watershed goals.

The four key components of a watershed approach are as follows:

1. Integration
2. Stakeholder participation
3. Strategic planning
4. Performance measurement

7.5.1 Watershed-Based Permit Types

A watershed permit can take many forms and can cover a range of sources from point sources to non-point sources. The two types of watershed-based permits are discussed below. The advantages and disadvantages of each of the models needs to be evaluated, but it is likely that the single entity watershed permit model would be most appropriate in Canaan Valley.

7.5.1.1 Single Entity Watershed Permit

In this model, a single entity is the permit holder and is the sole party legally responsible for complying with the terms of the permit. Permit requirements are oriented toward ambient results; thus, the permit holder becomes a "regulator" and must ensure that the participating sources take actions, which will allow it to meet its permit requirements. The terms and conditions of the agreement between the permittee and participating sources should grant the entity authority over its members and specify enforcement powers and processes.

7.5.1.2 Multi-Party Watershed Permit

In this model, two or more dischargers jointly hold a single permit. Some permit conditions may specify joint and several liability for compliance. Other provisions may be written to apply to a subset of signatories or an individual source. Two or more point source dischargers could jointly hold an NPDES permit with conditions derived in part from watershed-based concerns and in part from effluent limits or water quality standards applicable to the permittees. Specific multi-party watershed permit conditions may apply to one, some, or all of the permittees and cover one or more parameters relevant to the water quality in the watershed.

APPENDIX

TABLE A-1: TUCKER COUNTY SEWER UTILITY COST RANKING AS OF JANUARY 13, 2006

Utility Type	Name	Cost/4,500 Gal	Cost/1,000 Gal	Minimum	Rate Type	County	Rank*
MUN	DAVIS, TOWN OF (COUNCIL)	14.63	3.25	9.75	BLOCK	TUC	28
MUN	PARSONS, CITY OF (COUNCIL)	19.13	4.25	8.50	BLOCK	TUC	59
MUN	THOMAS, CITY OF	29.25	6.50	19.50	BLOCK	TUC	189
PRI	NEW WINDWOOD FLY-IN RESORT, DBA	21.60	21.60	21.60	FLAT	TUC	85
PRI	TIMBERLINE FOUR SEASONS UTIL., INC.	33.21	7.38	30.04	BLOCK	TUK	249
PSD	HAMRICK PUBLIC SERVICE DISTRICT	37.85	8.41	16.82	BLOCK	TUC	278

*from 1 (lowest) to 330 (highest) in the state of WV