

**ALASKA ENERGY AUTHORITY**  
**VILLAGE POWER SYSTEM ASSESSMENT**

Community: Emmonak  
Evaluation Date: Sept 8, 2012 Time Started 12:00pm Completed 11:00pm  
Evaluator(s): John Haase

**\* Indicates that only one from the group shall be chosen. Otherwise choose all that apply**

**Powerhouse Building**

**Site Location**

- ☒ Site suitable for powerhouse
- ☐ < 100 feet from a public well
- ☐ < 25 feet from an eroding bank or beach, or in a flood plain

**\* Foundation**

- ☐ Powerhouse on acceptable foundation (pad & post, piling, concrete, etc.)
- ☒ Powerhouse directly on gravel pad or light timbers (raised timbers, on permeable gravel)
- ☐ Powerhouse directly on tundra or natural soils (no foundation)
- ☐ Powerhouse leaning considerably or unstable foundations (seismic hazard)

**\* Flooring**

- ☐ Welded steel deck plate or concrete (sealed)
- ☒ Steel deck plate or concrete (unsealed)
- ☐ Wood (sealed or painted)
- ☐ Wood (non-sealed or bare)

**\* Interior Walls**

- ☐ Concrete or metal skin
- ☐ Fiberglass reinforced paneling (FRP)
- ☐ Gypsum board
- ☒ Wood (painted or sealed)
- ☐ Wood (non-painted or bare)

**\* Exterior Walls**

- ☒ Concrete or metal siding
- ☐ Wood (painted or sealed)
- ☐ Wood (non-painted or bare)

\* Roof Penetration

- ☐ None
- ☒ Properly installed (rain tight)
- ☐ Minor leaks (repairable)
- ☐ Major leaks (not repairable)

\* Ventilation

- ☒ Proper ventilation (air intake & exhaust fans, louvers & hoods)
- ☐ Adequate ventilation (air intake & exhaust fans)
- ☐ Minimum ventilation (air intake)
- ☐ No ventilation (doors or windows have to be left open)

\* Lighting

- ☐ Excellent lighting
- ☒ Adequate lighting
- ☐ Poor lighting
- ☐ No lighting

Security

- ☒ Powerhouse fenced in & door locks
- ☐ Door locks
- ☐ No fence
- ☐ No door locks

**Generator Equipment and Installation**

Diesel Engines

	Unit #2	Unit #4	Unit #5	Unit #6	Unit #
kW	455kW	not shown	550kW	915kW	_____
Hours of Operation	0	7194	1383	8001	_____

**IT IS MY BELIEF THAT THE CURRENT HOUR METERS HAVE BEEN REPLACED AND DO NOT REFLECT ACTUAL ENGINE HOURS. WAITING ON RESPONSE FROM AVEC REGARDING ACTUAL ENGINE HOURS**

\* Generator Condition

	Unit #2	Unit #4	Unit #5	Unit #6	Unit #
Good, like new	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fair	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Poor, guards/covers missing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Load Sizing

- ☒ Properly sized generation to meet the community loads
- ☐ Undersized generation to meet the community loads
- ☐ Oversized generation to meet the community loads

\* Load d

- ☐ <10% Imbalance
- ☐ 10% to 25% Imbalance
- ☒ >25% Imbalance

\* Control Switchgear

- ☒ Fully automatic synchronizing switchgear
- ☐ Semi-automatic synchronizing switchgear
- ☐ Manually synchronizing switchgear
- ☐ Manual transfer switches
- ☐ Manual mounted breakers

\* Electrical

- ☒ Wiring appears appropriate
- ☐ Exposed wiring, improper grounding, missing covers etc.

\* Fuel System Inside Powerhouse

- ☐ Welded piping
- ☐ Welded & threaded piping
- ☒ Threaded piping
- ☐ Rubber hose

Fuel System Appurtenances

- ☐ No day-tank
- ☐ Additional for active leaks

Totalizing & Station Service Meter

- ☒ Properly installed and working totalizing & station service meter
- ☐ No totalizing meter
- ☐ No station service meter

**\* Fuel Meter**

- ☒ Properly installed & working fuel meter
- ☐ No fuel meter

**Environmental**

**Interior of Powerhouse**

- ☒ Clean, well-kept
- ☐ Old generator part stored inside facility
- ☐ Waste oil stored inside facility
- ☐ Apparent oil spills

**Under Facility**

- ☒ Clean, well-kept
- ☐ Old generator part stored under facility
- ☐ Waste oil stored under facility
- ☐ Apparent oil spills

**Surrounding of Powerhouse**

- ☐ Clean, well-kept
- ☒ Old generator part stored on site
- ☐ Waste oil stored on site
- ☐ Apparent oil spills

**\* Waste Oil Disposal**

- ☒ Waste oil blending system
- ☐ Waste oil incinerator
- ☐ Drum or tank storage for waste oils

**\* Life, Health, & Safety**

- ☒ Code Compliant
- ☐ Low risk
- ☐ Medium risk
- ☐ High risk
- ☐ Potential for loss of life

## Electrical Distribution Line Evaluation

### Overhead Distribution System

#### \* Pole type

- ☒ Fully treated poles
- ☐ Butt treated poles
- ☐ Native pole (trees)

#### \* Pole installation

- ☐ Proper depth (can be determined by the manufacture's mark or button on pole)
- ☐ Within 12 inches of recommended depth
- ☒ Within 24 inches of recommended depth
- ☐ Greater than 24 inches of recommended depth

#### \* Pole alignment

- ☐ Poles straight
- ☐ Poles leaning less than 10°
- ☒ Poles leaning greater than 10°

#### \* Distribution voltage

- ☒ =>7200 volts
- ☐ 2400 volts
- ☐ 480/277 volts
- ☐ 208/120 volts

#### \* Anchors

- ☐ Properly installed (<12 inches of the anchor rod exposed)
- ☒ 12 - 24 inches of the anchor rod exposed
- ☐ >24 inches of the anchor rod exposed

#### \* Primary conductor

- ☒ Appears properly installed (sag, conductor size, etc)
- ☐ Improperly installed (conductor needs resagging, etc)

#### \* Service conductor

- ☒ Appears properly installed (sag, conductor size, etc)
- ☐ Improperly installed (conductor needs resagging, etc)

**\* Meter installation**

- ☒ Appears to be properly installed (height, grounding, etc)
- ☐ Improperly installed (height, no ground, etc)

**\* Meter Condition Residential & Commercial**

- ☐ Good (appears in good condition)
- ☒ Fair (minor corrosion)
- ☐ Poor (major corrosion, needs replacing)

**\* Over all condition of the system**

- ☐ Excellent (no repairs needed)
- ☒ Good (minor repairs, re-sag guys, re-sag service drops, etc.)
- ☐ Poor (major repairs needed, pole, guy, conductor, meter replacement, etc)

**Underground Distribution System**

**\* Primary conductor**

- ☒ Appears to be properly installed
- ☐ Exposed conductor

**\* Transformers**

- ☒ Appears to be properly installed
- ☐ Improperly installed (no pad, leaning, etc)

**\* Service conductor**

- ☒ Appears to be properly installed
- ☐ Exposed conductor

## Operator Proficiency

### \* Meter Reading

- ☒ Excellent
- ☐ Good
- ☐ Acceptable
- ☐ Unacceptable

### \* Daily Logs

- ☒ Excellent
- ☐ Good
- ☐ Acceptable
- ☐ Unacceptable

### \* Routine Maintenance

- ☐ Excellent
- ☒ Good
- ☐ Acceptable
- ☐ Unacceptable

### \* Scheduled Maintenance

- ☐ Excellent
- ☒ Good
- ☐ Acceptable
- ☐ Unacceptable

### \* Maintenance Planning

- ☐ Excellent
- ☒ Good
- ☐ Acceptable
- ☐ Unacceptable

## Waste Heat Recovery

### \* Waste Heat Recovery Operational

☒ Yes

☐ No

List current users

### Water plant and AVEC facility

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### \* BTU/Hr Meter

☐ Yes

☒ No

### \* Additional Waste Heat Available

☒ No

☐ Yes

List Potential New Users

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## System Information

Supply / Return Delta T

**10deg F**

Estimate of current annual heating fuel gallons displaced

**Unknown**

Estimate of potential annual heating fuel gallons displaced

**Unknown**

Existing Heat Sales Agreement(s)

**Unknown**

## General Questions

*Use separate sheet(s) to answer these questions.*

1. If records are available, indicate the number, duration, and causes of all forced outages during the last 12 months. If records are not available, provide whatever reasonable estimates available from utility personnel regarding outages number, duration, and causes.

**No personnel available at this time. Requested information from AVEC**



# ALASKA ENERGY AUTHORITY VILLAGE POWER SYSTEM INVENTORY

DATE	Saturday, September 08, 2012	TIME START	12:00	TIME END	23:00
COMMUNITY	Emmonak	UTILITY	AVEC		
OWNERSHIP	AVEC	CONTACT			
OPERATOR		PHONE	561-1818		

	G-2	G-4	G-5	G-6	G-
ENGINE MAKE	CAT	CAT	Cummins	CAT	
ENGINE MODEL	3456	3456	KTA38-G2	3512D	
ENGINE RPM	1800	1800	1200	1200	
SERIAL NUMBER	7WG04113	7W000474	33715735	67Z01054	
GOVERNOR TYPE	EMCP2 CAT ECU	EMCP2 CAT ECU	2301A	EMCP2 CAT ECU	
MODEL ACTUATOR	ELECTRONIC	ELECTRONIC	E8250-826	8250-565 WW	
MODEL SPEED CONTROL	CAT ECU	CAT ECU	2301A	2301A	
DC VOLTAGE	24	24	24	24	
UNIT CIRCUIT BREAKER	SQD MASTERPACT	SQD MASTERPACT	SQD MASTERPACT	SQD MASTERPACT	
TYPE/AMP/VOLT	NT16 N /800/480//	NT16 N /800/480//	NT16 N /800/480//	NT16 N/1200/480//	
CURRENT HOURS					
GENERATOR MAKE	CAT	CAT Newage?	Kato	Kato	
GENERATOR MODEL #	LC6	HC54F	A238440002	A24640002	
GENERATOR SERIAL #	G6B01777	0146220/03	`10224-01	10228-01	
GENERATOR CAPACITY (kW)	455	?	550	915	
GENERATOR VOLTAGE	480	480	480	480	
VOLTAGE REGULATOR, MAKE & MODEL	Basler DECS100	Basler DECS100	Basler DECS100	Basler DECS100	
PARALLEL SWITCH GEAR (Y or N)	Y	Y	Y	Y	
kWh METER(Yes or No)	Yes				
POWERHOUSE kWh METER TYPE	Class 20 form 9S type A3TL				
CATALOG # or TYPE	Type A3TL				
DEMAND ?	Yes				
CT RATIO	Unknown at this time				
STATION SERVICE METER (Yes or No)	Yes				
STATION SERVICE METER TYPE	Class 200 form 16S,				
CATALOG # or TYPE	A3TL				
BATT. CHARGER/TYPE/MODEL	SAB NIFE BC 102-24-25				
FUEL DAY TANK TYPE	SINGLE WALL WELDED 660 gallon				
PUMP #	Unknown No tag. Positive displacement 1" ports				
MOTOR #	Baldor M3606 1 1/2 HP 208V 1725RPM				
FUEL DAY TANK METER	Gasboy				
FIRE PROTECTION	Fenwall				
TYPE/OPERATIONAL?	Halon operational				
ORIGINAL CONTRACTOR	Unknown				