

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

Community: Saint Michael  
Evaluation Date: Sept 18, 2012 Time Started 12:00p Completed 4:00p  
Evaluator(s): Kris Tolson

**\* 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 #1	Unit #2	Unit #3	Unit #4	Unit # 5
kW	500kW	350kW	210kW	_____	_____
Hours of Operation	2773	16074	18191	_____	_____

\* Generator Condition

	Unit #1	Unit #2	Unit #3	Unit #4	Unit #5
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 type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Poor, guards/covers missing	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 Balance

- ☐ <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

### **No System installed**

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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                      **N/A**

Estimate of current annual heating fuel gallons displaced                      **N/A**

Estimate of potential annual heating fuel gallons displaced                      **N/A**

Existing Heat Sales Agreement(s)                      **N/A**

## 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. **Not Available**



# ALASKA ENERGY AUTHORITY

## VILLAGE POWER SYSTEM INVENTORY

DATE	Sept 18, 2012	TIME START	21:00p	TIME END	4:00p
COMMUNITY	Saint Michael	UTILITY	AVEC		
OWNERSHIP	AVEC	CONTACT	Preston Oten		
OPERATOR	Preston Oten	PHONE	907.923.3222		

	G-1	G-2	G-3	G-4	G-5
ENGINE MAKE	Cummins	Detroit Diesel	Detroit Diesel		
ENGINE MODEL	QSX15	Series 60	Series 60		
ENGINE RPM	1800	1800	1200		
SERIAL NUMBER	14034630	No Data	6R-223074		
GOVERNOR TYPE	Cummins Electronic	DDEC	DDEC		
MODEL ACTUATOR	--	--	--		
MODEL SPEED CONTROL	--	--	--		
DC VOLTAGE	24VDC	24	24		
UNIT CIRCUIT BREAKER	GE	GE	GE		
TYPE/AMP/VOLT	800A / 600V	800A / 600V	350A / 600V		
CURRENT HOURS	2773	16074	18191		
GENERATOR MAKE	Cummins	Stamford	Kato		
GENERATOR MODEL #	DFEK-5562799	HCI504C1	6P4-1363		
GENERATOR SERIAL #	F020385642	D990895048	75496-2		
GENERATOR CAPACITY (kW)	500kW	350kW	210kW		
GENERATOR VOLTAGE	480	480	480		
VOLTAGE REGULATOR, MAKE & MODEL	Basler SSR 63-12	Basler SSR 63-12	Basler SSR 63-12		
PARALLEL SWITCH GEAR (Y or N)	Y	Y	Y		
kWh METER(Yes or No)	Y				
POWERHOUSE kWh METER TYPE	Elster				
CATALOG # or TYPE	A3TL				
DEMAND ?	--				
CT RATIO	800:5				
STATION SERVICE METER (Yes or No)	Yes				
STATION SERVICE METER TYPE	Elster				
CATALOG # or TYPE	A3TL				
BATT. CHARGER/TYPE/MODEL	SAFT SLR24-40				
FUEL DAY TANK TYPE	500 gal custom				
PUMP #	No Data				
MOTOR #	No Data				
FUEL DAY TANK METER	No Data				
FIRE PROTECTION					
TYPE/OPERATIONAL?	Fenwal Halon . Inoperable				
ORIGINAL CONTRACTOR					