

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

Community: Saint Paul  
Evaluation Date: Oct 2, 2012 Time Started 8:00a Completed 5:00p  
Evaluator(s): Eric Jenks

**\* 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 #3	Unit #4	Unit #5	Unit # 6
kW	855kW	260kW	300kW	650kW	855kW
Hours of Operation	66694	40804	45696	22229	19815

**Unit #2 is removed. To be replaced in the future**

\* Generator Condition

	Unit #1	Unit #3	Unit #4	Unit #5	Unit #6
Good, like new	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fair	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" 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 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

**Motor pool / Public Works . Fire Station**

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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)

**None**

## 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. **7/11/12: System outage due to engine overhear. 10 min in duration. 8/6/12: System outage due to plant fuel system losing pressure. 10 min in duration.**



# ALASKA ENERGY AUTHORITY

## VILLAGE POWER SYSTEM INVENTORY

DATE	Oct 2, 2012	TIME START	8:00a	TIME END	5:00p
COMMUNITY	Saint Paul	UTILITY	St. Paul Municipal Electric Utility		
OWNERSHIP	City of Saint Paul	CONTACT	Gabe Rukovishnikoff Jr.		
OPERATOR	Gabe Rukovishnikoff Jr.	PHONE	907-538-5981		

	G-1	G-2	G-3	G-4	G-5
ENGINE MAKE	Caterpillar	Caterpillar	Caterpillar	Caterpillar	Caterpillar
ENGINE MODEL	3512	3406	3412	3512	3512
ENGINE RPM	1200RPM	1800RPM	1200 RPM	1200	1200
SERIAL NUMBER	67Z01239	80416623	81Z01232	67Z00739	67Z00740
GOVERNOR TYPE	Woodward	Woodward	Woodward	Woodward	Woodward
MODEL ACTUATOR	OR-7986	8250-555	8250-501	8250-565	OR-7986
MODEL SPEED CONTROL	2301A	2301A	2301A	2301A	2301A
DC VOLTAGE	24VDC	24VDC	24VDC	24VDC	24VDC
UNIT CIRCUIT BREAKER	GE Power Vac	GE Power Break	GE Power Break	Merlin Gerin	GE Power Break
TYPE/AMP/VOLT	1200A / 4.16kV	500A / 600V	600A / 600V	1000A / 600V	1200A / 600V
CURRENT HOURS	66694	40804	45696	22229	19815
GENERATOR MAKE	Kato	Caterpillar	Kato	Caterpillar	Caterpillar
GENERATOR MODEL #	A261940000	SR-4	300SR9D	SR-4	SR-4
GENERATOR SERIAL #	11336	5HA03058	72926-6	5VA00620	5VA00729
GENERATOR CAPACITY (kW)	855kW	260kW	300kW	650kW	855kW
GENERATOR VOLTAGE	4160	480	480	480	480
VOLTAGE REGULATOR, MAKE & MODEL	Basler 9330	Caterpillar VR6	Basler SSR 63-12	Caterpillar VR6	Basler SSR 63-12
PARALLEL SWITCH GEAR (Y or N)	Yes	Yes	Yes	Yes	Yes
kWh METER(Yes or No)	Yes				
POWERHOUSE kWh METER TYPE	Merlin Gerin				
CATALOG # or TYPE	DMP-DM				
DEMAND ?	Y				
CT RATIO	3000:5				
STATION SERVICE METER (Yes or No)	Yes				
STATION SERVICE METER TYPE	Electro Industries				
CATALOG # or TYPE	DMM-5300-R-RE-MODR				
BATT. CHARGER/TYPE/MODEL	Alcad SLRF120-12				
FUEL DAY TANK TYPE	6 day tanks / 1 per unit				
PUMP #	Roper 6341-469				
MOTOR #	Baldor CM3538				
FUEL DAY TANK METER	Dwyer				
FIRE PROTECTION TYPE/OPERATIONAL?	Type ABC extinguishers				
ORIGINAL CONTRACTOR					