

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

Community: Kalskag (Upper)  
Evaluation Date: 10/15/12 Time Started 10:45 AM Completed 12:00 AM  
Evaluator(s): Brendan Costello

**\* 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	unknown-no tag	325kW	unknown-no tag	_____	_____
Hours of Operation	<u>37,241</u>	<u>30,159</u>	<u>2,547</u>	_____	_____

\* Generator Condition

	Unit #1	Unit #2	Unit #3	Unit #4	Unit #5
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 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 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

Just used to heat power house site structures.

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### \* BTU/Hr Meter

☐ Yes

☒ No

### \* Additional Waste Heat Available

☒ No

☐ Yes

List Potential New Users

Unknown

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## System Information

Supply / Return Delta T

Estimate of current annual heating fuel gallons - **Displaced**

Estimate of potential annual heating fuel gallons - **Displaced**

Existing Heat Sales Agreement(s)

## 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. **See attached sheet.**



# ALASKA ENERGY AUTHORITY

## VILLAGE POWER SYSTEM INVENTORY

DATE	10/15/12	TIME START	10:45 AM	TIME END	12:00 PM
COMMUNITY	Kalskag	UTILITY	AVEC		
OWNERSHIP	AVEC	CONTACT	Lucy Jordan		
OPERATOR	Lucy Jordan	PHONE	471-2277		

	G-1	G-2	G-3	G-4	G-5
ENGINE MAKE	Detroit Diesel	Detroit Diesel	Cummins		
ENGINE MODEL	6063TK35	6063TK35	QSX15 G9		
ENGINE RPM	Unknown-no tag	1800	1800		
SERIAL NUMBER	06R0660489	06R0711331	14032317		
GOVERNOR TYPE	Woodward	Woodward	Woodward		
MODEL ACTUATOR	-	-	-		
MODEL SPEED CONTROL	8406-121	8406-121	8406-121		
DC VOLTAGE	24	24	24		
UNIT CIRCUIT BREAKER	Square D	Square D	Square D		
TYPE/AMP/VOLT	NW 08 H/800A/600V	NW 08 H/800A/600V	NW 08 H/800A/600V		
CURRENT HOURS	37,241	30,159	2,547		
GENERATOR MAKE	Unknown-no tag	Kohler	Unknown-no tag		
GENERATOR MODEL #	Unknown-no tag	350REOZD	Unknown-no tag		
GENERATOR SERIAL #	Unknown-no tag	0743343	Unknown-no tag		
GENERATOR CAPACITY (kW)	224	325	500		
GENERATOR VOLTAGE	480	480	480		
VOLTAGE REGULATOR, MAKE & MODEL	Basler DECS-100-A05	Basler DECS-100-A05	Basler DECS-100-A05		
PARALLEL SWITCH GEAR (Y or N)	Y	Y	Y		
BATT. CHARGER TYPE	SAFT	SAFT	SAFT		
BATT. CHARGER MODEL	SLRF24-40	SLRF24-40	SLRF24-40		
kWh METER(Yes or No)	Yes				
POWERHOUSE kWh METER TYPE	Elster				
CATALOG # or TYPE	A3TL				
DEMAND ?	50-300 kW				
CT RATIO	unknown				
STATION SERVICE METER (Yes or No)	Yes				
STATION SERVICE METER TYPE	Elster				
CATALOG # or TYPE	A3TL				
FUEL DAY TANK TYPE	Global Power Components, 400 gal.				
PUMP #	TEEL 1V383				
MOTOR #	Daton 1K084				
FUEL DAY TANK METER	FPP Meters, TN040A				
FIRE PROTECTION	Yes				
TYPE/OPERATIONAL?	Halon, yes				
ORIGINAL CONTRACTOR	unknown				

### **General Questions and Comments**

Regular outages (perhaps daily) when using gen. 1 from “under frequency”.

Operator reports a small fuel leak in the pipe that runs over the top of the day tank.

Oil filters are burned, but the waste oil is blended.

The fire system alarms frequently (approx. 4 times/week). Operator doesn't know why. Display says “active troubles remain”.

Operator reports that one of the diesel tanks outside is not on solid ground - - it is slowly sinking and sliding. She is concerned for the flexible connection that it might break.

Generators 1 and 3 have no ID tags on their alternators.

Generators 1 appears to be leaking oil onto the floor.