

**ALASKA ENERGY AUTHORITY  
VILLAGE POWER SYSTEM ASSESSMENT**

Community: Kwigillingok  
Evaluation Date: 10-16-12 Time Started 11:25 Completed 1:30pm  
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 Front door lock broke, Needs new knob
- ☒ No fence
- ☐ No door locks

**Generator Equipment and Installation**

Diesel Engines

	Unit #1	Unit #2	Unit #3	Unit #4	Unit # 5
kW	168kW	190kW	275kW	90kW	_____
Hours of Operation	<u>15548</u>	<u>9063</u>	<u>9645</u>	<u>5981</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 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 Balance

- ☒ <10% Imbalance 220-240-230
- ☐ 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 2 old units stored inside
- ☒ Waste oil stored inside facility Needs lots of trash hauled to the dump
- ☐ Apparent oil spills

**Under Facility**

- ☐ Clean, well-kept
- ☒ Old generator part stored under facility Needs clean up and restorage of materials
- ☐ 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 Not in use
- ☐ 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     NONE**

**\* 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 Automatic Meter Reading (AMR)
- ☐ Good
- ☐ Acceptable
- ☐ Unacceptable

### \* Daily Logs

- ☐ Excellent
- ☐ Good
- ☒ Acceptable 1 x per day
- ☐ Unacceptable

### \* Routine Maintenance

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

### \* Scheduled Maintenance

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

### \* Maintenance Planning

- ☐ Excellent
- ☐ Good
- ☐ Acceptable
- ☒ Unacceptable Until break down

## Waste Heat Recovery

### \* Waste Heat Recovery Operational

☒ Yes

☐ No

List current users

Waterplant  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### \* BTU/Hr Meter

☒ Yes

☐ No

### \* Additional Waste Heat Available

☐ No

☒ Yes

List Potential New Users

Laundromat  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## System Information

Supply / Return Delta T                      Supply=170, Return=50

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.



# ALASKA ENERGY AUTHORITY

## VILLAGE POWER SYSTEM INVENTORY

DATE	10-16-12	TIME START	0835	TIME END	
COMMUNITY	Kwigillingok	UTILITY	Same		
OWNERSHIP	Kwig Power Co	CONTACT	William Igkurak 588-8626		
OPERATOR	James Paul	PHONE	588-2244		

	G-1	G-2	G-3	G-4	G-5
ENGINE MAKE	John Deere	John Deere	John Deere	John Deere	
ENGINE MODEL	6081AFM75	6090HF485	6090HF485	6068TFM50	
ENGINE RPM	1800	1800	1800	1800	
SERIAL NUMBER	RG6081A236985	RG6090L049237	RG6090L049228	CD6068T730112	
GOVERNOR TYPE	ECM	ECM	ECM	WW-EPG	
MODEL ACTUATOR	ECM	ECM	ECM	WW-1712	
MODEL SPEED CONTROL	ECM	ECM	ECM	WW-8290-140	
DC VOLTAGE	12vdc	12vdc	12vdc	12vdc	
UNIT CIRCUIT BREAKER	GE-SGHA36AT0400	GE-SGHA36AT0400	GE-SGHA36AT0400	GE-SFHA36AT0250	
TYPE/AMP/VOLT	SP/400A/600vac	SP/450A/600vac	SP/450A/600vac	SP/200A/600vac	
CURRENT HOURS	15548	9063	9645	5981	
GENERATOR MAKE	Marathon	Marathon	Marathon	Marathon	
GENERATOR MODEL #	432CSL6210-1-I	432PSL6210	432RSL4015	363PSL1607	
GENERATOR SERIAL #	697076-04-08	WA-537997-0204	WA-568665-0109	LM-392301-0204	
GENERATOR CAPACITY (kW)	168	190	275	90	
GENERATOR VOLTAGE	277/480	277/480	277/480	277/480	
VOLTAGE REGULATOR, MAKE & MODEL	DVR2000E	DVR2000E	DVR2000E	DVR2000E	
PARALLEL SWITCH GEAR (Y or N)	YES	YES	YES	YES	
kWh METER(Yes or No)	YES,, ION 7650, s/n-PJ0411A093-01				
POWERHOUSE kWh METER TYPE	Electronic Panel Mount				
CATALOG # or TYPE	Power Measurements Ltd, ION 7650, p/n-7650BOCOB6AOAOA,				
DEMAND ?	YES				
CT RATIO	Unable to verify Ratio				
STATION SERVICE METER (Yes or No)	YES, ION 7550,s/n-P1-0411A097-01				
STATION SERVICE METER TYPE	Electronic panel mount				
CATALOG # or TYPE	p/n-7550BOCOB6AOAOA				
BATT. CHARGER/TYPE/MODEL	4each, Charles C-Charger, p/n-93AA122OH-II				
FUEL DAY TANK TYPE	AEA, 100 Gallon				
PUMP #	Oberdorfer N991-32				
MOTOR #	Leeson,p/n-A4C17DB26, Ace Supply				
FUEL DAY TANK METER	AMCO p/n-19812, s/n-R-538407				
FIRE PROTECTION	YES, Operational				
TYPE/OPERATIONAL?	Fike FE227, System is charged				
ORIGINAL CONTRACTOR	AEA				