

**ALASKA ENERGY AUTHORITY
VILLAGE POWER SYSTEM ASSESSMENT**

Community: Kongiganak
Evaluation Date: 10-15-12 Time Started 1905 Completed
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 #1	Unit #2	Unit #3	Unit #4	Unit # 5
kW	235kW	250kW	250kW	250kW	_____
Hours of Operation	<u>9042</u>	<u>8069</u>	<u>10992</u>	<u>13990</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 161-166-175
- ☐ 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 (40 points max.) N/A

- ☐ 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 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
- ☐ 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

Laundry mat

* BTU/Hr Meter

☒ Yes

☐ No

* Additional Waste Heat Available

☐ No

☒ Yes

List Potential New Users

Contact City Office

System Information: Wind power is load shedding heat into plant coolant

Supply / Return Delta T Powerplant Supply=172, Return=158, Laundry supply=158, Return=144

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	10-15-12	TIME START	1836	TIME END	
COMMUNITY	Kongiganak	UTILITY	Same		
OWNERSHIP	Puvernaq Power Co.	CONTACT	Ron David 557-5616		
OPERATOR	Glen Ivan	PHONE	557-2044		

	G-1	G-2	G-3	G-4	G-5
ENGINE MAKE	John Deere	John Deere	John Deere	John Deere	
ENGINE MODEL	6125AF001	6090HF485	6090HF485	6081AF001	
ENGINE RPM	1800	1800	1800	1800	
SERIAL NUMBER	RG6125A014622	RG6090L045737	RG6090L045733	RG6081A163032	
GOVERNOR TYPE	ECM	ECM	ECM	WW-EPG	
MODEL ACTUATOR	ECM	ECM	ECM	WW-8290-186	
MODEL SPEED CONTROL	ECM	ECM	ECM	WW-1712	
DC VOLTAGE	12vdc	12vdc	12vdc	12vdc	
UNIT CIRCUIT BREAKER	GE-SGHA36AT0600	GE-SGHA36AT0600	GE-SGHA36AT0600	GE-SGHA36AT0400	
TYPE/AMP/VOLT	Sp/500/600VAC	Sp/450/600VAC	Sp/450/600VAC	Sp/300/600VAC	
CURRENT HOURS	9040	8071	10993	13990	
GENERATOR MAKE	Marathon	Marathon	Marathon	Marathon	
GENERATOR MODEL #	432PSL6216	432RSL4015	432RSL4015	431PSL6206	
GENERATOR SERIAL #	WA-537984-0204	WA-568669-0109	WA-568676-0109	WA-537893-0204	
GENERATOR CAPACITY (kW)	235	275	275	140	
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, s/n-PJ-0411A019-01				
POWERHOUSE kWh METER TYPE	Power Measurement Ltd. Electronic Panel Mount ION 7550				
CATALOG # or TYPE	p/n-P7550B0C0B6A0A0A				
DEMAND ?	Yes, Reading-263.1				
CT RATIO	Unable to verify				
STATION SERVICE METER (Yes or No)	YES, s/n-PJ-0411A066-01				
STATION SERVICE METER TYPE	Power Measurement Ltd. Electronic Panel Mount ION 7550				
CATALOG # or TYPE	p/n-P7550B0C0B6A0A0A				
BATT. CHARGER/TYPE/MODEL	4each Charles C-Charger p/n-93AA1220H-1-I				
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-R645264				
FIRE PROTECTION	Yes, Operational				
TYPE/OPERATIONAL?	FIKE FE227, System is charged				
ORIGINAL CONTRACTOR	AEA				