

ALASKA ENERGY AUTHORITY
VILLAGE POWER SYSTEM ASSESSMENT

Community: Togiak
Evaluation Date: Sept 19, 2012 Time Started 2:00pm Completed 5:00pm
Evaluator(s): Jesse Walty

*** 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) (**SEALING FIBERGLASS**)
- ☒ 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	300kW	828kW	_____
Hours		28931	27865	36041 (rebuilt at 36041)	

* 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 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
- ☐ 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

AVEC tool shack and bunk house, Gen-Set #4 module.

* BTU/Hr Meter

☐ Yes

☒ No

* Additional Waste Heat Available

☒ No

☐ Yes

List Potential New Users

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.

Over current due to fish plant going online. (2x)

ALASKA ENERGY AUTHORITY

VILLAGE POWER SYSTEM INVENTORY

DATE	Sept 19, 2012	TIME START	2:00pm	TIME END	5:00pm
COMMUNITY	Togiak	UTILITY	AVEC		
OWNERSHIP	AVEC	CONTACT	Greg Myas		
OPERATOR	Greg Myas	PHONE	907-493-2070		

	G-1	G-2	G-3	G-4	G-5
ENGINE MAKE		Cummins	CAT	Cummins	
ENGINE MODEL		QSX15-G9 NR2	3412	KTA-38	
ENGINE RPM		1800	1200	1800	
SERIAL NUMBER		79244138	81Z04614	3310646A	
GOVERNOR TYPE		Cummins Electronic	Woodward	Woodward	
MODEL ACTUATOR		--	EG3p	EG3p	
MODEL SPEED CONTROL		--	2301A	2301A	
DC VOLTAGE		24V	24V	24V	
UNIT CIRCUIT BREAKER		GE TKM3F	GE TKM3F	GE TKM3F	
TYPE/AMP/VOLT		700A/600V	600A/600V	1200A/600V	
CURRENT HOURS		28931	27865	36041	
GENERATOR MAKE		Cummins	Kato	Stamford	
GENERATOR MODEL #		500DFEK-3838	300-684361111	02243904	
GENERATOR SERIAL #		H030537651	77974-1	0151162/05	
GENERATOR CAPACITY (kW)		500KW	300KW	828KW	
GENERATOR VOLTAGE		277/480	277/480	277/480	
VOLTAGE REGULATOR, MAKE & MODEL		BASLER APR63-5	BASLER APR63-5	BASLER APR63-5	
PARALLEL SWITCH GEAR (Y or N)		Y	Y	Y	
kWh METER(Yes or No)	Y				
POWERHOUSE kWh METER TYPE	ELSTER				
CATALOG # or TYPE	A3T				
DEMAND ?					
CT RATIO					
STATION SERVICE METER (Yes or No)	Y				
STATION SERVICE METER TYPE	ELSTER				
CATALOG # or TYPE	A3TL				
BATT. CHARGER/TYPE/MODEL	SENS DCT24-35-A643				
FUEL DAY TANK TYPE	Custom				
PUMP #	INGERSOL DRESSER 3 GAUM				
MOTOR #	X345624				
FUEL DAY TANK METER	2826399				
FIRE PROTECTION	Y				
TYPE/OPERATIONAL?	HALON, OPERATIONAL				
ORIGINAL CONTRACTOR					