

**ALASKA ENERGY AUTHORITY  
VILLAGE POWER SYSTEM ASSESSMENT**

Community: Nunapitchuk  
Evaluation Date: 10-17-12 Time Started 2:00pm Completed 5:30pm  
Evaluator(s): Steve Keelan

**\* 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	500kw	_____	_____	_____	_____
Hours of Operation	1,433	_____	_____	_____	_____

\* Generator Condition

	Unit #1	Unit #2	Unit #3	Unit #4	Unit #5
Good, like new	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fair	<input type="checkbox"/>	<input type="checkbox"/>	<input 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
- N/A

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      N/A**

**\* 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. \_\_\_\_\_

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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                      N/A

Estimate of current annual heating fuel gallons displaced                      N/A

Estimate of potential annual heating fuel gallons displaced                      N/A

Existing Heat Sales Agreement(s)                      N/A

## 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.

N/A.



# ALASKA ENERGY AUTHORITY

## VILLAGE POWER SYSTEM INVENTORY

DATE	10-17-12	TIME START	2:00PM	TIME END	5:30PM
COMMUNITY	NUNAPITCHUK	UTILITY	AVEC		
OWNERSHIP	AVEC	CONTACT	PAUL NICHOLAI		
OPERATOR	PAUL NICHOLAI	PHONE	907-652-2372		

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ENGINE MAKE	CUMMINS				
ENGINE MODEL	KTA-19 G4				
ENGINE RPM	1800				
SERIAL NUMBER	37197555				
GOVERNOR TYPE	EFC				
MODEL ACTUATOR	EFC				
MODEL SPEED CONTROL	A38				
DC VOLTAGE	24V				
UNIT CIRCUIT BREAKER	AUTOMATION DIRECT				
TYPE/AMP/VOLT	TA401K / 600A/600V				
CURRENT HOURS	1,433				
GENERATOR MAKE	ONAN				
GENERATOR MODEL #	DFED-4956011				
GENERATOR SERIAL #	B010211531				
GENERATOR CAPACITY (kW)	500KW				
GENERATOR VOLTAGE	277/480				
VOLTAGE REGULATOR, MAKE & MODEL	PCC 3100				
PARALLEL SWITCH GEAR (Y or N)	NO				
kWh METER(Yes or No)	YES				
POWERHOUSE kWh METER TYPE	ELSTER				
CATALOG # or TYPE	A3T				
DEMAND ?					
CT RATIO	200:5				
STATION SERVICE METER (Yes or No)	YES				
STATION SERVICE METER TYPE	ELSTER				
CATALOG # or TYPE	A3T				
BATT. CHARGER/TYPE/MODEL	ONAN				
FUEL DAY TANK TYPE	KLEIN				
PUMP #	T04433				
MOTOR #	XRJ230541				
FUEL DAY TANK METER	GASBOY				
FIRE PROTECTION					
TYPE/OPERATIONAL?	N/A				
ORIGINAL CONTRACTOR					