

**ALASKA ENERGY AUTHORITY  
VILLAGE POWER SYSTEM ASSESSMENT**

Community: **Noorvik**  
Evaluation Date: **9/18/12** Time Started **0930** Completed **1215**  
Evaluator(s): **Ben Hopkins**

**\* 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	365	499	750	_____	_____
Hours of Operation	7,880	10,590	11,259	_____	_____

\* 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 type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Poor, guards/covers missing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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

### \* BTU/Hr Meter

- ☐ Yes  
☐ No

### \* Additional Waste Heat Available

- ☐ No  
☐ Yes

List Potential New Users

### 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.

**Series 60 has been shutting down from LOP & LOL according to operators. They estimated seven or eight occurrences of this in the past year. Operators don't seem very comfortable with equipment. They said they haven't had any distribution problems.**



# ALASKA ENERGY AUTHORITY

## VILLAGE POWER SYSTEM INVENTORY

DATE	9/18/12	TIME START	09:30	TIME END	12:15
COMMUNITY	Noorvik	UTILITY	AVEC		
OWNERSHIP	AVEC	CONTACT	Mark Bryan		
OPERATOR	Tuck @ 636-2180/6445	PHONE	565-5316		

	G-1	G-2	G-3	G-4	G-5
ENGINE MAKE	Detroit	Cummins	MTU		
ENGINE MODEL	Series 60	KTA19 G4	12V2000		
ENGINE RPM	1800	1800	1800		
SERIAL NUMBER	06RE-104276	37184361	5352001481		
GOVERNOR TYPE	Electronic	Mechanical	Electronic		
MODEL ACTUATOR	DDEC	EG1P	DDEC		
MODEL SPEED CONTROL	LSM	2301A	LSM		
DC VOLTAGE	24VDC	24VDC	24VDC		
UNIT CIRCUIT BREAKER	GE Molded Case	GE Molded Case	GE Molded Case		
TYPE/AMP/VOLT	3ph/480V/450A	3ph/480V/700A	3ph/480V/1000A		
CURRENT HOURS	7,880	10,590	11,259		
GENERATOR MAKE	Newage	Martin Machinery	Kohler		
GENERATOR MODEL #	HCI504C1L	MCD-500	750R0ZD4		
GENERATOR SERIAL #	0960605038	M103098566	0699449		
GENERATOR CAPACITY (kW)	376	455	750		
GENERATOR VOLTAGE	480V	480V	480V		
VOLTAGE REGULATOR, MAKE & MODEL	Basler APR 63-5	Basler APR 63-5	Basler APR 63-5		
PARALLEL SWITCH GEAR (Y or N)	Yes, manual	Yes, manual	Yes, manual		
kWh METER(Yes or No)	Yes				
POWERHOUSE kWh METER TYPE	Elster CL20 FM 9S KH 1.8 P/R 24 TA2.5A				
CATALOG # or TYPE	A3TL				
DEMAND ?	274kW				
CT RATIO	Unknown, couldn't remove feeder dist. panel cover because airport feeder breaker was locked out.				
STATION SERVICE METER (Yes or No)	Yes				
STATION SERVICE METER TYPE	Elster CL200 FM 16S KH 21.6 P/R 24 TA 30A				
CATALOG # or TYPE	A3TL				
BATT. CHARGER/TYPE/MODEL	Nife SCL 24-15				
FUEL DAY TANK TYPE	Single Wall, 500 gallon				
PUMP #	Worthington 3GAU				
MOTOR #	Ajax CI184 1 1/2HP 1750 RPM 115/230V				
FUEL DAY TANK METER	GPI MR 5-30				
FIRE PROTECTION TYPE/OPERATIONAL?	Halon system & 20lb ABC extinguishers. Didn't see current tags on Halon but pressure gauges indicate OK.				
ORIGINAL CONTRACTOR	Unknown				