

ALASKA ENERGY AUTHORITY
VILLAGE POWER SYSTEM ASSESSMENT

Community: Nelson Lagoon
Evaluation Date: May 24, 2012 Time Started 5:00am Completed 9:00am
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) **Fiberglass Floor**
- ☐ 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	75kW	110kW	110kW	_____	_____
Hours of Operation	Condemned	29221	25452	_____	_____

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

No System

* 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. **Not Available**

ALASKA ENERGY AUTHORITY

VILLAGE POWER SYSTEM INVENTORY

DATE	May 24, 2012	TIME START	5:00am	TIME END	9:00am
COMMUNITY	Nelson Lagoon	UTILITY	Nelson Lagoon Electric Coop		
OWNERSHIP	Native Village of Nelson Lag.	CONTACT	Mark McNeley		
OPERATOR	Mark McNeley	PHONE	907.989.2204		

	G-1	G-2	G-3	G-4	G-5
ENGINE MAKE	Perkins	John Deere	John Deere		
ENGINE MODEL	AB50498	6068TF250	6068TF250		
ENGINE RPM	1800	1800	1800		
SERIAL NUMBER	U715548A	TO6068T900451	PE6068T489401		
GOVERNOR TYPE	Woodward	Woodward	Woodward		
MODEL ACTUATOR	8256-017	8256-017	8256-017		
MODEL SPEED CONTROL	8290-186	8290-186	8290-186		
DC VOLTAGE	12VDC	12VDC	12VDC		
UNIT CIRCUIT BREAKER	GE	GE	GE		
TYPE/AMP/VOLT	150A/ 600V	250A/ 600V	250A/ 600V		
CURRENT HOURS	Unit Condemned	29221	25452		
GENERATOR MAKE	Stamford	Stamford	Stamford		
GENERATOR MODEL #	No Data Tag	No Data Tag	No Data Tag		
GENERATOR SERIAL #	No Data Tag	No Data Tag	No Data Tag		
GENERATOR CAPACITY (kW)	50kW	100kW	150kW		
GENERATOR VOLTAGE	277/480	277/480	277/480		
VOLTAGE REGULATOR, MAKE & MODEL	Basler AVC 63-7	Basler AVC 63-7	Basler AVC 63-7		
PARALLEL SWITCH GEAR (Y or N)	Y	Y	Y		
kWh METER(Yes or No)	Y				
POWERHOUSE kWh METER TYPE	Crompton				
CATALOG # or TYPE	Integra 1570				
DEMAND ?	--				
CT RATIO	300:5				
STATION SERVICE METER (Yes or No)	Y				
STATION SERVICE METER TYPE	Schlumberger				
CATALOG # or TYPE	SS4518				
BATT. CHARGER/TYPE/MODEL	SENS FC12-10-2100U				
FUEL DAY TANK TYPE	Custom 100gal				
PUMP #	No Data Tag				
MOTOR #	AO Smith 440832				
FUEL DAY TANK METER	AMCO				
FIRE PROTECTION	ABC Fire Extinguisher				
TYPE/OPERATIONAL?					
ORIGINAL CONTRACTOR					