

ALASKA ENERGY AUTHORITY
VILLAGE POWER SYSTEM ASSESSMENT

Community: Deering
Evaluation Date: July 26, 2012 Time Started 3:00pm Completed 10:00pm
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	100kW	137kW	170kW	170kW	_____
Hours of Operation	27660	32045 O/H @ 29500	23447	20505	_____

* Generator Condition

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

Water plant. System not operating properly in need of repair

* BTU/Hr Meter

☐ Yes

☒ No

* Additional Waste Heat Available

☒ No

☐ Yes

List Potential New Users

System Information

Supply / Return Delta T - **Inconsistent- system in disrepair**

Estimate of current annual heating fuel gallons displaced

Unknown

Estimate of potential annual heating fuel gallons displaced

Unknown

Existing Heat Sales Agreement(s)

Unknown

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	July 26, 2012	TIME START	3:00pm	TIME END	10:00pm
COMMUNITY	Deering	UTILITY	Ipnatchiaq Electric Co		
OWNERSHIP	Ipnatchiaq Electric Co	CONTACT	Ruth Moto- Hingsbergen		
OPERATOR	Harold Moto	PHONE	907-363-2157		

	G-1	G-2	G-3	G-4	G-5
ENGINE MAKE	John Deere	John Deere	Cummins	Cummins	
ENGINE MODEL	6068TF250	6081AF001	LTA10-G3	LTA10-G3	
ENGINE RPM	1800	1800	1800	1800	
SERIAL NUMBER	TO6068T825870	RG6081A094749	34985513	34985512	
GOVERNOR TYPE	Woodward EPG	Woodward EPG	Cummins	Cummins	
MODEL ACTUATOR	1724	1724	EFC	EFC	
MODEL SPEED CONTROL	8290	8290	Cummins EFC	Cummins EFC	
DC VOLTAGE	24VDC	24VDC	24VDC	24VDC	
UNIT CIRCUIT BREAKER	GE Spectra RMS	GE Spectra RMS	GE Spectra RMS	GE Spectra RMS	
TYPE/AMP/VOLT	SFHA38A0250 150A/ 600V	SFHA38A0250 225A/ 600V	SGHA36AT0400 300A/ 600V	SGHA36AT0400 300A/ 600V	
CURRENT HOURS	27660	32045	23447	20505	
GENERATOR MAKE	Newage	Newage	Newage	Newage	
GENERATOR MODEL #	UC274E	UC274H	HC66G	HC66G	
GENERATOR SERIAL #	G990026900	G990022899	0116853/01	0116560/01	
GENERATOR CAPACITY (kW)	100kW	137kW	170kW	170kW	
GENERATOR VOLTAGE	277/480	277/480	277/480	277/480	
VOLTAGE REGULATOR, MAKE & MODEL	Newage SX440	Newage AS440	Newage MX321	Newage MX321	
PARALLEL SWITCH GEAR (Y or N)	Y	Y	Y	Y	
kWh METER(Yes or No)	Y				
POWERHOUSE kWh METER TYPE	Electro Industries				
CATALOG # or TYPE	DSP3-120-D				
DEMAND ?	Y				
CT RATIO	800:5				
STATION SERVICE METER (Yes or No)	Y				
STATION SERVICE METER TYPE	Ion				
CATALOG # or TYPE	7330				
BATT. CHARGER/TYPE/MODEL	Charles Industries AA2406R				
FUEL DAY TANK TYPE	Wotec/ AEA				
PUMP #	406I-2				
MOTOR #	Leeson M6K17FC1H				
FUEL DAY TANK METER	FPP Meter				
FIRE PROTECTION	Y				
TYPE/OPERATIONAL?	Halon not commissioned. Firing pins not connected to tanks				
ORIGINAL CONTRACTOR	Unknown				