

ALASKA ENERGY AUTHORITY
VILLAGE POWER SYSTEM ASSESSMENT

Community: Nome
Evaluation Date: Sept 19-22, 2012 Time Started 1:00p Completed 5:00p
Evaluator(s): Kris Tolson

*** 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 #15	Unit #16	Unit #12	Unit #14	Unit # 18
kW	5211kW	5211kW	3660kW	1875kW	400kW
Hours of Operation	18356	24868	130545	16157	247

* Generator Condition

	Unit #15	Unit #16	Unit #12	Unit #14	Unit #18
Good, like new	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fair	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" 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

Waste Oil Furnace

*** 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 **4160V**
- ☐ 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

Multiple buildings near plant

* BTU/Hr Meter

- ☐ Yes
☒ No

* Additional Waste Heat Available

- ☒ No
☐ Yes

List Potential New Users

System Information

Supply / Return Delta T **12 deg F**

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. **Approx 6 outages caused by: Weather, Animals, Vehicle striking pole.**

ALASKA ENERGY AUTHORITY

VILLAGE POWER SYSTEM INVENTORY

DATE	Sept 19-22, 2012	TIME START	1:00p	TIME END	5:00p
COMMUNITY	Nome	UTILITY	Nome Joint Utilities		
OWNERSHIP	Nome Joint Utilities	CONTACT	John Handeland		
OPERATOR	Doug Johnson	PHONE	907-443-6320		

	G-1	G-2	G-3	G-4	G-5
ENGINE MAKE	Wartsila	Wartsila	Caterpillar	Caterpillar	Caterpillar
ENGINE MODEL	12V32	12V32	3616	3516B	3456
ENGINE RPM	720RPM	720RPM	720RPM	1800RPM	1800RPM
SERIAL NUMBER	PAAE12107	PAAE12108	1PD00041	7RN614	7WG03862
GOVERNOR TYPE	Woodward	Woodward	Woodward	Woodward	Cat Electronic
MODEL ACTUATOR	EGB	EGB	EGB	OR7972	--
MODEL SPEED CONTROL	723	723	701A	701A	--
DC VOLTAGE	120VDC	120VDC	24VDC	24VDC	24VDC
UNIT CIRCUIT BREAKER	GE Power Vac	GE Power Vac	GE Power Vac	GE Power Vac	Cutler Hammer
TYPE/AMP/VOLT	1200A / 4160V	1200A / 4160V	1200A / 4160V	1200A / 4160V	1200A / 480V
CURRENT HOURS	18365	24868	130545	16157	247
GENERATOR MAKE	ABB	ABB	Kato	Kato	Caterpillar
GENERATOR MODEL #	3-SYNC-OY	3-SYNC-OY	A250460000	ABL20P	LC6
GENERATOR SERIAL #	4579265	4579264	97695	13193	06B01580
GENERATOR CAPACITY (kW)	5211kW	5211kW	3660kW	1875kW	400kW
GENERATOR VOLTAGE	4160	4160	4160	4160	277/480
VOLTAGE REGULATOR, MAKE & MODEL	Basler DECS 200	Basler DECS 200	Basler SR8	Basler SSR-125-12	Cat CDVR
PARALLEL SWITCH GEAR (Y or N)	Yes	Yes	Yes	Yes	Yes
kWh METER(Yes or No)	Yes				
POWERHOUSE kWh METER TYPE	Jem Star				
CATALOG # or TYPE	JS-05R6010-BO				
DEMAND ?					
CT RATIO	No Access				
STATION SERVICE METER (Yes or No)	Yes				
STATION SERVICE METER TYPE	Jem Star				
CATALOG # or TYPE	JS-05R6010-BO				
BATT. CHARGER/TYPE/MODEL	Energys SCRF 130-3-125				
FUEL DAY TANK TYPE	1000gal Custom				
PUMP #	Gormann Rupp GHS2GJ3B				
MOTOR #	WEG W21 CC029A				
FUEL DAY TANK METER	GPI Digital Meter				
FIRE PROTECTION TYPE/OPERATIONAL?	Water Sprinkler / Halon Functional				
ORIGINAL CONTRACTOR					