

ALASKA ENERGY AUTHORITY
VILLAGE POWER SYSTEM ASSESSMENT

Community: Anaktuvuk Pass
Evaluation Date: Sept 30, 2012 Time Started 10:00am Completed 4:00pm
Evaluator(s): Craig Lemire

*** 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 #5	Unit #6
Kw	330kW	330kW	330kW	910kW	910kW
Hours of Operation	4554	6309	5611	23642	12077

G4 POSITION IS EMPTY

* Generator Condition

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

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

School

*** BTU/Hr Meter**

☒ Yes

☐ No

*** Additional Waste Heat Available**

☒ No

☐ Yes

List Potential New Users

System Information

Supply / Return Delta T **12deg 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.

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. **No**

unscheduled outages in the past 2 years

ALASKA ENERGY AUTHORITY

VILLAGE POWER SYSTEM INVENTORY

DATE	Sept 30, 2012	TIME START	10:00am	TIME END	4:00pm
COMMUNITY	Anaktuvuk Pass	UTILITY	North Slope Borough		
OWNERSHIP	North Slope Borough	CONTACT			
OPERATOR	5 OPERATORS	PHONE	907.852.0337		

	G-1	G-2	G-3	G-5	G-6
ENGINE MAKE	Caterpillar	Caterpillar	Caterpillar	Caterpillar	Caterpillar
ENGINE MODEL	3412	3412	3412	3512	3512
ENGINE RPM	1200	1200	1200	1200	1200
SERIAL NUMBER	81Z15588	81Z15583	81Z15586	67Z02043	67Z02042
GOVERNOR TYPE	Woodward	Woodward	Woodward	Woodward	Woodward
MODEL ACTUATOR	EG-3P	EG-3P	EG-3P	EG-3P	EG-3P
MODEL SPEED CONTROL	2301A	2301A	2301A	2301A	2301A
DC VOLTAGE	24VDC	24VDC	24VDC	24VDC	24VDC
UNIT CIRCUIT BREAKER	GE Spectra RMS	GE Spectra RMS	GE Spectra RMS	GE Power Break	GE Power Break
TYPE/AMP/VOLT	800A / 600V	800A / 600V	800A / 600V	1600A / 600V	1600A / 600V
CURRENT HOURS	4554	6309	5611	23642	12077
GENERATOR MAKE	Caterpillar	Caterpillar	Caterpillar	Caterpillar	Caterpillar
GENERATOR MODEL #	SR4	SR4	SR4	SR4	SR4
GENERATOR SERIAL #	10421-01	10421-03	10421-02	9GZ00561	9GZ00560
GENERATOR CAPACITY (kW)	330kW	330kW	330kW	910kW	910kW
GENERATOR VOLTAGE	480V	480V	480V	480V	480V
VOLTAGE REGULATOR, MAKE & MODEL	Basler SR4A	Basler SR4A	Basler SR4A	Caterpillar CDVR	Caterpillar CDVR
PARALLEL SWITCH GEAR (Y or N)	Y	Y	Y	Y	Y
kWh METER(Yes or No)	Yes				
POWERHOUSE kWh METER TYPE	North Feeder -- GE PQM II South Feeder -- ABB E1B-8E Bus Total -- Power Measurement ION 7300				
CATALOG # or TYPE					
DEMAND ?	Yes				
CT RATIO	NORTH FEEDER 2500:5 SOUTH FEEDER 2500:5 BUS TOTAL 2500:5 STATION 600:5				
STATION SERVICE METER (Yes or No)	Yes				
STATION SERVICE METER TYPE	GE EPM				
CATALOG # or TYPE	PLE3ESBG14				
BATT. CHARGER/TYPE/MODEL	LaMarche A46				
FUEL DAY TANK TYPE	550gal Custom				
PUMP #	No Data				
MOTOR #	Baldor EM3157T				
FUEL DAY TANK METER	Liquid Controls Model - M-7-1				
FIRE PROTECTION	ABC Extinguishers				
TYPE/OPERATIONAL?	Yes				
ORIGINAL CONTRACTOR					