

**ALASKA ENERGY AUTHORITY
VILLAGE POWER SYSTEM ASSESSMENT**

Community: Nikolski
Evaluation Date: Sept 23, 2012 Time Started 1:00pm Completed 4:00pm
Evaluator(s): Mike Dunn

*** 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	71kW	71kW	54kW	_____	_____
Hours of Operation	43463	11091	7830	_____	_____

* 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 checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" 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

Utility Office

* 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

660gal

Estimate of potential annual heating fuel gallons displaced

None

Existing Heat Sales Agreement(s)

None

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	Sept 23, 2012	TIME START	1:00pm	TIME END	4:00pm
COMMUNITY	Nikolski	UTILITY	Umnak Power		
OWNERSHIP	Native Village of Nikolski	CONTACT	Greg Krukoff		
OPERATOR	Greg Krukoff	PHONE	907.576.2219		

	G-1	G-2	G-3	G-4	G-5
ENGINE MAKE	John Deere	John Deere	John Deere		
ENGINE MODEL	4045T	4045T	3029TF150		
ENGINE RPM	1800	1800	1800		
SERIAL NUMBER	PE4045T554447-01	PE4045T554447-02	PE3029T379133		
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	250A/ 600V	250A/ 600V	250A/ 600V		
CURRENT HOURS	43463	11091	7830		
GENERATOR MAKE	Marathon	Marathon	Marathon		
GENERATOR MODEL #	362PSL1606	362PSL1606	361PSL1602		
GENERATOR SERIAL #	LM-401442-0904	LM-401652-0904	LM-410540-1006		
GENERATOR CAPACITY (kW)	71kW	71kW	54kW		
GENERATOR VOLTAGE	277/480	277/480	277/480		
VOLTAGE REGULATOR, MAKE & MODEL	Marathon DVR2000E	Marathon DVR2000E	Marathon DVR2000E		
PARALLEL SWITCH GEAR (Y or N)	Y	Y	Y		
kWh METER(Yes or No)	Y				
POWERHOUSE kWh METER TYPE	Power Measurement				
CATALOG # or TYPE	Ion 7650				
DEMAND ?	--				
CT RATIO	600:5				
STATION SERVICE METER (Yes or No)	Y				
STATION SERVICE METER TYPE	Satec				
CATALOG # or TYPE	PM172E				
BATT. CHARGER/TYPE/MODEL	Charles C-Charger 93-AA1220HLR				
FUEL DAY TANK TYPE	100gal Custom				
PUMP #	Oberdorfer N991M32F01				
MOTOR #	Dayton GK570A				
FUEL DAY TANK METER	Amco				
FIRE PROTECTION TYPE/OPERATIONAL?	Water mist – Fully Functional				
ORIGINAL CONTRACTOR					