

**ALASKA ENERGY AUTHORITY**  
**VILLAGE POWER SYSTEM ASSESSMENT**

Community: Unalaska / Dutch Harbor  
Evaluation Date: Sep 25, 2012 Time Started 7:00a Completed 2:00p  
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 #10	Unit #11	Unit #13	Unit #8	Unit # 9	Unit #15	Unit #7
kW	5400kW	5400kW	4600kW	1180kW	1230kW	250kW	1000kW
Hours of Operation	8831	8549	2942	161819	123979	29.5	Unknown

\* Generator Condition

	Unit #10	Unit #11	Unit #13	Unit #8	Unit #9	Unit #15	Unit #7
Good, like new	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Fair	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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"/>	<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

**Building Heat**

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\* BTU/Hr Meter

☐ Yes

☒ No

\* Additional Waste Heat Available

☐ No

☒ Yes

List Potential New Users

**ORC Unit**

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System Information

Supply / Return Delta T

**52deg F**

Estimate of current annual heating fuel gallons displaced

**Unknown**

Estimate of potential annual heating fuel gallons displaced

**Unknown**

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 25, 2012	TIME START	7:00a	TIME END	2:00p
COMMUNITY	Unalaska / Dutch Harbor	UTILITY	Unalaska Electric Utility		
OWNERSHIP	City of Unalaska	CONTACT	Jim Fitch		
OPERATOR	Jim Fitch	PHONE	907-581-1831		

	G-10	G-11	G-13	G-8	G-9
ENGINE MAKE	Wartsila	Wartsila	Caterpillar	Caterpillar	Caterpillar
ENGINE MODEL	12V32	12V32	C280-16	3516	3512B
ENGINE RPM	720RPM	720RPM	900RPM	1200	1800
SERIAL NUMBER	PAAE012105	PAAE012106	NKB00148	73Z00272	2S19157
GOVERNOR TYPE	Woodward	Woodward	Cat Electronic	Woodward	Cat Electronic
MODEL ACTUATOR	8575-363	8575-363	--	EG10 p	--
MODEL SPEED CONTROL	723	723	--	2301A	--
DC VOLTAGE	24/125VDC	24/125VDC	24VDC	24/125VDC	24/125VDC
UNIT CIRCUIT BREAKER	Cutler Hammer	Cutler Hammer	Cutler Hammer	Cutler Hammer	Cutler Hammer
TYPE/AMP/VOLT	1200A / 4.76kV	1200A / 4.76kV	1200A / 4.76kV	1200A/ 4.76kV	1200A/ 4.76kV
CURRENT HOURS	8831	8549	2942	161819	123979
GENERATOR MAKE	ABB	ABB	Kato	Kato	Caterpillar
GENERATOR MODEL #	AMG 0900LP10	AMG 0900LP10DSE	AA28312000	A247360000	SR4-B
GENERATOR SERIAL #	4580300	4580301	21930	96420	2FN01033
GENERATOR CAPACITY (kW)	5400kW	5400kW	4600kW	1180kW	1230kW
GENERATOR VOLTAGE	4160	4160	4160	4160	4160
VOLTAGE REGULATOR, MAKE & MODEL	Basler DECS 200	Basler DECS 200	Basler DECS 200	Basler SR4A-2B15B3A	Caterpillar 155-3821
PARALLEL SWITCH GEAR (Y or N)	Yes	Yes	Yes	Yes	Yes
kWh METER(Yes or No)	Yes				
POWERHOUSE kWh METER TYPE	WOIS Computer Based				
Catalog or Type					
DEMAND ?	--				
CT RATIO	No Access				
STATION SERVICE METER (Yes or No)	Yes				
STATION SERVICE METER TYPE	GE Multilin 760				
CATALOG # or TYPE	760-P5-G5-S5-H1-A20-R-T				
BATT. CHARGER/TYPE/MODEL	GnB GSCR-130-T-200-F				
FUEL DAY TANK TYPE	Custom 1000gal				
PUMP #	Worthington CGAUM				
MOTOR #	Baldor M7034T				
FUEL DAY TANK METER	Titan				
FIRE PROTECTION	Fire Extinguishers / Water				
TYPE/OPERATIONAL?	Fully Funcional				
ORIGINAL CONTRACTOR					

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G-15

G-7

ENGINE MAKE	Caterpillar	Caterpillar			
ENGINE MODEL	C9	3512			
ENGINE RPM	1800	1800			
SERIAL NUMBER	S9L02576	24Z01469			
GOVERNOR TYPE	Cat Electronic	Woodward			
MODEL ACTUATOR	--	EG10p			
MODEL SPEED CONTROL	--	2301A			
DC VOLTAGE	24VDC	24VDC			
UNIT CIRCUIT BREAKER	Merlin Gerin	GE Power Break			
TYPE/AMP/VOLT	400A / 600V	2000A/ 600V			
CURRENT HOURS	29	Unknown			
GENERATOR MAKE	Caterpillar	Caterpillar			
GENERATOR MODEL #	LC6	SR4			
GENERATOR SERIAL #	G6B15991	6PA02502			
GENERATOR CAPACITY (kW)	250kW	1000kW			
GENERATOR VOLTAGE	480	480			
VOLTAGE REGULATOR, MAKE & MODEL	Caterpillar 314-7755	Caterpillar VR6			
PARALLEL SWITCH GEAR (Y or N)	Yes	Yes			
kWh METER(Yes or No)	Yes				
POWERHOUSE kWh METER TYPE	WOIS Computer Based				
Catalog or Type					
DEMAND ?	--				
CT RATIO	No Access				
STATION SERVICE METER (Yes or No)	Yes				
STATION SERVICE METER TYPE	GE Multilin 760				
CATALOG # or TYPE	760-P5-G5-S5-H1-A20-R-T				
BATT. CHARGER/TYPE/MODEL	GnB GSCR-130-T-200-F				
FUEL DAY TANK TYPE	Custom 1000gal				
PUMP #	Worthington CGAUM				
MOTOR #	Baldor M7034T				
FUEL DAY TANK METER	Titan				
FIRE PROTECTION	Fire Extinguishers / Water				
TYPE/OPERATIONAL?	Fully Funcional				
ORIGINAL CONTRACTOR					