

ALASKA ENERGY AUTHORITY
VILLAGE POWER SYSTEM ASSESSMENT

Community: Chignik Bay
Evaluation Date: June 10, 2012 Time Started 10:00am Completed 4:00pm
Evaluator(s): Tim Gardner

*** 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	230kW	230kW	117kW	_____	_____
Hours of Operation	12527	10934	6844	_____	_____

* Generator Condition

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

System is functional, not currently being used. _____

* BTU/Hr Meter

☐ Yes

☒ No

* Additional Waste Heat Available

☐ No

☒ Yes

List Potential New Users

Adjacent city building currently under construction. _____

System Information

Supply / Return Delta T **N/A**

Estimate of current annual heating fuel gallons displaced **N/A**

Estimate of potential annual heating fuel gallons displaced **N/A**

Existing Heat Sales Agreement(s) **N/A**

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.

April 11, 2012: Outage due to High Coolant Temperature shutdown on unit #2.

March 15, 2012: Outage due to water pump failure on one of the generator sets.

February 27, 2012: Planned outage to make repairs to the distribution system.

November 18, 2011: Outage due to battery explosion on unit #2.

Other notes: A distribution conductor has been damaged where it has been pulled out of the ground, and the insulation nicked, possible from a road grader. We were unable to verify if the conductor was energized or not. See attached photos.





ALASKA ENERGY AUTHORITY

VILLAGE POWER SYSTEM INVENTORY

DATE	June 10, 2012	TIME START	10:00am	TIME END	4:00pm
COMMUNITY	Chignik Bay	UTILITY	Chignik Electric		
OWNERSHIP	City of Chignik	CONTACT	Craig Astor		
OPERATOR	Craig Astor	PHONE	907.749.2280		

	G-1	G-2	G-3	G-4	G-5
ENGINE MAKE	John Deere	John Deere	John Deere		
ENGINE MODEL	6090HF485	6090HF485	4045HF485		
ENGINE RPM	1800	1800	1800		
SERIAL NUMBER	RG6090L036458	RG6090L036457	PE4045L037242		
GOVERNOR TYPE	JD Electronic	JD Electronic	JD Electronic		
MODEL ACTUATOR	--	--	--		
MODEL SPEED CONTROL	--	--	--		
DC VOLTAGE	24VDC	24VDC	24VDC		
UNIT CIRCUIT BREAKER	GE Spectra RMS	GE Spectra RMS	GE Spectra RMS		
TYPE/AMP/VOLT	400A/ 600V	400A/ 600V	400A/ 600V	Type (all 3):	SGLA36AT0400
CURRENT HOURS	12526	10934	6844		
GENERATOR MAKE	Stamford	Stamford	Stamford		
GENERATOR MODEL #	HCI4341L-1767E	HCI4341L-1767E	UCI274F1L-1766		
GENERATOR SERIAL #	M08A301590-02	M08A301590-01	M08B301881-02		
GENERATOR CAPACITY (kW)	229kW	229kW	117kW		
GENERATOR VOLTAGE	277/480	277/480	277/480		
VOLTAGE REGULATOR, MAKE & MODEL	Newage MX341	Newage MX341	Newage MX341		
PARALLEL SWITCH GEAR (Y or N)	Y	Y	Y		
kWh METER(Yes or No)	Y				
POWERHOUSE kWh METER TYPE	SATEC				
CATALOG # or TYPE	PM172E				
DEMAND ?	--				
CT RATIO	Unknown				
STATION SERVICE METER (Yes or No)	Y				
STATION SERVICE METER TYPE	SATEC				
CATALOG # or TYPE	PM172E				
BATT. CHARGER/TYPE/MODEL	Charles Industries / C-Charger / 93-AA2420HLPR				
FUEL DAY TANK TYPE	N/A				
PUMP #	N/A				
MOTOR #	N/A				
FUEL DAY TANK METER	N/A				
FIRE PROTECTION TYPE/OPERATIONAL?	Cheetah water mist system MDL: 10-071 / Yes				
ORIGINAL CONTRACTOR	Alaska Energy Authority				