

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

Community: Chignik Lake  
Evaluation Date: June 7, 2012 Time Started 8:00a Completed 5:00p  
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	147kW	125kW	90kW	80kW	_____
Hours of Operation	10634.7	3085.2 - <b>Gen Inop</b>	22682.1	22959.7	_____

\* 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 type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Poor, guards/covers missing	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" 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

10 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)

LPSP

## 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. Numerous generator shutdowns and faults. Unknown how many have led to outages. See log below.



Chiquik Lake

DAILY REPORT  
(FULL-TIME GENERATION)

Engine#KW

DATE	ENGINE hours	OIL ADDED	REPAIRS OR PROBLEMS	SIGNATURE	FUEL TANK LEVELS
05-15-11	#3 20769 hr				DATE 05-20-11
05-16	#4 1701 hr				#1
05-23			#4 Low oil press, Easy Alarm		#2
05-23	#4 17412 hr				#3 = 11"
05-24	#3 20772 hr		#3 Fuel to Stop		#4
05-25	#3 20783 hr		#3 Fuel to Stop		DATE
05-25	#4 17423 hr		#4 Easy Alarm / Low oil press		#1
06-18	#4 17874 hr		#4 oil leak, #4 ccv filter Air filter		#2
07-08	#4 18156 hr		#4 oil leak, #4 ccv filter Air filter		#3 = 11"
07-08	#4 19062 hr		Switched to #3 Fuel Tank		#4
07-11	#4 18418 hr		#4 Generator Speed up down at first evening		DATE 08-03-11
07-11	#4 18424 hr		#4 New oil filter, ccv clean, Air filter		#1
08-01	#4 20899 hr		Switched to #3 Tank 2 1/2"		#2
08-03	#1 Reverse Run		#4 Low oil press Easy Alarm		#3
08-05			Switched to #3 Tank 1 2"		#4
08-20	#4 21423 hr		Switched to #4 Tank 2 3.5"		
09-02			Switched to #3 Tank 2 11.5"		
09-26					

NOTE: Change oil Every 250 hours or 1 Year

FAX: Report once a month to C/O

CHECK: Fuel levels once a week

frankdyt

# DAILY REPORT (FULL-TIME GENERATION)

Engine#/KW

DATE	ENGINE hours	OIL ADDED	REPAIRS OR PROBLEMS	SIGNATURE	FUEL TANK LEVELS
09-29-11	#4 19625		#4 oil ch. filter, oil ch. die 19875 hr	W.L.	DATE 05-03-10
09-29	#3 21624		#3 oil ch. filter, oil ch. die 21874 hr	W.L.	#1 4' 4"
10-03	#3 21644		#3 head under Eng - Reset	W.L.	#2 6"
10-03	#4 19687		#4 head under Eng - Reset	W.L.	#3 5"
10-04	#4 19705		#4 head under Eng - Reset	W.L.	#4 6"
10-04			Cut out fuse Brake for School Bus	W.L.	DATE
10-05	#3 21660 hr		New CCV filter, New fuel filter	W.L.	#1
10-19	#3 21988 hr		#3 head under Eng - Reset / New fuel filter	W.L.	#2
11-08	#3 22297 hr		#3 oil ch. filter, oil ch. die 22547 hr	W.L.	#3
11-16	#1 9013 hr		#1 under, Eng, changed fuel filter	W.L.	#4
11-16	#3 22406 hr		#3 head under Eng	W.L.	DATE
11-16	#3		Hertz as to 58 g under Eng - Reset	W.L.	#1
11-20	#3 22437 hr		#3 Eng Alarm, Coolant lockout - Reset	W.L.	#2
11-20	#1 goes to Reverse		Put Eng in change over to #3	W.L.	#3
11-21	#3 22452 hr		#3 60-58 Hertz, Battery Volt went 13.9	W.L.	#4
11-21	#4 Fuel	Tank	gelling, #3 gelling went #1 Tank	W.L.	DATE
11-22	7:00 am		Fuel Gelling, Got one drum #1 fuel	W.L.	#1
11-22	#3 22468 hr		New CCV filter, fuel filter, Kent under Eng	W.L.	#2
11-22	#3		New Secondary filter	W.L.	#3
11-22	#1 9084 hr		New CCV filter, oil filter	W.L.	#4
11-22	#4 19882 hr		New Air filter	W.L.	

NOTE: Change oil Every 250 hours or 1 Year

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CHECK: Fuel levels once a week

9088  
500  
9588

# DAILY REPORT (FULL-TIME GENERATION)

Engine#1KW

DATE	ENGINE hours	OIL ADDED	REPAIRS OR PROBLEMS	SIGNATURE	FUEL TANK LEVELS
11-30-11	20009 hr		oil ch. oil ch. due 2254 hr	W.L.	DATE #1 = Empty
12-15	#3 2251 hr	#3 oil	ch filter ch oil ch due 22761 hr	W.L.	
01-31	#4 205406 hr		New CCV filter Air filter	W.L.	#2 1'6" 02-9-12
01-31	#1 9664 hr	#1 oil	ch filter ch oil ch due 9914 hr	W.L.	#3
02-10	#1 98792 hr	2000 hr	Add oil 2 qt	W.L.	#4
02-10	#1 98792 hr		200 oil 2 qt	W.L.	DATE 03-11-12
02-28	#4 21100 hr		switched to #4 Tank 2'8"	W.L.	#1
02-28	#1 9973 hr	#1 oil	#4 oil ch filter ch. Air filter oil ch due 21410	W.L.	#2
02-29			ch filter ch CCV filter oil ch due 10223 hr	W.L.	#3 = 5'7"
03-11			Add 1 1/2 gal Rotella	W.L.	#4 = 6"
03-11	#4		Fuel Alarm	W.L.	DATE
03-11	#4		Eng Alarm low oil press Reset twice	W.L.	#1
03-11	Switched to #3		Tank 5'4"	W.L.	#2
03-11	#1 10154 hr		#1 went Reverse Pump - Reset	W.L.	#3
03-11	1/2 Tank	Put in	55 gal 4:00 pm full 6d 185 gal	W.L.	#4
03-11	3/4 Tank	Put in	25 gal 8:30 pm full	W.L.	
03-11	Between	3/4 Full	11:30 pm full	W.L.	
03-12	8 am 1/4	Tank	845 full	W.L.	
03-12	#4 went	low oil	press 3 times	W.L.	
03-12	3 pm 1/2	Tank	3:22 52 gal full	W.L.	
03-12	11:26 pm	under	3/4 - 11:44 full	W.L.	

20800  
500  
21200

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# **DAILY REPORT (FULL-TIME GENERATION)**

Engine#/KW

22717  
2250  
22967

22717  
2250  
22967

DATE	ENGINE hours	OIL ADDED	REPAIRS OR PROBLEMS	SIGNATURE	FUEL TANK LEVELS
03-13-12	1/4 Tank	8:30	Between 1/2 & 3/4 8:40	W.L.	DATE #1
03-13	#4 2130hr		#4 Eng Alarm, fuel oil level Reset	W.L.	#2
03-13	Filled 1/4	more	11:18 am Full	W.L.	#3
03-13	10:15 pm	Between	drains, filled 1/4 yesterday	W.L.	#4
03-14	1:38 am	3/4 full	on 3/4 & full 10:27 Full	W.L.	DATE #1
03-14			1:41 am Full	W.L.	#2
03-14			#4 Eng Alarm, low oil press. Reset	W.L.	#3
03-14	Hanging	Problem	with this Alarm, oil is fine	W.L.	#4
03-16	3:30 am	Fuel oil	11 am Fuel Alarm on 3/4 Tank	W.L.	DATE #1
03-17	#4 10:00 am	Eng Alarm	#1 Reverse Pump - Reset	W.L.	#2
03-17			#1 Reverse Pump - Reset	W.L.	#3
03-18	#1 3:00 am	Rev Pump	#4 low oil, Eng Alarm	W.L.	#4
03-21	#4 2142hr		#4 low oil, Eng Alarm	W.L.	DATE 05-29-12
04-03	#4 2152hr		#4 oil ch, Switch, Air Filter oil ch due 21832hr	W.L.	#1
04-27	#4 10505hr		#4 oil ch, Switch, oil ch due 10945 hr	W.L.	#2
04-27	#4 22005hr		#4 oil ch, Switch, oil ch due 22355 hr	W.L.	#3
05-12	#4 22332hr		#4 oil ch, Switch, oil ch due 22582 hr	W.L.	#4
05-28	#4 22717hr	Air Filter	#4 oil ch CC-V, oil ch due 22967 hr	W.L.	DATE #1
05-29			#4 CC-V ch due 23202 hr	W.L.	#2
05-29	Switched to #4		Tank 217.5"	W.L.	#3
					#4 = 217.5"

NOTE: Change oil Every 250 hours or 1 Year  
 FAX: Report once a month to C/O  
 CHECK: Fuel levels once a week



# ALASKA ENERGY AUTHORITY

## VILLAGE POWER SYSTEM INVENTORY

DATE	June 7, 2012	TIME START	8:00a	TIME END	5:00p
COMMUNITY	Chignik Lake	UTILITY	Chignik Lake Utility, Inc		
OWNERSHIP	Chignik Lake Village Council	CONTACT	Alvin Boskofsky		
OPERATOR	Will Lind	PHONE	907-512-7465		

	G-1	G-2	G-3	G-4	G-5
ENGINE MAKE	John Deere	John Deere	John Deere	John Deere	
ENGINE MODEL	6081AF001	6081TF001	6068TF001	4045TF250	
ENGINE RPM	1800	1800	1800	1800	
SERIAL NUMBER	RG6081A100210	RG6081T082078	TO6068T405143	PE4045T442624	
GOVERNOR TYPE	Woodward	Woodward	Woodward	Woodward	
MODEL ACTUATOR	8256-017	8256-017	8256-022	8256-017	
MODEL SPEED CONTROL	8290-186	8290-186	8290-186	8290-186	
DC VOLTAGE	12VDC	12VDC	12VDC	12VDC	
UNIT CIRCUIT BREAKER	GE Spectra RMS	GE Spectra RMS	GE Spectra RMS	GE Spectra RMS	
TYPE/AMP/VOLT	SGHA36AT0400 400A/ 250A/600V	SGHA36AT0400 400A/ 200A/ 600V	SFHA36AT0250 250A/ 150A/ 600V	SFHA36AT0250 250A/ 150A/ 600V	
CURRENT HOURS	10634.7	3085.2	22682.1	22959.3	
GENERATOR MAKE	Marathon	Kato	Stamford	Marathon	
GENERATOR MODEL #	431PSL6206	125SX9E	UCI274E16	363CSL1607-1-1	
GENERATOR SERIAL #	LM-237-610-0900	88548-2	491191	668027-4-06	
GENERATOR CAPACITY (kW)	147kW	125kW	90kW	80kW	
GENERATOR VOLTAGE	277/480	277/480	277/480	277/480	
VOLTAGE REGULATOR, MAKE & MODEL	Marathon SE350	Marathon SE350	Newage SX440	Marathon SE350	
PARALLEL SWITCH GEAR (Y or N)	Y	Y	Y	Y	
kWh METER(Yes or No)	Yes				
POWERHOUSE kWh METER TYPE	Power Measurement Demand				
CATALOG # or TYPE	Ion 7300 Ser: PK-0308A020-01 701X16G9				
DEMAND ?					
CT RATIO	Unknown				
STATION SERVICE METER (Yes or No)	Yes				
STATION SERVICE METER TYPE	Power Measurement				
CATALOG # or TYPE	Ion 7300				
BATT. CHARGER/TYPE/MODEL	(Units #1,#3,#4): SENS Model: NRG12-20-RCLS (Unit #2): SENS Model: FC12-20-2031				
FUEL DAY TANK TYPE	Simplex 100gal				
PUMP #	656506				
MOTOR #	Marathon Cat #: S026 Model: 60A48S1702113D P				
FUEL DAY TANK METER	AMCO P/N: 92139 Model: 1505G				
FIRE PROTECTION	Alarm System				
TYPE/OPERATIONAL?	Notifier / Inoperable				
ORIGINAL CONTRACTOR	Unknown				