

**ALASKA ENERGY AUTHORITY
VILLAGE POWER SYSTEM ASSESSMENT**

Community: Cordova
Evaluation Date: Sep 13-14, 2012 Time Started 8:00a Completed 5:00p
Evaluator(s): Kris Tolson / Brendan Costello

*** 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 #3	Unit #4	Unit #5	Unit #6	Unit # 7
kW	2500kW	2403kW	1125kW	1125kW	3700kW
Hours of Operation	116,065	73,704	32,120	36,209	5,188

There are two Hydro Plants: Power Ck has two 3000kW gens, and Humpback Ck has three 500kW gens

* Generator Condition

	Unit #3	Unit #4	Unit #5	Unit #6	Unit #7
Good, like new	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" 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

Organic Rankine Cycle

*** BTU/Hr Meter**

☐ Yes

☒ No

*** Additional Waste Heat Available**

☒ No

☐ Yes

List Potential New Users

System Information

Supply / Return Delta T

Unknown

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.

There have been four outages so far in 2012:

1. March 10, 2012 – 2 minutes
2. June 1, 2012 – 5 minutes
3. July 14, 2012 – 30 minutes
4. August 3, 2012 – 20 minutes (partial line)

All four were caused by malfunctions at the diesel plant

ALASKA ENERGY AUTHORITY

VILLAGE POWER SYSTEM INVENTORY

DATE	Sept 13-14, 2012	TIME START	8:00a	TIME END	5:00p
COMMUNITY	Cordova	UTILITY	Cordova Electric Cooperative		
OWNERSHIP	CEC	CONTACT	Danny Ackmann		
OPERATOR	Dan Urton	PHONE	907-444-5854		

	G-3	G-4	G-5	G-6	G-7
ENGINE MAKE	EMD	Faribanks Morse	Caterpillar	Caterpillar	EMD
ENGINE MODEL	20 645 E	38TD 1/8 O-P	3516- DITA	3516 -DI	20-710G40-T2
ENGINE RPM	900	720	1200	1200	900
SERIAL NUMBER	77D1-1108	38D883025TDS12	73Z00476	73Z00476	08-M1-1022
GOVERNOR TYPE	Woodward	Woodward	Woodward	Woodward	Electronic ECU
MODEL ACTUATOR	EGB	EGB	EG3p	EG3p	--
MODEL SPEED CONTROL	2301A	2301A	2301A	2301A	2301D
DC VOLTAGE	120VDC	24VDC	24VDC	24VDC	24VDC
UNIT CIRCUIT BREAKER	Brown Boveri	Brown Boveri	GE 4860	GE 4860	GE Power Vac
TYPE/AMP/VOLT	03B 4160V	I-T-E CB 12470V	2000A / 600V	2000A/ 600V	1200A/ 12470V
CURRENT HOURS	116,065	73,704	32,120	36,209	5188
GENERATOR MAKE	GM	Louis Allis	Kato	Kato	Kato
GENERATOR MODEL #	A20T24	TB671	A249610000	A249610000	AA28257000
GENERATOR SERIAL #	76J1-1045	504902	97352	98382-04	21438
GENERATOR CAPACITY (kW)	2500kW	2403kW	1125kW	1125kW	3700kW
GENERATOR VOLTAGE	4160	12470	277/480	277/480	7200/12470
VOLTAGE REGULATOR, MAKE & MODEL	Basler Static AVR	Basler MVC 108	Basler	Basler	Basler DECS-200
PARALLEL SWITCH GEAR (Y or N)	Yes	Yes	Yes	Yes	Yes
kWh METER(Yes or No)	Yes				
POWERHOUSE kWh METER TYPE	GE				
Catalog or Type	702X676710				
DEMAND ?					
CT RATIO					
STATION SERVICE METER (Yes or No)	Yes				
STATION SERVICE METER TYPE	GE KV2				
CATALOG # or TYPE	KZD023676326				
BATT. CHARGER/TYPE/MODEL	Energys / Caterpillar/ SENS				
FUEL DAY TANK TYPE	Custom				
PUMP #	Viking H14195				
MOTOR #	Baldor No Data				
FUEL DAY TANK METER	Recordall 120				
FIRE PROTECTION	Fire Extinguishers / Heat and smoke detection				
TYPE/OPERATIONAL?	Fully Funcional				
ORIGINAL CONTRACTOR					