



Energy & Engineered Risk

175 Water Street, 29th Floor, New York, NY 10038

Gainesville Renewable Energy Center

11201 NW 13th Street
Gainesville, FL 32653



PROPERTY LOSS CONTROL SURVEY REPORT

May 14, 2014

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SUMMARY INFORMATION

RFS No.	65908
Survey date	May 14, 2014
Previous Survey	N/A – First property survey by AIG
Engineer	Art Partin
EER Writing Office	Hartford, CT
Owner	Energy Management, Inc. Gainesville Renewable Energy Center (GREC), LLP.
Operator	North American Energy Services
Location Address	11201 NW 13th Street (aka US 441) Gainesville, FL 32653
Web site	www.emienergy.com www.naes.com
Plant Type	IPP – Biomass Plant
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1. SUMMARY OF INSPECTION ACTIVITY

This report documents the property loss prevention survey conducted on May 14, 2014 at the Gainesville Renewable Energy Center (GREC) in the City of Gainesville, Alachua County, Florida.

The purpose of this visit was to evaluate the present risk exposures for the All Risk Property Insurance Program. A tour of the facility was conducted and conversations were held with senior plant management.

The loss prevention evaluation consisted of a discussion and visual evaluation of the present overall occupancy, inspection of facility fire safety equipment and review of human element programs. Six new recommendations have been added to this report as a result of this survey.

2. LOCATION OVERVIEW

This is a new Plant, located within the city limits of Gainesville in Alachua County, Florida. The site consists of 130 acres of which approximately 60 acres contain the power plant and fuel handling and storage operations.

The GREC Plant is designed to operate as a dispatched base-load plant. The major pieces of equipment consist of:

- One Metso Hybex BFB wood-biomass burning boiler, rated at 930,000 pph, 1620 psi @ 1005°F with a natural gas fired light-off system.
- One Siemens Steam Turbine with a Brush Generator (STG set) with a rated capacity of 116.1 MW at 13.8 KV.
- Fuel processing equipment (mills, conveyors, etc).
- Ash Handling equipment.
- Balance of Plant (BOP) equipment.

Date of Commercial Operation was December 17, 2013. It is owned by GREC Partners, and operated and maintained by North American Energy Services (NAES) Inc. This is a zero discharge Power Plant.

3. LOSS PREVENTION DISCUSSION

The plant is new, as stated above commercial operations began on December 17, 2013. At the time of the survey, the Plant's generating and balance of plant equipment was operating. The plant has been operating at an average net power output of 77 MW.



The facility is a dispatchable unit and operates with Automatic Generation Control (AGC). The operating load is between 70 MW (minimum dispatch load) and the unit's maximum (permitted) net capacity is 102.5 MW. The plant has a parasitic load need of 10 to 12 MW to operate. It can generate from cold start-up in 16 hours. It does not have black start capabilities. The facility has a Power Purchase Agreement (PPA) with the Gainesville Regional Utilities (GRU). The agreement is for a nominal 100 MW net for a term of 30 years. The facility is connected to GRU's 138 kV transmission system.

The Plant is licensed to use:

- Locally available wood products from sources certified to meet forest sustainability standards. These include green sawdust and tree bark from tree processing mills, paper mills, etc.
- Urban Biomass: Tree trimmings, etc. primarily from private urban based gardens
- Other clean wood waste such as old pallets that have been turn to wood chips.

The plant currently has contracted with 12-14 fuel suppliers, to supply their fuel needs. All are within a 70-mile radius from the plant.

Plant structures were designed to withstand hurricane force winds. Buildings and structures are concrete block, poured concrete and steel.

Maintenance Items:

- 1) Adjust the starting pressures of the jockey and fire pumps as follows:
 - Jockey: On: 170 psi & off: 190 psi
 - Electric Fire Pump: On: 160 psi & Manual off only (jumper out timer)
 - Diesel Fire Pump: On: 150 psi & Manual Off only
- 2) Repair leaking drain valve on the Boiler Standpipe control valve (west side).
- 3) Remove the miscellaneous storage in the HVAC/electrical room of the Scale house.

3.1 CONCLUSION

The GREC is a new power plant designed and built to good engineering and industry practices. The plant is new and still under warranty when surveyed. The operators, supervisors and managers are experienced and knowledgeable. The plant rates Good to Very Good for insurance purposes.

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4. RECOMMENDATIONS

4.1 NEW RECOMMENDATIONS

P20140501 Upgrade the Fire Protection Equipment Self-Inspection Program

An outside contractor is currently conducting inspections, testing, and maintenance of the water based fire protection systems per the NFPA quarterly and annual guidelines. These visits should be supplemented by weekly non-flow test runs of the two fire pumps and monthly visual inspections of all fire protection control valves to ensure they are locked in the open position.

P20140502 Develop a Hurricane Preparedness Plan

The plant's Safety Manual does not address hurricane preparation and response. Without, a detailed program in place, significant damage can be expected to the facility.

A detailed hurricane preparedness plan needs to be developed, since the plant is located in a hurricane prone area.

Comment: This facility is in a 100 mph (3-second peak gust) wind prone area per ASCE 7-05.

P20140503 Impairment Handling Program

A system identifying impairments to fire protection systems, including the automatic sprinkler system is not in place. An impairment handling system will provide extra protection when fire protection systems for the building are placed out of service for repairs or other needs.

Implement a written fire protection equipment impairment handling program to supervise all impairments to water supplies, sprinkler systems, and alarm systems that includes the use of an impairment lock-out tag and all applicable precautions, notification of the impairment to a representative of the property insurance company. Contact AIG via our Impairment number, 1-877-705-7287 or email, GlobalProperty.Impairment@aig.com, the fire alarm company, and fire department, plus fire watches, and follow up at the close of the impairment should be put into effect. A copy of the AIG fire protection equipment impairment program was sent to the facility.

P2014-05-04 Upgrade the Facility's Safety Manual

The plant's Safety Manual is based on NAES's corporate safety manual. The plant's safety manual should be updated to include site specific information such as specific contact persons' names, contact information, and site specific building information etc.



P2014-05-05 Invite Local Fire Department to Tour

An important part of overall fire safety at a facility is in the familiarity of the local fire department with the facility. Therefore, it is recommended that the local responding fire department(s) be invited to tour your facility in order for them to familiarize themselves with the layout and operations of the plant. This can greatly reduce the amount of damage to your plant if a fire would occur. Members of the local fire departments should be invited back on an annual basis.

P2014-05-06 Install Spray Shields/Guards on All Lubricating and Seal Oil Flanges

The shields should be US Navy listed or custom flange guards can be fabricated to prevent oil spray during a flange leak.

Comments: Lubricating and seal oils have relatively high flash point and therefore are generally not easily ignited. However, a leak of high pressure oil from a flange or other fitting will cause oil to atomize. Atomized oil can be easily ignited from a hot surface and the ensuing fire damage from the spray fire would be severe. The provision of spray shields will be considered.

4.2 PRIOR RECOMMENDATIONS

There are no prior recommendations as this is the first property insurance survey of this Plant by AIG.

4.3 COMPLETED RECOMMENDATIONS

There is none as this is the first property insurance survey of this Plant by AIG.



5. HISTORY & OWNERSHIP

Date of Commercial Operation was December 17, 2013. It is owned by GREC Partners, and operated and maintained by North American Energy Services (NAES) Inc. The General Contractor was Fagen Inc., and the engineering firm was Zachry Engineering.

6. PLANT LAYOUT & EXPOSURES

6.1 SITE DESCRIPTION

This is a new single unit biomass power plant (116Mw gross), located on approximately 130 acres adjacent to the Gainesville Regional Utilities coal fired power plant. The site is level with open undeveloped land surrounding it.

6.1.1 Location

The plant is located on approximately 130 acres within the city limits of Gainesville in Alachua County, Florida.

Latitude: 29.7676 x Longitude: -82.3962

Elevation: 186 ft. amsl

6.2 EXPOSURES

6.2.1 Surrounding Exposures

North: Open land

South: Open land, GRU power plant to the SE > 1000+ ft

East: Pond

West: Wood yard

6.2.2 Natural Perils

Earthquake

The earthquake exposure is considered Low. The facility is in an area categorized by Munich RE as Zone 0: (MM V or below) on a scale of 0 to 4. This is the Probable maximum intensity (MM: modified Mercalli scale) with an exceedance probability of 10% in 50 years (equivalent to a “return period” of 475 years) for medium subsoil conditions.



Flood or Tsunami

This facility is located in a Flood Zone X (Unshaded), placing the plant outside the 500-year flood elevation. There is no storm surge exposure. All structures are above the surrounding grade elevation and would not be subject to flood exposures. Flood zone location has been determined from FEMA Alachua County/City of Gainesville Flood Map 125107C0145D, dated 06/16/2006 and storm surge from RiskMeter (See appendix).

Windstorm

The facility is located in an area of Florida categorized by Munich RE as Zone 3 (213 - 251 km/h (132 - 156 mph) peak wind speeds) for tropical cyclones on a scale of 0 to 5. This is the Probable maximum intensity with an exceedance probability of 10% in 10 years (equivalent to a “return period” of 100 years). This facility is in a 100 mph (peak gust) wind prone area per ASCE 7-05. The structures and buildings appear secured but damage can be expected during a severe hurricane. Metal buildings, equipment, and insulation would be expected to receive damage during the windstorm.

Tornado

The plant is in an area categorized by Munich RE as Zone 4 for tornadoes on a scale of 1 to 4 (Frequency and intensity of tornados), a high frequency and intensity of tornadoes.

Lightning

Lightning poses a significant exposure in this region of the country. The plant is in an area categorized by Munich RE as Zone 5 for lightning on a scale of 1 to 6. Zone 5 represents a frequency of 20 – 40 lightning strokes per km² per year whether the strikes reach the ground or not. Ground charge dissipaters cover all main structures. Suitable grounding and bonding of key electrical components is provided.

Severe Weather

This facility is located above/north of the freeze line. However, damage from severe cold or snow loading is not a major concern.

Other

Sinkholes are always possible in this region of Florida. There has been no recent sinkhole activity reported in the immediate area.



6.3 LAYOUT & CONSTRUCTION

6.3.1 Building & Plant Layout

This is an outdoor-type power station. The boiler structure's floor levels are of open steel-grate construction without enclosing walls. The steam turbine generator is within a metal panel enclosure located at the north end of the boiler structure. The overall layout of this plant is very good. There is good space separation between buildings and equipment and the wood yard.

6.3.2 Construction

Building Name	Year Built	Height (ft)	Total Area (ft ²)	Construction			# Fire Areas	AS	Condition
				Walls	Roof	Floor			
Admin/Control	2013	18	5000	LNC	LNC	Concrete	1	Y	New
Maint./Whse	2013	24	6250	LNC	LNC	Concrete	1	Y	New
Water Treatment	2013	24	2000	LNC	LNC	Concrete	1	Y	New
Hogger/Screen House	2013	40	3300	LNC	LNC	Concrete	1	Y	New

7. MAJOR EQUIPMENT

7.1 STEAM GENERATORS

7.1.1 General Information

STEAM GENERATORS									
Unit	Size (pph)	Type	Mfg	Year	Fuel 1	Fuel 2	MAWP	Temp (°F)	Asbestos
1	930,000	BFB	Metso	2013	Biomass	N.G.	1945	1005	No

The boiler is a Metso (now Valmet) Hybex wood-fired bubbling fluidized bed (BFB) boiler.

The average burn rate is ~130 tph @ 42% moisture.

Burn Rate at 70 Mw is ~2100 tpd.

Burn Rate at 102 MW(net max load) is ~3,000 tpd.

FEEDWATER						
Unit	Boiler Feed Pumps			Water Chemistry		
	Type	No.	Fixed Protection	Online	Grab	Dosing
1	Elec.	2	Yes	Yes	Yes	-

Each pump is rated for 100% of the boiler's needs.



7.1.2 Fixed Protection Overview

STEAM GENERATORS						
Unit	Burners			Stack		
	No. /Levels/ Pattern	Controls / Trips	Protection	Height	Construction	Lining
1	4 & 6/ 2 / front & back	Complete	N/A	230'	Steel	-

The boiler has automatic natural gas fired igniters(4) for light-off only with a completed set of combustion controls. There are six wood feeders (3 on front and 3 on back).

BOILER AUXILIARIES							
Unit	Bag House			Precipitator		Air Preheater	
	Temp Rating	Temp Monitor	Protection	O ₂ Monitor	Protection	Type	Protection
1	500	Yes	No				

Includes two baghouses (only one is needed) with 10 compartments each using Teflon bags rated for 500°F. The baghouses are monitored for ΔP and temperature. Normal inlet temperature is 445°F with alarms well below the 500°F level. There is also a Selective Catalyst Reduction (SCR), which uses 19.5% aqueous ammonia.

All ash is trucked to a landfill.

7.2 PRIME MOVERS & GENERATORS

7.2.1 General Information

STEAM TURBINES								
Unit	Rating (MW)	Mfg	Year	Model	Serial	Cases/Flows	Service	TDP-1
1	116.1	Siemens	2013	-	-	3	base	-

GENERATORS								
Unit	Rating (kVA)	Mfg	Year	Model	Serial	Volts (kV)	Cooling	Ring Mat'l
1		Brush	2013	-	-	13.8	H2O	-

The STG is a water-cooled unit. No hydrogen used or on site. The unit is located at the north end of the boiler structure within an elevated metal panel enclosure.

7.2.3 Fixed Protection Overview

STEAM & COMBUSTION TURBINES							
Units	Under deck	Lube Oil Unit	Lube Oil Piping	Seal Oil	Bearings	Exciter	Enclosure
1	AS	AS	AS	AS	AS	-	-

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7.3 TRANSFORMERS & ELECTRICAL SYSTEMS

7.3.1 Transformers

MAIN TRANSFORMERS								
Unit	Rating (MVA)	Mfg	Year	Serial	Volts (kV)	Form	Phases	Oil Capacity
GSU	104/139/173	Penn	2012	N4669101	13.8/138	Shell	3	13,250
SS	18/24	Penn	2012	-	13.8/4.16	Shell	3	5,990

PROTECTION					
Unit	Separation		Protection		
	Transformers	Buildings	Fixed	Barrier Walls	Containment
GSU	Adeq.	Adeq.	AS	Yes	Yes
SS	Adeq.	Adeq.	AS	Yes	Yes

The GSU has an on-line gas monitoring system (Calisto). In addition, oil sampling is done yearly.

The plant is not black start capable. However, there is an alternate electric feed (@13.8KV) with manual switchover should they loss the primary feed to the plant.

7.3.2 Cable Spreading Rooms

CABLE SPREADING						
Unit	Location	Size	No. Trays	Detection	Protection	Penetrations
1	Perimeter of boiler	-	varies	-	AS	Sealed

7.4 CONTROL ROOMS & CONTROL SYSTEMS

CONTROL ROOMS							
Unit	Location	System Type	Size	Detection	Protection	Penetrations	Staffing
1	Admin Bldg	DCS	1500	Smoke	AS	Sealed	Cont.

7.5 FUEL STORAGE & HANDLING

7.5.1 Solid Fuel Handing, Preparation & Storage

The biomass (wood) is received by truck from various suppliers within the local area (within 70-mile radius). Wood is received Monday – Friday from 7:00 am – 8:00 pm. The plant averages 100-110 trucks per day (trucks avg. 23 tons of fuel each). The trucks are unloaded by hydraulic dumpers(3). Underground conveyor (belt #1) takes the wood from the unloading bins to the screen house/chipper where it is sized then conveyed to one of two wood piles via stack-out conveyors. The fuel handling equipment has magnets in several locations to remove any iron, or metal objects. The piles have two reclaimers (1 – under pile and a drag chain reclaimer).

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Frontend loaders are used to maintain the piles and push the wood fuel to the under pile reclaimer openings.

The plant’s target is to maintain 20-22 days worth of fuel on site.

There is a contract with Bio Resource Management, Inc. (BRM) to manage fuel procurement and ensure forest sustainability standards are met. BRM is a locally based consulting firm that specializes in biomass supply services BMR Inc.



CONVEYORS & TRANSFER HOUSES						
Location	Length	Enclosure	Protection	Detection	Trips/Alarms	Tramp Metal
1 Truck Dumper to Hogger	270'	Underground	AS	-	Yes	Yes
2 Hogger to belt 4	80'	Covered	AS	-	Yes	-
3 Hogger to belt 4	80'	"	AS	-	Yes	-
4 transfer to belts 5,6,8	270'	"	-	-	Yes	-
5 to stacker	183'	"	-	-	Yes	-
6 to stock-out	101'	"	-	-	Yes	-
7 to reclaimer	185'		-	-	Yes	-
8 from hogger/stacker to belt 9	180'	Covered	-	-	Yes	-
9 Main feed to plant	285'	"	AS	-	Yes	Yes
10 to surge bins	32'	-	-	-	Yes	-
11 from stock-out reclaim to belt 9	108'	Covered	-	-	Yes	-
Stacker	61		-	-	Yes	-

The main boiler feed belt (#9) has 2-separate drive systems and the plant has a spare belt on site.

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BUNKERS & PULVERIZERS								
Unit	Bunkers		Crushers/Chippers			Pulverizers		
	Protection	Detection	Type	No.	Protection	Type	No.	Protection
1	-	-	Chippers	2	AS	-	-	-

There are two 50% hoggers(chippers) for sizing any wood coming in that might be considered oversized. Wood chips will go through a screening process and any oversized pieces will be directed to the chippers.

There are two silos/bunkers/surge bins located at the boiler, which if full could provide about 45 minutes of fuel to the boiler should the feed belt go down.

7.5.2 Fuel Storage Tanks

None, except diesel fuel oil tank for emergency generator.

7.6 ANCILLARY EQUIPMENT & SYSTEMS – BALANCE OF PLANT

Condensing and Cooling Systems

COOLING TOWERS							
Unit	Type	Construction	Fill	Cells	Cell Barriers	Protection	Fan Interlock
1	Counterflow	FRP	PVC	5	Yes	No	No

Hydrogen

No hydrogen on site. Not used to cool the STG.

Ammonia

There is one approximately 10,000 gallons tank that stores aqueous ammonia (19.5%) used for NOx reduction.

Water Supplies

From two – full capacity well pumps plus one- potable water well and a reclaim water pipeline from the City of Alachua. Plant design was for 1.2 million GPD.

Process Water

Obtained from the reclaim pipeline and the on-site wells. The Plant produces its own boiler feed water using a house facility that uses RO and electric ionic removal equipment. Demineralized water is stored in a steel tank.

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Waste & Effluent Handling

The plant is a Zero Discharge facility. Wastewater (primarily from ash handling) is evaporated using a fallen film evaporator that uses a 700 HP compressor to pressurize waste steam. The resultant solids are compressed and land filled.

Compressed Air

125 HP Atlas/Copco units. Air compressors with redundancy with adequate supply for both service water and instrument air. Service air was reported to be dried and filtered.

Emergency Power

The plant has a 750 KW diesel engine generator to provide emergency power to critical equipment for safe shut down. The unit is self-contained (has its own fuel tank) and is in an enclosure northeast of the boiler. The enclosure has a fire detection system.

Warehousing and Storage Areas

WAREHOUSING / STORAGE							
Location	Commodity/ NFPA Class	Storage Height (ft)	Clearance	Aisle Width (ft)	Rack Storage		
					Type	Depth	# Tiers
Admin Bldg	2 – 3	12-15	5'	8	S/DDR	4	3

8. FIRE PROTECTION

8.1 FIRE BRIGADE / FIRE DEPARTMENT

FIRE BRIGADE / FIRE DEPARTMENT						
Organization	Type	ISO Class	Distance	Response Time	Obstructions	Formal Pre-plan
Gainesville FD	FT – paid	-	~3 miles	10 min	RR	TBD

8.2 FIRE WATER SUPPLY & FIRE PUMPS

FIRE WATER SUPPLIES				
Source	Size/ Capacity	Yard Main Size	No. Available Hydrants (Public & Private)	Adequacy/ Reliability
Service H2O Tank	1 mil / 250K+ reserved	12"	22	Adequate & Reliable

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FIRE PUMPS				
Type (driver)	Rated GPM	Rated PSI	Auto/ Manual	Suction Source
Electric	2000	152	Auto.	Service H2O Tank
Diesel	2000	152	Auto.	Service H2O Tank

The fire pumps were flow tested on April 21, 2014 and the results were Satisfactory.

8.3 MANUAL FIRE FIGHTING SYSTEMS

Portable fire extinguishers are located throughout the facility and there are nine monitor nozzles located on fire hydrants.

8.4 FIXED FIRE PROTECTION SYSTEMS

8.4.1 Sprinkler Systems

SPRINKLER PROTECTION						
Location	Type	Design Density	Required Density	Existing Demand		Adequacy
				GPM	PSI	
Admin/Control Bldg	Wet	0.25/1502	0.10/1500	593	94	Adeq.
Maint/Whse	Wet	0.25/1950	0.20/1950	828	101	Adeq.
STG Bearings	Dry	0.25/E.A.	0.25/E.A.	546	70	Adeq.
STG Underdeck	Dry	0.3/E.A.	0.3/5000	1282	115	Adeq.
STG Lube Oil	Deluge	0.3/E.A.	0.30/E.A.	830	118	Adeq.
Boiler Feed Pump	Dry	0.30/E.A.	0.30/E.A.	563	66	Adeq.
GSU Transformer	Deluge	0.25/E.A.	0.25/E.A.	1439	121	Adeq.
SS Transformer	Deluge	0.25/E.A.	0.25/E.A.	1025	135	Adeq.
Fire Pump house	Wet	0.25/E.A.	0.25/E.A.	-	-	Adeq.
Water Treatment Bldg.	Wet	0.25/1585	0.15/2000	958	84	Adeq.
Fuel Unloading – Hyd.	Dry	0.50/E.A.	0.30/E.A.	617	27	Adeq.
Fuel Unldg – Below grade conveyor	Dry	0.30/100' linear	0.30/EA	1196	92	Adeq.
Screen/Hogger House	Dry	0.30/3277	0.30/E.A.	1926	98	Adeq.
Scale House	Wet	0.10/1288	0.10/1500	581	70	Adeq.

8.4.2 Gaseous & Clean Agent Systems

GASEOUS EXTINGUISHING SYSTEMS			
Location	Type	Density or Design	Adequacy
None			

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8.5 FIRE & GAS DETECTION SYSTEMS

FIRE & GAS DETECTION SYSTEMS		
Location	Type	Adequacy
PDC/MCC & Elec Rooms	Smoke	Adequate
Emerg. Generator Encl	Smoke	Adequate
CEM Shed	Smoke	Adequate
Battery Rooms	Smoke & H2	Adequate
Admin/Control Bldg.	Smoke	Adequate

ALARM & /MONITORING SYSTEMS				
Alarm System Type	Alarms Supervised	Alarm Location	Test Frequency	Adequacy
Proprietary	Yes	Control Room	Annually	Adeq.

8.6 FIRE PROTECTION SYSTEM MAINTENANCE & TESTING

The plant has contracted with W. W. Gay fire & Integrated Systems, Inc. to perform the inspections and testing of the fire safety equipment per NFPA Standards.

Plant needs to perform weekly runs of the fire pumps and the monthly visual inspections, see recommendation.

9. MANAGEMENT PROGRAMS

9.1 GENERAL ORGANIZATION

The owners have contracted with NAES to act as the O&M contractor.

The Plant (NAES) employs 41 persons. There are 30 persons assigned to four shift groups following a modified DuPont schedule. There are also 5 BRM employees, 2 EMI employees, and 1 Valmet employee on site.

9.2 OPERATIONS

9.2.1 Organization, Qualifications & Experience

NAES has set up an organization and staffing structure that is standard in the power generation industry. All key Plant personnel have extensive power plant experience.

9.2.2 Operator Training

Plant personnel were trained by the OEM of the various plant equipment. Personnel were reported to have come from similar power plants and have extensive experience.

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9.2.3 Operational Procedures & Routines

Operation procedures were reported to cover most Plant operations and maintenance work. There is a library with the equipment information.

9.2.4 Permit To Work

Work permits are generated for maintenance tasks. Hot work permits are used where required. There is a Lock-Out/Tag-Out procedure, and Confined Space procedure.

9.3 MAINTENANCE, INSPECTION & TESTING

9.3.1 Organization, Qualifications & Experience

The Plant uses a CMMS (MP2). Maintenance personnel are experienced. Maintenance personnel are qualified by education, training and experience.

9.3.2 Contractors & Contractor Screening

NAES has a procurement and screening process, which evaluates a contractor's capacity to complete a task on time, safely and efficiently. Contractors are chosen by the Plant using NAES guidelines.

9.4 RISK & SAFETY MANAGEMENT

9.4.1 Organization & Safety Programs

NAES has safety programs that comply with all regulating agencies requirements and industry's best practices.

9.4.2 Safety Awareness & Auditing

The Plant is new and audit frequencies are being established. All personnel are responsible for safety. Owners tour plant regularly and perform safety audits.

9.4.3 Management of Change

There is a formal procedure for both engineering and operational changes. All changes are reviewed by appropriate personnel (NAES & Owners) and signed off by the plant manager.



9.4.4 Control of Ignition Sources

Plant follows NAES’s Safety Manual, which covers Hot Work Permitting and also covers smoking, which is limited to designated areas.

9.4.5 Fire System Impairment Handling

Presently, the plant is using NAES’s program.

9.4.6 Emergency Planning and Organization

The plant has adopted NAES’s Safety Manual.

9.4.7 Environmental Issues and Operational Permits

The plant is permitted to generate a maximum of 102.5 MW net, and has to abide by air permit requirements. The Plant is a Zero discharge facility.

9.4.8 Housekeeping

Housekeeping was found to be excellent throughout the facility including around and below the conveyor belts.

9.4.9 Security & Surveillance

There are no on-site security personnel at this facility but passive protection is considered acceptable as the plant is continuously manned. The Plant perimeter is enclosed by a 6-foot chain link fence with barbed wire above and cameras are strategically located at key areas.

The Plant uses CCTV for security and for monitoring plant processes. CCTV cameras are located throughout the Plant, and the CCTV Monitors are located in the Control Room. Communications is via plant wide PA, portable radio and/or cell phone.

10. LOSS HISTORY

LOSS HISTORY				
Date	Incident	Gross Claim	Final Settlement (Net of deductible)	Changes/Precautions
None	Reported	-	-	-

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11. LOSS ESTIMATES

11.1 LOSS ESTIMATES

Worst Case Property Loss Estimates			
Event	USD million	BI Time Element	Equipment Affected & Possible Event(s)
NLE	9.85	60 days	Steam Turbine + Generator; 116MW Capacity. Lube oil fire contained below deck
PD	0.86		
BI	8.99		
PML	68.7	12 months	Steam Turbine + Generator; 116MW Capacity. Major fire in lube system resulting in casing, bearing, rotor, valve and piping damage
PD	14.0		
BI	54.7		
EML	207.3	24 months	CFB - Sub-critical Circulating Fluidized Bed Boiler; 930000 lbs/hr steam Capacity. Loss of flame with re-ignition, resulting in furnace explosion. Furnace protection systems inoperative.
PD	98.3		
BI	109.0		

Notes on estimates: PD and BI figures are without regard to deductibles or waiting periods

BI Notes: BI calculated from average fixed mthly/annual revenue. Recovery periods are without regard to the availability of spare equipment. Any contractual or independent system operator penalties were not considered.

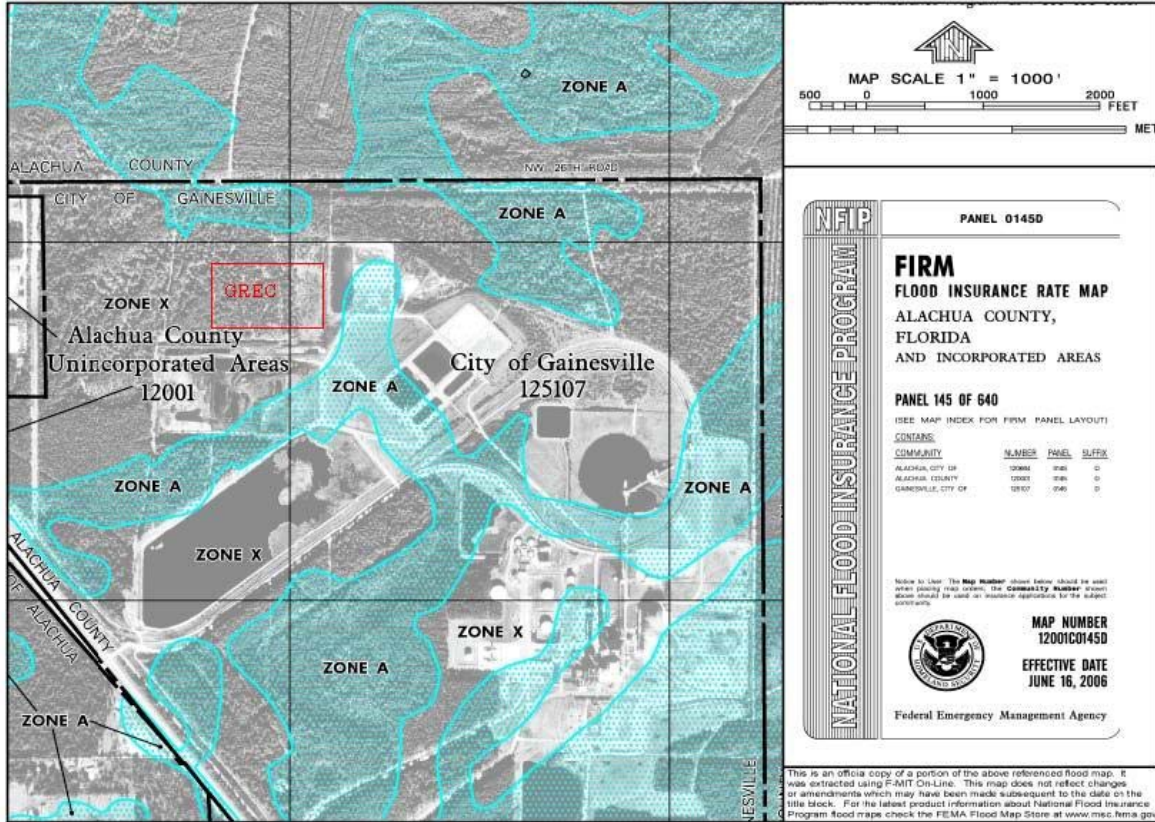
11.2 INSURED VALUES

TOTAL INSURABLE VALUES:			
PD		TIME ELEMENT	
Buildings	\$ 8,998,603	BI	\$ 54,673,000
M & E	\$ 280,397,633	EE	
Contents	\$ 4,839,000	Rents	
Stock			
Tanks			
Other			
TOTAL	\$ 294,235,236	TOTAL	\$54,673,000
TIV	\$ 348,906,839		

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12. APPENDIX



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Account: (lexdiv93 apartin) on 05-29-2014

Address

Policy Number:
Output Address: Latitude: 29.7676 Longitude: -82.3962
Input Address: Latitude: 29.7676 Longitude: -82.3962
GeoResult:

Elevation / Slope

Elevation 184
Slope 0
Aspect N/A

Slope Statistics - 250 ft Radius

Table with 3 columns: Min, Max, Avg. Rows for Elevation (ft) and Slope (degrees).

Note: Elevation Data only visible from 1.5 miles and closer

Flood Elevation

SFHA Out
Elevation 184
Distance to Edge of Flood Zone 500 - 600 ft
Estimated Height Above BFE 1
BFE 183
BFE Source FEMA
BFE VDatum NAVD88
Estimated Flooded Water Depth DNA*
Zone X
Community 125107
Community Name GAINESVILLE, CITY OF
Panel 0145D
Panel Date June 16, 2006
Cobra OUT

(*) Does Not Apply

Storm Surge

Min. Hurricane Cat 0
Surge_Score 0-Very Low/No Risk
Cat 1 N/A
Cat 2 N/A
Cat 3 N/A
Cat 4 N/A
Cat 5 N/A

Notes Location not affected by storm surge.

All heights are shown in feet above sea level. These are maximum storm surge heights at high tide.

A Minimum Hurricane Category of 0 means this area is not affected by storm surge.

'N/A' means Not Affected. This location would not be submerged during a hurricane of this category.

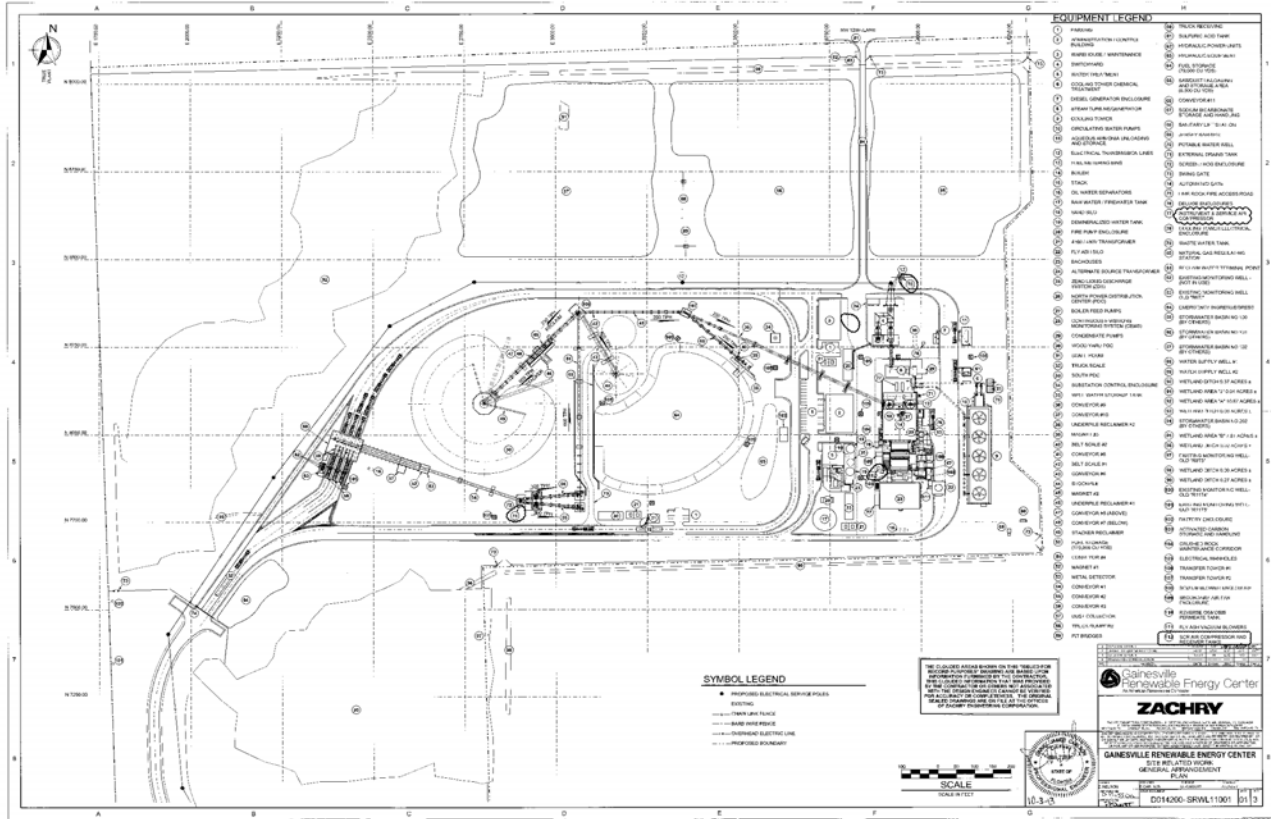
Flood Zones

- Areas outside of the 100- and 500-year floodplains
Areas inundated by 500-year flooding
Areas inundated by 100-year flooding
Areas inundated by 100-year flooding with velocity hazard
Floodway areas
Floodway areas with velocity hazard
Areas of undetermined but possible flood hazards
Areas not mapped on any published FIRMI

CDS Slope

- Greater than 40 Degrees
20 to 40 Degrees
6 to 20 Degrees
0 to 6 Degrees

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NFPA – 850/851 Checklist

NFPA - 850/851 CHECKLIST			
Equipment	Passive Protection	Fire Detection	Fire Protection
Steam Turbine Generator Bearings	None	Heat	AS
Steam Turbine Lubricating Oil Tank	Metal enclosure	Heat	AS
Steam Turbine Control Oil Skid	Metal enclosure	Heat	AS
Steam Turbine Lubricating Oil Piping	Welded	-	AS
Steam Turbine Under deck Area	-	-	AS
Generator Seal Oil Unit	Metal Enclosure	Heat	AS
Steam Turbine Generator	Metal Enclosure	Heat	AS - Brgs
Boiler Burner Front	Comb Controls	-	-
Generator Transformer(s)	Walls	Heat	AS
Auxiliary Transformer(s)	Walls	Heat	AS
Cooling Tower(s) / Air Cooled Condenser(s)	N/A	N/A	-
Control Room	Subdivision	Smoke	AS
Control Room below raised floors	N/A	N/A	N/A
Water Treatment Electrical Room	Subdivision	Smoke	AS
HV and LV Switch Rooms	Subdivision	Smoke	N/A
Cable Spread Areas	-	-	-
DCS Control/Relay Rooms	Subdivision	Smoke	AS
Local Control Centers/Essential Supplies Cubicles	Subdivision	Smoke	N/A
Stores and Workshop	Separation	N/A	AS
Administrative Buildings, Canteen and Offices	Subdivision	Smoke	AS
Emergency Diesel Generator/s	Separation	Smoke	-
Diesel Fire Pump/s	Subdivision	-	AS
Conveyors	Interlocks	Partial	AS – some
Conveyor Transfer Towers	Interlocks	-	AS
Tripper Bay	Interlocks	-	-
Bunkers	Interlocks	-	-
Mills	Interlocks	-	AS

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