EXHIBIT NO. RG-54
DOCKET NOS. UE-090704/UG-090705
2009 PSE GENERAL RATE CASE
WITNESS: ROGER GARRATT

BEFORE THE
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION, **Complainant,** **v.** **PUGET SOUND ENERGY, INC.,** **Respondent.**	**Docket No. UE-090704** **Docket No. UG-090705**

FIRST EXHIBIT (NONCONFIDENTIAL) TO THE PREFILED REBUTTAL TESTIMONY OF ROGER GARRATT ON BEHALF OF PUGET SOUND ENERGY, INC.

DECEMBER 17, 2009

MINT FARM ENERGY CENTER
DUE DILIGENCE REPORT

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For

Puget Sound Energy

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1.0 EXECUTIVE SUMMARY

Puget Sound Energy (PSE) contracted North American Energy Services (NAES) to perform a due diligence review of the Mint Farm Energy Center located in Longview, Washington. The site was visited on June 19th 2008 by NAES representatives. The following report details the findings associated with this due diligence review.

The Mint Farm Energy Center (MFEC) is comprised of one (1) GE 7FA combustion turbine generator and one (1) Fuji steam turbine generator with a combined total output of 313 MW (net) and related auxiliary equipment[1].

The plant is operated by General Electric under an O&M agreement. The current staff consists of 16 regular, full time employees and two (2) temporary personnel. The temporary personnel are employed through General Electric. One (1) temporary employee is working in the office area as a second Administrative Assistant performing work for both General Electric and the MFEC ownership organization in support of their other facilities.

NAES' evaluation of the plant was significantly limited by the unavailability of data and information regarding the plant design, construction and operation. NAES was unable to review plant monthly operating and maintenance reports (as the plant is so new, these essentially do not exist), DCS historian and plant performance data. In addition, NAES was unable to discuss the plant or the plant operation with the General Electric O&M personnel including the GE plant management team.

As PSE requested, NAES did not review the O&M contract and the limitations above, NAES is unable to provide an opinion as to the quality of the General Electric O&M organization operating and maintaining the plant.

The plant facilities and equipment appeared to be in good condition, particularly considering that construction of the plant was suspended for approximately four years. There were no obvious signs or indications of leaks and housekeeping was good. The construction punchlist was down to one item when the due diligence visit took place. From an operational perspective, the plant is essentially brand new with little run time.

Key issues that were identified during the site visit and data review include the following:

[1] NAES was unable to determine the exact rating of the plant. Various documents list the plant rating as anywhere between 306.06 MW and 344 MW. The combustion turbine rating ranged from 170 MW to 186.15 MW and the steam turbine generator rating ranged up to 133 MW. The 2006 air permit modification lists the plant output as a nominal 320 MW. The RFP lists the combustion turbine output as 170 MW and the steam turbine output at 130 MW for a total of 300 MW. MFEC management reported that the plant has achieved a load of 301 MW. No PTC-46 testing has been conducted on the plant.

- The economizer sections of the Heat Recovery Steam Generator ("HRSG") including LPEC; IPEC; HPEC 1, 2, 3 have experienced serious internal corrosion based on borescope inspection following a recent economizer tube leak. This corrosion appears to be the result of water entering the tubes during the suspension storage or possibly after initial fabrication in Korea. The plant has experienced at least one tube leak to date. Economizer internal borescope inspection indicates that the problem is pervasive throughout the economizers.

- The condenser is experiencing corrosion behind the coatings on the internal hotwell/condenser walls. The wall coating is lifting off the base metal and causing pluggage problems particularly at the condensate pump strainers. An ongoing inspection program should be established to monitor this deterioration with consideration for a recoat being budgeted in the future.

- The Atlas Copco gas compressors have experienced three (3) failures since resumption of the suspension. Initial failures were related to the suspension period layup. Foreign Object Damage (FOD) was indicated to as the cause of the third failure. NAES was not provided any reports on the damage and was not provided with root cause analysis on the failures. Both units were rebuilt by the OEM. There is no reason to believe these failures will repeat themselves but the compressors should be watched closely for a while.

- It was reported that the Steam Jet Air Ejectors were inoperable. The plant has been operating with the vacuum pumps as the primary vacuum source for the main condenser vacuum. NAES was told that new valves were on order and should be delivered to the plant this week. Replacing the valves is the recommended repair (per the staff) for the air ejectors and will lead to an overall improvement to the plant heat rate.

- Several important systems have not yet been fully commissioned including the Evaporative Coolers, the Steam Augmentation and the Duct Burners.

- Operating data has not been made available to NAES from which an evaluation of the plant starting and operating reliability/problems can be made.

- Mint Farm personnel indicated that they are very displeased with the support being provided by the Continuous Emissions Monitoring System (CEMS) vendor (Spectrum). The plant is considering replacing the CEMS with a system from a more responsive vendor.

- Other Issues include:
    - NAES was unable to determine whether Cowlitz County, Washington has accepted the noise survey as proof that the plant is in compliance with noise ordinances.

- NAES was unable to determine the status of the issue regarding cooling tower blowdown discharge arsenic concentrations.

- NAES was not charged with reviewing plant compliance issues; however, NAES believes that it is important to note that Mint Farm Energy Center has not registered as a Generator Owner with WECC. NAES also does not believe that GE has registered with WECC as a Generator Operator. At this time there is no grace period for compliance between the time a generator or generator operator registers with NERC and when compliance is required. Significant effort will be required to implement the MFEC NERC compliance programs (although MFEC management stated they thought all the compliance elements existed at the plant).

  The plant does have a Compliance Calendar but it appears to be almost entirely environmental related tasks and due dates. It did not include OSHA/WISHA requirements, NERC/WECC, or Energy Information Administration (EIA) requirements. This should be further reviewed with plant management to ensure they understand all regulatory reporting requirements.

2.0 INTRODUCTION

The due diligence review undertaken by NAES consisted of a detailed review of project documents made available to NAES both on CD and through an electronic data room at Intralinks.com and a site visit that occurred on June 19, 2008.

Site contacts were as follows:

Mr. Scott Magie, President Mint Farm Energy Center
Mr. John Walsh, Asset Manager Mint Farm Energy Center

The NAES due diligence team consisted of the following individuals:

Mr. Jim Fitzpatrick, Division Director (Project Leader)
Mr. Randy Andrews, Project Manager
Mr. Bud Fentress, Project Manager
Mr. Robin Morecroft, Division Director (document review)

The site visit was conducted by Jim Fitzpatrick, Randy Andrews and Bud Fentress who were accompanied by Jake Green of PSE.

The PSE task order under which this work was completed identified the following areas to be evaluated by the NAES team:

- General Assessment of site condition
- Management and Organization
- Plant Performance and Operation
- Maintenance Programs
- Training
- O&M Budgets
- Major Contracts and Agreements
- Management Oversight

At the kickoff meeting with the PSE team requested that NAES address the following topics in only a cursory manner:

- Site Conditions
- Manning and Organization
- Training
- Management Oversight

Review of Major Contracts, in particular the LTSA and O&M agreement, was not within the NAES scope of review.

3.0 PROJECT DESCRIPTION

The Mint Farm Plant is comprised of a single General Electric PG7241FA combustion turbine rated at approximately 170 MW with Dry Low NOx and steam power augmentation.

The combustion turbine generator is a GE hydrogen cooled generator rated at 219 MVA (186.159 MW at 0.85 pf).

The steam turbine is a Fuji turbine with a throttle pressure of 1825 psi and reheat.

The steam turbine generator is a Fuji GTLRI544/60-2 air cooled generator rated at 156.7 MVA (133.96 MW at 0.85 pf).

The HRSG is a Foster-Wheeler triple pressure unit with reheat and duct burners for additional capacity.

Emissions at the plant are controlled by a combination of the DLN combustion system and NOx and CO SCR catalysts.

The project is located in the City of Longview Mint Farm Industrial Park in the City of Longview, Washington.

4.0 GENERAL ASSESSMENT OF SITE CONDITION

The general condition of the plant as observed during a brief plant walkdown was very good. There were no apparent signs of ongoing leaks. Housekeeping was good but there were some areas the paint was new and others where it appeared to be faded and oxidized. There was painting in progress on the steam turbine and site cleanup is ongoing. There was minor corrosion in some areas. There was indication of flue gas leakage around some of the HRSG access doors as indicated by discolored HRSG skin paint indicating door gasket issues.

There were no significant safety hazards or issues observed during the walkdown. Charts on the plant bulletin board listed zero (0) OSHA reportable accidents.

The shop area was fairly neat without a lot of clutter. There were no overhead or jib cranes installed in the shop areas.

The switchyards were stoned and clear of weeds or obstructions. Transformers were typically installed within concrete containment areas.

The site roads are all paved in good condition. All buildings were in good condition.

Plant piping is generally labeled however more labeling is needed in some areas.

Plant drawings/manuals/procedures are maintained in electronic form by the Mint Farm management staff. Contract support is used to update drawings. The Owner's representative told NAES that the P&ID and electrical drawings are up to date and as-built.

Plant security is monitored from the control room. Seven (7) cameras are located throughout the plant and are monitored on a dedicated screen.

There were some valves that could not be reached without a ladder or manlift. These were reported to be infrequently operated (mainly during outages) and not a problem by MFEC ownership. It was reported that several platforms had already been added at the request of the plant staff and three (3) or four (4) more are planned as well as the addition of permanent ladders for some containments in which temporary ladders existed at the time of the due diligence plant tour.

5.0 MANAGEMENT AND ORGANIZATION

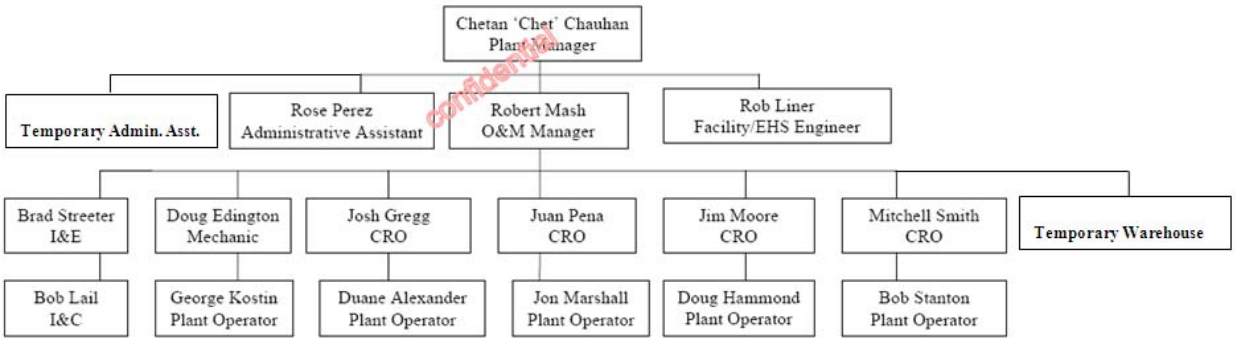
- Plant Management Leadership Effectiveness

  NAES was unable to meet with the General Electric O&M employees during the site visit. No evaluation was made as to the effectiveness of the plant management or the experience and qualifications of the O&M team.

- Staffing/Management Structure

  The plant is operated by General Electric under an O&M agreement. The management structure and number of personnel at the facility is similar to organization and manning commonly used throughout the IPP industry. The organization consists of a Plant Manager with the operations and maintenance, engineering, and administrative personnel reporting to Plant Manager.

  The current staff consists of 16 regular, full-time and two (2) temporary personnel. The temporary personnel are employed through General Electric. One (1) temporary employee is working in the office area as a second Administrative Assistant doing work for both General Electric and MFEC Ownership and in support of their other facilities. It was our understanding that this position will not be supporting the plant post sale. The second temporary position is being utilized in the warehouse area providing support for shipping/receiving, warehouse inventory control, and data input into the CMMS. This position should be considered for retention and conversion to a full-time position.



- Experience of management and technical personnel

  NAES did not review the resumes of plant personnel nor did we interview plant personnel. MFEC management reported that the plant staff was very well trained and some had extensive backgrounds in the IPP industry.

- Shift Rotation Schedule and Work Flow

  The plant is manned on a 24/7 basis with 12 hour shifts using a modified DuPont schedule.

- Purchasing and Inventory Control

  Purchasing is done through the Plant Manager and the Administrative Assistant. Receiving is handled by the Temporary Warehouse employee. Inventory and spare parts information is entered into the Maximo Computerized Maintenance Management System (CMMS) by the Temporary Warehouse employee.

- Union Issues

  There is no union on the site. NAES was unable to interview plant employees to determine the general attitude of the employees.

6.0 PLANT PERFORMANCE AND OPERATION

- Equipment Layout and Redundancy

  Equipment layout and redundancy is consistent with other plants of similar design and size. Redundancy of turbine and auxiliary equipment is not an issue at this time. According to the plant P&IDs, the plant has the following redundancies:

Condensate Pumps – 2 x 100%
Boiler Feedwater Pumps – 2 x 100%
Instrument Air Compressors – 2 x 100%
Gas Compressors – 2 x 100% (verbal not from drawings)

The plant Distributed Control System (DCS) is functioning adequately and is well supported. There is an inventory of critical DCS spare parts located in the warehouse stored in a climate control atmosphere.

- Operational Performance Statistics

  There is no information available that provides a target/design or actual heat rate for the gas turbine or the plant as a whole. There is minimal information available as per the actual plant performance or operation.

- Fuel Quality and Availability

  The facility is supplied via a single source supplier with no secondary gas line to the plant. There is no secondary fuel meter installed in the gas line to the plant with which the incoming supply meter readings can be verified. The fuel quality is reported to have been good. It is also reported that the condensate knock out drums have had no notable moisture in them.

- Performance Test and Guarantees

  The plant has not done a formal PTC 46 performance test on the plant.[2] The plant equipment has been accepted by the current owner and there are no remaining performance guarantees or testing to be accomplished. The only warranty coverage remaining is for the work performed by JH Kelly which is not extensive. This will expire near the end of 2008.

- Performance monitoring, reporting and trending

  The plant has recently purchased and installed PI as a plant monitoring tool. The program has not been fully implemented with programs to monitor and track plant heat rate and performance to date. Money should be budgeted for PI training and the program implemented.

- Controls and Instrumentation

[2] PTC 46. The ASME Performance Test Code applies to any plant size. It can be used to measure the performance of a plant in its normal operating condition, with all equipment in a clean and fully functional condition. This code provides explicit methods and procedures for combined-cycle power plants.

- The main plant control DCS system – ABB Infinet
- Steam turbine control – Fuji Micrex-AX ACS2000 and Fuji – Micrex-AS NPI
- Steam turbine BOP controls – Siemens TXP 7.02
- Gas turbine controls – GE – Mark V Speedtronic
- Gas turbine starting controls – GE – LCI and GE Fanuc – VersaMax
- Gas turbine generator controls – EX2000
- CEMS – Spectrum – Unix
- Gas compressor controls – Allen-Bradley – SLC5/04
- Water wash control – Allen-Bradley – SLC5/04
- Duct Burner – Allen-Bradley – SLC5/04
- Water treatment – Allen-Bradley – SLC5/04
- Gas yard control – Allen-Bradley – Logix

- Control Software at Site

  - Mark V (HMI) – Gas Turbine
  - RSLogix 500 – gas compressor, water wash skid, duct burner, water treatment
  - RSLogix 5000 – gas yard
  - Siemens PG – TXP
  - Off Site Monitoring (OSM) – Gas Turbine
  - PowerSmarts – Gas Turbine/BOP
  - Micrex-AX, ACS1999 – steam turbine
  - Micrex-SX, NPI – steam turbine
  - AMS (Asset Management System) – valve calibration
  - Versa XS – plant gate security
  - Maximo – version 6.0

  There are no plant software licensing issues reported.

  The plant DCS (main controls) was upgraded in 2007.

- Current/Past operational limitations or deratings

  The only reported operational limitation is associated with the steam jet air ejectors. These are currently inoperable but it is understood that this situation should be corrected soon by the replacement of system valves.

- Unresolved operational problems/restrictions

  - The Duct Burners have not been fully commissioned to full fired load.
  - The Steam Power Augmentation has not been commissioned.

- Comments during the tour were that the plant has achieved a load of 301~304 MW's to date of the rated 322 MW's.

- Normal Operating and Casualty Procedures

  Plant has operating procedures in place through the current operator. We did not review the documents during the visit.

- Shift Operator routines and practices

  It was reported to NAES that the plant working schedule is 24/7 with 12 hour shifts on a modified DuPont schedule.

- Logs and operations record keeping

  Not reviewed.

- Periodic and Routine Reports (internal and external)

  Not reviewed.

- Special Reports (Incident Reports, Outage Reports, outside audits/assessments, etc.)

  The only reports reviewed were the Boiler Machinery Risk Assessment and the Property Risk Assessment both prepared by AEGIS in September of 2007. The only item of note was in the Boiler Machinery report which stated that an actual overspeed trip test of the GT generator was not completed. This should be reviewed to determine status of an actual or electronic trip test for both the GT generator and ST generator.

6.1 Plant Performance and Operation Recommendations

6.1.1 Recommendation: Obtain a list of all procedures and manuals that are owned by the current owner and identify what will stay with the plant. The current EHS manual is the property of GE.

6.1.2 Recommendation: Observe a plant start-up with particular attention to turbine/generator ramp rates and emissions controls issues. In particular, watch for:

- Have the systems been tuned or automated?
- How difficult is it to control the unit and emissions?
- How much operator intervention is required to remain in compliance and meet the required ramp rates?

7.0 MAINTENANCE PROGRAMS

- Storage Maintenance History

  The maintenance history during the suspension period was reviewed and generally the required OEM recommendations were followed. Major equipment components, inspections, and testing were well documented. MFEC ownership stated that they feel the layup of plant equipment was managed very well with over $10M spent on this aspect of the project. The layup of the gas compressors was the only area where the layup was inadequate.

- Pre-commercial and Start-up History

  The gas compressors were a source of maintenance problems as both compressors were completely rebuilt and one (1) was rebuilt twice. A root cause for the failures was not available. It was indicated that the first two (2) rebuilds were due to improper layup of the compressors during the suspension period. The third rebuild was due to foreign object damage. The compressors were completely overhauled by the OEM. MFEC management expressed confidence that the causes of these failures have a low probability of repeating themselves – not as a result of a design flaw or systemic problem with the compressors themselves.

  MFEC reported that major motors, pumps, and valves were sent off-site for inspection and testing prior to installation subsequent to the end of the project suspension.

  During construction the owner had a strong presence onsite and held daily status meetings. An established and proven group of contactors and engineering groups were utilized for the construction and start up. Example of contractors used:

  - JH Kelly, a local contractor, performed the steam turbine installation and other work.
  - Numerous OEMs (e.g. GE, Fuji, KSB, Atlas Copco etc.)
  - Engineering groups were utilized for additional design and field changes (much of the electrical system was redesigned on site as none of the major cable runs had been pulled).

- Multi-year maintenance plan

  MFEC did not provide long term maintenance plans. The future maintenance is dependent on market driven run times. Run hours are minimal at this time (approximately 2000 hours mainly during the start-up and commissioning phase). The GE LTSA should provide the expected Combustion Inspections (CI) and Hot Gas Path (HGP) intervals on the Gas Turbine. CI's are historically completed based on baseload

operations at 12,000 hours, HGP at 24,000 hours, and Major at 48,000 hour intervals. If starts-based maintenance is used, the number of equivalent operating hours is determined based on the LTSA or GEK3620.

- Major equipment and/or systems with significant maintenance issues

    - HRSG boiler tube corrosion was found in the economizer after a tube failure. Subsequently the unit was chemically cleaned and leaking tube was plugged. The unit was then hydrostatically tested. (See recommendations).
    - Combustion turbine compressor R0 blade issues (see next bullet item).
    - Steam Augmentation has not been commissioned.
    - The coating material in the condenser has been separating from the wall causing an issue with high conductivity in the boiler condensate and plugging of the inline condensate pump strainers.

- Status of implementing OEM directives (TILs, Prod Mods, etc.)

  The TIL list was reviewed and numerous outstanding GE TILs are open. The exact status of the TILs could not be verified. NAES reviewed the list that was provided and is providing a separate file to PSE that lists the level of action that is required and the consequences of not implementing the TIL.

- Status of maintenance management system and ongoing support requirements

  Maximo, the Computerized Maintenance Management System, is being implemented. NAES could not determine if it was being used for all maintenance planning PM's, work orders and purchase orders or the extent to which the software had been loaded with plant information. Maximo is considered to be a highly desirable software program by maintenance organizations.

- Status of Spare Parts (adequacy, value, current inventory)

  The inventory list was reviewed at a high level. The facility has an inventory list with 3,456 items at a cost of $1,835,349, the items were ordered from GE. This chart identifies what would be a typical recommended parts list by the OEM on the CT, CTG, ST, STG and GE provided equipment.

Ordered	Description	*Typical $'s GE Recom.	MFEC
	Combustion Inspection Capitals	$5,751,000	
	Hot Gas Path (HGP) Kit	$20,000	
	Major Inspection Kit	$175,000	
	Turbine Capitals, 1-3rd stage, buckets, shrouds etc	$20,000,000	
**X	Turbine Operational	$182,000	X
X	CT Generator Maintenance	$154,000	X
X	Ex2100	$ 137,000	X
X	Mark V	$232,000	X
X	LCI	$151,000	X
	GTG Material shipped direct (MSD)	$945,000	X (Some)
	Non GE Balance of Plant Spares, BFP, Compressors, skids, valves controllers, etc.	$500,000	
X	Consumables, CI, HGP	$53,000	X
	Steam Turbine Operations	$350,000	
	Steam Turbine General inspection	$800,000	
	Steam Turbine Generator Capital	$118,000	
	Steam Turbine Generator Maintenance	$101,000	
	STG Material shipped direct (MSD)	$946,000	
	Steam Turbine Major inspection	$1,590,000	
	Total	$32,205,000	**$1,835,349**

*Note: Definition of Typical $ = an estimate based on non MFEC plant specific information (i.e. Mark VI verse Mark V, D11 STG verse Fuji). This information should be used general planning purposes; the actual plant spare total parts inventory was not complete at the time of this review.

**Note: X's = General random parts review performed, some part numbers matched, more time would be needed along with the GE Recommended parts list to determine the actual parts status.

Certainly with an LTSA not all of the parts above would be needed. NAES would typically expect to see the non LTSA inventory to be around $2,500,000 to $3,000,000. The quantity and total Capital spares would typically be determined though detailed risk analysis. It would not be uncommon to stock $6,000,000 - $10,000,000 in Capital Spares for reliability. Some spare part synergies would exist between MFEC and Goldendale which might reduce the required in-stock inventory.

Balance of Plant (BOP) inventory:

The BOP spare parts were difficult to review given the format of the file provided. As such NAES' views are pretty high level:

Atlas Copco Gas Compressor spare parts list could not be verified with the numbering convention used. Boiler Feed pump spares were not found. Generally it appears that these parts have not been ordered. (See recommendation)

Consumables appear to be adequate and most are readily available in the Longview area which is highly industrialized. Routine items were stocked in bins and inventories maintained by service contract (i.e. Fastenal).

- Adequacy of On-Site Tools and Equipment

  The plant has a complete set of turbine tools and adequate tools to support most electrical and mechanical maintenance activates. The steam turbine building does not have an internal gantry or bridge crane which would facilitate major and minor overhauls (see recommendation). The maintenance shop was still being set up at the time of our visit but appeared to be adequate.

- Availability and adequacy of technical documentation (drawings, OEM manuals, data Management)

  NAES was told the plant has a complete set of reference OEM manuals in the plant library. A complete set of as-built drawing are kept in the technical library and electronically on the plant's LAN.

  MFEC indicated that plant drawing updates are managed by MFEC and that the drawings are currently up to date. This was not independently confirmed.

- Compliance with OEM Maintenance Intervals

  The plant PM system is a PC based system (Maximo) the plant personnel were still loading the PM's into the system based on OEM recommendations. Maintenance backlogs and Maintenance history in the CMMS was not reviewed.

- Capital Improvements and Upgrades

  No major capital purchases were identified or reported to be planned for 2008 or subsequent years. Discussions revealed a few issues that could result in future capital improvements including:

- The CEM System was noted as have poor support and replacement may be warranted because of this.
- Capital Spares may be needed for the steam turbine and other major components. (See recommendations)

- Predictive Maintenance Programs and History (Log Keeping and Supervisor Review, Oil Analysis, Vibration Analysis, Electrical Thermograph, etc.)

  An oil analysis program has recently been started. It was reported that the transformer oil testing will be done during the next run. A minimal amount of vibration analysis has been done since start-up. The vibration equipment was only recently purchased and the staff has yet to be trained on its use. Thermography (infra red) analysis is being planned.

  The table below outlines key components required for a fully functional maintenance program per industry standards. The status is unknown for numerous components.

Maintenance	In Place	Not in Place	Comment
Preventive Maintenance Program	X		Maximo initial stages
Capital Spares And Procurement Procedure			Status Unknown
Lube Oil Survey	X		Started
Lube Oil Procurement And Setup			Status Unknown
Motor Survey			Status Unknown
Bearing Survey			Status Unknown
Contractor Code Repair	X		JH Kelly
Equipment Vibration System		X	Planning in progress/training needed
Shop Equipment	X		Set up in progress
Oil Analysis Program	X		Just starting
Shop And Warehouse System	X		Industry standard
Computerized Maintenance System	X		Good system
Outage Schedule Program/ Procedure			Status Unknown
Contractor & Vender Call List			Status Unknown
Mobile Equipment	X		Rental forklift
Fuel And Oil Storage Area	X		Good storage area
Plant Consumables And Procurement	X		Fastenal contract appears well established
Maintenance Training Program	X		Owner indicated GE is providing a lot of training
Work Order Request Form	X		Did not review
Computerized Inventory Control	X		Did not review
Work Order Entry And Tracking System	X		Did not review

- Preventive Maintenance Program history and schedule

  The plant PM and outage history should be documented through CMMS system (Maximo) and PC based outage reports. This post COD information was not available for our review.

- Maintenance procedures and quality assurance practices

  Equipment maintenance procedures were not available for our review. CEMS QA/QC manuals in the CEMS building appeared to be typical for the industry.

- Computerized Maintenance Management System (CMMS) use and effectiveness

  The CMMS system is in the initial stages of development. Plant personnel were not interviewed to determine if they are comfortable with the system. The Maximo system is a commonly used and well thought of CMMS in the power generation industry.

- On-site shop capabilities (tools and equipment)

  The plant shop capabilities are consistent with industry. The Facility may want to consider purchasing a Borescope (est. $60,000 - $100,000). Availability of rental borescopes or borescope services in the northwest may affect this decision as well as potential purchases made to support all PSE gas turbine plants.

- Maintenance lay down area capacity and restrictions

  The plant has adequate material racks for storing steel and pipe. Other lay down areas appear to be available and adequate. Runoff to the pond is a concern and material or equipment lay down areas would need to be carefully selected to ensure the pond was not inadvertently contaminated.

7.1 Maintenance Program Recommendations

7.1.1 NAES recommends further investigation into the HRSG tube corrosion and failure. It was reported that inspection of the remaining economizer tubes would be difficult due to their arrangement (and because they are finned thus not allowing some types of non destructive testing). An inspection program should include removing representative tube samples for testing or future NDE examination to ensure the extent of the corrosion is fully understood. Tube material should be ordered to have on hand in the event of additional tube leaks. Review pressure testing performed to determine the extent of the test completed to date (i.e. was the pressure testing at operating pressure or 1.5 times operating pressure?).

7.1.2 Inventory recommendations: Generally spare parts appear light and not all critical spares appear to have been ordered. A detailed evaluation is needed to determine shortcomings. BOP parts do not appear to be in the inventory. Further evaluation is needed to determine plant needs for critical and capital spares. Overall, additional parts will be needed to be purchased to support reliability.

7.1.3 Capital spares recommendation: A thorough review and analysis is needed to ensure the needed parts are available to meet the outage or forced outage needs. The LTSA should be reviewed carefully with respect to requirements for GE to maintain/supply spare parts.

7.1.4 NAES recommends borescope inspections and GE reports be thoroughly reviewed, specifically in reference to the compressor RO blades. These inspections/reports were not available during this review.

7.1.5 Numerous TILs are open and further evaluation is needed. NAES is submitting a separate matrix to PSE showing TIL status and consequences. Other vendor and OEM service or product bulletins were not available for this review.

7.1.6 NAES recommends routine inspections of condenser water box coatings due to flaking found during start-up.

7.1.7 NAES recommend a large motor overhaul schedule is developed and incorporated into the long term maintenance plan.

7.1.8 Arc Flash Analysis for NFPA 70E regulations will need to be implemented. NAES did not see signs or labels posted on switchgear as required by NFPA 70E.

7.1.9 The Lifting beam above catalyst beds needs to have load rating clearly marked on the monorail beam.

7.1.10 Paint is needed in various locations but overall plant preservation is not in bad condition.

7.1.11 The GT air inlet filters should be monitored more often than at a typical GT plant given the proximity to the industrial park (construction was in progress during the plant tour) and to the Columbia River.

7.1.12 Should the plant want to take advantage of GE Operational Flexibility enhancements (i.e. MW turndown or peak firing), the Mark V controls would have to be upgraded to the Mark Ve (Mark V enhanced, estimated cost: $335,000). Note that the Mark V will be considered obsolete in 2014. The projects long term pro forma should reflect replacement at some point in the future.

7.1.13 The purchase of a borescope should be considered. These typically cost between $60,000 and $100,000 for a unit with camera and video capability.

8.0 TRAINING

- The Owner indicated that the GE operations and maintenance staff are well trained. NAES was not given the opportunity to review the plant training records and programs nor was NAES able to discuss the training program with the plant personnel.

9.0 O&M BUDGET

- Status of current year budget

  NAES reviewed the O&M budget uploaded to the Intranet data room. The budget format is consistent with industry standards.

  NAES expected to see the GE O&M Fee and LTSA expenses included in the budget, but these items did not appear to be included. Labor overtime detail was not available from which it would be possible to determine the percentage of overtime budgeted for the year. Using the estimated monthly payroll the budgeted overtime appears to be close to 11% craft overtime. NAES would expect OT to be higher than 10%.

  NAES was unable to determine the status of the 2008 Annual Unplanned Maintenance Costs in relation to the Unplanned Maintenance Cost Cap as defined in the LTSA ($750,000 during the term of the LTSA). Under the LTSA, once the cap is reached the owner becomes responsible for the cost of unplanned maintenance.

- Future projections and capital expenditure plans

  MFEC management stated they have no capital improvement projects scheduled or budgeted at this time. The O&M budget includes what appear to be one time start-up type costs (i.e. training expenses, safety supplies and platforms, initial chemical supplies, tools, etc.)

- Budget Management and Control

  No annual historical budget data was available for NAES to review. In the first four months of 2008, the actual operating expenses averaged $287,362 per month. If expenditures continue at this rate, the year end actual would be $3,448,344 verse the projected annual budget of $3,926,791. The variance would be $478,447 under budget at year's end if this trend continues.

9.1 O&M budget recommendations

9.1.1 Recommend that a capital project list be developed and included in the budget. Depending on the time frame and operating profile used in the project pro forma/model, capital items such as the turbine controls upgrade and SCR replacement would be included in this document.

9.1.2 LTSA and Maintenance Fees should be included as a line item in the O&M budget.

9.1.3 Major Maintenance did not appear to be budgeted.

10.0 MAJOR CONTRACTS AND AGREEMENTS

The review of the Major Contracts and Agreements, in particular the GE O&M Agreement and the GE LTSA, were not included in the NAES scope. Any questions or comments NAES had regarding these agreements have been discussed elsewhere in this report.

11.0 MANAGEMENT OVERSIGHT

NAES did not evaluate the management oversight for the project.

12.0 CONCLUSIONS & RECOMMENDATIONS

The Mint Farm plant appears to be built and maintained to reasonable IPP standards. There are only a few, minor construction items that remain to be completed.

During NAES' document review it was not possible to determine the actual rating of the plant. There has not been, to NAES' knowledge, a performance test conducted on the plant. As a result it is not possible to report on the performance capability of the plant. It appears that the maximum gross output of the plant to date has been approximately 300 MW as evidenced by the CEMS RATA testing data. The RATA testing did not include the operation of the power augmentation steam but it did include operation of the duct burners (however, the RATA testing data appears to be in error as to the heat input of the duct burners).

Due to the suspension of construction and the subsequent release agreements, there are no performance guarantees for the plant as a whole or for individual equipment. The only warranty left is for the work performed by JH Kelly. This will expire near the end of 2008 and does not cover a significant amount of the plant at any rate. Plant and equipment performance is all at the risk of the owner.

NAES recommended to PSE during the due diligence process that they obtain a complete list of inventory (tools, computers, vehicles, etc.) to ensure they fully understand what is considered plant property vs. property of the current owners or the current operator.

A review of the status of the LTSA operational parameters (e.g. hours, starts, trips, etc.) should be completed. While NAES did not review the LTSA, it appeared that MFEC management was not clear on where they stood with respect to the LTSA parameters. (Many of the trips or run hours may not count against the contract as they occurred during start-up and commissioning). It was also reported that the Plant Manager acts as the LTSA Customer Program Manager (CPM). This does not lend itself to an independent review of the LTSA management which is critically important given the value of such contracts.

The suspension of the plant construction had some detrimental impact on the plant equipment, in particular:

- The HRSG economizers (LPEC, IPEC, HPEC1, HPEC2, HPEC3) appear to have suffered significant deterioration resulting in internal tube corrosion. This was the most significant problem found with a potential for future problems. As of right now, the extent of the internal pitting is unknown. NAES recommends that PSE consider further evaluation of the condition of the economizers and consider planning for and budgeting for the economizer replacement as is appropriate.

- Both gas compressors were rebuilt following the suspension storage. NAES was told that this was the result of improper storage. In addition, one (1) gas compressor was later rebuilt due to apparent foreign object damage. NAES recommends that careful attention be paid to the gas compressors to insure their future reliability.

- NAES recommends that the condenser internals be carefully monitored to determine the extent of the corrosion problem under the condenser coating.

It appears that neither MFEC nor GE have registered with WECC/NERC as either Generator Owner or Generator Operator. It is required that the plant owner and operator register. Under the current NERC standards, the plant will be required to be in complete compliance with applicable NERC standards at the time of registration.