

**DRAFT ENVIRONMENTAL ASSESSMENT**

**BOILER REPLACEMENT PROJECT  
WAUPUN CENTRAL GENERATING PLANT  
DFD Project #12C3M**

Prepared for

**State of Wisconsin  
Department of Administration  
Division of Facilities Development**

**April 2013**

Prepared by

**GRAEF**  
Consulting Engineers and Scientists  
One Honey Creek Corporate Center  
125 South 84<sup>th</sup> Street, Suite 401  
Milwaukee, WI 53214-1470  
Telephone: (414) 259-1500  
FAX: (414) 259-0037

**GRAEF Project No. 2013-0063.01**

**Boiler Replacement Project  
Draft Environmental Assessment**

**Waupun Central Generating Plant  
DFD Project #12C3M**

Prepared for: Department of Administration  
Division of Facilities Development  
101 E. Wilson Street  
P.O. Box 7866  
Madison, WI 53703

Site Address: 400 South Drummond Street  
Waupun, Wisconsin 53963

Prepared By: GRAEF  
One Honey Creek Corporate Center  
125 South 84<sup>th</sup> Street, Suite 401  
Milwaukee, WI 53214-1470  
(414) 259-1500

---

Laura A.B. Giese, PhD  
Environmental Scientist

---

Brian Schneider, PE  
Project Manager

# TABLE OF CONTENTS

EXECUTIVE SUMMARY.....	1
General .....	1
General Project Description .....	1
EIA Process .....	1
I. DESCRIPTION OF PROPOSED ACTION.....	2
A. Title of Proposal .....	2
B. Location .....	2
C. Project .....	2
1. Description .....	2
2. Purpose and Need .....	2
D. Estimated Cost and Funding Source .....	3
E. Time Schedule.....	3
II. EXISTING ENVIRONMENT .....	3
A. Physical .....	3
B. Biological .....	4
1. Flora .....	4
2. Fauna.....	5
C. Social .....	5
D. Economic.....	5
E. Other .....	6
III. PROPOSED ENVIRONMENTAL CHANGE.....	6
A. Manipulation of Terrestrial Resources .....	6
B. Manipulation of Aquatic Resources .....	6
C. Structures .....	7
D. Other .....	8
E. Attachments.....	8
IV. PROBABLE ADVERSE AND BENEFICIAL IMPACTS.....	9
A. Physical Impacts .....	9
B. Biological Impacts .....	9
C. Socioeconomic Impacts .....	9
1. Social.....	9
2. Economic .....	9
D. Sustainability Features.....	10
E. Cumulative Impacts .....	10
F. Other .....	10
V. PROBABLE ADVERSE IMPACTS THAT CANNOT BE AVOIDED .....	11

VI. RELATIONSHIP BETWEEN SHORT - TERM USES OF THE ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG - TERM PRODUCTIVITY..... 11

VII. IRREVERSIBLE OR IRRETRIEVABLE COMMITMENTS OF RESOURCES ..... 11

    A. Energy ..... 11

    B. Archaeological and historic features or sites ..... 11

    C. Other ..... 11

VIII. ALTERNATIVES..... 11

IX. EVALUATION..... 12

X. LIST OF AGENCIES, GROUPS AND INDIVIDUALS CONTACTED REGARDING THIS PROJECT ..... 13

RECOMMENDATION ..... 14

**LIST OF APPENDICES**

- APPENDIX A: EA Project Kickoff Meeting Minutes**
- APPENDIX B: Distribution List**
- APPENDIX C: Preliminary Project Plans**
- APPENDIX D: WDNR Endangered Resource Review - Redacted**
- APPENDIX E: Cultural Resources Review**
- APPENDIX F: Draft EA Public Notice**

**LIST OF FIGURES**

- Figure 1      General Site Map**
- Figure 2      WDNR Watershed Map**
- Figure 3      FEMA Floodplain Map**
- Figure 4      Wisconsin Wetland Inventory Map**

## **EXECUTIVE SUMMARY**

### **General**

The State of Wisconsin's Department of Administration, Division of Facilities Development retained GRAEF-USA to prepare an Environmental Assessment (EA) for the proposed Boiler Replacement Project, which will replace three coal-fired boilers within the Waupun Central Generating Plant in Waupun, Wisconsin. The EA is required by Wisconsin Administrative Code, Chapter DOC 335 in compliance with the Wisconsin Environmental Policy Act (WEPA). The purpose of the EA is to assess the potential environmental effects of the proposed project relative to the quality of the human environment. The Division of Facilities Development is the EA project manager.

### **General Project Description**

The Waupun Central Generating Plant primarily provides steam to Department of Corrections Institutions. The steam is currently provided by three 64 year-old coal-fired boilers and one 43 year-old gas/oil boiler. The project will demolish and replace the three coal-fired boilers in the heating plant. The existing gas/oil boiler will also be demolished. The coal-fired boilers will be replaced with gas/oil package boilers and associated support equipment that includes controls, fuel system modifications, condensate and feedwater system modifications, and PLC based boiler controls. The scale of the equipment replacement requires utility, plumbing, electrical and demolition/construction of part of the building to allow the original equipment to be removed and to accommodate the new equipment. Minimal land disturbance will occur during utility upgrades. The existing boilers contain asbestos and their disassembly and removal will require appropriate abatement procedures.

Funding for the project is being provided through General Fund Supported Borrowing. The current schedule targets March 2014 to begin construction with completion of Boilers 25&26 anticipated December 2014 and completion of Boiler 27 anticipated December 2015.

### **EA Process**

The EA process began February 2013 with authorization to prepare a Type II Environmental Assessment. A Kickoff Meeting was held on February 15, 2013 for the EA team members. The meeting included an overview of the project and identified potential environmental impacts. A copy of the Kickoff Meeting minutes can be found in Appendix A.

A public notice will be posted on the Waupun City Hall bulletin board on April 15, 2013 to advertise the availability of the Draft EA report. A public meeting will not be held. The Draft EA will be made available for public review on April 15, 2013 at Waupun City Hall and public library, and online at <http://notices.graef-usa.com/WaupunCGP> and <http://doc.wi.gov/about/data-and-research/budget-information>. The deadline for comments will be April 30, 2013. The distribution list and public notice can be found in Appendices B and F, respectively.

Based on the findings of the Draft EA and public comments, a recommendation will be made whether further investigation is warranted, or a Finding of No Significant Impact (FONSI) will be issued.

**DRAFT ENVIRONMENTAL ASSESSMENT  
TYPE II ACTION  
WISCONSIN ADMINISTRATIVE CODE  
DEPARTMENT OF CORRECTIONS Chapter DOC 335**

**I. DESCRIPTION OF PROPOSED ACTION**

A. Title of Proposal: Boiler Replacement Project  
Waupun Central Generating Plant  
DFD Project #12C3M

B. Location: Waupun Central Generating Plant  
400 South Drummond Street  
Waupun, WI 53963

County: Dodge

Political Town: City of Waupun

C. Project: Define Proposed Action

1. Description (type of facility or action): The Waupun Central Generating Plant (Figure 1) primarily provides steam to Department of Corrections Institutions. The steam is currently provided by three 64 year-old coal-fired boilers and one 43 year-old gas/oil boiler. The project will demolish and replace the three coal-fired boilers in the heating plant. The existing gas/oil boiler will also be demolished. The coal-fired boilers will be replaced with gas/oil package boilers and associated support equipment that includes associated controls, fuel system modifications, condensate and feedwater system modifications, and PLC based boiler controls (see Appendix C Preliminary Project Plans). The scale of the equipment replacement requires utility, plumbing, electrical and demolition/construction of part of the building to allow the original equipment to be removed and to accommodate the new equipment. Minimal land disturbance will occur during utility upgrades. The existing boilers contain asbestos and their disassembly and removal will require appropriate abatement procedures.

The current schedule targets March 2014 to begin construction with completion of Boilers 25&26 anticipated December 2014 and completion of Boiler 27 anticipated December 2015.

2. Purpose and Need (brief statement of project objective, history & background): The Waupun Central Generating Plant (CGP) was put into service in 1952. The plant supplies essential services to Waupun Correctional Institution (WCI), Dodge Correctional Institution (DCI), State Garage, and Central Receiving Warehouse. Additionally, the CGP supplies steam to WCI, DCI, John C. Burke Correctional Center and two Badger Correctional Enterprises facilities: Waupun Dairy, and the Central Receiving Warehouse, all state-owned facilities.

Major repairs have been conducted on the existing coal boilers prompting an assessment of their condition and review of options to upgrade services provided to the Department of Corrections Institutions. The condition of the coal boilers poses serious reliability and cost risks, and if not replaced significant repair costs will need to be incurred to ensure a reliable source of steam heat for winter life safety needs.

Regulatory compliance and cost risks are also associated with the coal boilers and replacement will mitigate issues relating to compliance with the Clean Air Act's Prevention of Significant Deterioration Program. Replacement of the coal boilers with natural gas boilers will help bring the facility into compliance with updated air emission limits or Maximum Achievable Control Technology (MACT) rules scheduled to take effect 2014-2015. Installation of new pollution control equipment on the existing boilers is projected to cost \$46 million; therefore replacement of the boilers to comply with new rules is a more economical option.

The system will be designed to have enough steam and electrical generation available for operating the respective facilities during all load conditions with no more than two boilers and one electrical generator on line at any time. There must be at least one boiler and one electrical generator in reserve allowing any one boiler and/or electrical generator to be taken out of service for repairs.

D. Estimated Cost and Funding Source:

The total project budget is \$15, 597,100 using General Fund Supported Borrowing.

Project Budget Summary:

General Construction	\$10,985,200
Design	\$ 1,069,100
Contingency	\$ 1,743,000
DFD Management	\$ 534,000
Construction Oversight	\$ 300,000
Environmental Consult	\$ 330,000
Haz Mat Abatement	\$ 635,200
Estimated Total Project Cost	\$15,597,100

E. Time Schedule:

35% Design Approval	December 2012
Bid Date	May 2013
Start Construction	March 2014
Boilers 25&26 Complete	December 2014
Boiler 27 Complete	December 2015

---

**II. EXISTING ENVIRONMENT**

---

A. Physical (Topography - soils - air - wetland types):

The project site is primarily comprised of the existing WCGP with supporting infrastructure, out buildings, parking and several small maintained grassy areas. The soil survey of Dodge County identifies the near surface soils within the project site as Plano silt loam 2 to 6 percent slopes (PsB) and Plano silt loam moderately well-drained 0-3 percent slopes (PtA). These two soils correspond to hydrologic soil group B, which have a moderate infiltration rate when thoroughly wet, and are classified as prime farmland. These soils are somewhat limited for small commercial buildings due to shrink-swell potential, and limitation due to corrosion of concrete is low, but steel is moderate.

The project site is located in the Upper Rock River Basin and Rock River Watershed (Figure 2). The FEMA Flood Insurance Rate Map indicates the site is not located within a regulatory floodplain (Figure 3). According to the Wisconsin Wetland Inventory (Figure 4), no wetlands are located on the project site. The existing grades are relatively flat with surface drainage toward the South Branch of the Rock River. The Rock River is an impaired waterway due to degraded habitat, total phosphorus, and sediment/total suspended solids. The CGP discharges primarily to storm sewers.

Steam is generated by three 40,000 lb/hr 1950 vintage Wicks chain grate spreader stoker solid fuel boilers and one 80,000 lb/hr gas/oil package boiler that has been de-rated to 60,000 lbs/hr. Steam is produced at 425 psi and superheated to 600 °F, and either passed through the backpressure turbine generators to supply electricity and reduce steam pressure, or a pressure reducing station to supply 125 psi and 15 psi steam to the facilities.

Coal is delivered by truck to an outside below ground truck dump pit (hopper) and transferred to inside coal bunkers located on the west side of the boiler plant. A conveyor transfers solid fuel from the hopper to a Round-about bucket conveyor which lifts coal to open-topped storage bunkers until needed. Coal conveyed from the storage bunker to the live side bunker is gravity fed to an associated coal scale for the boiler in operation and through the boiler fuel inlet. There is one scale for each boiler. During 2008-2009 monthly coal usage ranged from 360 tons to 1,300 tons depending on steam production needs.

Each existing solid fuel boiler outlet gases travel through a multiclone dust collector that removes large particles from the gases as they travel to the boiler outlet breeching. The breeching carries the gases to parallel economizers and then to a common baghouse installed in 2007 that removes fine particles. The baghouse consists of four compartments with an air to cloth ration of 4:1.

The CGP has four electrical generators that supply electrical power at 4,160 volts 3 phase, two of which are powered by steam turbines (1,250 kVA each) and two powered by diesel generators (one 750 kVA and one 1,500 kVA). The steam turbine powered generators are normally used to produce electrical energy since they also serve to reduce the 425 psi steam produced by the boilers to 125 psi and 15 psi steam. The diesel powered generators are typically used for emergency power and when the utility feeder is lost, to supplement the steam turbine generators. The existing plant generators can at present produce a total of 4,025 kW (1,350 kW, 675 kW, 1,000 kW, and 1,000 kW). This is currently adequate, but may need to be increased for future loads if the facility needs to provide 100 percent of the electrical power during a utility outage.

The generation of the steam turbine driven generators is limited to the steam requirements for nearby state-owned facilities: WCI, DCI, John C. Burke Correctional Center, Waupun Dairy, and State Garage and Warehouse. There are times of the year that the steam requirements severely limit the amount of electrical production to a level that is less than that required to supply the emergency bus power to all facilities during which time the diesel driven units become necessary. Electrical usage 2008 through 2009 ranged from approximately 108,000 KWH to 472,000 KWH per month, with percent generated ranging from 8 to 37 of total usage.

## B. Biological:

### 1. Flora

The project primarily takes place within an existing building. Environs surrounding the building are primarily developed with a few open areas dominated by grasses, ruderal plants and a few

scattered trees and shrubs. An Endangered Resources Review (Appendix D) documents no recorded endangered plants within the project or surrounding areas.

2. Fauna

The site is surrounded by development with a few small open fields relatively nearby. Fauna anticipated to utilize the site include small mammals (i.e., mice), birds, and insects. The project site is too small to support larger wildlife species. An Endangered Resources Review (Appendix D) documents a state-endangered bird has been recorded from within the project area and/or surrounding area.

C. Social:

The mission of the Waupun Correctional Institute is to provide for the public, the staff and incarcerated inmates, “a safe institution and for inmates, a constructive environment which encourages positive growth and enables them to reenter and cope with an ever changing society, thereby, enhancing their probability of success”.

Waupun was chosen as a penitentiary site in 1851 due to its proximity to the proposed Rock River Valley Railroad and the abundance of good quality building limestone. The original permanent building was constructed in 1854, has been remodeled and remains in use today as the South Cell Hall. The original cell hall had 288 cells and was built using convict labor at a cost of \$325 a cell.

The main administration building was built in 1855 and additional cell halls were added in 1854, 1906 and 1913. All of those original buildings are in use today. The large ornate stone and iron wall was constructed in 1858. Improvements to the buildings and infrastructure have allowed WCI to meet the operational needs of a modern prison. In 1998, a new Health and Segregation Complex opened replacing buildings that dated back to the 1940's. January 1992, the Wisconsin State Prison Historic District was entered on both the State Register of Historic Places and the National Register of Historic Places.

The CGP is located in a residential area. Deliveries for fuel supply and ash removal occur frequently, with greater frequency during higher demand periods. Dust, noise, and appearance associated with deliveries and plant operations have been consistent in the neighborhood.

D. Economic:

According to the 2011 Fiscal Year Annual Report, this maximum security facility has an operating capacity of 882 males with a current population of 1,241 males. There are 327 and 121 security and non-security staff, respectively, resulting in a 3 to 1 inmate to staff ratio. Expenditure information is included in Table below is for the entire facility.

<b>Category</b>	<b>FY 2011</b>
Permanent Salary	\$ 19,978,349.10
LTE Salary	\$ 108,104.53
Fringe Benefits	\$ 11,657,715.73
Supplies and Services	\$ 2,753,464.67
Capital	\$ 43,804.33
Fuel and Utilities	\$ 2,861,901.78
Repair and Maintenance	\$ 199,692.73

Central Generating Plant	\$ 4,064,098.27
Inmate Enterprises	\$ 29,523.80
Telephone Commissions	\$ 33,223.80
Total	\$ 41,729,878.74

The Waupun CGP is a co-generation plant supplying normal and emergency electrical power to nearby state-owned facilities: WCI, DCI and Central Receiving Warehouse. CGP additionally supplies steam for heating, food processing and other facility usage. The current plant generates steam at 425 psig and 600 degrees Fahrenheit. Fixed operating costs for 2009 totaled \$3,504,429.

Existing coal plant workforce of 20 people includes: salaried (2); Head Fireman (6); Assistant Fireman (5); Turbine/Engine Operator (4); Maintenance (1); Electrical/Instruments Technician (1); and Administration (1).

E. Other (include archaeological, historical, etc.):

A review of the Wisconsin Historic Preservation Database (WHPD) and Architecture History Inventory, which is a component of the WHPD, indicates there are no cultural resources or buildings of historic interest in the project area. The nearest known cultural resource site is a prison cemetery. See Appendix E for an exhibit showing the WHPD of significant sites within the project vicinity. State Historic Preservation Office (SHPO) review and concurrence is pending.

**III. PROPOSED ENVIRONMENTAL CHANGE**

A. Manipulation of Terrestrial Resources (include quantities --sq. ft., cu. yds., etc.):

Minimal earthwork is anticipated to upgrade the natural gas lines and installation of new fuel oil tanks. The existing horizontal fuel oil tank will be replaced with two new double walled vertical storage tanks. The new tanks will be located in an area that has been used in the past, where other equipment is planned for removal, or near the center of the property out of view. Minimal excavation will be required for the fuel tank foundations.

The natural gas line will remain in its present location and is adequately sized for the new boilers; therefore, no new gas lines will be installed. A new gas meter will be installed in the location of the present meter.

The existing coal will be exhausted in the current boilers before they are removed. The coal storage bins are part of the present structure and will be emptied, but there are no plans for repurposing them at present.

B. Manipulation of Aquatic Resources (include quantities --cfs, acre feet, MGD, etc.):

Surface runoff will continue to flow with the existing drainage pattern after completion of the project. No increase in impervious surface is anticipated. The CGP does not use City water and discharges are primarily to existing storm sewers. Water usage is will decrease. No cooling water will be required for operation of the new boilers.

C. Structures:

Demolition of coal-fired boilers and smoke stack

This project will involve the removal of asbestos containing materials from the existing boilers, equipment and piping. The existing coal fired boilers will be demolished as part of the abatement/demolition contract. The insulation on the drums, as well as, the insulation below the skin of each boiler contain asbestos and will be removed utilizing OSHA Class 1 removal procedures. The majority of the demolition will be completed inside a negative pressure containment until it is determined that all asbestos containing material (ACM) has been properly removed.

Detailed field investigation to identify extent of ACM that require abatement is pending. However, at a minimum abatement work will also include the following removal:

- Asbestos containing insulation from steam piping and boiler feed water piping associated with boilers 1 through 4;
- Asbestos containing insulation from piping in various locations throughout the plant that is necessary to facilitate the project; and
- Asbestos containing insulation from the exhaust breech duct.

Any steel or other recyclable material will be recycled to the extent practicable.

If project funding allows, the existing smokestack may be removed. The existing smoke stack likely does not contain asbestos, but further investigation would be needed.

Installation of new boilers

Three gas/oil package boilers will be installed to provide steam to the DOC facilities. Boilers #25 and #27 will operate at 43,000 lb/hr (58 MMBtu/hr) and Boiler #26 will operate at 60,000 lb/hr (81 MMBtu/hr). All of the boilers are projected to generate 450 psig Saturated and 610°F. The new boilers will be individually delivered as a complete unit and brought into the heating plant through an opening that will be made in the present coal bunkers. New water tube boilers will be "D" type arrangement with a convective superheater. Economizers will be fin tubed design with feedwater passing through the tube side. New equipment will be installed in a manner that will maximize existing plant space for ancillary equipment installations. Current boiler room controls will be replaced with a Programmable Logic Controller based system utilizing new equipment and connect to feedwater, condensate systems.

Existing Solid Fuel Boilers #22 and #23 will be removed and replaced with new Boilers #25 and #26 in 2014. Existing solid fuel fired Boiler #21 and gas/oil fired Boiler #24 will remain in place to prevent service interruption. Existing gas/oil Boiler #24 will be replaced with new Boiler #27. Existing gas/oil fired Boiler #24 will be removed and replaced in 2015 with boiler #27 when Boilers #25 and #26 are operational to serve facility loads.

When new boiler #27 is installed and operational, the solid fuel Boiler #21 and associated coal handling equipment will be removed. At all times during the removal and replacement, there will be one boiler serving facility requirements with at least one reserve boiler available in case the operational boiler develops problems. The plant support systems for each unit will be installed to the new boilers. New boilers will be connected to the gas/oil supply, existing steam headers, and a new stack for each boiler.

No changes will be made to the 5kV electrical system. The existing diesel engine driven electrical generators will not be replaced and no changes are anticipated. Air cooled condensers will not be added and there will be no changes to the existing turbine driven electrical generators. The diesel engine driven electrical generators at the CGP will be designated for emergency power only, and not supply power to the utility grid.

Steam will be used to generate power for CGP and the other state facilities at this site. The amount of electrical generation is less than the total facility load so the local utility also supplies electrical power to the facility. During interruptions of the utility grid the steam driven generators and diesel driven generators are both needed to supply the emergency needs of the facility. The diesel driven generators will only run when the utility grid is off-line and the steam driven generators are not able to meet the facility emergency electrical power needs.

D. Other:

No zoning approvals will be needed or erosion control permits. There is the potential to need hazardous materials removal/disposal notifications for lead and asbestos. Air construction permit will be needed. There will be significant reductions in air emission pollutants as a result of this project.

POLLUTANT		Boilers B25, B26, and B27 Combined	Current Facility	Emission Increase (Decrease)
Carbon Monoxide	CO	30.6	246.0	(215.4)
Nitrogen Oxides	NO <sub>x</sub>	19.1	246.0	(226.9)
Particulate Matter	PM	3.4	99.0	(95.6)
Particulate Matter	PM <sub>10</sub>	3.4	99.0	(95.6)
Particulate Matter	PM <sub>2.5</sub>	3.4	99.0	(95.6)
Sulfur Dioxide	SO <sub>2</sub>	0.7	246.0	(245.3)
Organic Compounds	OC	2.3	2.1	0.2
Lead	Pb	0.0002	0.0074	(0.0072)
Fluorides (as HF)	HF	0.20	1.29	(1.09)
Sulfuric Acid Mist	H <sub>2</sub> SO <sub>4</sub>	0.01	2.16	(2.15)
Greenhouse Gases	CO <sub>2</sub> e	51,877.0	97,206.6	(45,329.6)

**Footnotes**

1. Potential emissions for Boilers B25, B26, and B27 are based on the proposed limits in the permit application. B26 are based on 80 mmBtu/hr heat input capacity. Units are parts per million (ppm).
2. The current facility potential emissions are based on the limits in the operation permit.

E. Attach maps, plans, photographs and other descriptive material.

Figure 1: General Site Map

Figure 2: Watershed Map

Figure 3: FEMA Map

Figure 4: Wisconsin Wetland Inventory Map

IV. PROBABLE ADVERSE AND BENEFICIAL IMPACTS (Include Indirect and Secondary Impacts)

A. Physical Impacts:

Three new gas/oil boilers will be installed eliminating the coal-fired boilers. Deliveries of coal and subsequent hauling away of ash will no longer be part of operating the CGP. The railroad switch and track that was used for coal delivery in the past is partially intact with the track ending just inside the property fence at the existing driveway. The section of track running to the truck dump, which was removed when the baghouse was installed, will not need to be upgraded as an option for future coal deliveries.

Internal configuration of the CGP will be undertaken to accommodate efficient use of space, and optimize functionality of the new boilers. The new boilers will have state of the art computerized electronic control and computer based displays for operation.

The smoke stack may be removed creating additional open space. The new fuel oil tanks will be located either in the existing fuel tank location or near the center of the property.

The existing boilers will be removed and disposed of by an abatement contractor. A Construction Waste Management Plan per Department of Administration (DOA) Standard Specifications will be utilized to document disposal.

B. Biological Impacts:

No adverse biological impacts are expected. Water quality impacts and construction dust will be controlled through the use of construction Best Management Practices. Landscape restoration will be undertaken after completion of any ground disturbance.

C. Socioeconomic Impacts:

1. Social

The new boilers will provide reliable services to the DOC facilities. Switching to a natural gas boiler will eliminate both site and local road traffic from fuel deliveries. Also the management of fly ash and bottom ash will be eliminated. Offsite impacts of air-entrained products of coal combustion will be eliminated. Offsite impacts of coal mining and transportation for this site will also be eliminated.

CGP staff will upgrade their skill sets through training on operations and maintenance of the new computerized electronic controls.

2. Economic

The estimated total project cost is \$15,597,100 which will be funded with general fund supported borrowing. The direct adverse economic impact includes the initial expenditure for the completion of the project. However, replacing all three boilers in a single sequential project

reduces costs by \$1,700,000. The boiler replacements also save money by reducing fuel and maintenance costs, improving boiler efficiencies, and reducing financial risks associated with reliability and legal regulatory compliance issues.

An estimated increase in annual operation costs for gas/oil package boilers is attributed to fuel charges (natural gas). Electricity charges have higher proposed operating costs due to the elimination of the turbine driven generators. Coal delivery via truck will be eliminated reducing transportation costs.

Decreased workforce requirements may reduce operating labor costs since an assistant fireman and labor for coal and ash distribution will not be needed. However, a change in staffing levels is not anticipated. Workforce skill sets will be upgraded to operate new electronic controls. Approximately 17 people will provide the variety of labor needs.

The initial project expenditures will benefit employees in construction and related industries. The portion of the total project cost that contributes to construction wages is expected to have a multiplied economic benefit. Based on a 2011 study titled *The Impact of Construction on the Wisconsin Economy*, every \$1 million spent directly on construction projects generates 17 jobs throughout the economy. These include construction jobs and indirect jobs, such as service sector employment created by the economic activity of the construction workers. Based on that information, this project is estimated to create approximately 255 temporary jobs for the duration of the construction project. Additionally, the same study indicates that every \$1 spent directly on construction projects produces an overall economic impact of approximately \$1.92. Using the 1.92 multiplier to forecast economic impact, the estimated cost of \$15 million could result in stimulating approximately \$28.8 million in activity related to employment, purchases of supplies, and services.

D. Sustainability Features (Also indicate whether LEED Certification is being pursued.):

LEED certification is not being pursued; however, several sustainable features will be incorporated into the installation and operation of the new boilers. Regional manufacturers will be utilized to the extent practicable, as well as recycled materials. Any steel or other recyclable material will be recycled, but the existing boilers will be removed and disposed of by an abatement contractor. The new boilers will also result in lower levels of air pollution.

E. Cumulative Impacts:

Currently there are no plans to expand the WCI; however the "Ten-Year Correctional Facility System Development Plan" prepared by Mead and Hunt (January 2009) calls for expansion of DCI. Therefore, a 25% growth factor was applied for future steam and electrical needs. The Mead and Hunt plan recommends additional space at WCI, which may impact the need for more steam generation. The Department of Corrections 2013-19 Facilities Investment Plan published July 27, 2012, based on inmate population projections updated at that time, does not include projects for expansion of inmate populations at any of Waupun area facilities.

F. Other (Include archaeological, historical, etc.) (If none, so indicate):

A review of the Wisconsin Historic Preservation Database (WHPD) and Architecture History Inventory, which is a component of the WHPD, indicates there are no cultural resources or buildings of historic interest in the project area. The nearest known cultural resource site is a prison cemetery. See Appendix E for an exhibit showing the WHPD of significant sites within the project vicinity.

## V. PROBABLE ADVERSE IMPACTS THAT CANNOT BE AVOIDED

Adverse impacts include a one-time financial commitment of approximately \$15, 597,100 and the use of resources associated with demolition and replacement of three coal-fired boilers with three gas/oil fired boilers. Construction noise and dust during demolition will temporarily affect the surrounding area. The demolition debris, to the extent that it is not recycled, will use landfill space. There will also be a temporary increase in heavy vehicle traffic during portions of the demolition and delivery of the new boilers.

Traffic patterns are primarily influenced by existing neighborhood activity. No anticipated changes in traffic patterns because the project will not alter current land use and be incorporated into an existing building. There will be a decrease in truck traffic due elimination of coal deliveries and removal of the ash.

## VI. RELATIONSHIP BETWEEN SHORT - TERM USES OF THE ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG - TERM PRODUCTIVITY

In the short term there will be adverse impacts associated with construction noise and dust during demolition and there may be temporary parking losses attributed to construction staging. There will also be a temporary increase in heavy vehicle traffic during portions of the demolition. Positive short-term impacts include an increase in employment and associated expenditures relating to the project that will benefit the local economy.

The long-term benefits include reduced use of coal. Overall, the short-term impacts to the environment will lead to a reliable source for the long-term productivity of steam to DOC facilities.

## VII. IRREVERSIBLE OR IRRETRIEVABLE COMMITMENTS OF RESOURCES IF ACTION IS IMPLEMENTED

### A. Energy:

The energy used to complete the project will be generated using standard fuel and materials and is irretrievable. Recycling of any materials generated as a result of the demolition will be implemented where possible. Electricity demand is not expected to increase. Use of gas/oil fuel will increase. Use of coal will decrease. Overall air pollution will decrease significantly because of more efficient equipment and different fuel use.

### B. Archaeological and historic features or sites:

A review of the Wisconsin Historic Preservation Database (WHPD) and Architecture History Inventory, which is a component of the WHPD, indicates there are no cultural resources or buildings of historic interest in the project area. The nearest known cultural resource site is a prison cemetery. See Appendix E for an exhibit showing the WHPD of significant sites within the project vicinity.

### C. Other: none

## VIII. ALTERNATIVES: (No Action-Enlarge-Reduce-Modify-Other Locations and/or Methods. Discuss and describe fully with particular attention to alternatives which might avoid some or all adverse environmental effects.)

ALTERNATIVE 1: No action:

The No Action alternative would eliminate the one-time expenditure of \$15,597,100 dollars for the project, but would not accomplish meeting the service needs for WCI and other state facilities, as well as mitigate issues relating to compliance with the Clean Air Act's Prevention of Significant Deterioration Program. Significant operating and repair costs would be incurred due to the age of the existing equipment.

**ALTERNATIVE 2: Biomass boiler with natural gas/oil backup boilers:**

This alternative would replace the existing three solid fuel boilers and existing de-rated gas/oil boiler with one new 70,000 lb/hr biomass boiler, one 50,000 lb/hr natural gas/oil package boiler, and one 35,000 lb/hr natural gas/oil package boiler. The biomass boiler would be capable of handling green wood chips, construction waster wood chips, and pelletized wood waste. Wood fuel chip delivery by rail with a maximum of three carloads per day or nine truckloads per day would occur during periods of high steam production. Two options within this alternative include: 425 psi steam production and steam turbine generators and 125 steam production and natural gas/oil generators. Total construction cost for both of these options is approximately one-third greater than the preferred alternative. This alternative is only desirable if the goal is to use renewable fuels and limit use of natural gas. The fuel source for the biomass boiler may also not be reliable.

**ALTERNATIVE 3: Replace fewer boilers now and additional ones in the future:**

Five options were considered toward replacing one, two or three boilers now with the balance of boilers replaced in the future. Replacing three boilers in sequence in a single project versus two now and one later cost \$1,700,000 less.

**IX. EVALUATION (Discuss each category. Attach additional sheets and other pertinent information if necessary)**

- A. As a result of this action, is it likely that other events or actions will happen which may significantly affect the environment? If so, list and discuss. (Secondary effects)

The number of deliveries for fuel will decrease with change from coal to gas/oil. Also eliminating ash removal will result in a decrease in vehicular traffic.

- B. Does the action alter the environment so a new physical, biological, or socioeconomic environment would exist? (New environmental effect)

The three new gas/oil boilers will replace coal-fired boilers. Without the coal-fired boilers the smoke stack will be removed. Significant alteration to the biological environment is not anticipated since this project will be conducted in an existing building. The new state of the art computerized controls will upgrade staff skill sets. Based on the scale of the project, the economic environment will not be significantly altered. However, there will be a temporary boost in jobs during construction.

- C. Are the existing environmental features which would be affected by the proposed action scarce, either locally or statewide? If so, list and describe. (Geographically scarce)

No scarce environmental features exist that would be affected by the proposed action.

- D. Does the action and its effects require a decision which would result in influencing future decision? Describe. Is the decision precedent setting?

The project could impact future decisions regarding expansion of state facilities. The implementation of this project may prompt future projects for increased steam production efficiency and compliance with air quality standards.

- E. Discuss and describe concerns which indicate a serious controversy? (Highly controversial)

No concerns regarding a serious controversy have been identified with this project.

- F. Does the action conflict with official agency plans or with any local, state or national policy? If so, how? (Is the action inconsistent with long-range plans or policies)

The project does not conflict with local, state, or national policy.

- G. While the action by itself may be limited in scope, would repeated actions of this type result in major or significant impacts to the environment? (Cumulative impacts)

Additional projects that replace coal-fired boilers with new gas/oil boilers reduce the use of coal, and improve air quality through incorporation of efficient/effective air pollution measures.

- H. Will the action modify or destroy any historical, scientific or archaeological site?

A review of the Wisconsin Historic Preservation Database (WHPD) and Architecture History Inventory, which is a component of the WHPD, indicates there are no cultural resources or buildings of historic interest in the project area. The nearest known cultural resource site is a prison cemetery. See Appendix E for an exhibit showing the WHPD of significant sites within the project vicinity.

- I. Is the action irreversible? Will it commit a resource for the foreseeable future? (Does it foreclose future options?)

The project is reversible, but it does consume materials and financial resources that could not be recovered without an investment in labor and financial resources. Other committed resources include electricity, natural gas, and water.

- J. Will action result in direct or indirect impacts on ethnic or cultural groups or alter social patterns? (Social-cultural impacts)

No adverse impacts are expected.

- K. Other: none

---

## X. LIST OF AGENCIES, GROUPS AND INDIVIDUALS CONTACTED REGARDING THIS PROJECT

---

See Appendix B for the Distribution List

---

RECOMMENDATION

EIS Not Required.....



*Analysis of the expected impact of this proposal is of sufficient scope and detail to conclude that this is not a major action which would significantly affect the quality of the human environment. In my opinion therefore, an environmental impact statement is not required before the board undertakes this action.*

Major and Significant Action: PREPARE EIS.....



Additional factors, if any, affecting the evaluator's recommendation:

CERTIFIED TO BE IN COMPLIANCE WITH WEPA - Public Notice Completed (include copy of public notice for permanent record)	
	Date:

Approved	
Jennifer Stadtmueller, Correctional Management Services Director, Department of Corrections	Date:

This decision is not final until approved by the appropriate Director.