Southwestern Vermont HEALTH CARE
100 Hospital Drive | Bennington, VT 05201 | phone 802.442.6361 | fax 802.442.8331 | svhealthcare.org

September 2, 2016

Donna Jerry, Health Care Administrator
Green Mountain Care Board
89 Main Street, Third Floor, City Center
Montpelier, VT 05620

RE: Questions dated August 24, 2016 related to Docket No. GMCB-017-15con
CON for replacement boiler plant at Southwestern Vermont Medical Center

Dear Ms. Jerry,

Below find responses to the questions posed in a letter from the Green Mountain Care Board dated August 24, 2016.

1. Schematic Design Narrative and Drawings:

1. Controls

a. Please describe the controls interface between the new plant and the existing facility.

The new plant will be provided with an automation system that will monitor, control, and sequence the new boilers. The automation system will be integrated with the existing control systems of the hospital, Trane and Niagara controls. The automation system will allow the performance of the new boiler plant to be viewed and controlled from the engineering department within the hospital. The automation system will also be viewable remotely via tablet and smart phone. The cost of this automation system and any interfaces with current hospital systems is included in the project cost submitted with the Certificate of Need application.

b. Please provide some details on the intended control room for the boiler plant and the interface available to operate and optimize boiler performance.

The new plant automation system will be a combination of Trane Controls and Preferred Utilities Controls. Trane Controls will be used for all ancillary devices such as dampers, heaters etc. The Preferred Utilities Controls will command the Mohican boilers via a BurnerMate Controller module and overall boiler sequencing via a Plant Wide Controller module. The Trane Control system and the Plant Wide Controller will be integrated into the existing hospitals Niagara Control System. In addition, each Mohican boiler will have a local LCD display for easy assessment and control by staff and the maintenance support team while in the plant. The Plant Wide Controller will also command the Hurst convertible boiler. One common control interface will allow performance and control of all the boilers in the plant and thereby create efficiencies. To enhance control management, engineering staff will be paged when performance changes or a fault occurs. Efficiency Vermont has reviewed these control systems and provided guidance on how to ensure operational efficiency.

1. Schematic Design Narrative and Drawings:

2. Life Safety

a. Please describe the life safety/fire alarm interface between the new plant and the existing facility.

The new facility will be equipped with a small fire alarm system connected to the existing hospital fire alarm system. Heat sensors and pull stations will be installed in the new plant. Since the new boiler plant will be remote from the hospital, an annunciator system will notify staff of an alarm condition occurring in the hospital (ex. fire- code red, or active shooter- code silver).

b. Will the new plant be provided with sprinkler coverage?

No. The new plant will not have sprinkler coverage, as it is not required by code for this building. The building inspector from the town of Bennington agrees with the determination that a sprinkler system is not required.

c. Will the entire boiler building be on backup power? How will life safety loads be separated?

Yes. The new plant will be equipped with back-up power from the main hospital generator. Separation from the main hospital load, including life safety loads, will be created through individual breakers.

1. Schematic Design Narrative and Drawings:

3. Redundancy

a. The entire facility will depend upon the reliability of this plant. Please describe how redundancy has been taken into account in the design of the boilers, make up water, electrical, controls, and other systems.

The three new boilers will be installed to operate independently thereby providing triple redundancy. Water will be fed from two separate locations through separate water lines. Electrical system redundancy is provided through a backup generator currently serving the hospital.

1. Schematic Design Narrative and Drawings:

4. Utilities

a. Please describe which utilities (other than the fuel sources) will be brought to the building. Please detail quantities, and where these will be tied into the main building.

Electrical Power will be connected from the hospitals Northwest building electrical room. An existing Automatic Transfer Switch will provide normal and emergency electrical power to the plant. Wires of 4/C 3/0 CY W/GND will be installed from the existing switch to the new plant. See drawing EP-100 of the CON application for more details. Condensate return will be supplied to the new boiler plant from the Hospitals North West Building Mechanical Room. See drawing P-003 of the CON application. Potable water will be made available from an existing water line that runs adjacent to the new plant.

5. Please provide financial and logistical justification for the additional $500K expenditure for the "Biomass Preparation Measures" given the fact that the Biomass conversion is estimated to cost $3M and has not been reviewed to determine financial favorability at this time.

SVMC is concerned about the future cost of operations, particularly fuel costs. Thereby, SVMC seeks to maintain future fuel flexibility, including potential future conversion to biomass. The proposed plant includes two features that balance the initial capital investment with providing flexibility to potentially convert to biomass if financial conditions are favorable;

1. Slightly larger metal prefabricated building- The facility was enlarged to accommodate the larger Hurst convertible boiler. The facility was designed to be taller, to allow future fitting of the Hurst boiler with a biomass burner.

2. Hurst convertible boiler selected- A Hurst convertible boiler was chosen, as this model would allow relatively easy installation of a biomass burner and ash control systems, thereby readily accommodate conversion to biomass.

Also, the plant was sited to accommodate future conversion to biomass including providing sufficient space for turning of trucks and off-loading biomass. These features increase the cost of the proposed facility by $500,000. However, we believe this capital expenditure is a prudent investment to maintain fuel flexibility.

6. Provide any cost analysis completed on the installation of a wood chip combustor as part of the proposed construction or as a retrofit.

SVMC explored wood chip combustor costs with Messersmith Manufacturing, Inc. soon after attending the Northeast Biomass Heating Expo, held in March, 2016 (Burlington, VT). These discussions indicated that purchasing and installing a biomass combustor at this time would add $190,000 to the current project costs. By contrast, adding the combustor at a future time during full conversion of the plant to biomass, would cost $215,000, or $25,000 more. Purchasing a $190,000 asset now to lay fallow for years, only to save $25,000 at an undetermined time in the future when technology could change, does not appear to be financially sensible. As such, SVMC has elected to not purchase this component but rather anticipate this capital expenditure at the time of conversion to biomass. A separate certificate of need application would be filed at the time of requesting conversation to biomass fuel.

7. Are there more detailed construction documents available than were provided with the application? If yes, please provide. Please also provide any analysis or study regarding the overall suitability of the site for future conversion to wood chips as a fuel source.

Appendix 1 illustrates adaptation of the proposed design to accommodate biomass. These drawings illustrate the suitability of the site for future conversion to biomass including space for truck turn around and offloading, wood chip fuel storage and handling, and effluent and ash handling. Every effort has been made to facilitate future conversion to biomass upon favorable financial conditions (when fuel and operational costs (including debt and depreciation) balance capital costs required for conversion).

8. Provide the following energy cost assumptions used to develop the savings of the CNG project.

a. **most recent #6 fuel oil unit cost (i.e. $/gallon)**

   $2.38/gallon for #6 fuel was used in modelling conducted nearly one year ago. Since then the cost of #6 fuel has declined. Purchases in July, 2016 were at $1.68/gallon.

b. **annual fuel oil input in MMBtu used for developing the cost listed in the application**

   58,360 mmBTU

c. **annual natural gas input in MMBtu used for developing the cost listed in the application**

   58,360 mmBTU. The same mmBTU was used in all modeling because that magnitude of BTUs is required annually by SVMC's facilities.

d. **natural gas unit cost used for developing the annual fuel cost listed in the application.**

   $12.99/mmBTU. This figure includes both the commodity price as well as the adder used to off-set the capital cost incurred by supplier (see the quote in section 5 of the CON application). Note that the overall unit cost in the most recent quote ($13.22/mmBTU) is slightly larger than was used when modelling the fuel options nearly one year ago.

9. Provide the most recent propane price quote used to evaluate whether propane would be a viable fuel.

SVMC currently purchases propane for select uses. Rates in July, 2016 were $1.29/gallon. Developing propane storage would cost an estimated $100,000 for a concrete platform, tanks and piping. The amount of space required to store propane is estimated to be larger than that required for natural gas. Proposing use of propane would also increase the effort required for permitting due to accommodations for storm water run-off and additional fire safety considerations. In addition to the costs of implementing and using propane as a fuel source, SVMC considered the safety of propane. Propane gas is heavier than air and thereby leaks pool in low spots creating an ignition and explosion hazard. By contract Natural Gas is lighter than air and any leaks quickly dissipate.

10. Provide the pressure rating of the proposed Hurst boiler.

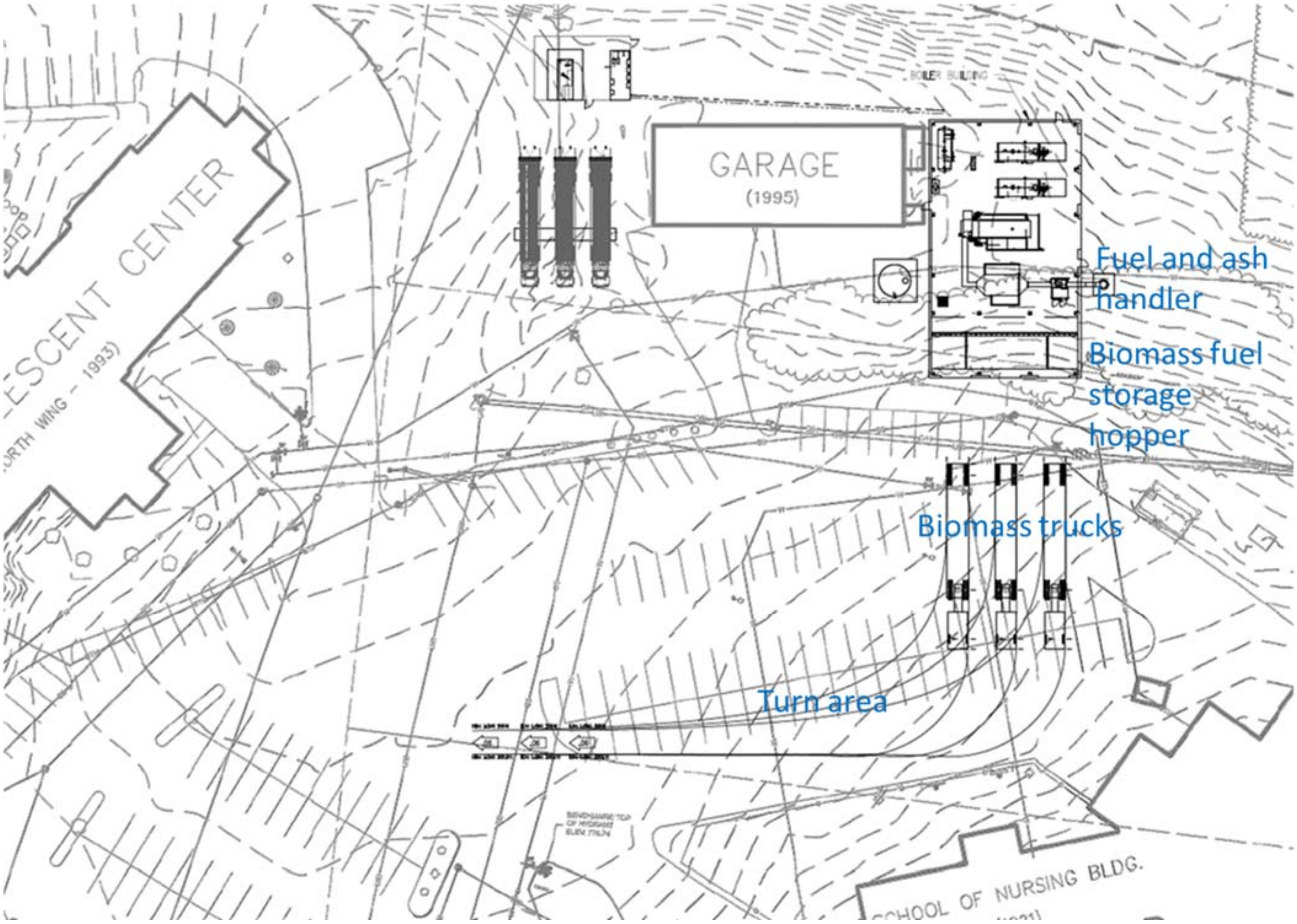
The 500 HP Hurst boiler is rated at 150 PSI.

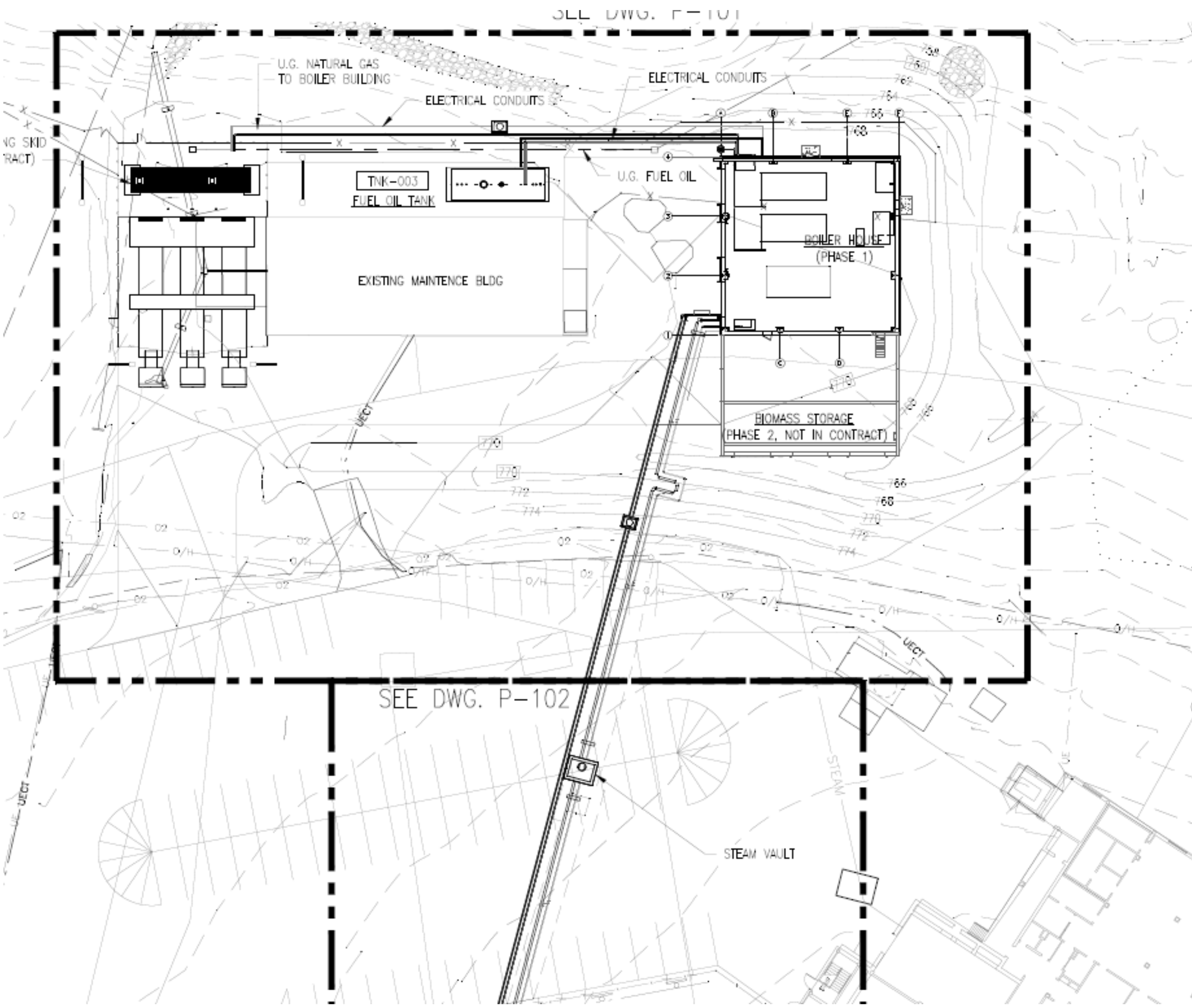
We anticipate that these answers will close the CON application. Future rounds of questions would only serve to delay the project and further risk failure of our current fragile boilers. We thank the Green Mountain Care Board for swiftly considering this important project.

James Trimarchi, Director Planning 802 440 4051 James.Trimarchi@svhealthcare.org

Appendix 1

Future adaptation of current configuration demonstrating accommodation for biomass (Phase 2)




SEE DWG. P-101
U.G. NATURAL GAS
TO BOILER BUILDING
ELECTRICAL CONDUITS
ELECTRICAL CONDUITS
TNK-003
FUEL OIL TANK
U.G. FUEL OIL
BOILER HOUSE
(PHASE 1)
EXISTING MAINTENCE BLDG
BIOMASS STORAGE
(PHASE 2, NOT IN CONTRACT)
SEE DWG. P-102
STEAM VAULT
STEAM