Montana Department of
ENVIRONMENTAL QUALITY
Brian Schweitzer, Governor
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PRELIMINARY DETERMINATION
ON PERMIT APPLICATION

Date of Mailing: August 21, 2012

Name of Applicant: CHS Inc.

Source: Laurel Refinery

Proposed Action: The Department of Environmental Quality (Department) proposes to issue a permit, with conditions, to the above-named applicant. The application was assigned Permit Application Number 1821-27.

Proposed Conditions: See attached.

Public Comment: Any member of the public desiring to comment must submit such comments in writing to the Air Resources Management Bureau (Bureau) of the Department at the above address. Comments may address the Department's analysis and determination, or the information submitted in the application. In order to be considered, comments on this Preliminary Determination are due by September 20, 2012. Copies of the application and the Department's analysis may be inspected at the Bureau's office in Helena. For more information, you may contact the Department.

Departmental Action: The Department intends to make a decision on the application after expiration of the Public Comment period described above. A copy of the decision may be obtained at the above address. The permit shall become final on the date stated in the Department's Decision on this permit, unless an appeal is filed with the Board of Environmental Review (Board).

Procedures for Appeal: Any person jointly or severally adversely affected by the final action may request a hearing before the Board. Any appeal must be filed by the date stated in the Department's Decision on this permit. The request for a hearing shall contain an affidavit setting forth the grounds for the request. Any hearing will be held under the provisions of the Montana Administrative Procedures Act. Submit requests for a hearing in triplicate to: Chairman, Board of Environmental Review, P.O. Box 200901, Helena, MT 59620.

For the Department,

Charles Homer
Manager, Air Permitting, Compliance and Registration
Air Resources Management Bureau
(406) 444-5279

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CH:JO
Enclosures

DEPARTMENT OF ENVIRONMENTAL QUALITY
Permitting and Compliance Division
Air Resources Management Bureau
1520 East Sixth Avenue
P.O. Box 200901, Helena, Montana 59620-0901
(406) 444-3490

DRAFT ENVIRONMENTAL ASSESSMENT (EA)

Issued For: CHS Inc.
Laurel Refinery
P.O. Box 909
Laurel, MT 59044-0909

Montana Air Quality Permit (MAQP) Number: 1821-27

Preliminary Determination on Permit Issued: 08/21/2012
Department Decision Issued:
Permit Final:

1. *Legal Description of Site*: South ½, Section 16, Township 2 South, Range 24 East in Yellowstone County.

2. *Description of Project*:

On June 4, 2012, CHS Inc. (CHS) submitted a permit application to the Department of Environmental Quality-Air Resources Management Bureau (Department) to modify MAQP # 1821-26 and Title V Operating Permit (OP) # OP1821-10. The application is for modification to two previously permitted refinery projects, and to construct a new gasoline and diesel truck loading facility as summarized below:

Mild Hydrocracker (MHC) Project Update. This application incorporates the final design and location of the FCC Charge Heater being replaced as part of the MHC Project. The FCC Charge Heater was originally approved at 60 million British thermal units per hour (MMBtu/hr) as part of the MHC project (MAQP #1821-23). This permit application modifies the size of the heater from 60 to 66 MMBtu/hr. In addition, the permit application reclassifies the fluidized catalytic cracking unit (FCCU) as a "modified" emitting unit rather than an "affected unit," and CHS requests to replace the existing Riser with a new Riser as the current Riser is nearing the end of its mechanical life.

Benzene Reduction Unit (BRU) Project Update. This project involves modification of the H-1001 Reformer Heater to achieve the design hydrogen production rate within the 1000 Unit Hydrogen Plant. Expansion of the 1000 Unit Hydrogen Plant was included in the MAQP #1821-18. However, the 1000 Unit Hydrogen Plant expansion changed the characteristics of the PSA tailgas (e.g. the heat content (British thermal units per standard cubic feet (Btu/scf) declined and the volume produced increased (standard cubic feet per minute (scfm)). According to CHS, the total heat input associated with the PSA tailgas remained nearly the same. As a result, the existing PSA tailgas burners on the H-1001 Reformer Heater could not handle the increased volume of PSA tailgas without excessive pressure drop and the 1000 Unit Hydrogen Plant production rate became limited by the volume of PSA tailgas that could be combusted. The proposed permit modification is to replace the PSA tailgas burner tips with tips that have larger ports.

Additionally, the modified heater will have a higher maximum design firing rate (139 MMBtu-higher heating value (HHV)/hr post project versus 135 MMBtu-HHV/hr) and a slight increase in the actual firing rate is also expected. The current heater is physically capable of combusting refinery fuel gas but would be unable to meet the existing NOx permit limits while doing so.

Gasoline and Distillate Truck Loading Facilities Project. This permit application also proposes the construction of new gasoline and distillate truck loading facilities, including new storage tanks, loading rack and vapor combustion unit (VCU). The goal of the project is to improve safety and reduce truck congestion at the existing loading facility to be removed from service once the new one is constructed. Additionally, the permit modification adds a new propane storage and loading facility. The existing gasoline and distillate truck loading rack and associated VCU will be removed from service once the rack is constructed.

In addition to those items mentioned above, this permit action also includes miscellaneous updates and amendments. CHS requested to discontinue use of the sulfur dioxide (SO_2) Continuous Emissions Monitoring System (CEMs) on the H-1001 stack because H-1001 is subject to 40 CFR 60, Subpart Ja which includes exemptions from hydrogen sulfide/sulfur dioxide (H_2S/SO2) monitoring requirements for fuel gas streams that are inherently low in sulfur content. CHS already monitors the H_2S content of the refinery fuel gas (RFG) to be combusted in H-1001 which would meet the monitoring requirements of 40 CFR 60, Subpart Ja.

CHS requested that the Department remove condition IV.E.4 which requires the use of statistically significant F-factor values in determining compliance with oxides of nitrogen (NOx) and carbon monoxide (CO) limits for the H-102 Reformer Heater. Rather, CHS proposes that results of the required performance testing be used to calculate an appropriate emission factor to demonstrate ongoing compliance with NOx and CO limits.

3. *Objectives of Project*: The primary purpose of this permitting action would be: 1) to construct a new loading rack, VCU and associated tanks; 2) to redesign and construct a new FCCU riser and FCC Charge heater in addition to other updates on the previously approved mild hydrocracker project; 3) to modify the existing H-1001 Reformer heater by replacing the PSA tailgas burner tips with tips that have larger ports.

4. *Alternatives Considered*: In addition to the proposed action, the Department also considered the "no-action" alternative. The "no-action" alternative would deny issuance of the MAQP to the proposed facility. However, the Department does not consider the "no-action" alternative to be appropriate because CHS demonstrated compliance with all applicable rules and regulations as required for permit issuance. Therefore, the "no-action" alternative was eliminated from further consideration.

5. *A listing of mitigation, stipulations and other controls*: A list of enforceable permit conditions and a complete permit analysis, including Best Available Control Technology (BACT) determinations, would be contained in MAQP #1821-27.

6. *Regulatory effects on private property*: The Department considered alternatives to the conditions imposed in this permit as part of the permit development. The Department determined that the permit conditions are reasonably necessary to ensure compliance with applicable requirements and to demonstrate compliance with those requirements and do not unduly restrict private property rights.

7. The following table summarizes the potential physical and biological effects of the proposed project on the human environment. The "no action alternative" was discussed previously.

		Major	Moderate	Minor	None	Unknown	Comments
A	Terrestrial and Aquatic Life and Habitats			X			Yes
B	Water Quality, Quantity and Distribution			X			Yes
C	Geology and Soil Quality, Stability and Moisture			X			Yes
D	Vegetation Cover, Quantity and Quality			X			Yes
E	Aesthetics				X		Yes
F	Air Quality			X			Yes
G	Unique Endangered, Fragile or Limited Environmental Resource			X			Yes
H	Demands on Environmental Resource of Water, Air and Energy			X			Yes
I	Historical and Archaeological Sites			X			Yes
J	Cumulative and Secondary Impacts			X			Yes

SUMMARY OF COMMENTS ON POTENTIAL PHYSICAL AND BIOLOGICAL EFFECTS: The following comments have been prepared by the Department.

A. Terrestrial and Aquatic Life and Habitats:

This permitting action could have a minor effect on terrestrial and aquatic life and habitats, as the proposed projects would include modification of existing emission units and additions of new emissions units. Impacts to terrestrial and aquatic life and habitats may occur as a result of these increased emissions. However, the emissions increases for the project fall below significance levels identified within the rules associated with Prevention of Significant Deterioration (PSD). Additionally, the permitting action would result in the incorporation of the most current facility and emissions information available. The overall emissions would remain within the facility-wide emissions caps established in MAQP #1821-05 in 2000. Further, the projects would ultimately take place on industrial property that has already been disturbed. Therefore, only minor impacts to terrestrial and aquatic life and habitats are anticipated.

B. Water Quality, Quantity, and Distribution:

While deposition of pollutants would occur, the Department determined that any impacts from deposition of pollutants would be minor. Furthermore, this action would not result in a change in the quality or quantity of ground water. There also would not be any changes in drainage patterns or new discharges associated with these projects. Therefore, minor impacts to water quality, quantity, and/or distribution are anticipated.

C. Geology and Soil Quality, Stability, and Moisture:

The proposed projects constitute of installation of emission sources on the same existing industrial site. Therefore, no additional disturbance would be created as a result of the proposed projects. While deposition of pollutants would occur, the Department

determined that any impacts from deposition of pollutants would be minor. Additionally, no unique geologic or physical features would be disturbed. Overall, the Department believes that any impact to the geology and soil quality, stability, and moisture would be minor.

D. Vegetation Cover, Quantity, and Quality:

The proposed projects would affect an existing, industrial property that has already been disturbed. No additional vegetation on the site would be disturbed for the project. However, possible increases in actual emissions of NO_x, SO_2, VOCs, Particulate Matter/ particulate matter with an aerodynamic diameter of 10 microns or less ($PM/PM_{10/}PM_{2.5}$), and Carbon Monoxide (CO) from historical emission levels may result in minor impacts to the diversity, productivity, or abundance of plant species in the surrounding areas. Overall, any impacts to vegetation cover, quantity, and quality would be minor.

E. Aesthetics:

The proposed modification to the facility would be constructed in areas that have previously been disturbed and would not result in any additional disturbance. Therefore, no impacts to aesthetics are anticipated.

F. Air Quality:

The proposed projects would include increases of NO_x, SO_2, VOC, $PM/PM_{2.5}/PM_{10}$, and CO emissions. However, the project emissions do not exceed "significance" threshold levels as outlined in the rules associated with PSD. CHS would be required to maintain compliance with the Billings/Laurel SO_2 State Implementation Plan (SIP), current permit conditions, and state and federal ambient air quality standards. Additionally, modeled levels of pollutants for the proposed project show compliance with the NAAQS and the MAAQS. While deposition of pollutants is anticipated, the Department has determined that any air quality impacts as a result of the deposition would be minor.

G. Unique Endangered, Fragile, or Limited Environmental Resources:

The Department, in an effort to assess any potential impacts to any unique endangered, fragile, or limited environmental resources in the initial proposed area of operation (South ½, Section 16, Township 2 South, Range 24 East in Yellowstone County), previously contacted the Natural Resource Information System – Montana Natural Heritage Program. Search results concluded there are seven species of concern within the area. The search area, in this case, is defined by the section, township, and range of the proposed site, with an additional 1-mile buffer. The known specie of concern includes the Yellowstone Cutthroat Trout (Sensitive).

This permitting action may result in minor impacts to unique endangered, fragile, or limited environmental resources. However, as described in Section 7.F. of this EA, pollutant emissions generated from the facility would have minimal impacts on air quality in the immediate and surrounding area because of the relatively small amount of pollution emitted. There would not be any additional impact to these resources because the project would occur at an already disturbed site.

H. Demands on Environmental Resource of Water, Air, and Energy:

As described in Section 7.B of this EA, this permitting action would have little or no effect on the environmental resource of water as there would be no additional discharges to groundwater or surface water associated with this permitting action.

As described in Section 7.F of this EA, the impact on the air resource in the area of the facility would be minor because the facility would be required to maintain compliance with other limitations affecting the overall emissions from the facility.

A minor impact to the energy resource is expected during the construction process involved with the proposed projects; however, this impact is temporary. Additional energy consumption as a result of new equipment installation is expected to be minimal by scale. Overall, the impact to the energy resource would be minor.

I. Historical and Archaeological Sites:

In an effort to identify any historical and archaeological sites near the proposed project area for previous projects, the Department contacted the Montana Historical Society, State Historic Preservation Office (SHPO). According to SHPO records, there have been a few previously recorded sites within the designated search locales. In addition to the sites there have been a few previously conducted cultural resource inventories done in the areas. The projects would occur within the boundaries of a previously disturbed industrial site. There is a low likelihood cultural properties will be impacted; therefore, any impacts to historical and archeological would be considered minor.

J. Cumulative and Secondary Impacts:

The proposed projects would include increases of NO_x, SO_2, VOC, $PM/PM_{2.5}/PM_{10}$, and CO emissions; however, cumulative and secondary impacts from this action are anticipated to be minor as the emissions do not exceed “significance” threshold levels on a per project basis as outlined in the rules associated with PSD. Additionally, as described in Section 7.F of this EA, the impact on the air resource in the area of the facility would be minor because the facility would be required to maintain compliance with other limitations affecting the overall emissions from the facility. Any cumulative or secondary impacts as a result of these projects are considered to be minor and overall emissions will remain within the facility-wide emissions caps established in MAQP #1821-05 in 2000.

8. The following table summarizes the potential economic and social effects of the proposed project on the human environment. The "no action alternative" was discussed previously.

		Major	Moderate	Minor	None	Unknown	Comments
A	Social Structures and Mores				X		Yes
B	Cultural Uniqueness and Diversity				X		Yes
C	Local and State Tax Base and Tax Revenue				X		Yes
D	Agricultural or Industrial Production				X		Yes
E	Human Health			X			Yes
F	Access to and Quality of Recreational and Wilderness Activities				X		Yes
G	Quantity and Distribution of Employment				X		Yes
H	Distribution of Population				X		Yes
I	Demands for Government Services			X			Yes
J	Industrial and Commercial Activity				X		Yes

K	Locally Adopted Environmental Plans and Goals				X		Yes
L	Cumulative and Secondary Impacts			X			Yes

SUMMARY OF COMMENTS ON POTENTIAL ECONOMIC AND SOCIAL EFFECTS: The following comments have been prepared by the Department:

A. Social Structures and Mores:

The proposed projects would not cause a disruption to any native or traditional lifestyles or communities (social structures or mores) in the area because the projects would be constructed at a previously disturbed industrial site. The proposed projects would not change the nature of the site.

B. Cultural Uniqueness and Diversity:

The proposed projects would not cause a change in the cultural uniqueness and diversity of the area because the land is currently used as a petroleum refinery; therefore, the land use would not be changing. The use of the surrounding area would not change as a result of these projects.

C. Local and State Tax Base and Tax Revenue:

The refinery's overall capacity would not change as a result of the permitting action. In addition, no new employees would be needed for this project. Therefore, no impacts to the local and state tax base and tax revenue are anticipated from these projects.

D. Agricultural or Industrial Production:

The permitting action would not result in a reduction of available acreage or productivity of any agricultural land; therefore, agricultural production would not be affected. The refinery's overall capacity would not change as a result of the proposed projects. Therefore, industrial production would not be affected.

E. Human Health:

As described in Section 7.F of this EA, the impacts from this facility on human health would be minor because the emissions from the facility would increase, but not significantly from prior levels. The air quality permit for this facility would incorporate conditions to ensure that the facility would be operated in compliance with all applicable rules and standards. These rules and standards are designed to be protective of human health.

F. Access to and Quality of Recreational and Wilderness Activities:

The proposed projects would not have an impact on recreational or wilderness activities because the site is far removed from recreational and wilderness areas or access routes. The action would not result in any changes in access to and quality of recreational and wilderness activities.

G. Quantity and Distribution of Employment:

No change in the number of employees currently onsite would be anticipated as a result of the proposed projects. Therefore, the action would not have any impacts to the quantity and distribution of employment at the facility.

H. Distribution of Population:

This permitting action does not involve any significant physical or operational change that would affect the location, distribution, density, or growth rate of the human population. The distribution of population would not change as a result of this action.

I. Demands of Government Services:

The demands on government services would experience a minor impact. The primary demand on government services would be the acquisition of the appropriate permits by the facility and compliance verification with those permits.

J. Industrial and Commercial Activity:

The refinery's overall capacity would not change as a result of the proposed permitting action. Therefore, no impacts on industrial activity at CHS would be expected. Industrial and commercial activity in the neighboring area is not anticipated to be affected by issuing MAQP #1821-27.

K. Locally Adopted Environmental Plans and Goals:

This permitting action would not affect any locally adopted environmental plans or goals. CHS must continue to comply with the SIP and FIP and associated stipulations for the Billings/Laurel area. The Department is not aware of any locally adopted environmental plans and goals that would be impacted by this action.

L. Cumulative and Secondary Impacts:

Overall, any cumulative and secondary impacts from this project on the social and economic aspects of the human environment would be minor. The project is associated with an existing facility and would not change the culture or character of the area. Additionally, overall emissions will remain within the facility-wide emissions caps established in MAQP #1821-05 in 2000.

Recommendation: An Environmental Impact Statement (EIS) is not required.

If an EIS is not required, explain why the EA is an appropriate level of analysis: All potential effects resulting from this permitting action would be minor; therefore, an EIS is not required. In addition, the source would be applying BACT and the analysis indicates compliance with all applicable air quality rules and regulations.

Other groups or agencies contacted or which may have overlapping jurisdiction: None.

Individuals or groups contributing to this EA: Department of Environmental Quality, Permitting and Compliance Division - Air Resources Management Bureau.

EA Prepared By: Jenny O'Mara
Date: August 21, 2012