



**PERMIT APPLICATION FOR
FUEL BURNING EQUIPMENT FOR INDIRECT HEATING**
NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 8518 (09-12)

SECTION A – FACILITY INFORMATION

Name of Firm or Organization Meridian Energy Group – Davis Refinery		
Contact Person for Air Pollution Matters Tom Johnson		
Title Vice President of Operations	Telephone Number (409)795-0792	E-mail Address tjohnson@meridianenergygroup.inc
Applicant's Name Tom Williams		
Title VP of Planning & Permitting	Telephone Number (707) 299-0182	E-mail Address twilliams@meridianenergygroup.inc
Mailing Address (Street & No.) 2062 Business Center Drive, Suite 115		
City Irvine	State CA	ZIP Code 92612
Facility Address (Street & No.) 37th Street		
City Belfield	State ND	ZIP Code 58622
County Billings	Latitude (Nearest Second) 46°52'45"N	Longitude (Nearest Second) 103°14'55" W
Legal Description of Facility Site Property ID 07 0000 00165 000 in the SE 1/4 of Section 2, Twp 139N, Range 100W and Property ID: 07 0000 00162 000 in the NW1/4 and SW 1/4 of Section 1, Twp 139N, Range 100W	Land Area at Facility Site 261 Acres	MSL Elevation at Facility 2,685 feet

SECTION B – EQUIPMENT

Source ID No. (From form SFN 8516) 101-H-0101	Name of Manufacturer TBD
Rated Capacity/Maximum Input TBD	Model Number TBD
Purpose Space Heat _____ % Process Heat 100 %	Power Generation _____ % Other (Specify % if Multi Purpose) _____ %

SECTION C – TYPE OF COMBUSTION UNIT AND FUEL FEEDING METHOD

Coal (If other solid fuel, specify here) <input type="checkbox"/> Pulverized <input type="checkbox"/> General <input type="checkbox"/> Dry Bottom <input type="checkbox"/> Wet Bottom with Fly Ash Reinjection <input type="checkbox"/> Wet Bottom without Fly Ash Reinjection <input type="checkbox"/> Other – Specify:	<input type="checkbox"/> Spreader Stoker with Fly Ash Reinjection <input type="checkbox"/> Spreader Stoker without Fly Ash Reinjection <input type="checkbox"/> Fluidized Bed <input type="checkbox"/> Cyclone <input type="checkbox"/> Hand-Fired
Fuel Oil <input type="checkbox"/> Horizontally Fired <input type="checkbox"/> Tangentially Fired <input type="checkbox"/> Other – Specify:	Gas <input type="checkbox"/> Horizontally Fired <input type="checkbox"/> Tangentially Fired <input type="checkbox"/> Other – Specify: TBD

SECTION D – NORMAL SCHEDULE OF OPERATION

Hours Per Day 24	Days Per Week 7	Weeks Per Year 52	Hours Per Year Total 8760	Peak Season (Specify Months) N/A
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SECTION E – FUEL USE EXPECTED IN A CALENDAR YEAR

Year 2017-2018					
Primary Fuels			Standby Fuels		
Type Fuel Gas			Type none		
Quantity Per Year 22,869,732		Units of Measure lb/yr	Quantity Per Year		Units of Measure
Percent Ash (Solid Fuels Only)					
Minimum	Maximum	Average	Minimum	Maximum	Average
Percent Sulfur					
Minimum 0	Maximum 0	Average 0	Minimum	Maximum	Average
Btu Per Unit of Measure (e.g. lb, gal, etc. - Specify)					
Minimum TBD	Maximum TBD	Average 27,578.81	Minimum	Maximum	Average
Describe Fuel Transport and Storage Methods: N/A, fuel gas to be generated within the refinery					

SECTION F – COMBUSTION AIR

<input type="checkbox"/> Natural Draft	<input type="checkbox"/> Induced	<input type="checkbox"/> Forced	<input type="checkbox"/> Other – Specify: TBD
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SECTION G – STACK DATA

Inside Diameter (ft) 6.3	Height Above Grade (ft) 127.6
Gas Temperature at Exit (Avg. °F) 787.7	Gas Velocity at Exit (Avg. ft/sec) 20.1
Are Emission Control Devices in Place? If YES – Complete SFN 8532 <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Stack Exit Gas Flow Rate	
Average (ACFM) 37,427.14	Average (DSCFM) TBD
Maximum (ACFM) TBD	Maximum (DSCFM) TBD
Are sampling ports available? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes – Describe:	

SECTION H – NEARBY BUILDINGS

Attach drawings which show the plan and elevation views of any nearby buildings including the building that houses the fuel-fired equipment. Plant layout drawings attached to this permit application.

SECTION I – AIR CONTAMINANTS EMITTED

Pollutant	Maximum Pounds Per Hour	Tons Per Year
PM ₁₀ Total	2,88E-01	1,26E+00
PM ₁₀ Filterable	7,20E-02	3,15E-01
PM _{2.5} Total	2,88E-01	1,26E+00
PM _{2.5} Filterable	7,20E-02	3,15E-01
PM _{2.5} Condensable	2,16E-01	9,46E-01
Sulfur Dioxide	4,24E-02	1,86E-01
Nitrogen Oxides	4,54E-01	1,99E+00
Carbon Monoxide	2,02E+00	8,83E+00
Greenhouse Gases (CO ₂ e)	N/A	
Other – Specify		
Lead	3,53E-05	1,55E-04
Metal HAP (Total)	5,26E-04	2,31E-03
Organic HAPs (Total)	3,52E-02	1,54E-01
VOC	3,88E-01	1,70E+00
Basis and Calculations for Quantities: Engineering data and Emission factors from Table 1.4-2. AP 42, Chapter 1: External Combustion Sources. See Document P-5715043-01-001-18042-1001 "EMISSIONS INVENTORY" and P-5715043-01-001-18035-1001 "BACT Analysis"		

Signature of Applicant	
	Date 9/26/2016

SEND COMPLETED APPLICATION AND ALL ATTACHMENTS TO:

North Dakota Department of Health
Division of Air Quality
918 E Divide Ave., 2nd Floor
Bismarck, ND 58501-1947
(701) 328-5188



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SECTION B – EQUIPMENT

Source ID No. (From form SFN 8516) 102-H-0201	Name of Manufacturer TBD
Rated Capacity/Maximum Input TBD	Model Number TBD
Purpose Space Heat _____ % Process Heat 100 %	Power Generation _____ % Other (Specify % if Multi Purpose) _____ %

SECTION C – TYPE OF COMBUSTION UNIT AND FUEL FEEDING METHOD

Coal (If other solid fuel, specify here) <input type="checkbox"/> Pulverized <input type="checkbox"/> General <input type="checkbox"/> Dry Bottom <input type="checkbox"/> Wet Bottom with Fly Ash Reinjection <input type="checkbox"/> Wet Bottom without Fly Ash Reinjection <input type="checkbox"/> Other – Specify:	<input type="checkbox"/> Spreader Stoker with Fly Ash Reinjection <input type="checkbox"/> Spreader Stoker without Fly Ash Reinjection <input type="checkbox"/> Fluidized Bed <input type="checkbox"/> Cyclone <input type="checkbox"/> Hand-Fired
Fuel Oil <input type="checkbox"/> Horizontally Fired <input type="checkbox"/> Tangentially Fired <input type="checkbox"/> Other – Specify:	Gas <input type="checkbox"/> Horizontally Fired <input type="checkbox"/> Tangentially Fired <input type="checkbox"/> Other – Specify: TBD

SECTION D – NORMAL SCHEDULE OF OPERATION

Hours Per Day 24	Days Per Week 7	Weeks Per Year 52	Hours Per Year Total 8760	Peak Season (Specify Months) N/A
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Year 2017-2018					
Primary Fuels			Standby Fuels		
Type Fuel Gas			Type none		
Quantity Per Year 22,869,732		Units of Measure lb/yr	Quantity Per Year		Units of Measure
Percent Ash (Solid Fuels Only)					
Minimum	Maximum	Average	Minimum	Maximum	Average
Percent Sulfur					
Minimum 0	Maximum 0	Average 0	Minimum	Maximum	Average
Btu Per Unit of Measure (e.g. lb, gal, etc. - Specify)					
Minimum TBD	Maximum TBD	Average 27,578.81	Minimum	Maximum	Average
Describe Fuel Transport and Storage Methods: N/A, fuel gas to be generated within the refinery					

SECTION F – COMBUSTION AIR

<input type="checkbox"/> Natural Draft	<input type="checkbox"/> Induced	<input type="checkbox"/> Forced	<input type="checkbox"/> Other – Specify: TBD
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SECTION G – STACK DATA

Inside Diameter (ft) 6.3		Height Above Grade (ft) 127.6	
Gas Temperature at Exit (Avg. °F) 787.7		Gas Velocity at Exit (Avg. ft/sec) 20.1	
Are Emission Control Devices in Place? If YES – Complete SFN 8532 <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
Stack Exit Gas Flow Rate			
Average (ACFM) 37,427.14		Average (DSCFM) TBD	
Maximum (ACFM) TBD		Maximum (DSCFM) TBD	
Are sampling ports available? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes – Describe:			

SECTION H – NEARBY BUILDINGS

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SECTION I – AIR CONTAMINANTS EMITTED

Pollutant	Maximum Pounds Per Hour	Tons Per Year
PM ₁₀ Total	2,88E-01	1,26E+00
PM ₁₀ Filterable	7,20E-02	3,15E-01
PM _{2.5} Total	2,88E-01	1,26E+00
PM _{2.5} Filterable	7,20E-02	3,15E-01
PM _{2.5} Condensable	2,16E-01	9,46E-01
Sulfur Dioxide	4,24E-02	1,86E-01
Nitrogen Oxides	4,54E-01	1,99E+00
Carbon Monoxide	2,02E+00	8,83E+00
Greenhouse Gases (CO ₂ e)	N/A	
Other – Specify		
Lead	3,53E-05	1,55E-04
Metal HAP (Total)	5,26E-04	2,31E-03
Organic HAPs (Total)	3,52E-02	1,54E-01
VOC	3,88E-01	1,70E+00
Basis and Calculations for Quantities: Engineering data and Emission factors from Table 1.4-2. AP 42, Chapter 1: External Combustion Sources. See Document P-5715043-01-001-18042-1001 "EMISSIONS INVENTORY" and P-5715043-01-001-18035-1001 "BACT Analysis"		

Signature of Applicant	
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SECTION B – EQUIPMENT

Source ID No. (From form SFN 8516) 103-H-0301	Name of Manufacturer TBD
Rated Capacity/Maximum Input TBD	Model Number TBD
Purpose Space Heat _____ % Process Heat 100 %	Power Generation _____ % Other (Specify % if Multi Purpose) _____ %

SECTION C – TYPE OF COMBUSTION UNIT AND FUEL FEEDING METHOD

Coal (If other solid fuel, specify here) <input type="checkbox"/> Pulverized <input type="checkbox"/> General <input type="checkbox"/> Dry Bottom <input type="checkbox"/> Wet Bottom with Fly Ash Reinjection <input type="checkbox"/> Wet Bottom without Fly Ash Reinjection <input type="checkbox"/> Other – Specify:	<input type="checkbox"/> Spreader Stoker with Fly Ash Reinjection <input type="checkbox"/> Spreader Stoker without Fly Ash Reinjection <input type="checkbox"/> Fluidized Bed <input type="checkbox"/> Cyclone <input type="checkbox"/> Hand-Fired
Fuel Oil <input type="checkbox"/> Horizontally Fired <input type="checkbox"/> Tangentially Fired <input type="checkbox"/> Other – Specify:	Gas <input type="checkbox"/> Horizontally Fired <input type="checkbox"/> Tangentially Fired <input type="checkbox"/> Other – Specify: TBD

SECTION D – NORMAL SCHEDULE OF OPERATION

Hours Per Day 24	Days Per Week 7	Weeks Per Year 52	Hours Per Year Total 8760	Peak Season (Specify Months) N/A
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SECTION E – FUEL USE EXPECTED IN A CALENDAR YEAR

Year 2017-2018					
Primary Fuels			Standby Fuels		
Type Fuel Gas			Type None		
Quantity Per Year 24,295,860		Units of Measure lb/yr	Quantity Per Year		Units of Measure
Percent Ash (Solid Fuels Only)					
Minimum	Maximum	Average	Minimum	Maximum	Average
Percent Sulfur					
Minimum 0	Maximum 0	Average 0	Minimum	Maximum	Average
Btu Per Unit of Measure (e.g. lb, gal, etc. - Specify)					
Minimum TBD	Maximum TBD	Average 27,571.66	Minimum	Maximum	Average
Describe Fuel Transport and Storage Methods: N/A, fuel gas to be generated within the refinery					

SECTION F – COMBUSTION AIR

<input type="checkbox"/> Natural Draft	<input type="checkbox"/> Induced	<input type="checkbox"/> Forced	<input type="checkbox"/> Other – Specify: TBD
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SECTION G – STACK DATA

Inside Diameter (ft) 6.5	Height Above Grade (ft) 125
Gas Temperature at Exit (Avg. °F) 600.4	Gas Velocity at Exit (Avg. ft/sec) 16.9
Are Emission Control Devices in Place? If YES – Complete SFN 8532 <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Stack Exit Gas Flow Rate	
Average (ACFM) 33,610.60	Average (DSCFM) TBD
Maximum (ACFM) TBD	Maximum (DSCFM) TBD
Are sampling ports available? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes – Describe:	

SECTION H – NEARBY BUILDINGS

Attach drawings which show the plan and elevation views of any nearby buildings including the building that houses the fuel-fired equipment. Plant layout drawings attached to this permit application.

SECTION I – AIR CONTAMINANTS EMITTED

Pollutant	Maximum Pounds Per Hour	Tons Per Year
PM ₁₀ Total	3,06E-01	1,34E+00
PM ₁₀ Filterable	7,65E-02	3,35E-01
PM _{2.5} Total	3,06E-01	1,34E+00
PM _{2.5} Filterable	7,65E-02	3,35E-01
PM _{2.5} Condensable	2,29E-01	1,00E+00
Sulfur Dioxide	4,50E-02	1,97E-01
Nitrogen Oxides	4,82E-01	2,11E+00
Carbon Monoxide	2,14E+00	9,38E+00
Greenhouse Gases (CO ₂ e)	N/A	
Other – Specify		
Lead	3,75E-05	1,64E-04
Metal HAP (Total)	5,59E-04	2,45E-03
Organic HAPs (Total)	3,74E-02	1,64E-01
VOC	4,12E-01	1,81E+00
Basis and Calculations for Quantities: Engineering data and Emission factors from Table 1.4-2. AP 42, Chapter 1: External Combustion Sources. See Document P-5715043-01-001-18042-1001 "EMISSIONS INVENTORY" and P-5715043-01-001-18035-1001 "BACT Analysis"		

Signature of Applicant		Date
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SECTION B – EQUIPMENT

Source ID No. (From form SFN 8516) 103-H-0302	Name of Manufacturer TBD
Rated Capacity/Maximum Input TBD	Model Number TBD
Purpose Space Heat _____ % Process Heat 100 %	Power Generation _____ % Other (Specify % if Multi Purpose) _____ %

SECTION C – TYPE OF COMBUSTION UNIT AND FUEL FEEDING METHOD

Coal (If other solid fuel, specify here) <input type="checkbox"/> Pulverized <input type="checkbox"/> General <input type="checkbox"/> Dry Bottom <input type="checkbox"/> Wet Bottom with Fly Ash Reinjection <input type="checkbox"/> Wet Bottom without Fly Ash Reinjection <input type="checkbox"/> Other – Specify:	<input type="checkbox"/> Spreader Stoker with Fly Ash Reinjection <input type="checkbox"/> Spreader Stoker without Fly Ash Reinjection <input type="checkbox"/> Fluidized Bed <input type="checkbox"/> Cyclone <input type="checkbox"/> Hand-Fired
Fuel Oil <input type="checkbox"/> Horizontally Fired <input type="checkbox"/> Tangentially Fired <input type="checkbox"/> Other – Specify:	Gas <input type="checkbox"/> Horizontally Fired <input type="checkbox"/> Tangentially Fired <input type="checkbox"/> Other – Specify: TBD

SECTION D – NORMAL SCHEDULE OF OPERATION

Hours Per Day 24	Days Per Week 7	Weeks Per Year 52	Hours Per Year Total 8760	Peak Season (Specify Months) N/A
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SECTION E – FUEL USE EXPECTED IN A CALENDAR YEAR

Year 2017-2018					
Primary Fuels			Standby Fuels		
Type Fuel Gas			Type None		
Quantity Per Year 18,313,656		Units of Measure lb/yr	Quantity Per Year		Units of Measure
Percent Ash (Solid Fuels Only)					
Minimum	Maximum	Average	Minimum	Maximum	Average
Percent Sulfur					
Minimum 0	Maximum 0	Average 0	Minimum	Maximum	Average
Btu Per Unit of Measure (e.g. lb, gal, etc. - Specify)					
Minimum TBD	Maximum TBD	Average 27,575.82	Minimum	Maximum	Average
Describe Fuel Transport and Storage Methods: N/A, fuel gas to be generated within the refinery					

SECTION F – COMBUSTION AIR

<input type="checkbox"/> Natural Draft	<input type="checkbox"/> Induced	<input type="checkbox"/> Forced	<input type="checkbox"/> Other – Specify: TBD
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SECTION G – STACK DATA

Inside Diameter (ft) 5.1	Height Above Grade (ft) 120
Gas Temperature at Exit (Avg. °F) 600.1	Gas Velocity at Exit (Avg. ft/sec) 20.8
Are Emission Control Devices in Place? If YES – Complete SFN 8532 <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Stack Exit Gas Flow Rate	
Average (ACFM) 25,334.29	Average (DSCFM) TBD
Maximum (ACFM) TBD	Maximum (DSCFM) TBD
Are sampling ports available? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes – Describe:	

SECTION H – NEARBY BUILDINGS

Attach drawings which show the plan and elevation views of any nearby buildings including the building that houses the fuel-fired equipment. Plant layout drawings attached to this permit application.

SECTION I – AIR CONTAMINANTS EMITTED

Pollutant	Maximum Pounds Per Hour	Tons Per Year
PM ₁₀ Total	2,31E-01	1,01E+00
PM ₁₀ Filterable	5,77E-02	2,53E-01
PM _{2.5} Total	2,31E-01	1,01E+00
PM _{2.5} Filterable	5,77E-02	2,53E-01
PM _{2.5} Condensable	1,73E-01	7,58E-01
Sulfur Dioxide	3,39E-02	1,49E-01
Nitrogen Oxides	3,63E-01	1,59E+00
Carbon Monoxide	1,61E+00	7,07E+00
Greenhouse Gases (CO ₂ e)	N/A	
Other – Specify		
Lead	2,82E-05	1,24E-04
Metal HAP (Total)	4,22E-04	1,85E-03
Organic HAPs (Total)	2,82E-02	1,23E-01
VOC	3,11E-01	1,36E+00
Basis and Calculations for Quantities: Engineering data and Emission factors from Table 1.4-2. AP 42, Chapter 1: External Combustion Sources. See Document P-5715043-01-001-18042-I001 "EMISSIONS INVENTORY" and P-5715043-01-001-18035-I001 "BACT Analysis"		

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Year 2017-2018					
Primary Fuels			Standby Fuels		
Type Fuel Gas			Type None		
Quantity Per Year 4,366,860		Units of Measure lb/yr	Quantity Per Year		Units of Measure
Percent Ash (Solid Fuels Only)					
Minimum	Maximum	Average	Minimum	Maximum	Average
Percent Sulfur					
Minimum 0	Maximum 0	Average 0	Minimum	Maximum	Average
Btu Per Unit of Measure (e.g. lb, gal, etc. - Specify)					
Minimum TBD	Maximum TBD	Average 27,582.75	Minimum	Maximum	Average
Describe Fuel Transport and Storage Methods: N/A, fuel gas to be generated within the refinery					

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<input type="checkbox"/> Natural Draft	<input type="checkbox"/> Induced	<input type="checkbox"/> Forced	<input type="checkbox"/> Other – Specify: TBD
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Gas Temperature at Exit (Avg. °F) 787.7	Gas Velocity at Exit (Avg. ft/sec) 16.2
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PM ₁₀ Filterable	1,38E-02	6,02E-02
PM _{2.5} Total	5,50E-02	2,41E-01
PM _{2.5} Filterable	1,38E-02	6,02E-02
PM _{2.5} Condensable	4,13E-02	1,81E-01
Sulfur Dioxide	8,09E-03	3,54E-02
Nitrogen Oxides	4,13E-01	1,81E+00
Carbon Monoxide	3,85E-01	1,69E+00
Greenhouse Gases (CO ₂ e)	N/A	
Other – Specify		
Lead	6,74E-06	2,95E-05
Metal HAP (Total)	1,01E-04	4,40E-04
Organic HAPs (Total)	6,72E-03	2,94E-02
VOC	7,41E-02	3,25E-01
Basis and Calculations for Quantities: Engineering data and Emission factors from Table 1.4-2. AP 42, Chapter 1: External Combustion Sources. See Document P-5715043-01-001-18042-1001 "EMISSIONS INVENTORY" and P-5715043-01-001-18035-1001 "BACT Analysis"		

Signature of Applicant	Date
	09/26/2016

SEND COMPLETED APPLICATION AND ALL ATTACHMENTS TO:

North Dakota Department of Health
 Division of Air Quality
 918 E Divide Ave., 2nd Floor
 Bismarck, ND 58501-1947
 (701) 328-5188



**PERMIT APPLICATION FOR
FUEL BURNING EQUIPMENT FOR INDIRECT HEATING**
NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 8518 (09-12)

SECTION A – FACILITY INFORMATION

Name of Firm or Organization Meridian Energy Group – Davis Refinery		
Contact Person for Air Pollution Matters Tom Johnson		
Title Vice President of Operations	Telephone Number (409)795-0792	E-mail Address tjohnson@meridianenergygroup.inc
Applicant's Name Tom Williams		
Title VP of Planning & Permitting	Telephone Number (707) 299-0182	E-mail Address twilliams@meridianenergygroup.inc
Mailing Address (Street & No.) 2062 Business Center Drive, Suite 115		
City Irvine	State CA	ZIP Code 92612
Facility Address (Street & No.) 37th Street		
City Belfield	State ND	ZIP Code 58622
County Billings	Latitude (Nearest Second) 46°52'45"N	Longitude (Nearest Second) 103°14'55" W
Legal Description of Facility Site Property ID 07 0000 00165 000 in the SE 1/4 of Section 2, Twp 139N, Range 100W and Property ID: 07 0000 00162 000 in the NW1/4 and SW 1/4 of Section 1, Twp 139N, Range 100W	Land Area at Facility Site 261 Acres	MSL Elevation at Facility 2,685 feet

SECTION B – EQUIPMENT

Source ID No. (From form SFN 8516) 105-H-0502	Name of Manufacturer TBD
Rated Capacity/Maximum Input TBD	Model Number TBD
Purpose Space Heat _____ % Process Heat 100 %	Power Generation _____ % Other (Specify % if Multi Purpose) _____ %

SECTION C – TYPE OF COMBUSTION UNIT AND FUEL FEEDING METHOD

Coal (If other solid fuel, specify here) <input type="checkbox"/> Pulverized <input type="checkbox"/> General <input type="checkbox"/> Dry Bottom <input type="checkbox"/> Wet Bottom with Fly Ash Reinjection <input type="checkbox"/> Wet Bottom without Fly Ash Reinjection <input type="checkbox"/> Other – Specify:	<input type="checkbox"/> Spreader Stoker with Fly Ash Reinjection <input type="checkbox"/> Spreader Stoker without Fly Ash Reinjection <input type="checkbox"/> Fluidized Bed <input type="checkbox"/> Cyclone <input type="checkbox"/> Hand-Fired
Fuel Oil <input type="checkbox"/> Horizontally Fired <input type="checkbox"/> Tangentially Fired <input type="checkbox"/> Other – Specify:	Gas <input type="checkbox"/> Horizontally Fired <input type="checkbox"/> Tangentially Fired <input type="checkbox"/> Other – Specify: TBD

SECTION D – NORMAL SCHEDULE OF OPERATION

Hours Per Day 24	Days Per Week 7	Weeks Per Year 52	Hours Per Year Total 8760	Peak Season (Specify Months) N/A
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SECTION E – FUEL USE EXPECTED IN A CALENDAR YEAR

Year 2017-2018					
Primary Fuels			Standby Fuels		
Type Fuel Gas			Type None		
Quantity Per Year 5,161,392		Units of Measure lb/yr	Quantity Per Year		Units of Measure
Percent Ash (Solid Fuels Only)					
Minimum	Maximum	Average	Minimum	Maximum	Average
Percent Sulfur					
Minimum 0	Maximum 0	Average 0	Minimum	Maximum	Average
Btu Per Unit of Measure (e.g. lb, gal, etc. - Specify)					
Minimum TBD	Maximum TBD	Average 27,579.77	Minimum	Maximum	Average
Describe Fuel Transport and Storage Methods: N/A, fuel gas to be generated within the refinery					

SECTION F – COMBUSTION AIR

<input type="checkbox"/> Natural Draft	<input type="checkbox"/> Induced	<input type="checkbox"/> Forced	<input type="checkbox"/> Other – Specify: TBD
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SECTION G – STACK DATA

Inside Diameter (ft) 3	Height Above Grade (ft) 91
Gas Temperature at Exit (Avg. °F) 787.7	Gas Velocity at Exit (Avg. ft/sec) 19.1
Are Emission Control Devices in Place? If YES – Complete SFN 8532 <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Stack Exit Gas Flow Rate	
Average (ACFM) 8,115.32	Average (DSCFM) TBD
Maximum (ACFM) TBD	Maximum (DSCFM) TBD
Are sampling ports available? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes – Describe:	

SECTION H – NEARBY BUILDINGS

Attach drawings which show the plan and elevation views of any nearby buildings including the building that houses the fuel-fired equipment. Plant layout drawings attached to this permit application.

SECTION I – AIR CONTAMINANTS EMITTED

Pollutant	Maximum Pounds Per Hour	Tons Per Year
PM ₁₀ Total	6,50E-02	2,85E-01
PM ₁₀ Filterable	1,63E-02	7,12E-02
PM _{2.5} Total	6,50E-02	2,85E-01
PM _{2.5} Filterable	1,63E-02	7,12E-02
PM _{2.5} Condensable	4,88E-02	2,14E-01
Sulfur Dioxide	9,56E-03	4,19E-02
Nitrogen Oxides	4,88E-01	2,14E+00
Carbon Monoxide	4,55E-01	1,99E+00
Greenhouse Gases (CO2e)	N/A	
Other – Specify		
Lead	7,96E-06	3,49E-05
Metal HAP (Total)	1,19E-04	5,20E-04
Organic HAPs (Total)	7,94E-03	3,48E-02
VOC	8,76E-02	3,84E-01
Basis and Calculations for Quantities: Engineering data and Emission factors from Table 1.4-2. AP 42, Chapter 1: External Combustion Sources. See Document P-5715043-01-001-18042-1001 "EMISSIONS INVENTORY" and P-5715043-01-001-18035-1001 "BACT Analysis"		

Signature of Applicant 	Date 09/26/2016
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SEND COMPLETED APPLICATION AND ALL ATTACHMENTS TO:

North Dakota Department of Health
Division of Air Quality
918 E Divide Ave., 2nd Floor
Bismarck, ND 58501-1947
(701) 328-5188



**PERMIT APPLICATION FOR
FUEL BURNING EQUIPMENT FOR INDIRECT HEATING**
NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 8518 (09-12)

SECTION A – FACILITY INFORMATION

Name of Firm or Organization Meridian Energy Group – Davis Refinery		
Contact Person for Air Pollution Matters Tom Johnson		
Title Vice President of Operations	Telephone Number (409)795-0792	E-mail Address tjohnson@meridianenergygroup.inc
Applicant's Name Tom Williams		
Title VP of Planning & Permitting	Telephone Number (707) 299-0182	E-mail Address twilliams@meridianenergygroup.inc
Mailing Address (Street & No.) 2062 Business Center Drive, Suite 115		
City Irvine	State CA	ZIP Code 92612
Facility Address (Street & No.) 37th Street		
City Belfield	State ND	ZIP Code 58622
County Billings	Latitude (Nearest Second) 46°52'45"N	Longitude (Nearest Second) 103°14'55" W
Legal Description of Facility Site Property ID 07 0000 00165 000 in the SE 1/4 of Section 2, Twp 139N, Range 100W and Property ID: 07 0000 00162 000 in the NW1/4 and SW 1/4 of Section 1, Twp 139N, Range 100W	Land Area at Facility Site 261 Acres	MSL Elevation at Facility 2,685 feet

SECTION B – EQUIPMENT

Source ID No. (From form SFN 8516) 106-H-0601	Name of Manufacturer TBD
Rated Capacity/Maximum Input TBD	Model Number TBD
Purpose Space Heat _____ % Process Heat 100 %	Power Generation _____ % Other (Specify % if Multi Purpose) _____ %

SECTION C – TYPE OF COMBUSTION UNIT AND FUEL FEEDING METHOD

Coal (If other solid fuel, specify here) <input type="checkbox"/> Pulverized <input type="checkbox"/> General <input type="checkbox"/> Dry Bottom <input type="checkbox"/> Wet Bottom with Fly Ash Reinjection <input type="checkbox"/> Wet Bottom without Fly Ash Reinjection <input type="checkbox"/> Other – Specify:	<input type="checkbox"/> Spreader Stoker with Fly Ash Reinjection <input type="checkbox"/> Spreader Stoker without Fly Ash Reinjection <input type="checkbox"/> Fluidized Bed <input type="checkbox"/> Cyclone <input type="checkbox"/> Hand-Fired
Fuel Oil <input type="checkbox"/> Horizontally Fired <input type="checkbox"/> Tangentially Fired <input type="checkbox"/> Other – Specify:	Gas <input type="checkbox"/> Horizontally Fired <input type="checkbox"/> Tangentially Fired <input type="checkbox"/> Other – Specify: TBD

SECTION D – NORMAL SCHEDULE OF OPERATION

Hours Per Day 24	Days Per Week 7	Weeks Per Year 52	Hours Per Year Total 8760	Peak Season (Specify Months) N/A
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SECTION E – FUEL USE EXPECTED IN A CALENDAR YEAR

Year 2017-2018					
Primary Fuels			Standby Fuels		
Type Fuel Gas			Type none		
Quantity Per Year 13,253,880		Units of Measure lb/yr	Quantity Per Year		Units of Measure
Percent Ash (Solid Fuels Only)					
Minimum	Maximum	Average	Minimum	Maximum	Average
Percent Sulfur					
Minimum 0	Maximum 0	Average 0	Minimum	Maximum	Average
Btu Per Unit of Measure (e.g. lb, gal, etc. - Specify)					
Minimum TBD	Maximum TBD	Average 27,580.96	Minimum	Maximum	Average
Describe Fuel Transport and Storage Methods: N/A, fuel gas to be generated within the refinery					

SECTION F – COMBUSTION AIR

<input type="checkbox"/> Natural Draft	<input type="checkbox"/> Induced	<input type="checkbox"/> Forced	<input type="checkbox"/> Other – Specify: TBD
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SECTION G – STACK DATA

Inside Diameter (ft) 4		Height Above Grade (ft) 42	
Gas Temperature at Exit (Avg. °F) 786.2		Gas Velocity at Exit (Avg. ft/sec) 27.5	
Are Emission Control Devices in Place? If YES – Complete SFN 8532 <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
Stack Exit Gas Flow Rate			
Average (ACFM) 20,769.92		Average (DSCFM) TBD	
Maximum (ACFM) TBD		Maximum (DSCFM) TBD	
Are sampling ports available? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes – Describe:			

SECTION H – NEARBY BUILDINGS

Attach drawings which show the plan and elevation views of any nearby buildings including the building that houses the fuel-fired equipment. Plant layout drawings attached to this permit application.

SECTION I – AIR CONTAMINANTS EMITTED

Pollutant	Maximum Pounds Per Hour	Tons Per Year
PM ₁₀ Total	1,67E-01	7,31E-01
PM ₁₀ Filterable	4,17E-02	1,83E-01
PM _{2.5} Total	1,67E-01	7,31E-01
PM _{2.5} Filterable	4,17E-02	1,83E-01
PM _{2.5} Condensable	1,25E-01	5,48E-01
Sulfur Dioxide	2,45E-02	1,08E-01
Nitrogen Oxides	2,63E-01	1,15E+00
Carbon Monoxide	1,17E+00	5,12E+00
Greenhouse Gases (CO2e)	N/A	
Other – Specify		
Lead	2,04E-05	8,96E-05
Metal HAP (Total)	3,05E-04	1,34E-03
Organic HAPs (Total)	2,04E-02	8,94E-02
VOC	2,25E-01	9,86E-01
Basis and Calculations for Quantities: Engineering data and Emission factors from Table 1.4-2. AP 42, Chapter 1: External Combustion Sources. See Document P-5715043-01-001-18042-1001 "EMISSIONS INVENTORY" and P-5715043-01-001-18035-1001 "BACT Analysis"		

Signature of Applicant	Date
	09/26/2016

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**PERMIT APPLICATION FOR
FUEL BURNING EQUIPMENT FOR INDIRECT HEATING**
NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 8518 (09-12)

SECTION A – FACILITY INFORMATION

Name of Firm or Organization Meridian Energy Group – Davis Refinery		
Contact Person for Air Pollution Matters Tom Johnson		
Title Vice President of Operations	Telephone Number (409)795-0792	E-mail Address tjohnson@meridianenergygroup.inc
Applicant's Name Tom Williams		
Title VP of Planning & Permitting	Telephone Number (707) 299-0182	E-mail Address twilliams@meridianenergygroup.inc
Mailing Address (Street & No.) 2062 Business Center Drive, Suite 115		
City Irvine	State CA	ZIP Code 92612
Facility Address (Street & No.) 37th Street		
City Belfield	State ND	ZIP Code 58622
County Billings	Latitude (Nearest Second) 46°52'45"N	Longitude (Nearest Second) 103°14'55" W
Legal Description of Facility Site Property ID 07 0000 00165 000 in the SE 1/4 of Section 2, Twp 139N, Range 100W and Property ID: 07 0000 00162 000 in the NW1/4 and SW 1/4 of Section 1, Twp 139N, Range 100W	Land Area at Facility Site 261 Acres	MSL Elevation at Facility 2,685 feet

SECTION B – EQUIPMENT

Source ID No. (From form SFN 8516) 107-H-0701	Name of Manufacturer TBD
Rated Capacity/Maximum Input TBD	Model Number TBD
Purpose Space Heat _____% Process Heat 100 %	Power Generation _____% Other (Specify % if Multi Purpose) _____%

SECTION C – TYPE OF COMBUSTION UNIT AND FUEL FEEDING METHOD

Coal (If other solid fuel, specify here) <input type="checkbox"/> Pulverized <input type="checkbox"/> General <input type="checkbox"/> Dry Bottom <input type="checkbox"/> Wet Bottom with Fly Ash Reinjection <input type="checkbox"/> Wet Bottom without Fly Ash Reinjection <input type="checkbox"/> Other – Specify:	<input type="checkbox"/> Spreader Stoker with Fly Ash Reinjection <input type="checkbox"/> Spreader Stoker without Fly Ash Reinjection <input type="checkbox"/> Fluidized Bed <input type="checkbox"/> Cyclone <input type="checkbox"/> Hand-Fired
Fuel Oil <input type="checkbox"/> Horizontally Fired <input type="checkbox"/> Tangentially Fired <input type="checkbox"/> Other – Specify:	Gas <input type="checkbox"/> Horizontally Fired <input type="checkbox"/> Tangentially Fired <input type="checkbox"/> Other – Specify: TBD

SECTION D – NORMAL SCHEDULE OF OPERATION

Hours Per Day 24	Days Per Week 7	Weeks Per Year 52	Hours Per Year Total 8760	Peak Season (Specify Months) N/A
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SECTION E – FUEL USE EXPECTED IN A CALENDAR YEAR

Year 2017-2018					
Primary Fuels			Standby Fuels		
Type Fuel Gas			Type None		
Quantity Per Year 29,381,040		Units of Measure lb/yr	Quantity Per Year		Units of Measure
Percent Ash (Solid Fuels Only)					
Minimum	Maximum	Average	Minimum	Maximum	Average
Percent Sulfur					
Minimum 0	Maximum 0	Average 0	Minimum	Maximum	Average
Btu Per Unit of Measure (e.g. lb, gal, etc. - Specify)					
Minimum TBD	Maximum TBD	Average 27,579.01	Minimum	Maximum	Average
Describe Fuel Transport and Storage Methods: N/A, fuel gas to be generated within the refinery					

SECTION F – COMBUSTION AIR

<input type="checkbox"/> Natural Draft	<input type="checkbox"/> Induced	<input type="checkbox"/> Forced	<input type="checkbox"/> Other – Specify: TBD
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SECTION G – STACK DATA

Inside Diameter (ft) 6	Height Above Grade (ft) 120
Gas Temperature at Exit (Avg. °F) 787.7	Gas Velocity at Exit (Avg. ft/sec) 27.2
Are Emission Control Devices in Place? If YES – Complete SFN 8532 <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Stack Exit Gas Flow Rate	
Average (ACFM) 46,194.82	Average (DSCFM) TBD
Maximum (ACFM) TBD	Maximum (DSCFM) TBD
Are sampling ports available? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes – Describe:	

SECTION H – NEARBY BUILDINGS

Attach drawings which show the plan and elevation views of any nearby buildings including the building that houses the fuel-fired equipment. Plant layout drawings attached to this permit application.

SECTION I – AIR CONTAMINANTS EMITTED

Pollutant	Maximum Pounds Per Hour	Tons Per Year
PM ₁₀ Total	3,70E-01	1,62E+00
PM ₁₀ Filterable	9,25E-02	4,05E-01
PM _{2.5} Total	3,70E-01	1,62E+00
PM _{2.5} Filterable	9,25E-02	4,05E-01
PM _{2.5} Condensable	2,78E-01	1,22E+00
Sulfur Dioxide	5,44E-02	2,38E-01
Nitrogen Oxides	5,83E-01	2,55E+00
Carbon Monoxide	2,59E+00	1,13E+01
Greenhouse Gases (CO2e)	N/A	
Other – Specify		
Lead	4,53E-05	1,99E-04
Metal HAP (Total)	6,76E-04	2,96E-03
Organic HAPs (Total)	4,52E-02	1,98E-01
VOC	4,99E-01	2,18E+00
Basis and Calculations for Quantities: Engineering data and Emission factors from Table 1.4-2. AP 42, Chapter 1: External Combustion Sources. See Document P-5715043-01-001-18042-1001 "EMISSIONS INVENTORY" and P-5715043-01-001-18035-1001 "BACT Analysis"		

Signature of Applicant	Date
	09/26/2016

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 Bismarck, ND 58501-1947
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**PERMIT APPLICATION FOR
FUEL BURNING EQUIPMENT FOR INDIRECT HEATING**
NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 8518 (09-12)

SECTION A – FACILITY INFORMATION

Name of Firm or Organization Meridian Energy Group – Davis Refinery		
Contact Person for Air Pollution Matters Tom Johnson		
Title Vice President of Operations	Telephone Number (409)795-0792	E-mail Address tjohnson@meridianenergygroup.inc
Applicant's Name Tom Williams		
Title VP of Planning & Permitting	Telephone Number (707) 299-0182	E-mail Address twilliams@meridianenergygroup.inc
Mailing Address (Street & No.) 2062 Business Center Drive, Suite 115		
City Irvine	State CA	ZIP Code 92612
Facility Address (Street & No.) 37th Street		
City Belfield	State ND	ZIP Code 58622
County Billings	Latitude (Nearest Second) 46°52'45"N	Longitude (Nearest Second) 103°14'55" W
Legal Description of Facility Site Property ID 07 0000 00165 000 in the SE 1/4 of Section 2, Twp 139N, Range 100W and Property ID: 07 0000 00162 000 in the NW1/4 and SW 1/4 of Section 1, Twp 139N, Range 100W	Land Area at Facility Site 261 Acres	MSL Elevation at Facility 2,685 feet

SECTION B – EQUIPMENT

Source ID No. (From form SFN 8516) 110-H-1001	Name of Manufacturer TBD
Rated Capacity/Maximum Input TBD	Model Number TBD
Purpose Space Heat _____ % Process Heat 100 %	Power Generation _____ % Other (Specify % if Multi Purpose) _____ %

SECTION C – TYPE OF COMBUSTION UNIT AND FUEL FEEDING METHOD

Coal (If other solid fuel, specify here) <input type="checkbox"/> Pulverized <input type="checkbox"/> General <input type="checkbox"/> Dry Bottom <input type="checkbox"/> Wet Bottom with Fly Ash Reinjection <input type="checkbox"/> Wet Bottom without Fly Ash Reinjection <input type="checkbox"/> Other – Specify:	<input type="checkbox"/> Spreader Stoker with Fly Ash Reinjection <input type="checkbox"/> Spreader Stoker without Fly Ash Reinjection <input type="checkbox"/> Fluidized Bed <input type="checkbox"/> Cyclone <input type="checkbox"/> Hand-Fired
Fuel Oil <input type="checkbox"/> Horizontally Fired <input type="checkbox"/> Tangentially Fired <input type="checkbox"/> Other – Specify:	Gas <input type="checkbox"/> Horizontally Fired <input type="checkbox"/> Tangentially Fired <input type="checkbox"/> Other – Specify: TBD

SECTION D – NORMAL SCHEDULE OF OPERATION

Hours Per Day 24	Days Per Week 7	Weeks Per Year 52	Hours Per Year Total 8760	Peak Season (Specify Months) N/A
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SECTION E – FUEL USE EXPECTED IN A CALENDAR YEAR

Year 2017-2018					
Primary Fuels			Standby Fuels		
Type Fuel Gas			Type none		
Quantity Per Year 6,902,880		Units of Measure lb/yr	Quantity Per Year		Units of Measure
Percent Ash (Solid Fuels Only)					
Minimum	Maximum	Average	Minimum	Maximum	Average
Percent Sulfur					
Minimum 0	Maximum 0	Average 0	Minimum	Maximum	Average
Btu Per Unit of Measure (e.g. lb, gal, etc. - Specify)					
Minimum TBD	Maximum TBD	Average 20,621.83	Minimum	Maximum	Average
Describe Fuel Transport and Storage Methods: N/A, fuel gas to be generated within the refinery					

SECTION F – COMBUSTION AIR

<input type="checkbox"/> Natural Draft	<input type="checkbox"/> Induced	<input type="checkbox"/> Forced	<input type="checkbox"/> Other – Specify: TBD
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SECTION G – STACK DATA

Inside Diameter (ft) 2.5	Height Above Grade (ft) 96
Gas Temperature at Exit (Avg. °F) 764.3	Gas Velocity at Exit (Avg. ft/sec) 28.4
Are Emission Control Devices in Place? If YES – Complete SFN 8532 <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Stack Exit Gas Flow Rate	
Average (ACFM) 8,091.77	Average (DSCFM) TBD
Maximum (ACFM) TBD	Maximum (DSCFM) TBD
Are sampling ports available? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes – Describe:	

SECTION H – NEARBY BUILDINGS

Attach drawings which show the plan and elevation views of any nearby buildings including the building that houses the fuel-fired equipment. Plant layout drawings attached to this permit application.

SECTION I – AIR CONTAMINANTS EMITTED

Pollutant	Maximum Pounds Per Hour	Tons Per Year
PM ₁₀ Total	6,50E-02	2,85E-01
PM ₁₀ Filterable	1,63E-02	7,12E-02
PM _{2.5} Total	6,50E-02	2,85E-01
PM _{2.5} Filterable	1,63E-02	7,12E-02
PM _{2.5} Condensable	4,88E-02	2,14E-01
Sulfur Dioxide	9,56E-03	4,19E-02
Nitrogen Oxides	4,88E-01	2,14E+00
Carbon Monoxide	4,55E-01	1,99E+00
Greenhouse Gases (CO ₂ e)	N/A	
Other – Specify		
Lead	7,96E-06	3,49E-05
Metal HAP (Total)	1,19E-04	5,20E-04
Organic HAPs (Total)	7,94E-03	3,48E-02
VOC	8,76E-02	3,84E-01
Basis and Calculations for Quantities: Engineering data and Emission factors from Table 1.4-2. AP 42, Chapter 1: External Combustion Sources. See Document P-5715043-01-001-18042-1001 "EMISSIONS INVENTORY" and P-5715043-01-001-18035-1001 "BACT Analysis"		

Signature of Applicant	
	Date 09/26/2016

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NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 8518 (09-12)

SECTION A – FACILITY INFORMATION

Name of Firm or Organization Meridian Energy Group – Davis Refinery		
Contact Person for Air Pollution Matters Tom Johnson		
Title Vice President of Operations	Telephone Number (409)795-0792	E-mail Address tjohnson@meridianenergygroup.inc
Applicant's Name Tom Williams		
Title VP of Planning & Permitting	Telephone Number (707) 299-0182	E-mail Address twilliams@meridianenergygroup.inc
Mailing Address (Street & No.) 2062 Business Center Drive, Suite 115		
City Irvine	State CA	ZIP Code 92612
Facility Address (Street & No.) 37th Street		
City Belfield	State ND	ZIP Code 58622
County Billings	Latitude (Nearest Second) 46°52'45"N	Longitude (Nearest Second) 103°14'55" W
Legal Description of Facility Site Property ID 07 0000 00165 000 in the SE 1/4 of Section 2, Twp 139N, Range 100W and Property ID: 07 0000 00162 000 in the NW1/4 and SW 1/4 of Section 1, Twp 139N, Range 100W	Land Area at Facility Site 261 Acres	MSL Elevation at Facility 2,685 feet

SECTION B – EQUIPMENT

Source ID No. (From form SFN 8516) 111-H-1101	Name of Manufacturer TBD
Rated Capacity/Maximum Input TBD	Model Number TBD
Purpose Space Heat _____ % Process Heat 100 %	Power Generation _____ % Other (Specify % if Multi Purpose) _____ %

SECTION C – TYPE OF COMBUSTION UNIT AND FUEL FEEDING METHOD

Coal (If other solid fuel, specify here) <input type="checkbox"/> Pulverized <input type="checkbox"/> General <input type="checkbox"/> Dry Bottom <input type="checkbox"/> Wet Bottom with Fly Ash Reinjection <input type="checkbox"/> Wet Bottom without Fly Ash Reinjection <input type="checkbox"/> Other – Specify:	<input type="checkbox"/> Spreader Stoker with Fly Ash Reinjection <input type="checkbox"/> Spreader Stoker without Fly Ash Reinjection <input type="checkbox"/> Fluidized Bed <input type="checkbox"/> Cyclone <input type="checkbox"/> Hand-Fired
Fuel Oil <input type="checkbox"/> Horizontally Fired <input type="checkbox"/> Tangentially Fired <input type="checkbox"/> Other – Specify:	Gas <input type="checkbox"/> Horizontally Fired <input type="checkbox"/> Tangentially Fired <input type="checkbox"/> Other – Specify: TBD

SECTION D – NORMAL SCHEDULE OF OPERATION

Hours Per Day 24	Days Per Week 7	Weeks Per Year 52	Hours Per Year Total 8760	Peak Season (Specify Months) N/A
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SECTION E – FUEL USE EXPECTED IN A CALENDAR YEAR

Year 2017-2018					
Primary Fuels			Standby Fuels		
Type Fuel Gas			Type None		
Quantity Per Year 4,415,040		Units of Measure lb/yr	Quantity Per Year		Units of Measure
Percent Ash (Solid Fuels Only)					
Minimum	Maximum	Average	Minimum	Maximum	Average
Percent Sulfur					
Minimum 0	Maximum 0	Average 0	Minimum	Maximum	Average
Btu Per Unit of Measure (e.g. lb, gal, etc. - Specify)					
Minimum TBD	Maximum TBD	Average 27,579.37	Minimum	Maximum	Average
Describe Fuel Transport and Storage Methods: N/A, fuel gas to be generated within the refinery					

SECTION F – COMBUSTION AIR

<input type="checkbox"/> Natural Draft	<input type="checkbox"/> Induced	<input type="checkbox"/> Forced	<input type="checkbox"/> Other – Specify: TBD
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SECTION G – STACK DATA

Inside Diameter (ft) 3.5		Height Above Grade (ft) 170	
Gas Temperature at Exit (Avg. °F) 793.1		Gas Velocity at Exit (Avg. ft/sec) 12.1	
Are Emission Control Devices in Place? If YES – Complete SFN 8532 <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
Stack Exit Gas Flow Rate			
Average (ACFM) 6,964.97		Average (DSCFM) TBD	
Maximum (ACFM) TBD		Maximum (DSCFM) TBD	
Are sampling ports available? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes – Describe:			

SECTION H – NEARBY BUILDINGS

Attach drawings which show the plan and elevation views of any nearby buildings including the building that houses the fuel-fired equipment. Plant layout drawings attached to this permit application.

SECTION I – AIR CONTAMINANTS EMITTED

Pollutant	Maximum Pounds Per Hour	Tons Per Year
PM ₁₀ Total	5,56E-02	2,44E-01
PM ₁₀ Filterable	1,39E-02	6,09E-02
PM _{2.5} Total	5,56E-02	2,44E-01
PM _{2.5} Filterable	1,39E-02	6,09E-02
PM _{2.5} Condensable	4,17E-02	1,83E-01
Sulfur Dioxide	8,18E-03	3,58E-02
Nitrogen Oxides	4,17E-01	1,83E+00
Carbon Monoxide	3,89E-01	1,70E+00
Greenhouse Gases (CO ₂ e)	N/A	
Other – Specify		
Lead	6,81E-06	2,98E-05
Metal HAP (Total)	1,02E-04	4,45E-04
Organic HAPs (Total)	6,80E-03	2,98E-02
VOC	7,50E-02	3,28E-01
Basis and Calculations for Quantities: Engineering data and Emission factors from Table 1.4-2. AP 42, Chapter 1: External Combustion Sources. See Document P-5715043-01-001-18042-1001 "EMISSIONS INVENTORY" and P-5715043-01-001-18035-1001 "BACT Analysis"		

Signature of Applicant	
	Date 09/26/2016

SEND COMPLETED APPLICATION AND ALL ATTACHMENTS TO:

North Dakota Department of Health
 Division of Air Quality
 918 E Divide Ave., 2nd Floor
 Bismarck, ND 58501-1947
 (701) 328-5188



**PERMIT APPLICATION FOR
FUEL BURNING EQUIPMENT FOR INDIRECT HEATING**
NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 8518 (09-12)

SECTION A – FACILITY INFORMATION

Name of Firm or Organization Meridian Energy Group – Davis Refinery		
Contact Person for Air Pollution Matters Tom Johnson		
Title Vice President of Operations	Telephone Number (409)795-0792	E-mail Address tjohnson@meridianenergygroup.inc
Applicant's Name Tom Williams		
Title VP of Planning & Permitting	Telephone Number (707) 299-0182	E-mail Address twilliams@meridianenergygroup.inc
Mailing Address (Street & No.) 2062 Business Center Drive, Suite 115		
City Irvine	State CA	ZIP Code 92612
Facility Address (Street & No.) 37th Street		
City Belfield	State ND	ZIP Code 58622
County Billings	Latitude (Nearest Second) 46°52'45"N	Longitude (Nearest Second) 103°14'55" W
Legal Description of Facility Site Property ID 07 0000 00165 000 in the SE 1/4 of Section 2, Twp 139N, Range 100W and Property ID: 07 0000 00162 000 in the NW1/4 and SW 1/4 of Section 1, Twp 139N, Range 100W	Land Area at Facility Site 261 Acres	MSL Elevation at Facility 2,685 feet

SECTION B – EQUIPMENT

Source ID No. (From form SFN 8516) 112-H-1201	Name of Manufacturer TBD
Rated Capacity/Maximum Input TBD	Model Number TBD
Purpose Space Heat _____ % Process Heat 100 %	Power Generation _____ % Other (Specify % if Multi Purpose) _____ %

SECTION C – TYPE OF COMBUSTION UNIT AND FUEL FEEDING METHOD

Coal (If other solid fuel, specify here) <input type="checkbox"/> Pulverized <input type="checkbox"/> General <input type="checkbox"/> Dry Bottom <input type="checkbox"/> Wet Bottom with Fly Ash Reinjection <input type="checkbox"/> Wet Bottom without Fly Ash Reinjection <input type="checkbox"/> Other – Specify:	<input type="checkbox"/> Spreader Stoker with Fly Ash Reinjection <input type="checkbox"/> Spreader Stoker without Fly Ash Reinjection <input type="checkbox"/> Fluidized Bed <input type="checkbox"/> Cyclone <input type="checkbox"/> Hand-Fired
Fuel Oil <input type="checkbox"/> Horizontally Fired <input type="checkbox"/> Tangentially Fired <input type="checkbox"/> Other – Specify:	Gas <input type="checkbox"/> Horizontally Fired <input type="checkbox"/> Tangentially Fired <input type="checkbox"/> Other – Specify: TBD

SECTION D – NORMAL SCHEDULE OF OPERATION

Hours Per Day 24	Days Per Week 7	Weeks Per Year 52	Hours Per Year Total 8760	Peak Season (Specify Months) N/A
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SECTION E – FUEL USE EXPECTED IN A CALENDAR YEAR

Year 2017-2018					
Primary Fuels			Standby Fuels		
Type Fuel Gas			Type none		
Quantity Per Year 9,005,280		Units of Measure lb/yr	Quantity Per Year		Units of Measure
Percent Ash (Solid Fuels Only)					
Minimum	Maximum	Average	Minimum	Maximum	Average
Percent Sulfur					
Minimum 0	Maximum 0	Average 0	Minimum	Maximum	Average
Btu Per Unit of Measure (e.g. lb, gal, etc. - Specify)					
Minimum TBD	Maximum TBD	Average 27,577.82	Minimum	Maximum	Average
Describe Fuel Transport and Storage Methods: N/A, fuel gas to be generated within the refinery					

SECTION F – COMBUSTION AIR

<input type="checkbox"/> Natural Draft	<input type="checkbox"/> Induced	<input type="checkbox"/> Forced	<input type="checkbox"/> Other – Specify: TBD
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SECTION G – STACK DATA

Inside Diameter (ft) 5.5		Height Above Grade (ft) 72	
Gas Temperature at Exit (Avg. °F) 785		Gas Velocity at Exit (Avg. ft/sec) 9.9	
Are Emission Control Devices in Place? If YES – Complete SFN 8532 <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
Stack Exit Gas Flow Rate			
Average (ACFM) 14,110.55		Average (DSCFM) TBD	
Maximum (ACFM) TBD		Maximum (DSCFM) TBD	
Are sampling ports available? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes – Describe:			

SECTION H – NEARBY BUILDINGS

Attach drawings which show the plan and elevation views of any nearby buildings including the building that houses the fuel-fired equipment. Plant layout drawings attached to this permit application.

SECTION I – AIR CONTAMINANTS EMITTED

Pollutant	Maximum Pounds Per Hour	Tons Per Year
PM ₁₀ Total	1,13E-01	4,97E-01
PM ₁₀ Filterable	2,84E-02	1,24E-01
PM _{2.5} Total	1,13E-01	4,97E-01
PM _{2.5} Filterable	2,84E-02	1,24E-01
PM _{2.5} Condensable	8,51E-02	3,73E-01
Sulfur Dioxide	1,67E-02	7,30E-02
Nitrogen Oxides	8,51E-01	3,73E+00
Carbon Monoxide	7,94E-01	3,48E+00
Greenhouse Gases (CO ₂ e)	N/A	
Other – Specify		
Lead	1,39E-05	6,08E-05
Metal HAP (Total)	2,07E-04	9,08E-04
Organic HAPs (Total)	1,39E-02	6,07E-02
VOC	1,53E-01	6,70E-01
Basis and Calculations for Quantities: Engineering data and Emission factors from Table 1.4-2. AP 42, Chapter 1: External Combustion Sources. See Document P-5715043-01-001-18042-1001 "EMISSIONS INVENTORY" and P-5715043-01-001-18035-1001 "BACT Analysis"		

Signature of Applicant	Date
	09/26/2016

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**PERMIT APPLICATION FOR
FUEL BURNING EQUIPMENT FOR INDIRECT HEATING**
NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 8518 (09-12)

SECTION A – FACILITY INFORMATION

Name of Firm or Organization Meridian Energy Group – Davis Refinery		
Contact Person for Air Pollution Matters Tom Johnson		
Title Vice President of Operations	Telephone Number (409)795-0792	E-mail Address tjohnson@meridianenergygroup.inc
Applicant's Name Tom Williams		
Title VP of Planning & Permitting	Telephone Number (707) 299-0182	E-mail Address twilliams@meridianenergygroup.inc
Mailing Address (Street & No.) 2062 Business Center Drive, Suite 115		
City Irvine	State CA	ZIP Code 92612
Facility Address (Street & No.) 37th Street		
City Belfield	State ND	ZIP Code 58622
County Billings	Latitude (Nearest Second) 46°52'45"N	Longitude (Nearest Second) 103°14'55" W
Legal Description of Facility Site Property ID 07 0000 00165 000 in the SE 1/4 of Section 2, Twp 139N, Range 100W and Property ID: 07 0000 00162 000 in the NW1/4 and SW 1/4 of Section 1, Twp 139N, Range 100W	Land Area at Facility Site 261 Acres	MSL Elevation at Facility 2,685 feet

SECTION B – EQUIPMENT

Source ID No. (From form SFN 8516) 114-H-1401	Name of Manufacturer TBD
Rated Capacity/Maximum Input TBD	Model Number TBD
Purpose Space Heat _____ % Process Heat 100 %	Power Generation _____ % Other (Specify % if Multi Purpose) _____ %

SECTION C – TYPE OF COMBUSTION UNIT AND FUEL FEEDING METHOD

Coal (If other solid fuel, specify here) <input type="checkbox"/> Pulverized <input type="checkbox"/> General <input type="checkbox"/> Dry Bottom <input type="checkbox"/> Wet Bottom with Fly Ash Reinjection <input type="checkbox"/> Wet Bottom without Fly Ash Reinjection <input type="checkbox"/> Other – Specify:	<input type="checkbox"/> Spreader Stoker with Fly Ash Reinjection <input type="checkbox"/> Spreader Stoker without Fly Ash Reinjection <input type="checkbox"/> Fluidized Bed <input type="checkbox"/> Cyclone <input type="checkbox"/> Hand-Fired
Fuel Oil <input type="checkbox"/> Horizontally Fired <input type="checkbox"/> Tangentially Fired <input type="checkbox"/> Other – Specify:	Gas <input type="checkbox"/> Horizontally Fired <input type="checkbox"/> Tangentially Fired <input type="checkbox"/> Other – Specify: TBD

SECTION D – NORMAL SCHEDULE OF OPERATION

Hours Per Day 24	Days Per Week 7	Weeks Per Year 52	Hours Per Year Total 8760	Peak Season (Specify Months) N/A
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SECTION E – FUEL USE EXPECTED IN A CALENDAR YEAR

Year 2017-2018					
Primary Fuels			Standby Fuels		
Type Fuel Gas			Type None		
Quantity Per Year 5,545,080		Units of Measure lb/yr	Quantity Per Year		Units of Measure
Percent Ash (Solid Fuels Only)					
Minimum	Maximum	Average	Minimum	Maximum	Average
Percent Sulfur					
Minimum 0	Maximum 0	Average 0	Minimum	Maximum	Average
Btu Per Unit of Measure (e.g. lb, gal, etc. - Specify)					
Minimum TBD	Maximum TBD	Average 27,614.53	Minimum	Maximum	Average
Describe Fuel Transport and Storage Methods: N/A, fuel gas to be generated within the refinery					

SECTION F – COMBUSTION AIR

<input type="checkbox"/> Natural Draft	<input type="checkbox"/> Induced	<input type="checkbox"/> Forced	<input type="checkbox"/> Other – Specify: TBD
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SECTION G – STACK DATA

Inside Diameter (ft) 3		Height Above Grade (ft) 91	
Gas Temperature at Exit (Avg. °F) 784.3		Gas Velocity at Exit (Avg. ft/sec) 20.5	
Are Emission Control Devices in Place? If YES – Complete SFN 8532			<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Stack Exit Gas Flow Rate			
Average (ACFM) 8,699.78		Average (DSCFM) TBD	
Maximum (ACFM) TBD		Maximum (DSCFM) TBD	
Are sampling ports available? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes – Describe:			

SECTION H – NEARBY BUILDINGS

Attach drawings which show the plan and elevation views of any nearby buildings including the building that houses the fuel-fired equipment. Plant layout drawings attached to this permit application.

SECTION I – AIR CONTAMINANTS EMITTED

Pollutant	Maximum Pounds Per Hour	Tons Per Year
PM ₁₀ Total	6,99E-02	3,06E-01
PM ₁₀ Filterable	1,75E-02	7,66E-02
PM _{2.5} Total	6,99E-02	3,06E-01
PM _{2.5} Filterable	1,75E-02	7,66E-02
PM _{2.5} Condensable	5,24E-02	2,30E-01
Sulfur Dioxide	1,03E-02	4,50E-02
Nitrogen Oxides	5,24E-01	2,30E+00
Carbon Monoxide	4,89E-01	2,14E+00
Greenhouse Gases (CO ₂ e)	N/A	
Other – Specify		
Lead	8,57E-06	3,75E-05
Metal HAP (Total)	1,28E-04	5,60E-04
Organic HAPs (Total)	8,55E-03	3,74E-02
VOC	9,43E-02	4,13E-01
Basis and Calculations for Quantities: Engineering data and Emission factors from Table 1.4-2. AP 42, Chapter 1: External Combustion Sources. See Document P-5715043-01-001-18042-1001 "EMISSIONS INVENTORY" and P-5715043-01-001-18035-1001 "BACT Analysis"		

Signature of Applicant		Date
		09/26/2016

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**PERMIT APPLICATION FOR
FUEL BURNING EQUIPMENT FOR INDIRECT HEATING**
NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 8518 (09-12)

SECTION A – FACILITY INFORMATION

Name of Firm or Organization Meridian Energy Group – Davis Refinery		
Contact Person for Air Pollution Matters Tom Johnson		
Title Vice President of Operations	Telephone Number (409)795-0792	E-mail Address tjohnson@meridianenergygroup.inc
Applicant's Name Tom Williams		
Title VP of Planning & Permitting	Telephone Number (707) 299-0182	E-mail Address twilliams@meridianenergygroup.inc
Mailing Address (Street & No.) 2062 Business Center Drive, Suite 115		
City Irvine	State CA	ZIP Code 92612
Facility Address (Street & No.) 37th Street		
City Belfield	State ND	ZIP Code 58622
Country USA	Latitude (Nearest Second) 46°52'45"N	Longitude (Nearest Second) 103°14'55" W
Legal Description of Facility Site Property ID 07 0000 00165 000 in the SE 1/4 of Section 2, Twp 139N, Range 100W and Property ID: 07 0000 00162 000 in the NW1/4 and SW 1/4 of Section 1, Twp 139N, Range 100W	Land Area at Facility Site 261 Acres	MSL Elevation at Facility 2,685 feet

SECTION B – EQUIPMENT

Source ID No. (From form SFN 8516) 117-H-1701	Name of Manufacturer TBD
Rated Capacity/Maximum Input TBD	Model Number TBD
Purpose Space Heat _____ % Process Heat 100 %	Power Generation _____ % Other (Specify % if Multi Purpose) _____ %

SECTION C – TYPE OF COMBUSTION UNIT AND FUEL FEEDING METHOD

Coal (If other solid fuel, specify here) <input type="checkbox"/> Pulverized <input type="checkbox"/> General <input type="checkbox"/> Dry Bottom <input type="checkbox"/> Wet Bottom with Fly Ash Reinjection <input type="checkbox"/> Wet Bottom without Fly Ash Reinjection <input type="checkbox"/> Other – Specify:	<input type="checkbox"/> Spreader Stoker with Fly Ash Reinjection <input type="checkbox"/> Spreader Stoker without Fly Ash Reinjection <input type="checkbox"/> Fluidized Bed <input type="checkbox"/> Cyclone <input type="checkbox"/> Hand-Fired
Fuel Oil <input type="checkbox"/> Horizontally Fired <input type="checkbox"/> Tangentially Fired <input type="checkbox"/> Other – Specify:	Gas <input type="checkbox"/> Horizontally Fired <input type="checkbox"/> Tangentially Fired <input type="checkbox"/> Other – Specify: TBD

SECTION D – NORMAL SCHEDULE OF OPERATION

Hours Per Day 24	Days Per Week 7	Weeks Per Year 52	Hours Per Year Total 8760	Peak Season (Specify Months) N/A
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SECTION E – FUEL USE EXPECTED IN A CALENDAR YEAR

Year 2017-2018					
Primary Fuels			Standby Fuels		
Type Fuel Gas			Type none		
Quantity Per Year 523,848		Units of Measure lb/yr	Quantity Per Year		Units of Measure
Percent Ash (Solid Fuels Only)					
Minimum	Maximum	Average	Minimum	Maximum	Average
Percent Sulfur					
Minimum 0	Maximum 0	Average 0	Minimum	Maximum	Average
Btu Per Unit of Measure (e.g. lb, gal, etc. - Specify)					
Minimum TBD	Maximum TBD	Average 27,591.97	Minimum	Maximum	Average
Describe Fuel Transport and Storage Methods: N/A, fuel gas to be generated within the refinery					

SECTION F – COMBUSTION AIR

<input type="checkbox"/> Natural Draft	<input type="checkbox"/> Induced	<input type="checkbox"/> Forced	<input type="checkbox"/> Other – Specify: TBD
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SECTION G – STACK DATA

Inside Diameter (ft) 2.7		Height Above Grade (ft) 36	
Gas Temperature at Exit (Avg. °F) 823.8		Gas Velocity at Exit (Avg. ft/sec) 2.5	
Are Emission Control Devices in Place? If YES – Complete SFN 8532		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Stack Exit Gas Flow Rate			
Average (ACFM) 852.56		Average (DSCFM) TBD	
Maximum (ACFM) TBD		Maximum (DSCFM) TBD	
Are sampling ports available? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes – Describe:			

SECTION H – NEARBY BUILDINGS

Attach drawings which show the plan and elevation views of any nearby buildings including the building that houses the fuel-fired equipment. Plant layout drawings attached to this permit application.

SECTION I – AIR CONTAMINANTS EMITTED

Pollutant	Maximum Pounds Per Hour	Tons Per Year
PM ₁₀ Total	6,60E-03	2,89E-02
PM ₁₀ Filterable	1,65E-03	7,23E-03
PM _{2.5} Total	6,60E-03	2,89E-02
PM _{2.5} Filterable	1,65E-03	7,23E-03
PM _{2.5} Condensable	4,95E-03	2,17E-02
Sulfur Dioxide	9,71E-04	4,25E-03
Nitrogen Oxides	4,95E-02	2,17E-01
Carbon Monoxide	4,62E-02	2,02E-01
Greenhouse Gases (CO2e)	N/A	
Other – Specify		
Lead	8,09E-07	3,54E-06
Metal HAP (Total)	1,21E-05	5,28E-05
Organic HAPs (Total)	8,07E-04	3,53E-03
VOC	8,90E-03	3,90E-02
Basis and Calculations for Quantities: Engineering data and Emission factors from Table 1.4-2. AP 42, Chapter 1: External Combustion Sources. See Document P-5715043-01-001-18042-I001 "EMISSIONS INVENTORY" and P-5715043-01-001-18035-I001 "BACT Analysis"		

Signature of Applicant 	Date 09/26/2016
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SEND COMPLETED APPLICATION AND ALL ATTACHMENTS TO:

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Division of Air Quality
918 E Divide Ave., 2nd Floor
Bismarck, ND 58501-1947
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**PERMIT APPLICATION FOR
FUEL BURNING EQUIPMENT FOR INDIRECT HEATING**
NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 8518 (09-12)

SECTION A – FACILITY INFORMATION

Name of Firm or Organization Meridian Energy Group – Davis Refinery		
Contact Person for Air Pollution Matters Tom Johnson		
Title Vice President of Operations	Telephone Number (409)795-0792	E-mail Address tjohnson@meridianenergygroup.inc
Applicant's Name Tom Williams		
Title VP of Planning & Permitting	Telephone Number (707) 299-0182	E-mail Address twilliams@meridianenergygroup.inc
Mailing Address (Street & No.) 2062 Business Center Drive, Suite 115		
City Irvine	State CA	ZIP Code 92612
Facility Address (Street & No.) 37th Street		
City Belfield	State ND	ZIP Code 58622
County Billings	Latitude (Nearest Second) 46°52'45"N	Longitude (Nearest Second) 103°14'55" W
Legal Description of Facility Site Property ID 07 0000 00165 000 in the SE 1/4 of Section 2, Twp 139N, Range 100W and Property ID: 07 0000 00162 000 in the NW1/4 and SW 1/4 of Section 1, Twp 139N, Range 100W	Land Area at Facility Site 261 Acres	MSL Elevation at Facility 2,685 feet

SECTION B – EQUIPMENT

Source ID No. (From form SFN 8516) 117-H-1702	Name of Manufacturer TBD
Rated Capacity/Maximum Input TBD	Model Number TBD
Purpose Space Heat _____ % Process Heat 100 %	Power Generation _____ % Other (Specify % if Multi Purpose) _____ %

SECTION C – TYPE OF COMBUSTION UNIT AND FUEL FEEDING METHOD

Coal (If other solid fuel, specify here) <input type="checkbox"/> Pulverized <input type="checkbox"/> General <input type="checkbox"/> Dry Bottom <input type="checkbox"/> Wet Bottom with Fly Ash Reinjection <input type="checkbox"/> Wet Bottom without Fly Ash Reinjection <input type="checkbox"/> Other – Specify:	<input type="checkbox"/> Spreader Stoker with Fly Ash Reinjection <input type="checkbox"/> Spreader Stoker without Fly Ash Reinjection <input type="checkbox"/> Fluidized Bed <input type="checkbox"/> Cyclone <input type="checkbox"/> Hand-Fired
Fuel Oil <input type="checkbox"/> Horizontally Fired <input type="checkbox"/> Tangentially Fired <input type="checkbox"/> Other – Specify:	Gas <input type="checkbox"/> Horizontally Fired <input type="checkbox"/> Tangentially Fired <input type="checkbox"/> Other – Specify: TBD

SECTION D – NORMAL SCHEDULE OF OPERATION

Hours Per Day 24	Days Per Week 7	Weeks Per Year 52	Hours Per Year Total 8760	Peak Season (Specify Months) N/A
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SECTION E – FUEL USE EXPECTED IN A CALENDAR YEAR

Year 2017-2018					
Primary Fuels			Standby Fuels		
Type Fuel Gas			Type None		
Quantity Per Year 1,191,360		Units of Measure lb/yr	Quantity Per Year		Units of Measure
Percent Ash (Solid Fuels Only)					
Minimum	Maximum	Average	Minimum	Maximum	Average
Percent Sulfur					
Minimum 0	Maximum 0	Average 0	Minimum	Maximum	Average
Btu Per Unit of Measure (e.g. lb, gal, etc. - Specify)					
Minimum TBD	Maximum TBD	Average 27,573.53	Minimum	Maximum	Average
Describe Fuel Transport and Storage Methods: N/A, fuel gas to be generated within the refinery					

SECTION F – COMBUSTION AIR

<input type="checkbox"/> Natural Draft	<input type="checkbox"/> Induced	<input type="checkbox"/> Forced	<input type="checkbox"/> Other – Specify: TBD
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SECTION G – STACK DATA

Inside Diameter (ft) 4.6		Height Above Grade (ft) 46	
Gas Temperature at Exit (Avg. °F) 787.7		Gas Velocity at Exit (Avg. ft/sec) 1.9	
Are Emission Control Devices in Place? If YES – Complete SFN 8532 <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
Stack Exit Gas Flow Rate			
Average (ACFM) 1,872.75		Average (DSCFM) TBD	
Maximum (ACFM) TBD		Maximum (DSCFM) TBD	
Are sampling ports available? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes – Describe:			

SECTION H – NEARBY BUILDINGS

Attach drawings which show the plan and elevation views of any nearby buildings including the building that houses the fuel-fired equipment. Plant layout drawings attached to this permit application.

SECTION I – AIR CONTAMINANTS EMITTED

Pollutant	Maximum Pounds Per Hour	Tons Per Year
PM ₁₀ Total	1,50E-02	6,57E-02
PM ₁₀ Filterable	3,75E-03	1,64E-02
PM _{2.5} Total	1,50E-02	6,57E-02
PM _{2.5} Filterable	3,75E-03	1,64E-02
PM _{2.5} Condensable	1,13E-02	4,93E-02
Sulfur Dioxide	2,21E-03	9,66E-03
Nitrogen Oxides	1,13E-01	4,93E-01
Carbon Monoxide	1,05E-01	4,60E-01
Greenhouse Gases (CO ₂ e)	N/A	
Other – Specify		
Lead	1,84E-06	8,05E-06
Metal HAP (Total)	2,74E-05	1,20E-04
Organic HAPs (Total)	1,83E-03	8,03E-03
VOC	2,02E-02	8,86E-02
Basis and Calculations for Quantities: Engineering data and Emission factors from Table 1.4-2. AP 42, Chapter 1: External Combustion Sources. See Document P-5715043-01-001-18042-1001 "EMISSIONS INVENTORY" and P-5715043-01-001-18035-1001 "BACT Analysis"		

Signature of Applicant	Date
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NORTH DAKOTA DEPARTMENT OF HEALTH
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SFN 8518 (09-12)

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Title Vice President of Operations	Telephone Number (409)795-0792	E-mail Address tjohnson@meridianenergygroup.inc
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Mailing Address (Street & No.) 2062 Business Center Drive, Suite 115		
City Irvine	State CA	ZIP Code 92612
Facility Address (Street & No.) 37th Street		
City Belfield	State ND	ZIP Code 58622
County Billings	Latitude (Nearest Second) 46°52'45"N	Longitude (Nearest Second) 103°14'55" W
Legal Description of Facility Site Property ID 07 0000 00165 000 in the SE 1/4 of Section 2, Twp 139N, Range 100W and Property ID: 07 0000 00162 000 in the NW1/4 and SW 1/4 of Section 1, Twp 139N, Range 100W	Land Area at Facility Site 261 Acres	MSL Elevation at Facility 2,685 feet

SECTION B – EQUIPMENT

Source ID No. (From form SFN 8516) 118-H-1801	Name of Manufacturer TBD
Rated Capacity/Maximum Input TBD	Model Number TBD
Purpose Space Heat _____ % Process Heat 100 %	Power Generation _____ % Other (Specify % if Multi Purpose) _____ %

SECTION C – TYPE OF COMBUSTION UNIT AND FUEL FEEDING METHOD

Coal (If other solid fuel, specify here) <input type="checkbox"/> Pulverized <input type="checkbox"/> General <input type="checkbox"/> Dry Bottom <input type="checkbox"/> Wet Bottom with Fly Ash Reinjection <input type="checkbox"/> Wet Bottom without Fly Ash Reinjection <input type="checkbox"/> Other – Specify:	<input type="checkbox"/> Spreader Stoker with Fly Ash Reinjection <input type="checkbox"/> Spreader Stoker without Fly Ash Reinjection <input type="checkbox"/> Fluidized Bed <input type="checkbox"/> Cyclone <input type="checkbox"/> Hand-Fired
Fuel Oil <input type="checkbox"/> Horizontally Fired <input type="checkbox"/> Tangentially Fired <input type="checkbox"/> Other – Specify:	Gas <input type="checkbox"/> Horizontally Fired <input type="checkbox"/> Tangentially Fired <input type="checkbox"/> Other – Specify: TBD

SECTION D – NORMAL SCHEDULE OF OPERATION

Hours Per Day 24	Days Per Week 7	Weeks Per Year 52	Hours Per Year Total 8760	Peak Season (Specify Months) N/A
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SECTION E – FUEL USE EXPECTED IN A CALENDAR YEAR

Year 2017-2018					
Primary Fuels			Standby Fuels		
Type Fuel Gas			Type None		
Quantity Per Year 10,322,784		Units of Measure lb/yr	Quantity Per Year		Units of Measure
Percent Ash (Solid Fuels Only)					
Minimum	Maximum	Average	Minimum	Maximum	Average
Percent Sulfur					
Minimum 0	Maximum 0	Average 0	Minimum	Maximum	Average
Btu Per Unit of Measure (e.g. lb, gal, etc. - Specify)					
Minimum TBD	Maximum TBD	Average 71,444.33	Minimum	Maximum	Average
Describe Fuel Transport and Storage Methods: N/A, fuel gas to be generated within the refinery					

SECTION F – COMBUSTION AIR

<input type="checkbox"/> Natural Draft	<input type="checkbox"/> Induced	<input type="checkbox"/> Forced	<input type="checkbox"/> Other – Specify: TBD
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SECTION G – STACK DATA

Inside Diameter (ft) 4	Height Above Grade (ft) 95
Gas Temperature at Exit (Avg. °F) 785.5	Gas Velocity at Exit (Avg. ft/sec) 22.4
Are Emission Control Devices in Place? If YES – Complete SFN 8532 <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Stack Exit Gas Flow Rate	
Average (ACFM) 16,894.20	Average (DSCFM) TBD
Maximum (ACFM) TBD	Maximum (DSCFM) TBD
Are sampling ports available? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes – Describe:	

SECTION H – NEARBY BUILDINGS

Attach drawings which show the plan and elevation views of any nearby buildings including the building that houses the fuel-fired equipment. Plant layout drawings attached to this permit application.

SECTION I – AIR CONTAMINANTS EMITTED

Pollutant	Maximum Pounds Per Hour	Tons Per Year
PM ₁₀ Total	3,37E-01	1,48E+00
PM ₁₀ Filterable	8,42E-02	3,69E-01
PM _{2.5} Total	3,37E-01	1,48E+00
PM _{2.5} Filterable	8,42E-02	3,69E-01
PM _{2.5} Condensable	2,53E-01	1,11E+00
Sulfur Dioxide	4,95E-02	2,17E-01
Nitrogen Oxides	5,30E-01	2,32E+00
Carbon Monoxide	2,36E+00	1,03E+01
Greenhouse Gases (CO ₂ e)	N/A	
Other – Specify		
Lead	4,13E-05	1,81E-04
Metal HAP (Total)	6,16E-04	2,70E-03
Organic HAPs (Total)	4,12E-02	1,80E-01
VOC	4,54E-01	1,99E+00
Basis and Calculations for Quantities: Engineering data and Emission factors from Table 1.4-2. AP 42, Chapter 1: External Combustion Sources. See Document P-5715043-01-001-18042-1001 "EMISSIONS INVENTORY" and P-5715043-01-001-18035-1001 "BACT Analysis"		

Signature of Applicant	Date
	09/26/2016

SEND COMPLETED APPLICATION AND ALL ATTACHMENTS TO:

North Dakota Department of Health
Division of Air Quality
918 E Divide Ave., 2nd Floor
Bismarck, ND 58501-1947
(701) 328-5188



**PERMIT APPLICATION FOR
FUEL BURNING EQUIPMENT FOR INDIRECT HEATING**
NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 8518 (09-12)

SECTION A – FACILITY INFORMATION

Name of Firm or Organization Meridian Energy Group – Davis Refinery		
Contact Person for Air Pollution Matters Tom Johnson		
Title Vice President of Operations	Telephone Number (409)795-0792	E-mail Address tjohnson@meridianenergygroup.inc
Applicant's Name Tom Williams		
Title VP of Planning & Permitting	Telephone Number (707) 299-0182	E-mail Address twilliams@meridianenergygroup.inc
Mailing Address (Street & No.) 2062 Business Center Drive, Suite 115		
City Irvine	State CA	ZIP Code 92612
Facility Address (Street & No.) 37th Street		
City Belfield	State ND	ZIP Code 58622
County Billings	Latitude (Nearest Second) 46°52'45"N	Longitude (Nearest Second) 103°14'55" W
Legal Description of Facility Site Property ID 07 0000 00165 000 in the SE 1/4 of Section 2, Twp 139N, Range 100W and Property ID: 07 0000 00162 000 in the NW1/4 and SW 1/4 of Section 1, Twp 139N, Range 100W	Land Area at Facility Site 261 Acres	MSL Elevation at Facility 2,685 feet

SECTION B – EQUIPMENT

Source ID No. (From form SFN 8516) 125-H-2501	Name of Manufacturer TBD
Rated Capacity/Maximum Input TBD	Model Number TBD
Purpose Space Heat _____ % Process Heat 100 %	Power Generation _____ % Other (Specify % if Multi Purpose) _____ %

SECTION C – TYPE OF COMBUSTION UNIT AND FUEL FEEDING METHOD

Coal (If other solid fuel, specify here) <input type="checkbox"/> Pulverized <input type="checkbox"/> General <input type="checkbox"/> Dry Bottom <input type="checkbox"/> Wet Bottom with Fly Ash Reinjection <input type="checkbox"/> Wet Bottom without Fly Ash Reinjection <input type="checkbox"/> Other – Specify:	<input type="checkbox"/> Spreader Stoker with Fly Ash Reinjection <input type="checkbox"/> Spreader Stoker without Fly Ash Reinjection <input type="checkbox"/> Fluidized Bed <input type="checkbox"/> Cyclone <input type="checkbox"/> Hand-Fired
Fuel Oil <input type="checkbox"/> Horizontally Fired <input type="checkbox"/> Tangentially Fired <input type="checkbox"/> Other – Specify:	Gas <input type="checkbox"/> Horizontally Fired <input type="checkbox"/> Tangentially Fired <input type="checkbox"/> Other – Specify: TBD

SECTION D – NORMAL SCHEDULE OF OPERATION

Hours Per Day 24	Days Per Week 7	Weeks Per Year 52	Hours Per Year Total 8760	Peak Season (Specify Months) N/A
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SECTION E – FUEL USE EXPECTED IN A CALENDAR YEAR

Year 2017-2018					
Primary Fuels			Standby Fuels		
Type Fuel Gas			Type None		
Quantity Per Year 5,317,320		Units of Measure lb/yr	Quantity Per Year		Units of Measure
Percent Ash (Solid Fuels Only)					
Minimum	Maximum	Average	Minimum	Maximum	Average
Percent Sulfur					
Minimum 0	Maximum 0	Average 0	Minimum	Maximum	Average
Btu Per Unit of Measure (e.g. lb, gal, etc. - Specify)					
Minimum TBD	Maximum TBD	Average 20,593.08	Minimum	Maximum	Average
Describe Fuel Transport and Storage Methods: N/A, fuel gas to be generated within the refinery					

SECTION F – COMBUSTION AIR

<input type="checkbox"/> Natural Draft	<input type="checkbox"/> Induced	<input type="checkbox"/> Forced	<input type="checkbox"/> Other – Specify: TBD
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SECTION G – STACK DATA

Inside Diameter (ft) 2.5		Height Above Grade (ft) 96	
Gas Temperature at Exit (Avg. °F) 764.3		Gas Velocity at Exit (Avg. ft/sec) 21.9	
Are Emission Control Devices in Place? If YES – Complete SFN 8532 <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
Stack Exit Gas Flow Rate			
Average (ACFM) 6,224.68		Average (DSCFM) TBD	
Maximum (ACFM) TBD		Maximum (DSCFM) TBD	
Are sampling ports available? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes – Describe:			

SECTION H – NEARBY BUILDINGS

Attach drawings which show the plan and elevation views of any nearby buildings including the building that houses the fuel-fired equipment. Plant layout drawings attached to this permit application.

SECTION I – AIR CONTAMINANTS EMITTED

Pollutant	Maximum Pounds Per Hour	Tons Per Year
PM ₁₀ Total	5,00E-02	2,19E-01
PM ₁₀ Filterable	1,25E-02	5,48E-02
PM _{2.5} Total	5,00E-02	2,19E-01
PM _{2.5} Filterable	1,25E-02	5,48E-02
PM _{2.5} Condensable	3,75E-02	1,64E-01
Sulfur Dioxide	7,35E-03	3,22E-02
Nitrogen Oxides	3,75E-01	1,64E+00
Carbon Monoxide	3,50E-01	1,53E+00
Greenhouse Gases (CO ₂ e)	N/A	
Other – Specify		
Lead	6,13E-06	2,68E-05
Metal HAP (Total)	9,14E-05	4,00E-04
Organic HAPs (Total)	6,11E-03	2,68E-02
VOC	6,74E-02	2,95E-01
Basis and Calculations for Quantities: Engineering data and Emission factors from Table 1.4-2. AP 42, Chapter 1: External Combustion Sources. See Document P-5715043-01-001-18042-1001 "EMISSIONS INVENTORY" and P-5715043-01-001-18035-1001 "BACT Analysis"		

Signature of Applicant	
	Date 09/26/2016

SEND COMPLETED APPLICATION AND ALL ATTACHMENTS TO:

North Dakota Department of Health
Division of Air Quality
918 E Divide Ave., 2nd Floor
Bismarck, ND 58501-1947
(701) 328-5188



**PERMIT APPLICATION FOR
FUEL BURNING EQUIPMENT FOR INDIRECT HEATING**
NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 8518 (09-12)

SECTION A – FACILITY INFORMATION

Name of Firm or Organization Meridian Energy Group – Davis Refinery		
Contact Person for Air Pollution Matters Tom Johnson		
Title Vice President of Operations	Telephone Number (409)795-0792	E-mail Address tjohnson@meridianenergygroup.inc
Applicant's Name Tom Williams		
Title VP of Planning & Permitting	Telephone Number (707) 299-0182	E-mail Address twilliams@meridianenergygroup.inc
Mailing Address (Street & No.) 2062 Business Center Drive, Suite 115		
City Irvine	State CA	ZIP Code 92612
Facility Address (Street & No.) 37th Street		
City Belfield	State ND	ZIP Code 58622
County Billings	Latitude (Nearest Second) 46°52'45"N	Longitude (Nearest Second) 103°14'55" W
Legal Description of Facility Site Property ID 07 0000 00165 000 in the SE 1/4 of Section 2, Twp 139N, Range 100W and Property ID: 07 0000 00162 000 in the NW1/4 and SW 1/4 of Section 1, Twp 139N, Range 100W	Land Area at Facility Site 261 Acres	MSL Elevation at Facility 2,685 feet

SECTION B – EQUIPMENT

Source ID No. (From form SFN 8516) 202-PK-0201A	Name of Manufacturer TBD
Rated Capacity/Maximum Input TBD	Model Number TBD
Purpose Space Heat _____ % Process Heat 100 %	Power Generation _____ % Other (Specify % if Multi Purpose) _____ %

SECTION C – TYPE OF COMBUSTION UNIT AND FUEL FEEDING METHOD

Coal (If other solid fuel, specify here) <input type="checkbox"/> Pulverized <input type="checkbox"/> General <input type="checkbox"/> Dry Bottom <input type="checkbox"/> Wet Bottom with Fly Ash Reinjection <input type="checkbox"/> Wet Bottom without Fly Ash Reinjection <input type="checkbox"/> Other – Specify:	<input type="checkbox"/> Spreader Stoker with Fly Ash Reinjection <input type="checkbox"/> Spreader Stoker without Fly Ash Reinjection <input type="checkbox"/> Fluidized Bed <input type="checkbox"/> Cyclone <input type="checkbox"/> Hand-Fired
Fuel Oil <input type="checkbox"/> Horizontally Fired <input type="checkbox"/> Tangentially Fired <input type="checkbox"/> Other – Specify:	Gas <input type="checkbox"/> Horizontally Fired <input type="checkbox"/> Tangentially Fired <input type="checkbox"/> Other – Specify: TBD

SECTION D – NORMAL SCHEDULE OF OPERATION

Hours Per Day 24	Days Per Week 7	Weeks Per Year 52	Hours Per Year Total 8760	Peak Season (Specify Months) N/A
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SECTION E – FUEL USE EXPECTED IN A CALENDAR YEAR

Year 2017-2018					
Primary Fuels			Standby Fuels		
Type Fuel Gas			Type None		
Quantity Per Year 20,144,496		Units of Measure lb/yr	Quantity Per Year		Units of Measure
Percent Ash (Solid Fuels Only)					
Minimum	Maximum	Average	Minimum	Maximum	Average
Percent Sulfur					
Minimum 0	Maximum 0	Average 0	Minimum	Maximum	Average
Btu Per Unit of Measure (e.g. lb, gal, etc. - Specify)					
Minimum TBD	Maximum TBD	Average 26,091.49	Minimum	Maximum	Average
Describe Fuel Transport and Storage Methods: N/A, fuel gas to be generated within the refinery					

SECTION F – COMBUSTION AIR

<input type="checkbox"/> Natural Draft	<input type="checkbox"/> Induced	<input type="checkbox"/> Forced	<input type="checkbox"/> Other – Specify: TBD
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SECTION G – STACK DATA

Inside Diameter (ft) 3	Height Above Grade (ft) 100
Gas Temperature at Exit (Avg. °F) 294.2	Gas Velocity at Exit (Avg. ft/sec) 93.9
Are Emission Control Devices in Place? If YES – Complete SFN 8532 <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Stack Exit Gas Flow Rate	
Average (ACFM) 19,914.80	Average (DSCFM) TBD
Maximum (ACFM) TBD	Maximum (DSCFM) TBD
Are sampling ports available? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes – Describe:	

SECTION H – NEARBY BUILDINGS

Attach drawings which show the plan and elevation views of any nearby buildings including the building that houses the fuel-fired equipment. Plant layout drawings attached to this permit application.

SECTION I – AIR CONTAMINANTS EMITTED

Pollutant	Maximum Pounds Per Hour	Tons Per Year
PM ₁₀ Total	2,40E-01	1,05E+00
PM ₁₀ Filterable	6,00E-02	2,63E-01
PM _{2.5} Total	2,40E-01	1,05E+00
PM _{2.5} Filterable	6,00E-02	2,63E-01
PM _{2.5} Condensable	1,80E-01	7,88E-01
Sulfur Dioxide	3,53E-02	1,55E-01
Nitrogen Oxides	1,80E+00	7,88E+00
Carbon Monoxide	1,68E+00	7,36E+00
Greenhouse Gases (CO ₂ e)	N/A	
Other – Specify		
Lead	2,94E-05	1,29E-04
Metal HAP (Total)	4,39E-04	1,92E-03
Organic HAPs (Total)	2,93E-02	1,28E-01
VOC	3,24E-01	1,42E+00
Basis and Calculations for Quantities: Engineering data and Emission factors from Table 1.4-2. AP 42, Chapter 1: External Combustion Sources. See Document P-5715043-01-001-18042-1001 "EMISSIONS INVENTORY" and P-5715043-01-001-18035-1001 "BACT Analysis"		

Signature of Applicant	Date
	09/26/2016

SEND COMPLETED APPLICATION AND ALL ATTACHMENTS TO:

North Dakota Department of Health
Division of Air Quality
918 E Divide Ave., 2nd Floor
Bismarck, ND 58501-1947
(701) 328-5188



**PERMIT APPLICATION FOR
FUEL BURNING EQUIPMENT FOR INDIRECT HEATING**
NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 8518 (09-12)

SECTION A – FACILITY INFORMATION

Name of Firm or Organization Meridian Energy Group – Davis Refinery		
Contact Person for Air Pollution Matters Tom Johnson		
Title Vice President of Operations	Telephone Number (409)795-0792	E-mail Address tjohnson@meridianenergygroup.inc
Applicant's Name Tom Williams		
Title VP of Planning & Permitting	Telephone Number (707) 299-0182	E-mail Address twilliams@meridianenergygroup.inc
Mailing Address (Street & No.) 2062 Business Center Drive, Suite 115		
City Irvine	State CA	ZIP Code 92612
Facility Address (Street & No.) 37th Street		
City Belfield	State ND	ZIP Code 58622
County Billings	Latitude (Nearest Second) 46°52'45"N	Longitude (Nearest Second) 103°14'55" W
Legal Description of Facility Site Property ID 07 0000 00165 000 in the SE 1/4 of Section 2, Twp 139N, Range 100W and Property ID: 07 0000 00162 000 in the NW1/4 and SW 1/4 of Section 1, Twp 139N, Range 100W	Land Area at Facility Site 261 Acres	MSL Elevation at Facility 2,685 feet

SECTION B – EQUIPMENT

Source ID No. (From form SFN 8516) 202-PK-0201B	Name of Manufacturer TBD
Rated Capacity/Maximum Input TBD	Model Number TBD
Purpose Space Heat _____ % Process Heat 100 %	Power Generation _____ % Other (Specify % if Multi Purpose) _____ %

SECTION C – TYPE OF COMBUSTION UNIT AND FUEL FEEDING METHOD

Coal (If other solid fuel, specify here) <input type="checkbox"/> Pulverized <input type="checkbox"/> General <input type="checkbox"/> Dry Bottom <input type="checkbox"/> Wet Bottom with Fly Ash Reinjection <input type="checkbox"/> Wet Bottom without Fly Ash Reinjection <input type="checkbox"/> Other – Specify:	<input type="checkbox"/> Spreader Stoker with Fly Ash Reinjection <input type="checkbox"/> Spreader Stoker without Fly Ash Reinjection <input type="checkbox"/> Fluidized Bed <input type="checkbox"/> Cyclone <input type="checkbox"/> Hand-Fired
Fuel Oil <input type="checkbox"/> Horizontally Fired <input type="checkbox"/> Tangentially Fired <input type="checkbox"/> Other – Specify:	Gas <input type="checkbox"/> Horizontally Fired <input type="checkbox"/> Tangentially Fired <input type="checkbox"/> Other – Specify: TBD

SECTION D – NORMAL SCHEDULE OF OPERATION

Hours Per Day 24	Days Per Week 7	Weeks Per Year 52	Hours Per Year Total 8760	Peak Season (Specify Months) N/A
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SECTION E – FUEL USE EXPECTED IN A CALENDAR YEAR

Year 2017-2018					
Primary Fuels			Standby Fuels		
Type Fuel Gas			Type None		
Quantity Per Year 20,144,496		Units of Measure lb/yr	Quantity Per Year		Units of Measure
Percent Ash (Solid Fuels Only)					
Minimum	Maximum	Average	Minimum	Maximum	Average
Percent Sulfur					
Minimum 0	Maximum 0	Average 0	Minimum	Maximum	Average
Btu Per Unit of Measure (e.g. lb, gal, etc. - Specify)					
Minimum TBD	Maximum TBD	Average 26,091.49	Minimum	Maximum	Average
Describe Fuel Transport and Storage Methods: N/A, fuel gas to be generated within the refinery					

SECTION F – COMBUSTION AIR

<input type="checkbox"/> Natural Draft	<input type="checkbox"/> Induced	<input type="checkbox"/> Forced	<input type="checkbox"/> Other – Specify: TBD
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SECTION G – STACK DATA

Inside Diameter (ft) 3	Height Above Grade (ft) 100
Gas Temperature at Exit (Avg. °F) 294.2	Gas Velocity at Exit (Avg. ft/sec) 93.9
Are Emission Control Devices in Place? If YES – Complete SFN 8532 <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Stack Exit Gas Flow Rate	
Average (ACFM) 19,914.80	Average (DSCFM) TBD
Maximum (ACFM) TBD	Maximum (DSCFM) TBD
Are sampling ports available? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes – Describe:	

SECTION H – NEARBY BUILDINGS

Attach drawings which show the plan and elevation views of any nearby buildings including the building that houses the fuel-fired equipment. Plant layout drawings attached to this permit application.

SECTION I – AIR CONTAMINANTS EMITTED

Pollutant	Maximum Pounds Per Hour	Tons Per Year
PM ₁₀ Total	2,40E-01	1,05E+00
PM ₁₀ Filterable	6,00E-02	2,63E-01
PM _{2.5} Total	2,40E-01	1,05E+00
PM _{2.5} Filterable	6,00E-02	2,63E-01
PM _{2.5} Condensable	1,80E-01	7,88E-01
Sulfur Dioxide	3,53E-02	1,55E-01
Nitrogen Oxides	1,80E+00	7,88E+00
Carbon Monoxide	1,68E+00	7,36E+00
Greenhouse Gases (CO2e)	N/A	
Other – Specify		
Lead	2,94E-05	1,29E-04
Metal HAP (Total)	4,39E-04	1,92E-03
Organic HAPs (Total)	2,93E-02	1,28E-01
VOC	3,24E-01	1,42E+00
Basis and Calculations for Quantities: Engineering data and Emission factors from Table 1.4-2. AP 42, Chapter 1: External Combustion Sources. See Document P-5715043-01-001-18042-1001 "EMISSIONS INVENTORY" and P-5715043-01-001-18035-1001 "BACT Analysis"		

Signature of Applicant	Date
	09/26/2016

SEND COMPLETED APPLICATION AND ALL ATTACHMENTS TO:

North Dakota Department of Health
 Division of Air Quality
 918 E Divide Ave., 2nd Floor
 Bismarck, ND 58501-1947
 (701) 328-5188



**PERMIT APPLICATION FOR
FUEL BURNING EQUIPMENT FOR INDIRECT HEATING**
NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 8518 (09-12)

SECTION A – FACILITY INFORMATION

Name of Firm or Organization Meridian Energy Group – Davis Refinery		
Contact Person for Air Pollution Matters Tom Johnson		
Title Vice President of Operations	Telephone Number (409)795-0792	E-mail Address tjohnson@meridianenergygroup.inc
Applicant's Name Tom Williams		
Title VP of Planning & Permitting	Telephone Number (707) 299-0182	E-mail Address twilliams@meridianenergygroup.inc
Mailing Address (Street & No.) 2062 Business Center Drive, Suite 115		
City Irvine	State CA	ZIP Code 92612
Facility Address (Street & No.) 37th Street		
City Belfield	State ND	ZIP Code 58622
County Billings	Latitude (Nearest Second) 46°52'45"N	Longitude (Nearest Second) 103°14'55" W
Legal Description of Facility Site Property ID 07 0000 00165 000 in the SE 1/4 of Section 2, Twp 139N, Range 100W and Property ID: 07 0000 00162 000 in the NW1/4 and SW 1/4 of Section 1, Twp 139N, Range 100W	Land Area at Facility Site 261 Acres	MSL Elevation at Facility 2,685 feet

SECTION B – EQUIPMENT

Source ID No. (From form SFN 8516) 202-PK-0201C	Name of Manufacturer TBD
Rated Capacity/Maximum Input TBD	Model Number TBD
Purpose Space Heat _____ % Process Heat 100 %	Power Generation _____ % Other (Specify % if Multi Purpose) _____ %

SECTION C – TYPE OF COMBUSTION UNIT AND FUEL FEEDING METHOD

Coal (If other solid fuel, specify here)	
<input type="checkbox"/> Pulverized <input type="checkbox"/> General <input type="checkbox"/> Dry Bottom <input type="checkbox"/> Wet Bottom with Fly Ash Reinjection <input type="checkbox"/> Wet Bottom without Fly Ash Reinjection <input type="checkbox"/> Other – Specify:	<input type="checkbox"/> Spreader Stoker with Fly Ash Reinjection <input type="checkbox"/> Spreader Stoker without Fly Ash Reinjection <input type="checkbox"/> Fluidized Bed <input type="checkbox"/> Cyclone <input type="checkbox"/> Hand-Fired
Fuel Oil <input type="checkbox"/> Horizontally Fired <input type="checkbox"/> Tangentially Fired <input type="checkbox"/> Other – Specify:	Gas <input type="checkbox"/> Horizontally Fired <input type="checkbox"/> Tangentially Fired <input type="checkbox"/> Other – Specify: TBD

SECTION D – NORMAL SCHEDULE OF OPERATION

Hours Per Day 24	Days Per Week 7	Weeks Per Year 52	Hours Per Year Total 8760	Peak Season (Specify Months) N/A
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SECTION E – FUEL USE EXPECTED IN A CALENDAR YEAR

Year 2017-2018					
Primary Fuels			Standby Fuels		
Type Fuel Gas			Type None		
Quantity Per Year 20,144,496		Units of Measure lb/yr	Quantity Per Year		Units of Measure
Percent Ash (Solid Fuels Only)					
Minimum	Maximum	Average	Minimum	Maximum	Average
Percent Sulfur					
Minimum 0	Maximum 0	Average 0	Minimum	Maximum	Average
Btu Per Unit of Measure (e.g. lb, gal, etc. - Specify)					
Minimum TBD	Maximum TBD	Average 26,091.49	Minimum	Maximum	Average
Describe Fuel Transport and Storage Methods: N/A, fuel gas to be generated within the refinery					

SECTION F – COMBUSTION AIR

<input type="checkbox"/> Natural Draft	<input type="checkbox"/> Induced	<input type="checkbox"/> Forced	<input type="checkbox"/> Other – Specify: TBD
--	----------------------------------	---------------------------------	--

SECTION G – STACK DATA

Inside Diameter (ft) 3	Height Above Grade (ft) 100
Gas Temperature at Exit (Avg. °F) 294.2	Gas Velocity at Exit (Avg. ft/sec) 93.9
Are Emission Control Devices in Place? If YES – Complete SFN 8532 <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Stack Exit Gas Flow Rate	
Average (ACFM) 19,914.80	Average (DSCFM) TBD
Maximum (ACFM) TBD	Maximum (DSCFM) TBD
Are sampling ports available? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes – Describe:	

SECTION H – NEARBY BUILDINGS

Attach drawings which show the plan and elevation views of any nearby buildings including the building that houses the fuel-fired equipment. Plant layout drawings attached to this permit application.

SECTION I – AIR CONTAMINANTS EMITTED

Pollutant	Maximum Pounds Per Hour	Tons Per Year
PM ₁₀ Total	2,40E-01	1,05E+00
PM ₁₀ Filterable	6,00E-02	2,63E-01
PM _{2.5} Total	2,40E-01	1,05E+00
PM _{2.5} Filterable	6,00E-02	2,63E-01
PM _{2.5} Condensable	1,80E-01	7,88E-01
Sulfur Dioxide	3,53E-02	1,55E-01
Nitrogen Oxides	1,80E+00	7,88E+00
Carbon Monoxide	1,68E+00	7,36E+00
Greenhouse Gases (CO ₂ e)	N/A	
Other – Specify		
Lead	2,94E-05	1,29E-04
Metal HAP (Total)	4,39E-04	1,92E-03
Organic HAPs (Total)	2,93E-02	1,28E-01
VOC	3,24E-01	1,42E+00
Basis and Calculations for Quantities: Engineering data and Emission factors from Table 1.4-2. AP 42, Chapter 1: External Combustion Sources. See Document P-5715043-01-001-18042-1001 "EMISSIONS INVENTORY" and P-5715043-01-001-18035-1001 "BACT Analysis"		

Signature of Applicant		Date
		09/26/2016

SEND COMPLETED APPLICATION AND ALL ATTACHMENTS TO:

North Dakota Department of Health
 Division of Air Quality
 918 E Divide Ave., 2nd Floor
 Bismarck, ND 58501-1947
 (701) 328-5188



**PERMIT APPLICATION FOR
HAZARDOUS AIR POLLUTANT (HAP) SOURCES**
NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 8329 (09-12)

SECTION A1 - APPLICANT INFORMATION

Name of Firm or Organization Meridian Energy Group - Davis Refinery		
Applicant's Name Tom Williams		
Title VP of Planning & Permitting	Telephone Number (707) 299-0182	E-mail Address twilliams@meridianenergygroup.inc
Mailing Address (Street & No.) 2062 Business Center Drive, Suite 115		
City Irvine	State CA	ZIP Code 92612

SECTION A2 - FACILITY INFORMATION

Contact Person for Air Pollution Matters Tom Johnson		
Title Vice President of Operations	Telephone Number (409) 795-0792	E-mail Address tjohnson@meridianenergygroup.inc
Facility Address (Street & No. or Lat/Long to Nearest Second) 37th Street / 46°52'45"N/103°14'55" W		
City Belfield	State ND	ZIP Code 58622
County Billings	Number of Employees at Location TBD	
Land Area at Plant Site 261 Acres (or)	Sq. Ft.	MSL Elevation at Plant 2,685 feet

Describe Nature of Business/Process Petroleum Refining / Atmospheric Distillation Unit 1 / Crude Oil Heater

SECTION B – STACK DATA

Inside Diameter (ft) 6.3	Height Above Grade (ft) 127.6	
Gas Temperature at Exit (°F) 787.7	Gas Velocity at Exit (ft/sec) 20.1	Gas Volume (scfm) 37,427.14
Basis of any Estimates (attach separate sheet if necessary) Engineering data and Emission factors from Table 1.4-2. AP 42, Chapter 1: External Combustion Sources. See Document P-5715043-01-001-18042-1001 "EMISSIONS INVENTORY" and P-5715043-01-001-18035-1001 "BACT Analysis"		
Are Emission Control Devices in Place? If YES – Complete SFN 8532 Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Nearest Residences or Building Utility building	Distance (ft) 330.1 ft	Direction South
Nearest Property Line Fenceline	Distance (ft) 589 ft	Direction Southeast

SECTION C – EMISSION STREAM DATA

Source ID No. From SFN 8516 101-H-0101	Mean Particle Diameter (µm) TBD
Flow Rate (scfm) 37,427.14	Drift Velocity (ft/sec) 20.1
Stream Temperature (°F) 787.7	Particulate Concentration (gr/dscf) TBD
Moisture Content (%) TBD	Halogens or Metals Present? Metals
Pressure (in. Hg) TBD	Organic Content (ppmv) 1.79x10⁻¹
Heat Content (Btu/scfm) TBD	O ₂ Content (%) N/A

SECTION D – POLLUTANT SPECIFIC DATA

(Complete One Box for Each Pollutant in Emission Stream)

Pollutant Emitted Acetaldehyde	Chemical Abstract Services (CAS) Number 75-07-0
Proposed Emission Rate (lb/hr) 2.16x10⁻⁴	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic Vapor
Concentration in Emission Stream (ppmv) 1.99x10⁻³	Vapor Pressure (in. Hg @ °F) 35.51 in Hg @ 68°C
Solubility 1x10⁺⁶ mg/L in water @ 77°F	Molecular Weight (lb/lb-mole) 44.05
Absorptive Properties -	

Pollutant Emitted Benzene	Chemical Abstract Services (CAS) Number 71-43-2
Proposed Emission Rate (lb/hr) 3.78x10⁻⁵	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.96x10⁻⁴	Vapor Pressure (in. Hg @ °F) 3.73 in Hg @ 77 °F
Solubility In water 1.79x10³ mg/L @ 77 °F	Molecular Weight (lb/lb-mole) 78.11
Absorptive Properties -	

Pollutant Emitted Dichlorobenzene	Chemical Abstract Services (CAS) Number Varies
Proposed Emission Rate (lb/hr) 2.16x10⁻⁵	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 5.97x10⁻⁵	Vapor Pressure (in. Hg @ °F) Varies
Solubility Varies	Molecular Weight (lb/lb-mole) 147.00
Absorptive Properties -	

Pollutant Emitted Ethylbenzene	Chemical Abstract Services (CAS) Number 100-41-4
Proposed Emission Rate (lb/hr) 2.88×10^{-4}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.10×10^{-3}	Vapor Pressure (in. Hg @ °F) 0.37 in Hg @ 77°F
Solubility In water 0.014 g/100mL @ 59 °F	Molecular Weight (lb/lb-mole) 106.17
Absorptive Properties -	

Pollutant Emitted Formaldehyde	Chemical Abstract Services (CAS) Number 50-00-0
Proposed Emission Rate (lb/hr) 1.33×10^{-3}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.80×10^{-2}	Vapor Pressure (in. Hg @ °F) 0.15 in Hg @ 77 °F
Solubility In water 4.00×10^5 mg/L @ 68°F	Molecular Weight (lb/lb-mole) 30.03
Absorptive Properties -	

Pollutant Emitted Hexane	Chemical Abstract Services (CAS) Number 110-54-5
Proposed Emission Rate (lb/hr) 3.24×10^{-2}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.53×10^{-1}	Vapor Pressure (in. Hg @ °F) 5.90 in Hg @ 68 °F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 86.1
Absorptive Properties -	

Pollutant Emitted Naphthalene	Chemical Abstract Services (CAS) Number 91-20-3
Proposed Emission Rate (lb/hr) 1.08×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 3.42×10^{-5}	Vapor Pressure (in. Hg @ °F) 0.003 in Hg @ 77 °F
Solubility In water 31 mg/L @ 77 °F	Molecular Weight (lb/lb-mole) 128.17
Absorptive Properties -	

Pollutant Emitted Toluene	Chemical Abstract Services (CAS) Number 108-88-3
Proposed Emission Rate (lb/hr) 5.94×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 2.62×10^{-4}	Vapor Pressure (in. Hg @ °F) 1.12 in Hg @ 77°F
Solubility In water 526 mg/L @ 77°F	Molecular Weight (lb/lb-mole) 92.14
Absorptive Properties -	

Pollutant Emitted Xylene	Chemical Abstract Services (CAS) Number 95-47-6
Proposed Emission Rate (lb/hr) 4.50×10^{-4}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.72×10^{-3}	Vapor Pressure (in. Hg @ °F) 0.26 in Hg @ 77°F
Solubility In water 178 mg/L @ 77°F	Molecular Weight (lb/lb-mole) 106.16
Absorptive Properties -	

Pollutant Emitted PAH	Chemical Abstract Services (CAS) Number N/A
Proposed Emission Rate (lb/hr) 7.67×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 3.19×10^{-4}	Vapor Pressure (in. Hg @ °F) N/A
Solubility N/A	Molecular Weight (lb/lb-mole) TBD
Absorptive Properties -	

Pollutant Emitted Antimony	Chemical Abstract Services (CAS) Number 7740-36-0
Proposed Emission Rate (lb/hr) 3.74×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/particulate
Concentration in Emission Stream (ppmv) 1.25×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 121.76
Absorptive Properties -	

Pollutant Emitted Arsenic	Chemical Abstract Services (CAS) Number 7440-38-2
Proposed Emission Rate (lb/hr) 1.44×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 7.80×10^{-5}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole)
Absorptive Properties -	

Pollutant Emitted Beryllium	Chemical Abstract Services (CAS) Number 7440-41-7
Proposed Emission Rate (lb/hr) 9.36×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 4.22×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 9.01
Absorptive Properties -	

Pollutant Emitted Cadmium	Chemical Abstract Services (CAS) Number 7440-43-9
Proposed Emission Rate (lb/hr) 7.92×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 2.86×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole)
Absorptive Properties -	

Pollutant Emitted Chromium (hexavalent)	Chemical Abstract Services (CAS) Number 1333-82-0
Proposed Emission Rate (lb/hr) 2.02×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 1.57×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility 1,660 g/L in water @ 77°F	Molecular Weight (lb/lb-mole) 51.99
Absorptive Properties -	

Pollutant Emitted Chromium	Chemical Abstract Services (CAS) Number 7440-47-3
Proposed Emission Rate (lb/hr) 1.01×10^{-4}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 7.87×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 51.99
Absorptive Properties -	

Pollutant Emitted Cobalt	Chemical Abstract Services (CAS) Number 7440-48-4
Proposed Emission Rate (lb/hr) 5.90×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 4.07×10^{-5}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 58.93
Absorptive Properties -	

Pollutant Emitted Manganese	Chemical Abstract Services (CAS) Number
Proposed Emission Rate (lb/hr) 2.66×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 1.97×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77 °F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 54.94
Absorptive Properties -	

Pollutant Emitted Mercury	Chemical Abstract Services (CAS) Number 7439-97-6
Proposed Emission Rate (lb/hr) 1.80×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 3.64×10^{-5}	Vapor Pressure (in. Hg @ °F) 7.85×10^{-5} in Hg @ 77 °F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 200.59
Absorptive Properties -	

Pollutant Emitted Nickel	Chemical Abstract Services (CAS) Number 7044-02-0
Proposed Emission Rate (lb/hr) 1.51×10^{-4}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 1.05×10^{-3}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 58.69
Absorptive Properties -	

Pollutant Emitted Selenium	Chemical Abstract Services (CAS) Number 7782-49-2
Proposed Emission Rate (lb/hr) 6.34×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 3.26×10^{-4}	Vapor Pressure (in. Hg @ °F) 0.29 in Hg @ 807
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 78.96
Absorptive Properties -	

Signature of Applicant 	Date 9/26/2016
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SEND COMPLETED APPLICATION AND ALL ATTACHMENTS TO:

North Dakota Department of
Health Division of Air Quality
918 E Divide Ave., 2nd Floor
Bismarck, ND 58501-1947
(701) 328-5188



**PERMIT APPLICATION FOR
HAZARDOUS AIR POLLUTANT (HAP) SOURCES**
NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 8329 (09-12)

SECTION A1 - APPLICANT INFORMATION

Name of Firm or Organization Meridian Energy Group - Davis Refinery		
Applicant's Name Tom Williams		
Title VP of Planning & Permitting	Telephone Number (707) 299-0182	E-mail Address twilliams@meridianenergygroup.inc
Mailing Address (Street & No.) 2062 Business Center Drive, Suite 115		
City Irvine	State CA	ZIP Code 92612

SECTION A2 - FACILITY INFORMATION

Contact Person for Air Pollution Matters Tom Johnson		
Title Vice President of Operations	Telephone Number (409) 795-0792	E-mail Address tjohnson@meridianenergygroup.inc
Facility Address (Street & No. or Lat/Long to Nearest Second) 37th Street / 46°52'45"N/103°14'55" W		
City Belfield	State ND	ZIP Code 58622
County Billings	Number of Employees at Location TBD	
Land Area at Plant Site 261 Acres (or)	Sq. Ft.	MSL Elevation at Plant 2,685 feet

Describe Nature of Business/Process Petroleum Refining / Atmospheric Distillation Unit 2 / Crude Oil Heater

SECTION B – STACK DATA

Inside Diameter (ft) 6.3	Height Above Grade (ft) 127.6	
Gas Temperature at Exit (°F) 787.7	Gas Velocity at Exit (ft/sec) 20.1	Gas Volume (scfm) 37,427.14
Basis of any Estimates (attach separate sheet if necessary) Engineering data and Emission factors from Table 1.4-2. AP 42, Chapter 1: External Combustion Sources. See Document P-5715043-01-001-18042-1001 "EMISSIONS INVENTORY" and P-5715043-01-001-18035-1001 "BACT Analysis"		
Are Emission Control Devices in Place? If YES – Complete SFN 8532 Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Nearest Residences or Building Utility building	Distance (ft) 402 ft	Direction South
Nearest Property Line Fenceline	Distance (ft) 500 ft	Direction Southeast

SECTION C – EMISSION STREAM DATA

Source ID No. From SFN 8516 102-H-0201	Mean Particle Diameter (µm) TBD
Flow Rate (scfm) 37,427.14	Drift Velocity (ft/sec) 20.1
Stream Temperature (°F) 787.7	Particulate Concentration (gr/dscf) TBD
Moisture Content (%) TBD	Halogens or Metals Present? Metals
Pressure (in. Hg) TBD	Organic Content (ppmv) 1.79x10⁻¹
Heat Content (Btu/scfm) TBD	O ₂ Content (%) N/A

SECTION D – POLLUTANT SPECIFIC DATA

(Complete One Box for Each Pollutant in Emission Stream)

Pollutant Emitted Acetaldehyde	Chemical Abstract Services (CAS) Number 75-07-0
Proposed Emission Rate (lb/hr) 2.16x10⁻⁴	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic Vapor
Concentration in Emission Stream (ppmv) 1.99x10⁻³	Vapor Pressure (in. Hg @ °F) 35.51 in Hg @ 68°C
Solubility 1x10⁺⁶ mg/L in water @ 77°F	Molecular Weight (lb/lb-mole) 44.05
Absorptive Properties -	

Pollutant Emitted Benzene	Chemical Abstract Services (CAS) Number 71-43-2
Proposed Emission Rate (lb/hr) 3.78x10⁻⁵	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.96x10⁻⁴	Vapor Pressure (in. Hg @ °F) 3.73 in Hg @ 77 °F
Solubility In water 1.79x10³ mg/L @ 77 °F	Molecular Weight (lb/lb-mole) 78.11
Absorptive Properties -	

Pollutant Emitted Dichlorobenzene	Chemical Abstract Services (CAS) Number Varies
Proposed Emission Rate (lb/hr) 2.16x10⁻⁵	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 5.97x10⁻⁵	Vapor Pressure (in. Hg @ °F) Varies
Solubility Varies	Molecular Weight (lb/lb-mole) 147.00
Absorptive Properties -	

Pollutant Emitted Ethylbenzene	Chemical Abstract Services (CAS) Number 100-41-4
Proposed Emission Rate (lb/hr) 2.88×10^{-4}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.10×10^{-3}	Vapor Pressure (in. Hg @ °F) 0.37 in Hg @ 77°F
Solubility In water 0.014 g/100mL @ 59 °F	Molecular Weight (lb/lb-mole) 106.17
Absorptive Properties -	

Pollutant Emitted Formaldehyde	Chemical Abstract Services (CAS) Number 50-00-0
Proposed Emission Rate (lb/hr) 1.33×10^{-3}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.8×10^{-2}	Vapor Pressure (in. Hg @ °F) 0.15 in Hg @ 77 °F
Solubility In water 4.00×10^5 mg/L @ 68°F	Molecular Weight (lb/lb-mole) 30.03
Absorptive Properties -	

Pollutant Emitted Hexane	Chemical Abstract Services (CAS) Number 110-54-5
Proposed Emission Rate (lb/hr) 3.24×10^{-2}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.53×10^{-1}	Vapor Pressure (in. Hg @ °F) 5.90 in Hg @ 68 °F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 86.1
Absorptive Properties -	

Pollutant Emitted Naphthalene	Chemical Abstract Services (CAS) Number 91-20-3
Proposed Emission Rate (lb/hr) 1.08×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 3.42×10^{-5}	Vapor Pressure (in. Hg @ °F) 0.003 in Hg @ 77 °F
Solubility In water 31 mg/L @ 77 °F	Molecular Weight (lb/lb-mole) 128.17
Absorptive Properties -	

Pollutant Emitted Toluene	Chemical Abstract Services (CAS) Number 108-88-3
Proposed Emission Rate (lb/hr) 5.94×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 2.62×10^{-4}	Vapor Pressure (in. Hg @ °F) 1.12 in Hg @ 77°F
Solubility In water 526 mg/L @ 77°F	Molecular Weight (lb/lb-mole) 92.14
Absorptive Properties -	

Pollutant Emitted Xylene	Chemical Abstract Services (CAS) Number 95-47-6
Proposed Emission Rate (lb/hr) 4.50×10^{-4}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.72×10^{-3}	Vapor Pressure (in. Hg @ °F) 0.26 in Hg @ 77°F
Solubility In water 178 mg/L @ 77°F	Molecular Weight (lb/lb-mole) 106.16
Absorptive Properties -	

Pollutant Emitted PAH	Chemical Abstract Services (CAS) Number N/A
Proposed Emission Rate (lb/hr) 7.67×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 3.19×10^{-4}	Vapor Pressure (in. Hg @ °F) N/A
Solubility N/A	Molecular Weight (lb/lb-mole) TBD
Absorptive Properties -	

Pollutant Emitted Antimony	Chemical Abstract Services (CAS) Number 7740-36-0
Proposed Emission Rate (lb/hr) 3.74×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/particulate
Concentration in Emission Stream (ppmv) 1.25×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 121.76
Absorptive Properties -	

Pollutant Emitted Arsenic	Chemical Abstract Services (CAS) Number 7440-38-2
Proposed Emission Rate (lb/hr) 1.44×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 7.80×10^{-5}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole)
Absorptive Properties -	

Pollutant Emitted Beryllium	Chemical Abstract Services (CAS) Number 7440-41-7
Proposed Emission Rate (lb/hr) 9.36×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 4.22×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 9.01
Absorptive Properties -	

Pollutant Emitted Cadmium	Chemical Abstract Services (CAS) Number 7440-43-9
Proposed Emission Rate (lb/hr) 7.92×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 2.86×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole)
Absorptive Properties -	

Pollutant Emitted Chromium (hexavalent)	Chemical Abstract Services (CAS) Number 1333-82-0
Proposed Emission Rate (lb/hr) 2.02×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 1.57×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility 1,660 g/L in water @ 77°F	Molecular Weight (lb/lb-mole) 51.99
Absorptive Properties -	

Pollutant Emitted Chromium	Chemical Abstract Services (CAS) Number 7440-47-3
Proposed Emission Rate (lb/hr) 1.01×10^{-4}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 7.87×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 51.99
Absorptive Properties -	

Pollutant Emitted Cobalt	Chemical Abstract Services (CAS) Number 7440-48-4
Proposed Emission Rate (lb/hr) 5.90×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 4.07×10^{-5}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 58.93
Absorptive Properties -	

Pollutant Emitted Manganese	Chemical Abstract Services (CAS) Number
Proposed Emission Rate (lb/hr) 2.66×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 1.97×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77 °F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 54.94
Absorptive Properties -	

Pollutant Emitted Mercury	Chemical Abstract Services (CAS) Number 7439-97-6
Proposed Emission Rate (lb/hr) 1.80×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 3.64×10^{-5}	Vapor Pressure (in. Hg @ °F) 7.85×10^{-5} in Hg @ 77 °F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 200.59
Absorptive Properties -	

Pollutant Emitted Nickel	Chemical Abstract Services (CAS) Number 7044-02-0
Proposed Emission Rate (lb/hr) 1.51×10^{-4}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 1.05×10^{-3}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 58.69
Absorptive Properties -	

Pollutant Emitted Selenium	Chemical Abstract Services (CAS) Number 7782-49-2
Proposed Emission Rate (lb/hr) 6.34×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 3.26×10^{-4}	Vapor Pressure (in. Hg @ °F) 0.29 in Hg @ 807
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 78.96
Absorptive Properties -	

Signature of Applicant 	Date 9/26/2016
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SEND COMPLETED APPLICATION AND ALL ATTACHMENTS TO:

North Dakota Department of
Health Division of Air Quality
918 E Divide Ave., 2nd Floor
Bismarck, ND 58501-1947
(701) 328-5188



**PERMIT APPLICATION FOR
HAZARDOUS AIR POLLUTANT (HAP) SOURCES**
NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 8329 (09-12)

SECTION A1 - APPLICANT INFORMATION

Name of Firm or Organization Meridian Energy Group - Davis Refinery		
Applicant's Name Tom Williams		
Title VP of Planning & Permitting	Telephone Number (707) 299-0182	E-mail Address twilliams@meridianenergygroup.inc
Mailing Address (Street & No.) 2062 Business Center Drive, Suite 115		
City Irvine	State CA	ZIP Code 92612

SECTION A2 - FACILITY INFORMATION

Contact Person for Air Pollution Matters Tom Johnson		
Title Vice President of Operations	Telephone Number (409) 795-0792	E-mail Address tjohnson@meridianenergygroup.inc
Facility Address (Street & No. or Lat/Long to Nearest Second) 37th Street / 46°52'45"N/103°14'55" W		
City Belfield	State ND	ZIP Code 58622
County Billings	Number of Employees at Location TBD	
Land Area at Plant Site 261 Acres (or)	Sq. Ft.	MSL Elevation at Plant 2,685 feet

Describe Nature of Business/Process Petroleum Refining / Vacuum Distillation Unit / Vacuum Heater 1

SECTION B – STACK DATA

Inside Diameter (ft) 6.5	Height Above Grade (ft) 125	
Gas Temperature at Exit (°F) 600.4	Gas Velocity at Exit (ft/sec) 16.9	Gas Volume (scfm) 33,610.60
Basis of any Estimates (attach separate sheet if necessary) Engineering data and Emission factors from Table 1.4-2. AP 42, Chapter 1: External Combustion Sources. See Document P-5715043-01-001-18042-1001 "EMISSIONS INVENTORY" and P-5715043-01-001-18035-1001 "BACT Analysis"		
Are Emission Control Devices in Place? If YES – Complete SFN 8532 Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Nearest Residences or Building Utility building	Distance (ft) 815ft	Direction South
Nearest Property Line Fenceline	Distance (ft) 905 ft	Direction East

SECTION C – EMISSION STREAM DATA

Source ID No. From SFN 8516 103-H-0301	Mean Particle Diameter (µm) TBD
Flow Rate (scfm) 33,610.60	Drift Velocity (ft/sec) 16.9
Stream Temperature (°F) 600.4	Particulate Concentration (gr/dscf) TBD
Moisture Content (%) TBD	Halogens or Metals Present? Metals
Pressure (in. Hg) TBD	Organic Content (ppmv) 1.79x10⁻¹
Heat Content (Btu/scfm) TBD	O ₂ Content (%) N/A

SECTION D – POLLUTANT SPECIFIC DATA

(Complete One Box for Each Pollutant in Emission Stream)

Pollutant Emitted Acetaldehyde	Chemical Abstract Services (CAS) Number 75-07-0
Proposed Emission Rate (lb/hr) 2.29x10⁻⁴	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic Vapor
Concentration in Emission Stream (ppmv) 2.0x10⁻³	Vapor Pressure (in. Hg @ °F) 35.51 in Hg @ 68°C
Solubility 1x10⁺⁶ mg/L in water @ 77°F	Molecular Weight (lb/lb-mole) 44.05
Absorptive Properties -	

Pollutant Emitted Benzene	Chemical Abstract Services (CAS) Number 71-43-2
Proposed Emission Rate (lb/hr) 4.01x10⁻⁵	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.97x10⁻⁴	Vapor Pressure (in. Hg @ °F) 3.73 in Hg @ 77 °F
Solubility In water 1.79x10³ mg/L @ 77 °F	Molecular Weight (lb/lb-mole) 78.11
Absorptive Properties -	

Pollutant Emitted Dichlorobenzene	Chemical Abstract Services (CAS) Number Varies
Proposed Emission Rate (lb/hr) 2.29x10⁻⁵	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 6.00x10⁻⁵	Vapor Pressure (in. Hg @ °F) Varies
Solubility Varies	Molecular Weight (lb/lb-mole) 147.00
Absorptive Properties -	

Pollutant Emitted Ethylbenzene	Chemical Abstract Services (CAS) Number 100-41-4
Proposed Emission Rate (lb/hr) 3.06×10^{-4}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.11×10^{-3}	Vapor Pressure (in. Hg @ °F) 0.37 in Hg @ 77°F
Solubility In water 0.014 g/100mL @ 59 °F	Molecular Weight (lb/lb-mole) 106.17
Absorptive Properties -	

Pollutant Emitted Formaldehyde	Chemical Abstract Services (CAS) Number 50-00-0
Proposed Emission Rate (lb/hr) 1.41×10^{-3}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.81×10^{-2}	Vapor Pressure (in. Hg @ °F) 0.15 in Hg @ 77 °F
Solubility In water 4.00×10^5 mg/L @ 68°F	Molecular Weight (lb/lb-mole) 30.03
Absorptive Properties -	

Pollutant Emitted Hexane	Chemical Abstract Services (CAS) Number 110-54-5
Proposed Emission Rate (lb/hr) 3.44×10^{-2}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.53×10^{-1}	Vapor Pressure (in. Hg @ °F) 5.90 in Hg @ 68 °F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 86.1
Absorptive Properties -	

Pollutant Emitted Naphthalene	Chemical Abstract Services (CAS) Number 91-20-3
Proposed Emission Rate (lb/hr) 1.15×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 3.44×10^{-5}	Vapor Pressure (in. Hg @ °F) 0.003 in Hg @ 77 °F
Solubility In water 31 mg/L @ 77 °F	Molecular Weight (lb/lb-mole) 128.17
Absorptive Properties -	

Pollutant Emitted Toluene	Chemical Abstract Services (CAS) Number 108-88-3
Proposed Emission Rate (lb/hr) 6.31×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 2.63×10^{-4}	Vapor Pressure (in. Hg @ °F) 1.12 in Hg @ 77°F
Solubility In water 526 mg/L @ 77°F	Molecular Weight (lb/lb-mole) 92.14
Absorptive Properties -	

Pollutant Emitted Xylene	Chemical Abstract Services (CAS) Number 95-47-6
Proposed Emission Rate (lb/hr) 4.78×10^{-4}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.73×10^{-3}	Vapor Pressure (in. Hg @ °F) 0.26 in Hg @ 77°F
Solubility In water 178 mg/L @ 77°F	Molecular Weight (lb/lb-mole) 106.16
Absorptive Properties -	

Pollutant Emitted PAH	Chemical Abstract Services (CAS) Number N/A
Proposed Emission Rate (lb/hr) 8.14×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 3.21×10^{-4}	Vapor Pressure (in. Hg @ °F) N/A
Solubility N/A	Molecular Weight (lb/lb-mole) TBD
Absorptive Properties -	

Pollutant Emitted Antimony	Chemical Abstract Services (CAS) Number 7740-36-0
Proposed Emission Rate (lb/hr) 3.98×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/particulate
Concentration in Emission Stream (ppmv) 1.25×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 121.76
Absorptive Properties -	

Pollutant Emitted Arsenic	Chemical Abstract Services (CAS) Number 7440-38-2
Proposed Emission Rate (lb/hr) 1.53×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 7.84×10^{-5}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole)
Absorptive Properties -	

Pollutant Emitted Beryllium	Chemical Abstract Services (CAS) Number 7440-41-7
Proposed Emission Rate (lb/hr) 9.94×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 4.24×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 9.01
Absorptive Properties -	

Pollutant Emitted Cadmium	Chemical Abstract Services (CAS) Number 7440-43-9
Proposed Emission Rate (lb/hr) 8.41×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 2.87×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole)
Absorptive Properties -	

Pollutant Emitted Chromium (hexavalent)	Chemical Abstract Services (CAS) Number 1333-82-0
Proposed Emission Rate (lb/hr) 2.14×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 1.58×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility 1,660 g/L in water @ 77°F	Molecular Weight (lb/lb-mole) 51.99
Absorptive Properties -	

Pollutant Emitted Chromium	Chemical Abstract Services (CAS) Number 7440-47-3
Proposed Emission Rate (lb/hr) 1.07×10^{-4}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 7.91×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 51.99
Absorptive Properties -	

Pollutant Emitted Cobalt	Chemical Abstract Services (CAS) Number 7440-48-4
Proposed Emission Rate (lb/hr) 6.27×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 4.09×10^{-5}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 58.93
Absorptive Properties -	

Pollutant Emitted Manganese	Chemical Abstract Services (CAS) Number
Proposed Emission Rate (lb/hr) 2.83×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 1.98×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77 °F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 54.94
Absorptive Properties -	

Pollutant Emitted Mercury	Chemical Abstract Services (CAS) Number 7439-97-6
Proposed Emission Rate (lb/hr) 1.91×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 3.66×10^{-5}	Vapor Pressure (in. Hg @ °F) 7.85×10^{-5} in Hg @ 77 °F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 200.59
Absorptive Properties -	

Pollutant Emitted Nickel	Chemical Abstract Services (CAS) Number 7044-02-0
Proposed Emission Rate (lb/hr) 1.61×10^{-4}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 1.05×10^{-3}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 58.69
Absorptive Properties -	

Pollutant Emitted Selenium	Chemical Abstract Services (CAS) Number 7782-49-2
Proposed Emission Rate (lb/hr) 6.73×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 3.27×10^{-4}	Vapor Pressure (in. Hg @ °F) 0.29 in Hg @ 807
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 78.96
Absorptive Properties -	

Signature of Applicant 	Date 09/26/2016
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SEND COMPLETED APPLICATION AND ALL ATTACHMENTS TO:

North Dakota Department of
Health Division of Air Quality
918 E Divide Ave., 2nd Floor
Bismarck, ND 58501-1947
(701) 328-5188



**PERMIT APPLICATION FOR
HAZARDOUS AIR POLLUTANT (HAP) SOURCES**
NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 8329 (09-12)

SECTION A1 - APPLICANT INFORMATION

Name of Firm or Organization Meridian Energy Group - Davis Refinery		
Applicant's Name Tom Williams		
Title VP of Planning & Permitting	Telephone Number (707) 299-0182	E-mail Address twilliams@meridianenergygroup.inc
Mailing Address (Street & No.) 2062 Business Center Drive, Suite 115		
City Irvine	State CA	ZIP Code 92612

SECTION A2 - FACILITY INFORMATION

Contact Person for Air Pollution Matters Tom Johnson		
Title Vice President of Operations	Telephone Number (409) 795-0792	E-mail Address tjohnson@meridianenergygroup.inc
Facility Address (Street & No. or Lat/Long to Nearest Second) 37th Street / 46°52'45"N/103°14'55" W		
City Belfield	State ND	ZIP Code 58622
County Billings	Number of Employees at Location TBD	
Land Area at Plant Site 261 Acres (or)	Sq. Ft.	MSL Elevation at Plant 2,685 feet

Describe Nature of Business/Process Petroleum Refining / Vacuum Distillation Unit / Vacuum Heater 2

SECTION B – STACK DATA

Inside Diameter (ft) 5.1	Height Above Grade (ft) 120	
Gas Temperature at Exit (°F) 600.1	Gas Velocity at Exit (ft/sec) 20.8	Gas Volume (scfm) 25,334.29
Basis of any Estimates (attach separate sheet if necessary) Engineering data and Emission factors from Table 1.4-2. AP 42, Chapter 1: External Combustion Sources. See Document P-5715043-01-001-18042-1001 "EMISSIONS INVENTORY" and P-5715043-01-001-18035-1001 "BACT Analysis"		
Are Emission Control Devices in Place? If YES – Complete SFN 8532 Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Nearest Residences or Building Utility building	Distance (ft) 402 ft	Direction South
Nearest Property Line Fenceline	Distance (ft) 509 ft	Direction Southeast

SECTION C – EMISSION STREAM DATA

Source ID No. From SFN 8516 103-H-0302	Mean Particle Diameter (µm) TBD
Flow Rate (scfm) 25,334.29	Drift Velocity (ft/sec) 20.8
Stream Temperature (°F) 600.1	Particulate Concentration (gr/dscf) TBD
Moisture Content (%) TBD	Halogens or Metals Present? Metals
Pressure (in. Hg) TBD	Organic Content (ppmv) 1.79x10⁻¹
Heat Content (Btu/scfm) TBD	O ₂ Content (%) N/A

SECTION D – POLLUTANT SPECIFIC DATA

(Complete One Box for Each Pollutant in Emission Stream)

Pollutant Emitted Acetaldehyde	Chemical Abstract Services (CAS) Number 75-07-0
Proposed Emission Rate (lb/hr) 1.73x10⁻⁴	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic Vapor
Concentration in Emission Stream (ppmv) 2.00x10⁻³	Vapor Pressure (in. Hg @ °F) 35.51 in Hg @ 68°C
Solubility 1x10⁺⁶ mg/L in water @ 77°F	Molecular Weight (lb/lb-mole) 44.05
Absorptive Properties -	

Pollutant Emitted Benzene	Chemical Abstract Services (CAS) Number 71-43-2
Proposed Emission Rate (lb/hr) 3.03x10⁻⁵	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.97x10⁻⁴	Vapor Pressure (in. Hg @ °F) 3.73 in Hg @ 77 °F
Solubility In water 1.79x10³ mg/L @ 77 °F	Molecular Weight (lb/lb-mole) 78.11
Absorptive Properties -	

Pollutant Emitted Dichlorobenzene	Chemical Abstract Services (CAS) Number Varies
Proposed Emission Rate (lb/hr) 1.73x10⁻⁵	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 5.99x10⁻⁵	Vapor Pressure (in. Hg @ °F) Varies
Solubility Varies	Molecular Weight (lb/lb-mole) 147.00
Absorptive Properties -	

Pollutant Emitted Ethylbenzene	Chemical Abstract Services (CAS) Number 100-41-4
Proposed Emission Rate (lb/hr) 2.31×10^{-4}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.11×10^{-3}	Vapor Pressure (in. Hg @ °F) 0.37 in Hg @ 77°F
Solubility In water 0.014 g/100mL @ 59 °F	Molecular Weight (lb/lb-mole) 106.17
Absorptive Properties -	

Pollutant Emitted Formaldehyde	Chemical Abstract Services (CAS) Number 50-00-0
Proposed Emission Rate (lb/hr) 1.07×10^{-3}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.81×10^{-2}	Vapor Pressure (in. Hg @ °F) 0.15 in Hg @ 77 °F
Solubility In water 4.00×10^5 mg/L @ 68°F	Molecular Weight (lb/lb-mole) 30.03
Absorptive Properties -	

Pollutant Emitted Hexane	Chemical Abstract Services (CAS) Number 110-54-5
Proposed Emission Rate (lb/hr) 2.59×10^{-2}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.53×10^{-1}	Vapor Pressure (in. Hg @ °F) 5.90 in Hg @ 68 °F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 86.1
Absorptive Properties -	

Pollutant Emitted Naphthalene	Chemical Abstract Services (CAS) Number 91-20-3
Proposed Emission Rate (lb/hr) 8.65×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 3.44×10^{-5}	Vapor Pressure (in. Hg @ °F) 0.003 in Hg @ 77 °F
Solubility In water 31 mg/L @ 77 °F	Molecular Weight (lb/lb-mole) 128.17
Absorptive Properties -	

Pollutant Emitted Toluene	Chemical Abstract Services (CAS) Number 108-88-3
Proposed Emission Rate (lb/hr) 4.76×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 2.63×10^{-4}	Vapor Pressure (in. Hg @ °F) 1.12 in Hg @ 77°F
Solubility In water 526 mg/L @ 77°F	Molecular Weight (lb/lb-mole) 92.14
Absorptive Properties -	

Pollutant Emitted Xylene	Chemical Abstract Services (CAS) Number 95-47-6
Proposed Emission Rate (lb/hr) 3.60×10^{-4}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.73×10^{-3}	Vapor Pressure (in. Hg @ °F) 0.26 in Hg @ 77°F
Solubility In water 178 mg/L @ 77°F	Molecular Weight (lb/lb-mole) 106.16
Absorptive Properties -	

Pollutant Emitted PAH	Chemical Abstract Services (CAS) Number N/A
Proposed Emission Rate (lb/hr) 6.14×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 3.21×10^{-4}	Vapor Pressure (in. Hg @ °F) N/A
Solubility N/A	Molecular Weight (lb/lb-mole) TBD
Absorptive Properties -	

Pollutant Emitted Antimony	Chemical Abstract Services (CAS) Number 7740-36-0
Proposed Emission Rate (lb/hr) 3.00×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/particulate
Concentration in Emission Stream (ppmv) 1.25×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 121.76
Absorptive Properties -	

Pollutant Emitted Arsenic	Chemical Abstract Services (CAS) Number 7440-38-2
Proposed Emission Rate (lb/hr) 1.15×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 7.84×10^{-5}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole)
Absorptive Properties -	

Pollutant Emitted Beryllium	Chemical Abstract Services (CAS) Number 7440-41-7
Proposed Emission Rate (lb/hr) 7.49×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 4.24×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 9.01
Absorptive Properties -	

Pollutant Emitted Cadmium	Chemical Abstract Services (CAS) Number 7440-43-9
Proposed Emission Rate (lb/hr) 6.34×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 2.87×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole)
Absorptive Properties -	

Pollutant Emitted Chromium (hexavalent)	Chemical Abstract Services (CAS) Number 1333-82-0
Proposed Emission Rate (lb/hr) 1.61×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 1.58×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility 1,660 g/L in water @ 77°F	Molecular Weight (lb/lb-mole) 51.99
Absorptive Properties -	

Pollutant Emitted Chromium	Chemical Abstract Services (CAS) Number 7440-47-3
Proposed Emission Rate (lb/hr) 8.07×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 7.91×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 51.99
Absorptive Properties -	

Pollutant Emitted Cobalt	Chemical Abstract Services (CAS) Number 7440-48-4
Proposed Emission Rate (lb/hr) 4.73×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 4.09×10^{-5}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 58.93
Absorptive Properties -	

Pollutant Emitted Manganese	Chemical Abstract Services (CAS) Number
Proposed Emission Rate (lb/hr) 2.13×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 1.98×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77 °F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 54.94
Absorptive Properties -	

Pollutant Emitted Mercury	Chemical Abstract Services (CAS) Number 7439-97-6
Proposed Emission Rate (lb/hr) 1.44×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 3.66×10^{-5}	Vapor Pressure (in. Hg @ °F) 7.85×10^{-5} in Hg @ 77 °F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 200.59
Absorptive Properties -	

Pollutant Emitted Nickel	Chemical Abstract Services (CAS) Number 7044-02-0
Proposed Emission Rate (lb/hr) 1.21×10^{-4}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 1.05×10^{-3}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 58.69
Absorptive Properties -	

Pollutant Emitted Selenium	Chemical Abstract Services (CAS) Number 7782-49-2
Proposed Emission Rate (lb/hr) 5.07×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 3.27×10^{-4}	Vapor Pressure (in. Hg @ °F) 0.29 in Hg @ 807
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 78.96
Absorptive Properties -	

Signature of Applicant 	Date 09/26/2016
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SEND COMPLETED APPLICATION AND ALL ATTACHMENTS TO:

North Dakota Department of
Health Division of Air Quality
918 E Divide Ave., 2nd Floor
Bismarck, ND 58501-1947
(701) 328-5188



**PERMIT APPLICATION FOR
HAZARDOUS AIR POLLUTANT (HAP) SOURCES**
NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 8329 (09-12)

SECTION A1 - APPLICANT INFORMATION

Name of Firm or Organization Meridian Energy Group - Davis Refinery		
Applicant's Name Tom Williams		
Title VP of Planning & Permitting	Telephone Number (707) 299-0182	E-mail Address twilliams@meridianenergygroup.inc
Mailing Address (Street & No.) 2062 Business Center Drive, Suite 115		
City Irvine	State CA	ZIP Code 92612

SECTION A2 - FACILITY INFORMATION

Contact Person for Air Pollution Matters Tom Johnson		
Title Vice President of Operations	Telephone Number (409) 795-0792	E-mail Address tjohnson@meridianenergygroup.inc
Facility Address (Street & No. or Lat/Long to Nearest Second) 37th Street / 46°52'45"N/103°14'55" W		
City Belfield	State ND	ZIP Code 58622
County Billings	Number of Employees at Location TBD	
Land Area at Plant Site 261 Acres (or)	Sq. Ft.	MSL Elevation at Plant 2,685 feet

Describe Nature of Business/Process Petroleum Refining / Heavy Naphtha Hydrotreater / Feed Heater

SECTION B – STACK DATA

Inside Diameter (ft) 3.0	Height Above Grade (ft) 91.0	
Gas Temperature at Exit (°F) 787.7	Gas Velocity at Exit (ft/sec) 16.2	Gas Volume (scfm) 6,866.55
Basis of any Estimates (attach separate sheet if necessary) Engineering data and Emission factors from Table 1.4-2. AP 42, Chapter 1: External Combustion Sources. See Document P-5715043-01-001-18042-1001 "EMISSIONS INVENTORY" and P-5715043-01-001-18035-1001 "BACT Analysis"		
Are Emission Control Devices in Place? If YES – Complete SFN 8532 Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Nearest Residences or Building Utility building	Distance (ft) 580 ft	Direction South
Nearest Property Line Fenceline	Distance (ft) 904 ft	Direction Southwest

SECTION C – EMISSION STREAM DATA

Source ID No. From SFN 8516 105-H-0501	Mean Particle Diameter (µm) TBD
Flow Rate (scfm) 6,866.55	Drift Velocity (ft/sec) 16.2
Stream Temperature (°F) 787.7	Particulate Concentration (gr/dscf) TBD
Moisture Content (%) TBD	Halogens or Metals Present? Metals
Pressure (in. Hg) TBD	Organic Content (ppmv) 1.24x10⁻²
Heat Content (Btu/scfm) TBD	O ₂ Content (%) N/A

SECTION D – POLLUTANT SPECIFIC DATA

(Complete One Box for Each Pollutant in Emission Stream)

Pollutant Emitted Acetaldehyde	Chemical Abstract Services (CAS) Number 75-07-0
Proposed Emission Rate (lb/hr) 4.13x10⁻⁵	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic Vapor
Concentration in Emission Stream (ppmv) 2.07x10⁻³	Vapor Pressure (in. Hg @ °F) 35.51 in Hg @ 68°C
Solubility 1x10⁺⁶ mg/L in water @ 77°F	Molecular Weight (lb/lb-mole) 44.05
Absorptive Properties -	

Pollutant Emitted Benzene	Chemical Abstract Services (CAS) Number 71-43-2
Proposed Emission Rate (lb/hr) 7.22x10⁻⁶	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 2.04x10⁻⁴	Vapor Pressure (in. Hg @ °F) 3.73 in Hg @ 77 °F
Solubility In water 1.79x10³ mg/L @ 77 °F	Molecular Weight (lb/lb-mole) 78.11
Absorptive Properties -	

Pollutant Emitted Dichlorobenzene	Chemical Abstract Services (CAS) Number Varies
Proposed Emission Rate (lb/hr) 4.13x10⁻⁶	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 6.21x10⁻⁵	Vapor Pressure (in. Hg @ °F) Varies
Solubility Varies	Molecular Weight (lb/lb-mole) 147.00
Absorptive Properties -	

Pollutant Emitted Ethylbenzene	Chemical Abstract Services (CAS) Number 100-41-4
Proposed Emission Rate (lb/hr) 5.50×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.15×10^{-3}	Vapor Pressure (in. Hg @ °F) 0.37 in Hg @ 77°F
Solubility In water 0.014 g/100mL @ 59 °F	Molecular Weight (lb/lb-mole) 106.17
Absorptive Properties -	

Pollutant Emitted Formaldehyde	Chemical Abstract Services (CAS) Number 50-00-0
Proposed Emission Rate (lb/hr) 2.54×10^{-4}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.87×10^{-2}	Vapor Pressure (in. Hg @ °F) 0.15 in Hg @ 77 °F
Solubility In water 4.00×10^5 mg/L @ 68°F	Molecular Weight (lb/lb-mole) 30.03
Absorptive Properties -	

Pollutant Emitted Hexane	Chemical Abstract Services (CAS) Number 110-54-5
Proposed Emission Rate (lb/hr) 6.19×10^{-3}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.59×10^{-1}	Vapor Pressure (in. Hg @ °F) 5.90 in Hg @ 68 °F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 86.1
Absorptive Properties -	

Pollutant Emitted Naphthalene	Chemical Abstract Services (CAS) Number 91-20-3
Proposed Emission Rate (lb/hr) 2.06×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 3.56×10^{-5}	Vapor Pressure (in. Hg @ °F) 0.003 in Hg @ 77 °F
Solubility In water 31 mg/L @ 77 °F	Molecular Weight (lb/lb-mole) 128.17
Absorptive Properties -	

Pollutant Emitted Toluene	Chemical Abstract Services (CAS) Number 108-88-3
Proposed Emission Rate (lb/hr) 1.13×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 2.72×10^{-4}	Vapor Pressure (in. Hg @ °F) 1.12 in Hg @ 77°F
Solubility In water 526 mg/L @ 77°F	Molecular Weight (lb/lb-mole) 92.14
Absorptive Properties -	

Pollutant Emitted Xylene	Chemical Abstract Services (CAS) Number 95-47-6
Proposed Emission Rate (lb/hr) 8.59×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.79×10^{-3}	Vapor Pressure (in. Hg @ °F) 0.26 in Hg @ 77°F
Solubility In water 178 mg/L @ 77°F	Molecular Weight (lb/lb-mole) 106.16
Absorptive Properties -	

Pollutant Emitted PAH	Chemical Abstract Services (CAS) Number N/A
Proposed Emission Rate (lb/hr) 1.46×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 3.32×10^{-4}	Vapor Pressure (in. Hg @ °F) N/A
Solubility N/A	Molecular Weight (lb/lb-mole) TBD
Absorptive Properties -	

Pollutant Emitted Antimony	Chemical Abstract Services (CAS) Number 7740-36-0
Proposed Emission Rate (lb/hr) 7.15×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/particulate
Concentration in Emission Stream (ppmv) 1.30×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 121.76
Absorptive Properties -	

Pollutant Emitted Arsenic	Chemical Abstract Services (CAS) Number 7440-38-2
Proposed Emission Rate (lb/hr) 2.75×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 8.12×10^{-5}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole)
Absorptive Properties -	

Pollutant Emitted Beryllium	Chemical Abstract Services (CAS) Number 7440-41-7
Proposed Emission Rate (lb/hr) 1.79×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 4.39×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 9.01
Absorptive Properties -	

Pollutant Emitted Cadmium	Chemical Abstract Services (CAS) Number 7440-43-9
Proposed Emission Rate (lb/hr) 1.51×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 2.98×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole)
Absorptive Properties -	

Pollutant Emitted Chromium (hexavalent)	Chemical Abstract Services (CAS) Number 1333-82-0
Proposed Emission Rate (lb/hr) 3.85×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 1.64×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility 1,660 g/L in water @ 77°F	Molecular Weight (lb/lb-mole) 51.99
Absorptive Properties -	

Pollutant Emitted Chromium	Chemical Abstract Services (CAS) Number 7440-47-3
Proposed Emission Rate (lb/hr) 1.93×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 8.19×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 51.99
Absorptive Properties -	

Pollutant Emitted Cobalt	Chemical Abstract Services (CAS) Number 7440-48-4
Proposed Emission Rate (lb/hr) 1.13×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 4.23×10^{-5}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 58.93
Absorptive Properties -	

Pollutant Emitted Manganese	Chemical Abstract Services (CAS) Number
Proposed Emission Rate (lb/hr) 5.09×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 2.05×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77 °F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 54.94
Absorptive Properties -	

Pollutant Emitted Mercury	Chemical Abstract Services (CAS) Number 7439-97-6
Proposed Emission Rate (lb/hr) 3.44×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 3.79×10^{-5}	Vapor Pressure (in. Hg @ °F) 7.85×10^{-5} in Hg @ 77 °F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 200.59
Absorptive Properties -	

Pollutant Emitted Nickel	Chemical Abstract Services (CAS) Number 7044-02-0
Proposed Emission Rate (lb/hr) 2.89×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 1.09×10^{-3}	Vapor Pressure (in. Hg @ °F) 0 in Hg Q 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 58.69
Absorptive Properties -	

Pollutant Emitted Selenium	Chemical Abstract Services (CAS) Number 7782-49-2
Proposed Emission Rate (lb/hr) 1.21×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 3.39×10^{-4}	Vapor Pressure (in. Hg @ °F) 0.29 in Hg @ 807
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 78.96
Absorptive Properties -	

Signature of Applicant 	Date 09/26/2016
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SEND COMPLETED APPLICATION AND ALL ATTACHMENTS TO:

North Dakota Department of
Health Division of Air Quality
918 E Divide Ave., 2nd Floor
Bismarck, ND 58501-1947
(701) 328-5188

SECTION C – EMISSION STREAM DATA

Source ID No. From SFN 8516 105-H-0502	Mean Particle Diameter (µm) TBD
Flow Rate (scfm) 8,115.32	Drift Velocity (ft/sec) 19.1
Stream Temperature (°F) 787.7	Particulate Concentration (gr/dscf) TBD
Moisture Content (%) TBD	Halogens or Metals Present? Metals
Pressure (in. Hg) TBD	Organic Content (ppmv) 3.71×10^{-1}
Heat Content (Btu/scfm) TBD	O ₂ Content (%) N/A

SECTION D – POLLUTANT SPECIFIC DATA

(Complete One Box for Each Pollutant in Emission Stream)

Pollutant Emitted Acetaldehyde	Chemical Abstract Services (CAS) Number 75-07-0
Proposed Emission Rate (lb/hr) 4.88×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic Vapor
Concentration in Emission Stream (ppmv) 2.07×10^{-3}	Vapor Pressure (in. Hg @ °F) 35.51 in Hg @ 68°C
Solubility $1 \times 10^{+6}$ mg/L in water @ 77°F	Molecular Weight (lb/lb-mole) 44.05
Absorptive Properties -	

Pollutant Emitted Benzene	Chemical Abstract Services (CAS) Number 71-43-2
Proposed Emission Rate (lb/hr) 8.53×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 2.04×10^{-4}	Vapor Pressure (in. Hg @ °F) 3.73 in Hg @ 77 °F
Solubility In water 1.79×10^3 mg/L @ 77 °F	Molecular Weight (lb/lb-mole) 78.11
Absorptive Properties -	

Pollutant Emitted Dichlorobenzene	Chemical Abstract Services (CAS) Number Varies
Proposed Emission Rate (lb/hr) 4.88×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 6.21×10^{-5}	Vapor Pressure (in. Hg @ °F) Varies
Solubility Varies	Molecular Weight (lb/lb-mole) 147.00
Absorptive Properties -	

Pollutant Emitted Ethylbenzene	Chemical Abstract Services (CAS) Number 100-41-4
Proposed Emission Rate (lb/hr) 6.50×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.15×10^{-3}	Vapor Pressure (in. Hg @ °F) 0.37 in Hg @ 77°F
Solubility In water 0.014 g/100mL @ 59 °F	Molecular Weight (lb/lb-mole) 106.17
Absorptive Properties -	

Pollutant Emitted Formaldehyde	Chemical Abstract Services (CAS) Number 50-00-0
Proposed Emission Rate (lb/hr) 3.01×10^{-4}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.87×10^{-2}	Vapor Pressure (in. Hg @ °F) 0.15 in Hg @ 77 °F
Solubility In water 4.00×10^5 mg/L @ 68°F	Molecular Weight (lb/lb-mole) 30.03
Absorptive Properties -	

Pollutant Emitted Hexane	Chemical Abstract Services (CAS) Number 110-54-5
Proposed Emission Rate (lb/hr) 7.31×10^{-3}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.59×10^{-1}	Vapor Pressure (in. Hg @ °F) 5.90 in Hg @ 68 °F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 86.1
Absorptive Properties -	

Pollutant Emitted Naphthalene	Chemical Abstract Services (CAS) Number 91-20-3
Proposed Emission Rate (lb/hr) 2.44×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 3.56×10^{-5}	Vapor Pressure (in. Hg @ °F) 0.003 in Hg @ 77 °F
Solubility In water 31 mg/L @ 77 °F	Molecular Weight (lb/lb-mole) 128.17
Absorptive Properties -	

Pollutant Emitted Toluene	Chemical Abstract Services (CAS) Number 108-88-3
Proposed Emission Rate (lb/hr) 1.34×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 2.72×10^{-4}	Vapor Pressure (in. Hg @ °F) 1.12 in Hg @ 77°F
Solubility In water 526 mg/L @ 77°F	Molecular Weight (lb/lb-mole) 92.14
Absorptive Properties -	

Pollutant Emitted Xylene	Chemical Abstract Services (CAS) Number 95-47-6
Proposed Emission Rate (lb/hr) 1.02×10^{-4}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.79×10^{-3}	Vapor Pressure (in. Hg @ °F) 0.26 in Hg @ 77°F
Solubility In water 178 mg/L @ 77°F	Molecular Weight (lb/lb-mole) 106.16
Absorptive Properties -	

Pollutant Emitted PAH	Chemical Abstract Services (CAS) Number N/A
Proposed Emission Rate (lb/hr) 1.73×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 3.32×10^{-4}	Vapor Pressure (in. Hg @ °F) N/A
Solubility N/A	Molecular Weight (lb/lb-mole) TBD
Absorptive Properties -	

Pollutant Emitted Antimony	Chemical Abstract Services (CAS) Number 7740-36-0
Proposed Emission Rate (lb/hr) 8.45×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/particulate
Concentration in Emission Stream (ppmv) 1.30×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 121.76
Absorptive Properties -	

Pollutant Emitted Arsenic	Chemical Abstract Services (CAS) Number 7440-38-2
Proposed Emission Rate (lb/hr) 3.25×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 8.12×10^{-5}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole)
Absorptive Properties -	

Pollutant Emitted Beryllium	Chemical Abstract Services (CAS) Number 7440-41-7
Proposed Emission Rate (lb/hr) 2.11×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 4.39×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 9.01
Absorptive Properties -	

Pollutant Emitted Cadmium	Chemical Abstract Services (CAS) Number 7440-43-9
Proposed Emission Rate (lb/hr) 1.79×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 2.98×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole)
Absorptive Properties -	

Pollutant Emitted Chromium (hexavalent)	Chemical Abstract Services (CAS) Number 1333-82-0
Proposed Emission Rate (lb/hr) 4.55×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 1.64×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility 1,660 g/L in water @ 77°F	Molecular Weight (lb/lb-mole) 51.99
Absorptive Properties -	

Pollutant Emitted Chromium	Chemical Abstract Services (CAS) Number 7440-47-3
Proposed Emission Rate (lb/hr) 2.28×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 8.19×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 51.99
Absorptive Properties -	

Pollutant Emitted Cobalt	Chemical Abstract Services (CAS) Number 7440-48-4
Proposed Emission Rate (lb/hr) 1.33×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 4.23×10^{-5}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 58.93
Absorptive Properties -	

Pollutant Emitted Manganese	Chemical Abstract Services (CAS) Number
Proposed Emission Rate (lb/hr) 6.01×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 2.05×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77 °F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 54.94
Absorptive Properties -	

Pollutant Emitted Mercury	Chemical Abstract Services (CAS) Number 7439-97-6
Proposed Emission Rate (lb/hr) 4.06×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 3.79×10^{-5}	Vapor Pressure (in. Hg @ °F) 7.85×10^{-5} in Hg @ 77 °F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 200.59
Absorptive Properties -	

Pollutant Emitted Nickel	Chemical Abstract Services (CAS) Number 7044-02-0
Proposed Emission Rate (lb/hr) 3.41×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 1.09×10^{-3}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 58.69
Absorptive Properties -	

Pollutant Emitted Selenium	Chemical Abstract Services (CAS) Number 7782-49-2
Proposed Emission Rate (lb/hr) 1.43×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 3.39×10^{-4}	Vapor Pressure (in. Hg @ °F) 0.29 in Hg @ 807
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 78.96
Absorptive Properties -	

Signature of Applicant 	Date 09/26/2016
--	--------------------

SEND COMPLETED APPLICATION AND ALL ATTACHMENTS TO:

North Dakota Department of
Health Division of Air Quality
918 E Divide Ave., 2nd Floor
Bismarck, ND 58501-1947
(701) 328-5188



**PERMIT APPLICATION FOR
HAZARDOUS AIR POLLUTANT (HAP) SOURCES**
NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 8329 (09-12)

SECTION A1 - APPLICANT INFORMATION

Name of Firm or Organization Meridian Energy Group - Davis Refinery		
Applicant's Name Tom Williams		
Title VP of Planning & Permitting	Telephone Number (707) 299-0182	E-mail Address twilliams@meridianenergygroup.inc
Mailing Address (Street & No.) 2062 Business Center Drive, Suite 115		
City Irvine	State CA	ZIP Code 92612

SECTION A2 - FACILITY INFORMATION

Contact Person for Air Pollution Matters Tom Johnson		
Title Vice President of Operations	Telephone Number (409) 795-0792	E-mail Address tjohnson@meridianenergygroup.inc
Facility Address (Street & No. or Lat/Long to Nearest Second) 37th Street / 46°52'45"N/103°14'55" W		
City Belfield	State ND	ZIP Code 58622
County Billings	Number of Employees at Location TBD	
Land Area at Plant Site 261 Acres (or)	Sq. Ft.	MSL Elevation at Plant 2,685 feet

Describe Nature of Business/Process Petroleum Refining / Catalytic Reformer Unit #2 heater
--

SECTION B – STACK DATA

Inside Diameter (ft) 4.0	Height Above Grade (ft) 42.0	
Gas Temperature at Exit (°F) 786.2	Gas Velocity at Exit (ft/sec) 27.5	Gas Volume (scfm) 20,769.92
Basis of any Estimates (attach separate sheet if necessary) Engineering data and Emission factors from Table 1.4-2. AP 42, Chapter 1: External Combustion Sources. See Document P-5715043-01-001-18042-1001 "EMISSIONS INVENTORY" and P-5715043-01-001-18035-1001 "BACT Analysis"		
Are Emission Control Devices in Place? If YES – Complete SFN 8532 Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Nearest Residences or Building Utility building	Distance (ft) 228 ft	Direction South
Nearest Property Line Fenceline	Distance (ft) 657 ft	Direction Southeast

SECTION C – EMISSION STREAM DATA

Source ID No. From SFN 8516 106-H-0601	Mean Particle Diameter (µm) TBD
Flow Rate (scfm) 20,769.92	Drift Velocity (ft/sec) 27.5
Stream Temperature (°F) 786.2	Particulate Concentration (gr/dscf) TBD
Moisture Content (%) TBD	Halogens or Metals Present? Metals
Pressure (in. Hg) TBD	Organic Content (ppmv) 1.86x10⁻¹
Heat Content (Btu/scfm) TBD	O ₂ Content (%) N/A

SECTION D – POLLUTANT SPECIFIC DATA

(Complete One Box for Each Pollutant in Emission Stream)

Pollutant Emitted Acetaldehyde	Chemical Abstract Services (CAS) Number 75-07-0
Proposed Emission Rate (lb/hr) 1.25x10⁻⁴	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic Vapor
Concentration in Emission Stream (ppmv) 2.08x10⁻³	Vapor Pressure (in. Hg @ °F) 35.51 in Hg @ 68°C
Solubility 1x10⁺⁶ mg/L in water @ 77°F	Molecular Weight (lb/lb-mole) 44.05
Absorptive Properties -	

Pollutant Emitted Benzene	Chemical Abstract Services (CAS) Number 71-43-2
Proposed Emission Rate (lb/hr) 2.19x10⁻⁵	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 2.05x10⁻⁴	Vapor Pressure (in. Hg @ °F) 3.73 in Hg @ 77 °F
Solubility In water 1.79x10³ mg/L @ 77 °F	Molecular Weight (lb/lb-mole) 78.11
Absorptive Properties -	

Pollutant Emitted Dichlorobenzene	Chemical Abstract Services (CAS) Number Varies
Proposed Emission Rate (lb/hr) 1.25x10⁻⁵	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 6.22x10⁻⁵	Vapor Pressure (in. Hg @ °F) Varies
Solubility Varies	Molecular Weight (lb/lb-mole) 147.00
Absorptive Properties -	

Pollutant Emitted Ethylbenzene	Chemical Abstract Services (CAS) Number 100-41-4
Proposed Emission Rate (lb/hr) 1.67×10^{-4}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.15×10^{-3}	Vapor Pressure (in. Hg @ °F) 0.37 in Hg @ 77°F
Solubility In water 0.014 g/100mL @ 59 °F	Molecular Weight (lb/lb-mole) 106.17
Absorptive Properties -	

Pollutant Emitted Formaldehyde	Chemical Abstract Services (CAS) Number 50-00-0
Proposed Emission Rate (lb/hr) 7.72×10^{-4}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.88×10^{-2}	Vapor Pressure (in. Hg @ °F) 0.15 in Hg @ 77 °F
Solubility In water 4.00×10^5 mg/L @ 68°F	Molecular Weight (lb/lb-mole) 30.03
Absorptive Properties -	

Pollutant Emitted Hexane	Chemical Abstract Services (CAS) Number 110-54-5
Proposed Emission Rate (lb/hr) 1.88×10^{-2}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.59×10^{-1}	Vapor Pressure (in. Hg @ °F) 5.90 in Hg @ 68 °F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 86.1
Absorptive Properties -	

Pollutant Emitted Naphthalene	Chemical Abstract Services (CAS) Number 91-20-3
Proposed Emission Rate (lb/hr) 6.26×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 3.57×10^{-5}	Vapor Pressure (in. Hg @ °F) 0.003 in Hg @ 77 °F
Solubility In water 31 mg/L @ 77 °F	Molecular Weight (lb/lb-mole) 128.17
Absorptive Properties -	

Pollutant Emitted Toluene	Chemical Abstract Services (CAS) Number 108-88-3
Proposed Emission Rate (lb/hr) 3.44×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 2.73×10^{-4}	Vapor Pressure (in. Hg @ °F) 1.12 in Hg @ 77°F
Solubility In water 526 mg/L @ 77°F	Molecular Weight (lb/lb-mole) 92.14
Absorptive Properties -	

Pollutant Emitted Xylene	Chemical Abstract Services (CAS) Number 95-47-6
Proposed Emission Rate (lb/hr) 2.61×10^{-4}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.80×10^{-3}	Vapor Pressure (in. Hg @ °F) 0.26 in Hg @ 77°F
Solubility In water 178 mg/L @ 77°F	Molecular Weight (lb/lb-mole) 106.16
Absorptive Properties -	

Pollutant Emitted PAH	Chemical Abstract Services (CAS) Number N/A
Proposed Emission Rate (lb/hr) 4.44×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 3.33×10^{-4}	Vapor Pressure (in. Hg @ °F) N/A
Solubility N/A	Molecular Weight (lb/lb-mole) TBD
Absorptive Properties -	

Pollutant Emitted Antimony	Chemical Abstract Services (CAS) Number 7740-36-0
Proposed Emission Rate (lb/hr) 2.17×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/particulate
Concentration in Emission Stream (ppmv) 1.30×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 121.76
Absorptive Properties -	

Pollutant Emitted Arsenic	Chemical Abstract Services (CAS) Number 7440-38-2
Proposed Emission Rate (lb/hr) 8.35×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 8.14×10^{-5}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole)
Absorptive Properties -	

Pollutant Emitted Beryllium	Chemical Abstract Services (CAS) Number 7440-41-7
Proposed Emission Rate (lb/hr) 5.42×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 4.40×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 9.01
Absorptive Properties -	

Pollutant Emitted Cadmium	Chemical Abstract Services (CAS) Number 7440-43-9
Proposed Emission Rate (lb/hr) 4.59×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 2.98×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole)
Absorptive Properties -	

Pollutant Emitted Chromium (hexavalent)	Chemical Abstract Services (CAS) Number 1333-82-0
Proposed Emission Rate (lb/hr) 1.17×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 1.64×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility 1,660 g/L in water @ 77°F	Molecular Weight (lb/lb-mole) 51.99
Absorptive Properties -	

Pollutant Emitted Chromium	Chemical Abstract Services (CAS) Number 7440-47-3
Proposed Emission Rate (lb/hr) 5.84×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 8.21×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 51.99
Absorptive Properties -	

Pollutant Emitted Cobalt	Chemical Abstract Services (CAS) Number 7440-48-4
Proposed Emission Rate (lb/hr) 3.42×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 4.24×10^{-5}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 58.93
Absorptive Properties -	

Pollutant Emitted Manganese	Chemical Abstract Services (CAS) Number
Proposed Emission Rate (lb/hr) 1.54×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 2.05×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77 °F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 54.94
Absorptive Properties -	

Pollutant Emitted Mercury	Chemical Abstract Services (CAS) Number 7439-97-6
Proposed Emission Rate (lb/hr) 1.04×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 3.80×10^{-5}	Vapor Pressure (in. Hg @ °F) 7.85×10^{-5} in Hg @ 77 °F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 200.59
Absorptive Properties -	

Pollutant Emitted Nickel	Chemical Abstract Services (CAS) Number 7044-02-0
Proposed Emission Rate (lb/hr) 8.76×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 1.09×10^{-3}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 58.69
Absorptive Properties -	

Pollutant Emitted Selenium	Chemical Abstract Services (CAS) Number 7782-49-2
Proposed Emission Rate (lb/hr) 3.67×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 3.40×10^{-4}	Vapor Pressure (in. Hg @ °F) 0.29 in Hg @ 807
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 78.96
Absorptive Properties -	

Signature of Applicant 	Date 09/26/2016
--	--------------------

SEND COMPLETED APPLICATION AND ALL ATTACHMENTS TO:

North Dakota Department of
Health Division of Air Quality
918 E Divide Ave., 2nd Floor
Bismarck, ND 58501-1947
(701) 328-5188



**PERMIT APPLICATION FOR
HAZARDOUS AIR POLLUTANT (HAP) SOURCES**
NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 8329 (09-12)

SECTION A1 - APPLICANT INFORMATION

Name of Firm or Organization Meridian Energy Group - Davis Refinery		
Applicant's Name Tom Williams		
Title VP of Planning & Permitting	Telephone Number (707) 299-0182	E-mail Address twilliams@meridianenergygroup.inc
Mailing Address (Street & No.) 2062 Business Center Drive, Suite 115		
City Irvine	State CA	ZIP Code 92612

SECTION A2 - FACILITY INFORMATION

Contact Person for Air Pollution Matters Tom Johnson		
Title Vice President of Operations	Telephone Number (409) 795-0792	E-mail Address tjohnson@meridianenergygroup.inc
Facility Address (Street & No. or Lat/Long to Nearest Second) 37th Street / 46°52'45"N/103°14'55" W		
City Belfield	State ND	ZIP Code 58622
County Billings	Number of Employees at Location TBD	
Land Area at Plant Site 261 Acres (or)	Sq. Ft.	MSL Elevation at Plant 2,685 feet

Describe Nature of Business/Process Petroleum Refining / Catalytic Reformer Unit #1 heater
--

SECTION B – STACK DATA

Inside Diameter (ft) 6.0	Height Above Grade (ft) 120.0	
Gas Temperature at Exit (°F) 787.7	Gas Velocity at Exit (ft/sec) 27.2	Gas Volume (scfm) 46,194.82
Basis of any Estimates (attach separate sheet if necessary) Engineering data and Emission factors from Table 1.4-2. AP 42, Chapter 1: External Combustion Sources. See Document P-5715043-01-001-18042-1001 "EMISSIONS INVENTORY" and P-5715043-01-001-18035-1001 "BACT Analysis"		
Are Emission Control Devices in Place? If YES – Complete SFN 8532 Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Nearest Residences or Building Utility building	Distance (ft) 268.4 ft	Direction South
Nearest Property Line Fenceline	Distance (ft) 810 ft	Direction Southeast

SECTION C – EMISSION STREAM DATA

Source ID No. From SFN 8516 107-H-0701	Mean Particle Diameter (µm) TBD
Flow Rate (scfm) 46,194.82	Drift Velocity (ft/sec) 27.2
Stream Temperature (°F) 787.7	Particulate Concentration (gr/dscf) TBD
Moisture Content (%) TBD	Halogens or Metals Present? Metals
Pressure (in. Hg) TBD	Organic Content (ppmv) 1.86x10⁻¹
Heat Content (Btu/scfm) TBD	O ₂ Content (%) N/A

SECTION D – POLLUTANT SPECIFIC DATA

(Complete One Box for Each Pollutant in Emission Stream)

Pollutant Emitted Acetaldehyde	Chemical Abstract Services (CAS) Number 75-07-0
Proposed Emission Rate (lb/hr) 2.78x10⁻⁴	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic Vapor
Concentration in Emission Stream (ppmv) 2.07x10⁻³	Vapor Pressure (in. Hg @ °F) 35.51 in Hg @ 68°C
Solubility 1x10⁺⁶ mg/L in water @ 77°F	Molecular Weight (lb/lb-mole) 44.05
Absorptive Properties -	

Pollutant Emitted Benzene	Chemical Abstract Services (CAS) Number 71-43-2
Proposed Emission Rate (lb/hr) 4.86x10⁻⁵	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 2.04x10⁻⁴	Vapor Pressure (in. Hg @ °F) 3.73 in Hg @ 77 °F
Solubility In water 1.79x10³ mg/L @ 77 °F	Molecular Weight (lb/lb-mole) 78.11
Absorptive Properties -	

Pollutant Emitted Dichlorobenzene	Chemical Abstract Services (CAS) Number Varies
Proposed Emission Rate (lb/hr) 2.78x10⁻⁵	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 6.21x10⁻⁵	Vapor Pressure (in. Hg @ °F) Varies
Solubility Varies	Molecular Weight (lb/lb-mole) 147.00
Absorptive Properties -	

Pollutant Emitted Ethylbenzene	Chemical Abstract Services (CAS) Number 100-41-4
Proposed Emission Rate (lb/hr) 3.70×10^{-4}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.15×10^{-3}	Vapor Pressure (in. Hg @ °F) 0.37 in Hg @ 77°F
Solubility In water 0.014 g/100mL @ 59 °F	Molecular Weight (lb/lb-mole) 106.17
Absorptive Properties -	

Pollutant Emitted Formaldehyde	Chemical Abstract Services (CAS) Number 50-00-0
Proposed Emission Rate (lb/hr) 1.71×10^{-3}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.87×10^{-2}	Vapor Pressure (in. Hg @ °F) 0.15 in Hg @ 77 °F
Solubility In water 4.00×10^5 mg/L @ 68°F	Molecular Weight (lb/lb-mole) 30.03
Absorptive Properties -	

Pollutant Emitted Hexane	Chemical Abstract Services (CAS) Number 110-54-5
Proposed Emission Rate (lb/hr) 4.16×10^{-2}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.59×10^{-1}	Vapor Pressure (in. Hg @ °F) 5.90 in Hg @ 68 °F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 86.1
Absorptive Properties -	

Pollutant Emitted Naphthalene	Chemical Abstract Services (CAS) Number 91-20-3
Proposed Emission Rate (lb/hr) 1.39×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 3.56×10^{-5}	Vapor Pressure (in. Hg @ °F) 0.003 in Hg @ 77 °F
Solubility In water 31 mg/L @ 77 °F	Molecular Weight (lb/lb-mole) 128.17
Absorptive Properties -	

Pollutant Emitted Toluene	Chemical Abstract Services (CAS) Number 108-88-3
Proposed Emission Rate (lb/hr) 7.63×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 2.72×10^{-4}	Vapor Pressure (in. Hg @ °F) 1.12 in Hg @ 77°F
Solubility In water 526 mg/L @ 77°F	Molecular Weight (lb/lb-mole) 92.14
Absorptive Properties -	

Pollutant Emitted Xylene	Chemical Abstract Services (CAS) Number 95-47-6
Proposed Emission Rate (lb/hr) 5.78×10^{-4}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.79×10^{-3}	Vapor Pressure (in. Hg @ °F) 0.26 in Hg @ 77°F
Solubility In water 178 mg/L @ 77°F	Molecular Weight (lb/lb-mole) 106.16
Absorptive Properties -	

Pollutant Emitted PAH	Chemical Abstract Services (CAS) Number N/A
Proposed Emission Rate (lb/hr) 9.85×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 3.32×10^{-4}	Vapor Pressure (in. Hg @ °F) N/A
Solubility N/A	Molecular Weight (lb/lb-mole) TBD
Absorptive Properties -	

Pollutant Emitted Antimony	Chemical Abstract Services (CAS) Number 7740-36-0
Proposed Emission Rate (lb/hr) 4.81×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/particulate
Concentration in Emission Stream (ppmv) 1.30×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 121.76
Absorptive Properties -	

Pollutant Emitted Arsenic	Chemical Abstract Services (CAS) Number 7440-38-2
Proposed Emission Rate (lb/hr) 1.85×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 8.12×10^{-5}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole)
Absorptive Properties -	

Pollutant Emitted Beryllium	Chemical Abstract Services (CAS) Number 7440-41-7
Proposed Emission Rate (lb/hr) 1.20×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 4.39×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 9.01
Absorptive Properties -	

Pollutant Emitted Cadmium	Chemical Abstract Services (CAS) Number 7440-43-9
Proposed Emission Rate (lb/hr) 1.02×10^{-4}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 2.98×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole)
Absorptive Properties -	

Pollutant Emitted Chromium (hexavalent)	Chemical Abstract Services (CAS) Number 1333-82-0
Proposed Emission Rate (lb/hr) 2.59×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 1.64×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility 1,660 g/L in water @ 77°F	Molecular Weight (lb/lb-mole) 51.99
Absorptive Properties -	

Pollutant Emitted Chromium	Chemical Abstract Services (CAS) Number 7440-47-3
Proposed Emission Rate (lb/hr) 1.30×10^{-4}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 8.19×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 51.99
Absorptive Properties -	

Pollutant Emitted Cobalt	Chemical Abstract Services (CAS) Number 7440-48-4
Proposed Emission Rate (lb/hr) 7.59×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 4.23×10^{-5}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 58.93
Absorptive Properties -	

Pollutant Emitted Manganese	Chemical Abstract Services (CAS) Number
Proposed Emission Rate (lb/hr) 3.42×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 2.05×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77 °F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 54.94
Absorptive Properties -	

Pollutant Emitted Mercury	Chemical Abstract Services (CAS) Number 7439-97-6
Proposed Emission Rate (lb/hr) 2.31×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 3.79×10^{-5}	Vapor Pressure (in. Hg @ °F) 7.85×10^{-5} in Hg @ 77 °F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 200.59
Absorptive Properties -	

Pollutant Emitted Nickel	Chemical Abstract Services (CAS) Number 7044-02-0
Proposed Emission Rate (lb/hr) 1.94×10^{-4}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 1.09×10^{-3}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 58.69
Absorptive Properties -	

Pollutant Emitted Selenium	Chemical Abstract Services (CAS) Number 7782-49-2
Proposed Emission Rate (lb/hr) 8.14×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 3.39×10^{-4}	Vapor Pressure (in. Hg @ °F) 0.29 in Hg @ 807
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 78.96
Absorptive Properties -	

Signature of Applicant 	Date 09/26/2016
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SEND COMPLETED APPLICATION AND ALL ATTACHMENTS TO:

North Dakota Department of
Health Division of Air Quality
918 E Divide Ave., 2nd Floor
Bismarck, ND 58501-1947
(701) 328-5188



**PERMIT APPLICATION FOR
HAZARDOUS AIR POLLUTANT (HAP) SOURCES**
NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 8329 (09-12)

SECTION A1 - APPLICANT INFORMATION

Name of Firm or Organization Meridian Energy Group - Davis Refinery		
Applicant's Name Tom Williams		
Title VP of Planning & Permitting	Telephone Number (707) 299-0182	E-mail Address twilliams@meridianenergygroup.inc
Mailing Address (Street & No.) 2062 Business Center Drive, Suite 115		
City Irvine	State CA	ZIP Code 92612

SECTION A2 - FACILITY INFORMATION

Contact Person for Air Pollution Matters Tom Johnson		
Title Vice President of Operations	Telephone Number (409) 795-0792	E-mail Address tjohnson@meridianenergygroup.inc
Facility Address (Street & No. or Lat/Long to Nearest Second) 37th Street / 46°52'45"N/103°14'55" W		
City Belfield	State ND	ZIP Code 58622
County Billings	Number of Employees at Location TBD	
Land Area at Plant Site 261 Acres (or)	Sq. Ft.	MSL Elevation at Plant 2,685 feet

Describe Nature of Business/Process Petroleum Refining / Diesel Hydrotreater / Reactor Charge Heater
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SECTION B – STACK DATA

Inside Diameter (ft) 2.5	Height Above Grade (ft) 96	
Gas Temperature at Exit (°F) 764.3	Gas Velocity at Exit (ft/sec) 28.4	Gas Volume (scfm) 8,091.77
Basis of any Estimates (attach separate sheet if necessary) Engineering data and Emission factors from Table 1.4-2. AP 42, Chapter 1: External Combustion Sources. See Document P-5715043-01-001-18042-1001 "EMISSIONS INVENTORY" and P-5715043-01-001-18035-1001 "BACT Analysis"		
Are Emission Control Devices in Place? If YES – Complete SFN 8532		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Nearest Residences or Building Utility building	Distance (ft) 768 ft	Direction South
Nearest Property Line Fenceline	Distance (ft) 1048 ft	Direction East

SECTION C – EMISSION STREAM DATA

Source ID No. From SFN 8516 110-H-1001	Mean Particle Diameter (µm) TBD
Flow Rate (scfm) 8,091.77	Drift Velocity (ft/sec) 28.4
Stream Temperature (°F) 764.3	Particulate Concentration (gr/dscf) TBD
Moisture Content (%) TBD	Halogens or Metals Present? Metals
Pressure (in. Hg) TBD	Organic Content (ppmv) 1.83x10⁻¹
Heat Content (Btu/scfm) TBD	O ₂ Content (%) N/A

SECTION D – POLLUTANT SPECIFIC DATA

(Complete One Box for Each Pollutant in Emission Stream)

Pollutant Emitted Acetaldehyde	Chemical Abstract Services (CAS) Number 75-07-0
Proposed Emission Rate (lb/hr) 4.88x10⁻⁵	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic Vapor
Concentration in Emission Stream (ppmv) 2.04x10⁻³	Vapor Pressure (in. Hg @ °F) 35.51 in Hg @ 68°C
Solubility 1x10⁺⁶ mg/L in water @ 77°F	Molecular Weight (lb/lb-mole) 44.05
Absorptive Properties -	

Pollutant Emitted Benzene	Chemical Abstract Services (CAS) Number 71-43-2
Proposed Emission Rate (lb/hr) 8.53x10⁻⁶	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 2.01x10⁻⁴	Vapor Pressure (in. Hg @ °F) 3.73 in Hg @ 77 °F
Solubility In water 1.79x10³ mg/L @ 77 °F	Molecular Weight (lb/lb-mole) 78.11
Absorptive Properties -	

Pollutant Emitted Dichlorobenzene	Chemical Abstract Services (CAS) Number Varies
Proposed Emission Rate (lb/hr) 4.88x10⁻⁶	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 6.11x10⁻⁵	Vapor Pressure (in. Hg @ °F) Varies
Solubility Varies	Molecular Weight (lb/lb-mole) 147.00
Absorptive Properties -	

Pollutant Emitted Ethylbenzene	Chemical Abstract Services (CAS) Number 100-41-4
Proposed Emission Rate (lb/hr) 6.50×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.13×10^{-3}	Vapor Pressure (in. Hg @ °F) 0.37 in Hg @ 77°F
Solubility In water 0.014 g/100mL @ 59 °F	Molecular Weight (lb/lb-mole) 106.17
Absorptive Properties -	

Pollutant Emitted Formaldehyde	Chemical Abstract Services (CAS) Number 50-00-0
Proposed Emission Rate (lb/hr) 3.01×10^{-4}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.84×10^{-2}	Vapor Pressure (in. Hg @ °F) 0.15 in Hg @ 77 °F
Solubility In water 4.00×10^5 mg/L @ 68°F	Molecular Weight (lb/lb-mole) 30.03
Absorptive Properties -	

Pollutant Emitted Hexane	Chemical Abstract Services (CAS) Number 110-54-5
Proposed Emission Rate (lb/hr) 7.31×10^{-3}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.56×10^{-1}	Vapor Pressure (in. Hg @ °F) 5.90 in Hg @ 68 °F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 86.1
Absorptive Properties -	

Pollutant Emitted Naphthalene	Chemical Abstract Services (CAS) Number 91-20-3
Proposed Emission Rate (lb/hr) 2.44×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 3.50×10^{-5}	Vapor Pressure (in. Hg @ °F) 0.003 in Hg @ 77 °F
Solubility In water 31 mg/L @ 77 °F	Molecular Weight (lb/lb-mole) 128.17
Absorptive Properties -	

Pollutant Emitted Toluene	Chemical Abstract Services (CAS) Number 108-88-3
Proposed Emission Rate (lb/hr) 1.34×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 2.68×10^{-4}	Vapor Pressure (in. Hg @ °F) 1.12 in Hg @ 77°F
Solubility In water 526 mg/L @ 77°F	Molecular Weight (lb/lb-mole) 92.14
Absorptive Properties -	

Pollutant Emitted Xylene	Chemical Abstract Services (CAS) Number 95-47-6
Proposed Emission Rate (lb/hr) 1.02×10^{-4}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.76×10^{-3}	Vapor Pressure (in. Hg @ °F) 0.26 in Hg @ 77°F
Solubility In water 178 mg/L @ 77°F	Molecular Weight (lb/lb-mole) 106.16
Absorptive Properties -	

Pollutant Emitted PAH	Chemical Abstract Services (CAS) Number N/A
Proposed Emission Rate (lb/hr) 1.73×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 3.27×10^{-4}	Vapor Pressure (in. Hg @ °F) N/A
Solubility N/A	Molecular Weight (lb/lb-mole) TBD
Absorptive Properties -	

Pollutant Emitted Antimony	Chemical Abstract Services (CAS) Number 7740-36-0
Proposed Emission Rate (lb/hr) 8.45×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/particulate
Concentration in Emission Stream (ppmv) 1.28×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 121.76
Absorptive Properties -	

Pollutant Emitted Arsenic	Chemical Abstract Services (CAS) Number 7440-38-2
Proposed Emission Rate (lb/hr) 3.25×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 7.99×10^{-5}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole)
Absorptive Properties -	

Pollutant Emitted Beryllium	Chemical Abstract Services (CAS) Number 7440-41-7
Proposed Emission Rate (lb/hr) 2.11×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 4.32×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 9.01
Absorptive Properties -	

Pollutant Emitted Cadmium	Chemical Abstract Services (CAS) Number 7440-43-9
Proposed Emission Rate (lb/hr) 1.79×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 2.93×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole)
Absorptive Properties -	

Pollutant Emitted Chromium (hexavalent)	Chemical Abstract Services (CAS) Number 1333-82-0
Proposed Emission Rate (lb/hr) 4.55×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 1.61×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility 1,660 g/L in water @ 77°F	Molecular Weight (lb/lb-mole) 51.99
Absorptive Properties -	

Pollutant Emitted Chromium	Chemical Abstract Services (CAS) Number 7440-47-3
Proposed Emission Rate (lb/hr) 2.28×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 8.06×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 51.99
Absorptive Properties -	

Pollutant Emitted Cobalt	Chemical Abstract Services (CAS) Number 7440-48-4
Proposed Emission Rate (lb/hr) 1.33×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 4.17×10^{-5}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 58.93
Absorptive Properties -	

Pollutant Emitted Manganese	Chemical Abstract Services (CAS) Number
Proposed Emission Rate (lb/hr) 6.01×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 2.02×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77 °F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 54.94
Absorptive Properties -	

Pollutant Emitted Mercury	Chemical Abstract Services (CAS) Number 7439-97-6
Proposed Emission Rate (lb/hr) 4.06×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 3.73×10^{-5}	Vapor Pressure (in. Hg @ °F) 7.85×10^{-5} in Hg @ 77 °F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 200.59
Absorptive Properties -	

Pollutant Emitted Nickel	Chemical Abstract Services (CAS) Number 7044-02-0
Proposed Emission Rate (lb/hr) 3.41×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 1.07×10^{-3}	Vapor Pressure (in. Hg @ °F) 0 in Hg Q 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 58.69
Absorptive Properties -	

Pollutant Emitted Selenium	Chemical Abstract Services (CAS) Number 7782-49-2
Proposed Emission Rate (lb/hr) 1.43×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 3.34×10^{-4}	Vapor Pressure (in. Hg @ °F) 0.29 in Hg @ 807
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 78.96
Absorptive Properties -	

Signature of Applicant 	Date 09/26/2016
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SEND COMPLETED APPLICATION AND ALL ATTACHMENTS TO:

North Dakota Department of
Health Division of Air Quality
918 E Divide Ave., 2nd Floor
Bismarck, ND 58501-1947
(701) 328-5188



**PERMIT APPLICATION FOR
HAZARDOUS AIR POLLUTANT (HAP) SOURCES**
NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 8329 (09-12)

SECTION A1 - APPLICANT INFORMATION

Name of Firm or Organization Meridian Energy Group - Davis Refinery		
Applicant's Name Tom Williams		
Title VP of Planning & Permitting	Telephone Number (707) 299-0182	E-mail Address twilliams@meridianenergygroup.inc
Mailing Address (Street & No.) 2062 Business Center Drive, Suite 115		
City Irvine	State CA	ZIP Code 92612

SECTION A2 - FACILITY INFORMATION

Contact Person for Air Pollution Matters Tom Johnson		
Title Vice President of Operations	Telephone Number (409) 795-0792	E-mail Address tjohnson@meridianenergygroup.inc
Facility Address (Street & No. or Lat/Long to Nearest Second) 37th Street / 46°52'45"N/103°14'55" W		
City Belfield	State ND	ZIP Code 58622
County Billings	Number of Employees at Location TBD	
Land Area at Plant Site 261 Acres (or)	Sq. Ft.	MSL Elevation at Plant 2,685 feet

Describe Nature of Business/Process Petroleum Refining / Light Naphtha Hydrotreater / Charge Heater

SECTION B – STACK DATA

Inside Diameter (ft) 3.5	Height Above Grade (ft) 170	
Gas Temperature at Exit (°F) 793.1	Gas Velocity at Exit (ft/sec) 12.1	Gas Volume (scfm) 6,964.97
Basis of any Estimates (attach separate sheet if necessary) Engineering data and Emission factors from Table 1.4-2. AP 42, Chapter 1: External Combustion Sources. See Document P-5715043-01-001-18042-1001 "EMISSIONS INVENTORY" and P-5715043-01-001-18035-1001 "BACT Analysis"		
Are Emission Control Devices in Place? If YES – Complete SFN 8532 Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Nearest Residences or Building Utility building	Distance (ft) 591 ft	Direction South
Nearest Property Line Fenceline	Distance (ft) 765 ft	Direction Southwest

SECTION C – EMISSION STREAM DATA

Source ID No. From SFN 8516 111-H-1101	Mean Particle Diameter (µm) TBD
Flow Rate (scfm) 6,964.97	Drift Velocity (ft/sec) 12.1
Stream Temperature (°F) 787.7	Particulate Concentration (gr/dscf) TBD
Moisture Content (%) TBD	Halogens or Metals Present? Metals
Pressure (in. Hg) TBD	Organic Content (ppmv) 1.86x10⁻¹
Heat Content (Btu/scfm) TBD	O ₂ Content (%) N/A

SECTION D – POLLUTANT SPECIFIC DATA

(Complete One Box for Each Pollutant in Emission Stream)

Pollutant Emitted Acetaldehyde	Chemical Abstract Services (CAS) Number 75-07-0
Proposed Emission Rate (lb/hr) 4.17x10⁻⁵	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic Vapor
Concentration in Emission Stream (ppmv) 2.07x10⁻³	Vapor Pressure (in. Hg @ °F) 35.51 in Hg @ 68°C
Solubility 1x10⁺⁶ mg/L in water @ 77°F	Molecular Weight (lb/lb-mole) 44.05
Absorptive Properties -	

Pollutant Emitted Benzene	Chemical Abstract Services (CAS) Number 71-43-2
Proposed Emission Rate (lb/hr) 7.30x10⁻⁶	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 2.05x10⁻⁴	Vapor Pressure (in. Hg @ °F) 3.73 in Hg @ 77 °F
Solubility In water 1.79x10³ mg/L @ 77 °F	Molecular Weight (lb/lb-mole) 78.11
Absorptive Properties -	

Pollutant Emitted Dichlorobenzene	Chemical Abstract Services (CAS) Number Varies
Proposed Emission Rate (lb/hr) 4.17x10⁻⁶	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 6.21x10⁻⁵	Vapor Pressure (in. Hg @ °F) Varies
Solubility Varies	Molecular Weight (lb/lb-mole) 147.00
Absorptive Properties -	

Pollutant Emitted Ethylbenzene	Chemical Abstract Services (CAS) Number 100-41-4
Proposed Emission Rate (lb/hr) 5.56×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.15×10^{-3}	Vapor Pressure (in. Hg @ °F) 0.37 in Hg @ 77°F
Solubility In water 0.014 g/100mL @ 59 °F	Molecular Weight (lb/lb-mole) 106.17
Absorptive Properties -	

Pollutant Emitted Formaldehyde	Chemical Abstract Services (CAS) Number 50-00-0
Proposed Emission Rate (lb/hr) 2.57×10^{-4}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.88×10^{-2}	Vapor Pressure (in. Hg @ °F) 0.15 in Hg @ 77 °F
Solubility In water 4.00×10^5 mg/L @ 68°F	Molecular Weight (lb/lb-mole) 30.03
Absorptive Properties -	

Pollutant Emitted Hexane	Chemical Abstract Services (CAS) Number 110-54-5
Proposed Emission Rate (lb/hr) 6.26×10^{-3}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.59×10^{-1}	Vapor Pressure (in. Hg @ °F) 5.90 in Hg @ 68 °F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 86.1
Absorptive Properties -	

Pollutant Emitted Naphthalene	Chemical Abstract Services (CAS) Number 91-20-3
Proposed Emission Rate (lb/hr) 2.09×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 3.56×10^{-5}	Vapor Pressure (in. Hg @ °F) 0.003 in Hg @ 77 °F
Solubility In water 31 mg/L @ 77 °F	Molecular Weight (lb/lb-mole) 128.17
Absorptive Properties -	

Pollutant Emitted Toluene	Chemical Abstract Services (CAS) Number 108-88-3
Proposed Emission Rate (lb/hr) 1.15×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 2.73×10^{-4}	Vapor Pressure (in. Hg @ °F) 1.12 in Hg @ 77°F
Solubility In water 526 mg/L @ 77°F	Molecular Weight (lb/lb-mole) 92.14
Absorptive Properties -	

Pollutant Emitted Xylene	Chemical Abstract Services (CAS) Number 95-47-6
Proposed Emission Rate (lb/hr) 8.69×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.79×10^{-3}	Vapor Pressure (in. Hg @ °F) 0.26 in Hg @ 77°F
Solubility In water 178 mg/L @ 77°F	Molecular Weight (lb/lb-mole) 106.16
Absorptive Properties -	

Pollutant Emitted PAH	Chemical Abstract Services (CAS) Number N/A
Proposed Emission Rate (lb/hr) 1.48×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 3.32×10^{-4}	Vapor Pressure (in. Hg @ °F) N/A
Solubility N/A	Molecular Weight (lb/lb-mole) TBD
Absorptive Properties -	

Pollutant Emitted Antimony	Chemical Abstract Services (CAS) Number 7740-36-0
Proposed Emission Rate (lb/hr) 7.23×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/particulate
Concentration in Emission Stream (ppmv) 1.30×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 121.76
Absorptive Properties -	

Pollutant Emitted Arsenic	Chemical Abstract Services (CAS) Number 7440-38-2
Proposed Emission Rate (lb/hr) 2.78×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 8.13×10^{-5}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole)
Absorptive Properties -	

Pollutant Emitted Beryllium	Chemical Abstract Services (CAS) Number 7440-41-7
Proposed Emission Rate (lb/hr) 1.81×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 4.39×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 9.01
Absorptive Properties -	

Pollutant Emitted Cadmium	Chemical Abstract Services (CAS) Number 7440-43-9
Proposed Emission Rate (lb/hr) 1.53×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 2.98×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole)
Absorptive Properties -	

Pollutant Emitted Chromium (hexavalent)	Chemical Abstract Services (CAS) Number 1333-82-0
Proposed Emission Rate (lb/hr) 3.89×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 1.64×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility 1,660 g/L in water @ 77°F	Molecular Weight (lb/lb-mole) 51.99
Absorptive Properties -	

Pollutant Emitted Chromium	Chemical Abstract Services (CAS) Number 7440-47-3
Proposed Emission Rate (lb/hr) 1.95×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 8.20×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 51.99
Absorptive Properties -	

Pollutant Emitted Cobalt	Chemical Abstract Services (CAS) Number 7440-48-4
Proposed Emission Rate (lb/hr) 1.14×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 4.24×10^{-5}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 58.93
Absorptive Properties -	

Pollutant Emitted Manganese	Chemical Abstract Services (CAS) Number
Proposed Emission Rate (lb/hr) 5.14×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 2.05×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77 °F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 54.94
Absorptive Properties -	

Pollutant Emitted Mercury	Chemical Abstract Services (CAS) Number 7439-97-6
Proposed Emission Rate (lb/hr) 3.48×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 3.80×10^{-5}	Vapor Pressure (in. Hg @ °F) 7.85×10^{-5} in Hg @ 77 °F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 200.59
Absorptive Properties -	

Pollutant Emitted Nickel	Chemical Abstract Services (CAS) Number 7044-02-0
Proposed Emission Rate (lb/hr) 2.92×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 1.09×10^{-3}	Vapor Pressure (in. Hg @ °F) 0 in Hg Q 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 58.69
Absorptive Properties -	

Pollutant Emitted Selenium	Chemical Abstract Services (CAS) Number 7782-49-2
Proposed Emission Rate (lb/hr) 1.22×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 3.39×10^{-4}	Vapor Pressure (in. Hg @ °F) 0.29 in Hg @ 807
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 78.96
Absorptive Properties -	

Signature of Applicant 	Date 09/26/2016
--	--------------------

SEND COMPLETED APPLICATION AND ALL ATTACHMENTS TO:

North Dakota Department of
Health Division of Air Quality
918 E Divide Ave., 2nd Floor
Bismarck, ND 58501-1947
(701) 328-5188



**PERMIT APPLICATION FOR
HAZARDOUS AIR POLLUTANT (HAP) SOURCES**
NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 8329 (09-12)

SECTION A1 - APPLICANT INFORMATION

Name of Firm or Organization Meridian Energy Group - Davis Refinery		
Applicant's Name Tom Williams		
Title VP of Planning & Permitting	Telephone Number (707) 299-0182	E-mail Address twilliams@meridianenergygroup.inc
Mailing Address (Street & No.) 2062 Business Center Drive, Suite 115		
City Irvine	State CA	ZIP Code 92612

SECTION A2 - FACILITY INFORMATION

Contact Person for Air Pollution Matters Tom Johnson		
Title Vice President of Operations	Telephone Number (409) 795-0792	E-mail Address tjohnson@meridianenergygroup.inc
Facility Address (Street & No. or Lat/Long to Nearest Second) 37th Street / 46°52'45"N/103°14'55" W		
City Belfield	State ND	ZIP Code 58622
County Billings	Number of Employees at Location TBD	
Land Area at Plant Site 261 Acres (or)	Sq. Ft.	MSL Elevation at Plant 2,685 feet

Describe Nature of Business/Process Petroleum Refining / Fluid Catalytic Cracking / Raw Charger Heater
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SECTION B – STACK DATA

Inside Diameter (ft) 5.5	Height Above Grade (ft) 72.0	
Gas Temperature at Exit (°F) 785.0	Gas Velocity at Exit (ft/sec) 9.9	Gas Volume (scfm) 14,110.55
Basis of any Estimates (attach separate sheet if necessary) Engineering data and Emission factors from Table 1.4-2. AP 42, Chapter 1: External Combustion Sources. See Document P-5715043-01-001-18042-1001 "EMISSIONS INVENTORY" and P-5715043-01-001-18035-1001 "BACT Analysis"		
Are Emission Control Devices in Place? If YES – Complete SFN 8532		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Nearest Residences or Building Utility building	Distance (ft) 718 ft	Direction South
Nearest Property Line Fenceline	Distance (ft) 460 ft	Direction South

SECTION C – EMISSION STREAM DATA

Source ID No. From SFN 8516 112-H-1201	Mean Particle Diameter (µm) TBD
Flow Rate (scfm) 14,110.5	Drift Velocity (ft/sec) 9.9
Stream Temperature (°F) 785.0	Particulate Concentration (gr/dscf) TBD
Moisture Content (%) TBD	Halogens or Metals Present? Metals
Pressure (in. Hg) TBD	Organic Content (ppmv) 1.86x10⁻¹
Heat Content (Btu/scfm) TBD	O ₂ Content (%) N/A

SECTION D – POLLUTANT SPECIFIC DATA

(Complete One Box for Each Pollutant in Emission Stream)

Pollutant Emitted Acetaldehyde	Chemical Abstract Services (CAS) Number 75-07-0
Proposed Emission Rate (lb/hr) 8.51x10⁻⁵	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic Vapor
Concentration in Emission Stream (ppmv) 2.07x10⁻³	Vapor Pressure (in. Hg @ °F) 35.51 in Hg @ 68°C
Solubility 1x10⁺⁶ mg/L in water @ 77°F	Molecular Weight (lb/lb-mole) 44.05
Absorptive Properties -	

Pollutant Emitted Benzene	Chemical Abstract Services (CAS) Number 71-43-2
Proposed Emission Rate (lb/hr) 1.49x10⁻⁵	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 2.05x10⁻⁴	Vapor Pressure (in. Hg @ °F) 3.73 in Hg @ 77 °F
Solubility In water 1.79x10³ mg/L @ 77 °F	Molecular Weight (lb/lb-mole) 78.11
Absorptive Properties -	

Pollutant Emitted Dichlorobenzene	Chemical Abstract Services (CAS) Number Varies
Proposed Emission Rate (lb/hr) 8.51x10⁻⁶	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 6.22x10⁻⁵	Vapor Pressure (in. Hg @ °F) Varies
Solubility Varies	Molecular Weight (lb/lb-mole) 147.00
Absorptive Properties -	

Pollutant Emitted Ethylbenzene	Chemical Abstract Services (CAS) Number 100-41-4
Proposed Emission Rate (lb/hr) 1.13×10^{-4}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.15×10^{-3}	Vapor Pressure (in. Hg @ °F) 0.37 in Hg @ 77°F
Solubility In water 0.014 g/100mL @ 59 °F	Molecular Weight (lb/lb-mole) 106.17
Absorptive Properties -	

Pollutant Emitted Formaldehyde	Chemical Abstract Services (CAS) Number 50-00-0
Proposed Emission Rate (lb/hr) 5.24×10^{-4}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.88×10^{-2}	Vapor Pressure (in. Hg @ °F) 0.15 in Hg @ 77 °F
Solubility In water 4.00×10^5 mg/L @ 68°F	Molecular Weight (lb/lb-mole) 30.03
Absorptive Properties -	

Pollutant Emitted Hexane	Chemical Abstract Services (CAS) Number 110-54-5
Proposed Emission Rate (lb/hr) 1.28×10^{-2}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.59×10^{-1}	Vapor Pressure (in. Hg @ °F) 5.90 in Hg @ 68 °F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 86.1
Absorptive Properties -	

Pollutant Emitted Naphthalene	Chemical Abstract Services (CAS) Number 91-20-3
Proposed Emission Rate (lb/hr) 4.25×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 3.56×10^{-5}	Vapor Pressure (in. Hg @ °F) 0.003 in Hg @ 77 °F
Solubility In water 31 mg/L @ 77 °F	Molecular Weight (lb/lb-mole) 128.17
Absorptive Properties -	

Pollutant Emitted Toluene	Chemical Abstract Services (CAS) Number 108-88-3
Proposed Emission Rate (lb/hr) 2.34×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 2.73×10^{-4}	Vapor Pressure (in. Hg @ °F) 1.12 in Hg @ 77°F
Solubility In water 526 mg/L @ 77°F	Molecular Weight (lb/lb-mole) 92.14
Absorptive Properties -	

Pollutant Emitted Xylene	Chemical Abstract Services (CAS) Number 95-47-6
Proposed Emission Rate (lb/hr) 1.77×10^{-4}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.79×10^{-3}	Vapor Pressure (in. Hg @ °F) 0.26 in Hg @ 77°F
Solubility In water 178 mg/L @ 77°F	Molecular Weight (lb/lb-mole) 106.16
Absorptive Properties -	

Pollutant Emitted PAH	Chemical Abstract Services (CAS) Number N/A
Proposed Emission Rate (lb/hr) 3.02×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 3.32×10^{-4}	Vapor Pressure (in. Hg @ °F) N/A
Solubility N/A	Molecular Weight (lb/lb-mole) TBD
Absorptive Properties -	

Pollutant Emitted Antimony	Chemical Abstract Services (CAS) Number 7740-36-0
Proposed Emission Rate (lb/hr) 1.47×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/particulate
Concentration in Emission Stream (ppmv) 1.30×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 121.76
Absorptive Properties -	

Pollutant Emitted Arsenic	Chemical Abstract Services (CAS) Number 7440-38-2
Proposed Emission Rate (lb/hr) 5.67×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 8.13×10^{-5}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole)
Absorptive Properties -	

Pollutant Emitted Beryllium	Chemical Abstract Services (CAS) Number 7440-41-7
Proposed Emission Rate (lb/hr) 3.69×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 4.39×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 9.01
Absorptive Properties -	

Pollutant Emitted Cadmium	Chemical Abstract Services (CAS) Number 7440-43-9
Proposed Emission Rate (lb/hr) 3.12×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 2.98×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole)
Absorptive Properties -	

Pollutant Emitted Chromium (hexavalent)	Chemical Abstract Services (CAS) Number 1333-82-0
Proposed Emission Rate (lb/hr) 7.94×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 1.64×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility 1,660 g/L in water @ 77°F	Molecular Weight (lb/lb-mole) 51.99
Absorptive Properties -	

Pollutant Emitted Chromium	Chemical Abstract Services (CAS) Number 7440-47-3
Proposed Emission Rate (lb/hr) 3.97×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 8.20×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 51.99
Absorptive Properties -	

Pollutant Emitted Cobalt	Chemical Abstract Services (CAS) Number 7440-48-4
Proposed Emission Rate (lb/hr) 2.32×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 4.24×10^{-5}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 58.93
Absorptive Properties -	

Pollutant Emitted Manganese	Chemical Abstract Services (CAS) Number
Proposed Emission Rate (lb/hr) 1.05×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 2.05×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77 °F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 54.94
Absorptive Properties -	

Pollutant Emitted Mercury	Chemical Abstract Services (CAS) Number 7439-97-6
Proposed Emission Rate (lb/hr) 7.09×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 3.80×10^{-5}	Vapor Pressure (in. Hg @ °F) 7.85×10^{-5} in Hg @ 77 °F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 200.59
Absorptive Properties -	

Pollutant Emitted Nickel	Chemical Abstract Services (CAS) Number 7044-02-0
Proposed Emission Rate (lb/hr) 5.95×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 1.09×10^{-3}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 58.69
Absorptive Properties -	

Pollutant Emitted Selenium	Chemical Abstract Services (CAS) Number 7782-49-2
Proposed Emission Rate (lb/hr) 2.49×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 3.39×10^{-4}	Vapor Pressure (in. Hg @ °F) 0.29 in Hg @ 807
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 78.96
Absorptive Properties -	

Signature of Applicant 	Date 09/26/2016
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SEND COMPLETED APPLICATION AND ALL ATTACHMENTS TO:

North Dakota Department of
Health Division of Air Quality
918 E Divide Ave., 2nd Floor
Bismarck, ND 58501-1947
(701) 328-5188



**PERMIT APPLICATION FOR
HAZARDOUS AIR POLLUTANT (HAP) SOURCES**
NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF AIR QUALITY
SFN 8329 (09-12)

SECTION A1 - APPLICANT INFORMATION

Name of Firm or Organization Meridian Energy Group - Davis Refinery		
Applicant's Name Tom Williams		
Title VP of Planning & Permitting	Telephone Number (707) 299-0182	E-mail Address twilliams@meridianenergygroup.inc
Mailing Address (Street & No.) 2062 Business Center Drive, Suite 115		
City Irvine	State CA	ZIP Code 92612

SECTION A2 - FACILITY INFORMATION

Contact Person for Air Pollution Matters Tom Johnson		
Title Vice President of Operations	Telephone Number (409) 795-0792	E-mail Address tjohnson@meridianenergygroup.inc
Facility Address (Street & No. or Lat/Long to Nearest Second) 37th Street / 46°52'45"N/103°14'55" W		
City Belfield	State ND	ZIP Code 58622
County Billings	Number of Employees at Location TBD	
Land Area at Plant Site 261 Acres (or)	Sq. Ft.	MSL Elevation at Plant 2,685 feet

Describe Nature of Business/Process Petroleum Refining / FCC Naphtha Hydrotreater / Heater
--

SECTION B – STACK DATA

Inside Diameter (ft) 3.0	Height Above Grade (ft) 91.0	
Gas Temperature at Exit (°F) 784.3	Gas Velocity at Exit (ft/sec) 20.5	Gas Volume (scfm) 8,699.78
Basis of any Estimates (attach separate sheet if necessary) Engineering data and Emission factors from Table 1.4-2. AP 42, Chapter 1: External Combustion Sources. See Document P-5715043-01-001-18042-1001 "EMISSIONS INVENTORY" and P-5715043-01-001-18035-1001 "BACT Analysis"		
Are Emission Control Devices in Place? If YES – Complete SFN 8532		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Nearest Residences or Building Utility building	Distance (ft) 696 ft	Direction South
Nearest Property Line Fenceline	Distance (ft) 744 ft	Direction South

SECTION C – EMISSION STREAM DATA

Source ID No. From SFN 8516 114-H-1401	Mean Particle Diameter (µm) TBD
Flow Rate (scfm) 8,699.78	Drift Velocity (ft/sec) 20.5
Stream Temperature (°F) 784.3	Particulate Concentration (gr/dscf) TBD
Moisture Content (%) TBD	Halogens or Metals Present? Metals
Pressure (in. Hg) TBD	Organic Content (ppmv) 3.72×10^{-1}
Heat Content (Btu/scfm) TBD	O ₂ Content (%) N/A

SECTION D – POLLUTANT SPECIFIC DATA

(Complete One Box for Each Pollutant in Emission Stream)

Pollutant Emitted Acetaldehyde	Chemical Abstract Services (CAS) Number 75-07-0
Proposed Emission Rate (lb/hr) 5.24×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic Vapor
Concentration in Emission Stream (ppmv) 2.07×10^{-3}	Vapor Pressure (in. Hg @ °F) 35.51 in Hg @ 68°C
Solubility $1 \times 10^{+6}$ mg/L in water @ 77°F	Molecular Weight (lb/lb-mole) 44.05
Absorptive Properties -	

Pollutant Emitted Benzene	Chemical Abstract Services (CAS) Number 71-43-2
Proposed Emission Rate (lb/hr) 9.18×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 2.05×10^{-4}	Vapor Pressure (in. Hg @ °F) 3.73 in Hg @ 77 °F
Solubility In water 1.79×10^3 mg/L @ 77 °F	Molecular Weight (lb/lb-mole) 78.11
Absorptive Properties -	

Pollutant Emitted Dichlorobenzene	Chemical Abstract Services (CAS) Number Varies
Proposed Emission Rate (lb/hr) 5.24×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 6.21×10^{-5}	Vapor Pressure (in. Hg @ °F) Varies
Solubility Varies	Molecular Weight (lb/lb-mole) 147.00
Absorptive Properties -	

Pollutant Emitted Ethylbenzene	Chemical Abstract Services (CAS) Number 100-41-4
Proposed Emission Rate (lb/hr) 6.99×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.15×10^{-3}	Vapor Pressure (in. Hg @ °F) 0.37 in Hg @ 77°F
Solubility In water 0.014 g/100mL @ 59 °F	Molecular Weight (lb/lb-mole) 106.17
Absorptive Properties -	

Pollutant Emitted Formaldehyde	Chemical Abstract Services (CAS) Number 50-00-0
Proposed Emission Rate (lb/hr) 3.23×10^{-4}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.88×10^{-2}	Vapor Pressure (in. Hg @ °F) 0.15 in Hg @ 77 °F
Solubility In water 4.00×10^5 mg/L @ 68°F	Molecular Weight (lb/lb-mole) 30.03
Absorptive Properties -	

Pollutant Emitted Hexane	Chemical Abstract Services (CAS) Number 110-54-5
Proposed Emission Rate (lb/hr) 7.87×10^{-3}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.59×10^{-1}	Vapor Pressure (in. Hg @ °F) 5.90 in Hg @ 68 °F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 86.1
Absorptive Properties -	

Pollutant Emitted Naphthalene	Chemical Abstract Services (CAS) Number 91-20-3
Proposed Emission Rate (lb/hr) 2.62×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 3.56×10^{-5}	Vapor Pressure (in. Hg @ °F) 0.003 in Hg @ 77 °F
Solubility In water 31 mg/L @ 77 °F	Molecular Weight (lb/lb-mole) 128.17
Absorptive Properties -	

Pollutant Emitted Toluene	Chemical Abstract Services (CAS) Number 108-88-3
Proposed Emission Rate (lb/hr) 1.44×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 2.73×10^{-4}	Vapor Pressure (in. Hg @ °F) 1.12 in Hg @ 77°F
Solubility In water 526 mg/L @ 77°F	Molecular Weight (lb/lb-mole) 92.14
Absorptive Properties -	

Pollutant Emitted Xylene	Chemical Abstract Services (CAS) Number 95-47-6
Proposed Emission Rate (lb/hr) 1.09×10^{-4}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.79×10^{-3}	Vapor Pressure (in. Hg @ °F) 0.26 in Hg @ 77°F
Solubility In water 178 mg/L @ 77°F	Molecular Weight (lb/lb-mole) 106.16
Absorptive Properties -	

Pollutant Emitted PAH	Chemical Abstract Services (CAS) Number N/A
Proposed Emission Rate (lb/hr) 1.86×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 3.32×10^{-4}	Vapor Pressure (in. Hg @ °F) N/A
Solubility N/A	Molecular Weight (lb/lb-mole) TBD
Absorptive Properties -	

Pollutant Emitted Antimony	Chemical Abstract Services (CAS) Number 7740-36-0
Proposed Emission Rate (lb/hr) 9.09×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/particulate
Concentration in Emission Stream (ppmv) 1.30×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 121.76
Absorptive Properties -	

Pollutant Emitted Arsenic	Chemical Abstract Services (CAS) Number 7440-38-2
Proposed Emission Rate (lb/hr) 3.50×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 8.13×10^{-5}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole)
Absorptive Properties -	

Pollutant Emitted Beryllium	Chemical Abstract Services (CAS) Number 7440-41-7
Proposed Emission Rate (lb/hr) 2.27×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 4.39×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 9.01
Absorptive Properties -	

Pollutant Emitted Cadmium	Chemical Abstract Services (CAS) Number 7440-43-9
Proposed Emission Rate (lb/hr) 1.92×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 2.98×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole)
Absorptive Properties -	

Pollutant Emitted Chromium (hexavalent)	Chemical Abstract Services (CAS) Number 1333-82-0
Proposed Emission Rate (lb/hr) 4.89×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 1.64×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility 1,660 g/L in water @ 77°F	Molecular Weight (lb/lb-mole) 51.99
Absorptive Properties -	

Pollutant Emitted Chromium	Chemical Abstract Services (CAS) Number 7440-47-3
Proposed Emission Rate (lb/hr) 2.45×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 8.20×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 51.99
Absorptive Properties -	

Pollutant Emitted Cobalt	Chemical Abstract Services (CAS) Number 7440-48-4
Proposed Emission Rate (lb/hr) 1.43×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 4.24×10^{-5}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 58.93
Absorptive Properties -	

Pollutant Emitted Manganese	Chemical Abstract Services (CAS) Number
Proposed Emission Rate (lb/hr) 6.47×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 2.05×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77 °F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 54.94
Absorptive Properties -	

Pollutant Emitted Mercury	Chemical Abstract Services (CAS) Number 7439-97-6
Proposed Emission Rate (lb/hr) 4.37×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 3.79×10^{-5}	Vapor Pressure (in. Hg @ °F) 7.85×10^{-5} in Hg @ 77 °F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 200.59
Absorptive Properties -	

Pollutant Emitted Nickel	Chemical Abstract Services (CAS) Number 7044-02-0
Proposed Emission Rate (lb/hr) 3.67×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 1.09×10^{-3}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 58.69
Absorptive Properties -	

Pollutant Emitted Selenium	Chemical Abstract Services (CAS) Number 7782-49-2
Proposed Emission Rate (lb/hr) 1.54×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 3.39×10^{-4}	Vapor Pressure (in. Hg @ °F) 0.29 in Hg @ 807
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 78.96
Absorptive Properties -	

Signature of Applicant 	Date 09/26/2016
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SEND COMPLETED APPLICATION AND ALL ATTACHMENTS TO:

North Dakota Department of
Health Division of Air Quality
918 E Divide Ave., 2nd Floor
Bismarck, ND 58501-1947
(701) 328-5188

SECTION C – EMISSION STREAM DATA

Source ID No. From SFN 8516 117-H-1701	Mean Particle Diameter (µm) TBD
Flow Rate (scfm) 852.56	Drift Velocity (ft/sec) 2.5
Stream Temperature (°F) 823.8	Particulate Concentration (gr/dscf) TBD
Moisture Content (%) TBD	Halogens or Metals Present? Metals
Pressure (in. Hg) TBD	Organic Content (ppmv) 1.85x10⁻¹
Heat Content (Btu/scfm) TBD	O ₂ Content (%) N/A

SECTION D – POLLUTANT SPECIFIC DATA

(Complete One Box for Each Pollutant in Emission Stream)

Pollutant Emitted Acetaldehyde	Chemical Abstract Services (CAS) Number 75-07-0
Proposed Emission Rate (lb/hr) 4.95x10⁻⁶	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic Vapor
Concentration in Emission Stream (ppmv) 2.06x10⁻³	Vapor Pressure (in. Hg @ °F) 35.51 in Hg @ 68°C
Solubility 1x10⁺⁶ mg/L in water @ 77°F	Molecular Weight (lb/lb-mole) 44.05
Absorptive Properties -	

Pollutant Emitted Benzene	Chemical Abstract Services (CAS) Number 71-43-2
Proposed Emission Rate (lb/hr) 8.66x10⁻⁷	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 2.03x10⁻⁴	Vapor Pressure (in. Hg @ °F) 3.73 in Hg @ 77 °F
Solubility In water 1.79x10³ mg/L @ 77 °F	Molecular Weight (lb/lb-mole) 78.11
Absorptive Properties -	

Pollutant Emitted Dichlorobenzene	Chemical Abstract Services (CAS) Number Varies
Proposed Emission Rate (lb/hr) 4.95x10⁻⁷	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 6.17x10⁻⁵	Vapor Pressure (in. Hg @ °F) Varies
Solubility Varies	Molecular Weight (lb/lb-mole) 147.00
Absorptive Properties -	

Pollutant Emitted Ethylbenzene	Chemical Abstract Services (CAS) Number 100-41-4
Proposed Emission Rate (lb/hr) 6.60×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.14×10^{-3}	Vapor Pressure (in. Hg @ °F) 0.37 in Hg @ 77°F
Solubility In water 0.014 g/100mL @ 59 °F	Molecular Weight (lb/lb-mole) 106.17
Absorptive Properties -	

Pollutant Emitted Formaldehyde	Chemical Abstract Services (CAS) Number 50-00-0
Proposed Emission Rate (lb/hr) 3.05×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.86×10^{-2}	Vapor Pressure (in. Hg @ °F) 0.15 in Hg @ 77 °F
Solubility In water 4.00×10^5 mg/L @ 68°F	Molecular Weight (lb/lb-mole) 30.03
Absorptive Properties -	

Pollutant Emitted Hexane	Chemical Abstract Services (CAS) Number 110-54-5
Proposed Emission Rate (lb/hr) 7.43×10^{-4}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.58×10^{-1}	Vapor Pressure (in. Hg @ °F) 5.90 in Hg @ 68 °F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 86.1
Absorptive Properties -	

Pollutant Emitted Naphthalene	Chemical Abstract Services (CAS) Number 91-20-3
Proposed Emission Rate (lb/hr) 2.48×10^{-7}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 3.54×10^{-5}	Vapor Pressure (in. Hg @ °F) 0.003 in Hg @ 77 °F
Solubility In water 31 mg/L @ 77 °F	Molecular Weight (lb/lb-mole) 128.17
Absorptive Properties -	

Pollutant Emitted Toluene	Chemical Abstract Services (CAS) Number 108-88-3
Proposed Emission Rate (lb/hr) 1.36×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 2.71×10^{-4}	Vapor Pressure (in. Hg @ °F) 1.12 in Hg @ 77°F
Solubility In water 526 mg/L @ 77°F	Molecular Weight (lb/lb-mole) 92.14
Absorptive Properties -	

Pollutant Emitted Xylene	Chemical Abstract Services (CAS) Number 95-47-6
Proposed Emission Rate (lb/hr) 1.03×10^{-5}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 1.78×10^{-3}	Vapor Pressure (in. Hg @ °F) 0.26 in Hg @ 77°F
Solubility In water 178 mg/L @ 77°F	Molecular Weight (lb/lb-mole) 106.16
Absorptive Properties -	

Pollutant Emitted PAH	Chemical Abstract Services (CAS) Number N/A
Proposed Emission Rate (lb/hr) 1.76×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 3.30×10^{-4}	Vapor Pressure (in. Hg @ °F) N/A
Solubility N/A	Molecular Weight (lb/lb-mole) TBD
Absorptive Properties -	

Pollutant Emitted Antimony	Chemical Abstract Services (CAS) Number 7740-36-0
Proposed Emission Rate (lb/hr) 8.58×10^{-7}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/particulate
Concentration in Emission Stream (ppmv) 1.29×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 121.76
Absorptive Properties -	

Pollutant Emitted Arsenic	Chemical Abstract Services (CAS) Number 7440-38-2
Proposed Emission Rate (lb/hr) 3.30×10^{-7}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 8.08×10^{-5}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole)
Absorptive Properties -	

Pollutant Emitted Beryllium	Chemical Abstract Services (CAS) Number 7440-41-7
Proposed Emission Rate (lb/hr) 2.15×10^{-7}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 4.37×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 9.01
Absorptive Properties -	

Pollutant Emitted Cadmium	Chemical Abstract Services (CAS) Number 7440-43-9
Proposed Emission Rate (lb/hr) 1.82×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 2.96×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole)
Absorptive Properties -	

Pollutant Emitted Chromium (hexavalent)	Chemical Abstract Services (CAS) Number 1333-82-0
Proposed Emission Rate (lb/hr) 4.62×10^{-7}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 1.63×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility 1,660 g/L in water @ 77°F	Molecular Weight (lb/lb-mole) 51.99
Absorptive Properties -	

Pollutant Emitted Chromium	Chemical Abstract Services (CAS) Number 7440-47-3
Proposed Emission Rate (lb/hr) 2.31×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 8.15×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 51.99
Absorptive Properties -	

Pollutant Emitted Cobalt	Chemical Abstract Services (CAS) Number 7440-48-4
Proposed Emission Rate (lb/hr) 1.35×10^{-7}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 4.21×10^{-5}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 58.93
Absorptive Properties -	

Pollutant Emitted Manganese	Chemical Abstract Services (CAS) Number
Proposed Emission Rate (lb/hr) 6.11×10^{-7}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 2.04×10^{-4}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77 °F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 54.94
Absorptive Properties -	

Pollutant Emitted Mercury	Chemical Abstract Services (CAS) Number 7439-97-6
Proposed Emission Rate (lb/hr) 4.13×10^{-7}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 3.77×10^{-5}	Vapor Pressure (in. Hg @ °F) 7.85×10^{-5} in Hg @ 77 °F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 200.59
Absorptive Properties -	

Pollutant Emitted Nickel	Chemical Abstract Services (CAS) Number 7044-02-0
Proposed Emission Rate (lb/hr) 3.47×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 1.08×10^{-3}	Vapor Pressure (in. Hg @ °F) 0 in Hg @ 77°F
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 58.69
Absorptive Properties -	

Pollutant Emitted Selenium	Chemical Abstract Services (CAS) Number 7782-49-2
Proposed Emission Rate (lb/hr) 1.45×10^{-6}	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Inorganic/Particulate
Concentration in Emission Stream (ppmv) 3.37×10^{-4}	Vapor Pressure (in. Hg @ °F) 0.29 in Hg @ 807
Solubility Insoluble in water	Molecular Weight (lb/lb-mole) 78.96
Absorptive Properties -	

Signature of Applicant 	Date 09/26/2016
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SEND COMPLETED APPLICATION AND ALL ATTACHMENTS TO:

North Dakota Department of
Health Division of Air Quality
918 E Divide Ave., 2nd Floor
Bismarck, ND 58501-1947
(701) 328-5188

SECTION C – EMISSION STREAM DATA

Source ID No. From SFN 8516 117-H-1702	Mean Particle Diameter (µm) TBD
Flow Rate (scfm) 1,872.75	Drift Velocity (ft/sec) 1.9
Stream Temperature (°F) 787.7	Particulate Concentration (gr/dscf) TBD
Moisture Content (%) TBD	Halogens or Metals Present? Metals
Pressure (in. Hg) TBD	Organic Content (ppmv) 1.86x10⁻¹
Heat Content (Btu/scfm) TBD	O ₂ Content (%) N/A

SECTION D – POLLUTANT SPECIFIC DATA

(Complete One Box for Each Pollutant in Emission Stream)

Pollutant Emitted Acetaldehyde	Chemical Abstract Services (CAS) Number 75-07-0
Proposed Emission Rate (lb/hr) 1.13x10⁻⁵	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic Vapor
Concentration in Emission Stream (ppmv) 2.07x10⁻³	Vapor Pressure (in. Hg @ °F) 35.51 in Hg @ 68°C
Solubility 1x10⁺⁶ mg/L in water @ 77°F	Molecular Weight (lb/lb-mole) 44.05
Absorptive Properties -	

Pollutant Emitted Benzene	Chemical Abstract Services (CAS) Number 71-43-2
Proposed Emission Rate (lb/hr) 1.97x10⁻⁶	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 2.04x10⁻⁴	Vapor Pressure (in. Hg @ °F) 3.73 in Hg @ 77 °F
Solubility In water 1.79x10³ mg/L @ 77 °F	Molecular Weight (lb/lb-mole) 78.11
Absorptive Properties -	

Pollutant Emitted Dichlorobenzene	Chemical Abstract Services (CAS) Number Varies
Proposed Emission Rate (lb/hr) 1.13x10⁻⁶	Emission Source (describe) Process Point
Source Classification (process point, process fugitive, area fugitive) Process Point	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic /Vapor
Concentration in Emission Stream (ppmv) 6.21x10⁻⁵	Vapor Pressure (in. Hg @ °F) Varies
Solubility Varies	Molecular Weight (lb/lb-mole) 147.00
Absorptive Properties -	