

## AIR QUALITY PERMIT

Issued To: TDW Gas Processing, LLC                      Permit: #3408-00  
TDW Sweetening Plant                                      Application Complete: 07/10/05  
10 Kevin Highway    Preliminary Determination Issued: 08/05/05  
Oilmont, MT 59466    Department's Decision Issued: 08/23/05  
    Permit Final: 09/08/05  
    AFS: #101-0023

An air quality permit, with conditions, is hereby granted to TDW Gas Processing, LLC (TDW), pursuant to Sections 75-2-204 and 211 of the Montana Code Annotated (MCA), as amended, and the Administrative Rules of Montana (ARM) 17.8.740, *et seq.*, as amended, for the following:

### SECTION I: Permitted Facilities

#### A. Permitted Equipment

Permit #3408-00 is issued to TDW for the operation of a natural gas sweetening plant known as the TDW Sweetening Plant. A complete list of the permitted equipment is contained in Section I.A of the Permit Analysis.

#### B. Plant Location

The facility is located in the NE $\frac{1}{4}$  of the NE $\frac{1}{4}$  of Section 19, Township 34 North, Range 1 East, in Toole County, Montana.

### SECTION II: Conditions and Limitations

#### A. Emission Control Requirements

1. Operation of the emergency flare shall not exceed 100 hours during any rolling 12-month time period (ARM 17.8.749).
2. TDW shall not cause or authorize emissions to be discharged into the outdoor atmosphere from any sources installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over six consecutive minutes (ARM 17.8.304).
3. TDW shall not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne particulate matter (ARM 17.8.308).
4. TDW shall treat all unpaved portions of the haul roads, access roads, parking lots, or general plant area with water and/or chemical dust suppressant as necessary to maintain compliance with the reasonable precaution limitation in Section II.A.3 (ARM 17.8.749).

B. Testing Requirements

1. All compliance source tests shall conform to the requirements of the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).
2. The Department may require further testing (ARM 17.8.105).

C. Operational Reporting Requirements

1. TDW shall supply the Department of Environmental Quality (Department) with annual production information for all emission points, as required by the Department in the annual emission inventory request. The request will include, but is not limited to, all sources of emissions identified in the emission inventory contained in the permit analysis and sources identified in Section I.A of the permit analysis.

Production information shall be gathered on a calendar-year basis and submitted to the Department by the date required in the emission inventory request. Information shall be in the units required by the Department. This information may be used to calculate operating fees, based on actual emissions from the facility, and/or to verify compliance with permit limitations (ARM 17.8.505).

2. TDW shall notify the Department of any construction or improvement project conducted pursuant to ARM 17.8.745, that would include a change in control equipment, stack height, stack diameter, stack flow, stack gas temperature, source location or fuel specifications, or would result in an increase in source capacity above its permitted operation or the addition of a new emission unit. The notice must be submitted to the Department, in writing, ten days prior to start up or use of the proposed de minimis change, or as soon as reasonably practicable in the event of an unanticipated circumstance causing the de minimis change, and must include the information requested in ARM 17.8.745(1)(d) (ARM 17.8.745).
3. TDW shall document, by month, the hours of operation of the flare. By the 25<sup>th</sup> day of each month, TDW shall calculate the hours of operation of the flare for the previous month. The monthly information will be used to verify compliance with the rolling 12-month limitation in Section II.A.1. The information for each of the previous months shall be submitted along with the annual Emission Inventory (ARM 17.8.749).
4. All records compiled in accordance with this permit must be maintained by TDW as a permanent business record for at least five years following the date of the measurement, must be available for inspection by the Department, and must be submitted to the Department upon request (ARM 17.8.749).

SECTION III: General Conditions

- A. Inspection – TDW shall allow the Department’s representatives access to the source at all reasonable times for the purpose of making inspections or surveys, collecting samples, obtaining data, auditing any monitoring equipment (CEMS, CERMS) or observing any monitoring or testing, and otherwise conducting all necessary functions related to this permit.

- B. Waiver – The permit and the terms, conditions, and matters stated herein shall be deemed accepted if TDW fails to appeal as indicated below.
- C. Compliance with Statutes and Regulations – Nothing in this permit shall be construed as relieving TDW of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq.* (ARM 17.8.756).
- D. Enforcement – Violations of limitations, conditions, and requirements contained herein may constitute grounds for permit revocation, penalties, or other enforcement action as specified in Section 75-2-401, *et seq.*, MCA.
- E. Appeals – Any person or persons jointly or severally adversely affected by the Department’s decision may request, within 15 days after the Department renders its decision, upon affidavit setting forth the grounds therefore, a hearing before the Board of Environmental Review (Board). A hearing shall be held under the provisions of the Montana Administrative Procedures Act. The filing of a request for a hearing does not stay the Department’s decision, unless the Board issues a stay upon receipt of a petition and a finding that a stay is appropriate under Section 75-2-211(11)(b), MCA. The issuance of a stay on a permit by the Board postpones the effective date of the Department’s decision until conclusion of the hearing and issuance of a final decision by the Board. If the Board does not issue a stay, the Department’s decision on the application is final 16 days after the Department’s decision is made.
- F. Permit Inspection – As required by ARM 17.8.755, Inspection of Permit, a copy of the air quality permit shall be made available for inspection by the Department at the location of the source.
- G. Permit Fee – Pursuant to Section 75-2-220, MCA, as amended by the 1991 Legislature, failure to pay the annual operation fee by TDW may be grounds for revocation of this permit, as required by that section and rules adopted thereunder by the Board.
- H. Construction Commencement – Construction must begin within three years of permit issuance and proceed with due diligence until the project is complete or the permit shall be revoked (ARM 17.8.762).

Permit Analysis  
TDW Gas Processing, LLC  
TDW Sweetening Plant  
Permit #3408-00

I. Introduction/Process Description

TDW Gas Processing, LLC (TDW) proposed to construct and operate a natural gas sweetening plant located in the NE<sup>1</sup>/<sub>4</sub> of the NE<sup>1</sup>/<sub>4</sub> of Section 19, Township 34 North, Range 1 East, in Toole County, Montana. The facility is known as TDW Sweetening Plant.

A. Permitted Equipment

The facility consists of the following equipment:

Unit #1 - Amine Reboiler  
Unit #2 - Emergency Flare

B. Source Description

The TDW Sweetening Plant receives sour field gas withdrawn from local gas fields, compressed at another facility, and then piped to the TDW Sweetening Plant. The gas is sweetened for delivery through pipelines. The amine absorbing fluid is regenerated in the amine reboiler and the hydrogen sulfide (H<sub>2</sub>S) from the amine reboiler is reinjected into underground wells. An emergency flare is proposed to safely flare H<sub>2</sub>S in the event of upset conditions.

II. Applicable Rules and Regulations

The following are partial explanations of some applicable rules and regulations that apply to the facility. The complete rules are stated in the Administrative Rules of Montana (ARM) and are available, upon request, from the Department of Environmental Quality (Department). Upon request, the Department will provide references for location of complete copies of all applicable rules and regulations or copies where appropriate.

A. ARM 17.8, Subchapter 1 – General Provisions, including but not limited to:

1. ARM 17.8.101 Definitions. This rule includes a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.
2. ARM 17.8.105 Testing Requirements. Any person or persons responsible for the emission of any air contaminant into the outdoor atmosphere shall, upon written request of the Department, provide the facilities and necessary equipment (including instruments and sensing devices) and shall conduct tests, emission or ambient, for such periods of time as may be necessary using methods approved by the Department.
3. ARM 17.8.106 Source Testing Protocol. The requirements of this rule apply to any emission source testing conducted by the Department, any source or other entity as required by any rule in this chapter, or any permit or order issued pursuant to this chapter, or the provisions of the Clean Air Act of Montana, 75-2-101, *et seq.*, Montana Code Annotated (MCA).

TDW shall comply with the requirements contained in the Montana Source Test Protocol and Procedures Manual, including, but not limited to, using the proper test methods and supplying the required reports. A copy of the Montana Source Test Protocol and Procedures Manual is available from the Department upon request.

4. ARM 17.8.110 Malfunctions. (2) The Department must be notified promptly by telephone whenever a malfunction occurs that can be expected to create emissions in excess of any applicable emission limitation or to continue for a period greater than four hours.
5. ARM 17.8.111 Circumvention. (1) No person shall cause or permit the installation or use of any device or any means that, without resulting in reduction of the total amount of air contaminant emitted, conceals or dilutes an emission of air contaminant that would otherwise violate an air pollution control regulation. (2) No equipment that may produce emissions shall be operated or maintained in such a manner as to create a public nuisance.

B. ARM 17.8, Subchapter 2 – Ambient Air Quality, including, but not limited to the following:

1. ARM 17.8.204 Ambient Air Monitoring
2. ARM 17.8.210 Ambient Air Quality Standards for Sulfur Dioxide
3. ARM 17.8.211 Ambient Air Quality Standards for Nitrogen Dioxide
4. ARM 17.8.212 Ambient Air Quality Standards for Carbon Monoxide
5. ARM 17.8.213 Ambient Air Quality Standard for Ozone
6. ARM 17.8.214 Ambient Air Quality Standard for Hydrogen Sulfide
7. ARM 17.8.220 Ambient Air Quality Standard for Settled Particulate Matter
8. ARM 17.8.221 Ambient Air Quality Standard for Visibility
9. ARM 17.8.222 Ambient Air Quality Standard for Lead
10. ARM 17.8.223 Ambient Air Quality Standard for PM<sub>10</sub>

TDW must maintain compliance with the applicable ambient air quality standards.

C. ARM 17.8, Subchapter 3 – Emission Standards, including, but not limited to:

1. ARM 17.8.304 Visible Air Contaminants. This rule requires that no person may cause or authorize emissions to be discharged into the outdoor atmosphere from any source installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over six consecutive minutes.
2. ARM 17.8.308 Particulate Matter, Airborne. (1) This rule requires an opacity limitation of less than 20% for all fugitive emission sources and that reasonable precautions be taken to control emissions of airborne particulate matter. (2) Under this rule, TDW shall not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne particulate matter.
3. ARM 17.8.309 Particulate Matter, Fuel Burning Equipment. This rule requires that no person shall cause, allow, or permit to be discharged into the atmosphere particulate matter caused by the combustion of fuel in excess of the amount determined by this rule.
4. ARM 17.8.310 Particulate Matter, Industrial Process. This rule requires that no person shall cause, allow, or permit to be discharged into the atmosphere particulate matter in excess of the amount set forth in this rule.

5. ARM 17.8.316 Incinerators. This rule requires that no person may cause or authorize emissions to be discharged into the outdoor atmosphere from any incinerator, particulate matter (PM) in excess of 0.10 grains per standard cubic foot (gr/dscf) of dry flue gas, adjusted to 12% carbon dioxide (CO<sub>2</sub>) and calculated as if no auxiliary fuel had been used. Also, no person shall cause or authorize to be discharged into the outdoor atmosphere from any incinerator, emissions that exhibit an opacity of 10% or greater averaged over six consecutive minutes. This rule does not apply to the flares at the TDW facility because TDW has applied for and received an air quality permit in accordance with ARM 17.8.748 and MCA 75-2-215.
6. ARM 17.8.322 Sulfur Oxide Emissions--Sulfur in Fuel. This rule requires that no person shall burn liquid, solid, or gaseous fuel in excess of the amount set forth in this rule.
7. ARM 17.8.324 Hydrocarbon Emissions--Petroleum Products. (3) No person shall load or permit the loading of gasoline into any stationary tank with a capacity of 250 gallons or more from any tank truck or trailer, except through a permanent submerged fill pipe, unless such tank is equipped with a vapor loss control device as described in (1) of this rule.
8. ARM 17.8.340 Standard of Performance for New Stationary Sources and Emission Guidelines for Existing Sources. This rule incorporates, by reference, 40 Code of Federal Regulations (CFR) 60, Standards of Performance for New Stationary Sources (NSPS). This facility is not an NSPS affected source because it does not meet the definition of any NSPS subpart defined in 40 CFR 60.
9. ARM 17.8.342 Emission Standards for Hazardous Air Pollutants for Source Categories. The source, as defined and applied in 40 CFR 63, shall comply with the requirements of 40 CFR 63, as applicable:

40 CFR 63, Subpart HH - National Emission Standards for Hazardous Air Pollutants From Oil and Natural Gas Production Facilities. Owners or operators of oil and natural gas production facilities, as defined and applied in 40 CFR Part 63, shall comply with the applicable provisions of 40 CFR Part 63, Subpart HH. In order for an oil and natural gas production facility to be subject to 40 CFR Part 63, Subpart HH requirements, certain criteria must be met. First, the facility must be a major source of hazardous air pollutants (HAPs) as determined according to paragraphs (a)(1)(i) through (a)(1)(iii) of 40 CFR 63, Subpart HH. Second, a facility that is determined to be major for HAPs must also either process, upgrade, or store hydrocarbon liquids prior to the point of custody transfer, or process, upgrade, or store natural gas prior to the point at which natural gas enters the natural gas transmission and storage source category or is delivered to a final end user. Third, the facility must also contain an affected source as specified in paragraphs (b)(1) through (b)(4) of 40 CFR Part 63, Subpart HH. Finally, if the first three criteria are met, and the exemptions contained in paragraphs (e)(1) and (e)(2) of 40 CFR Part 63, Subpart HH do not apply, the facility is subject to the applicable provisions of 40 CFR Part 63, Subpart HH. Based on the information submitted by TDW, the TDW Sweetening Plant Facility is not subject to the provisions of 40 CFR Part 63, Subpart HH because the facility is not a major source of HAPs.

D. ARM 17.8, Subchapter 5 – Air Quality Permit Application, Operation, and Open Burning Fees, including, but not limited to:

1. ARM 17.8.504 Air Quality Permit Application Fees. This rule requires that an applicant submit an air quality permit application fee concurrent with the submittal of an air quality permit application. A permit application is incomplete until the proper application fee is paid to the Department. TDW submitted the appropriate permit application fee for the current permit action.
2. ARM 17.8.505 Air Quality Permit Operation Fees. An annual air quality operation fee must, as a condition of continued operation, be submitted to the Department by each source of air contaminants holding an air quality permit (excluding an open burning permit) issued by the Department. The air quality operation fee is based on the actual or estimated actual amount of air pollutants emitted during the previous calendar year.

An air quality operation fee is separate and distinct from an air quality permit application fee. The annual assessment and collection of the air quality operation fee, described above, shall take place on a calendar-year basis. The Department may insert into any final permit issued after the effective date of these rules, such conditions as may be necessary to require the payment of an air quality operation fee on a calendar-year basis, including provisions that prorate the required fee amount.

E. ARM 17.8, Subchapter 7 – Permit, Construction, and Operation of Air Contaminant Sources, including, but not limited to:

1. ARM 17.8.740 Definitions. This rule is a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.
2. ARM 17.8.743 Montana Air Quality Permits--When Required. This rule requires a person to obtain an air quality permit or permit alteration to construct, alter or use any air contaminant sources that have the potential to emit (PTE) greater than 25 tons per year of any pollutant. The TDW facility has a PTE greater than 25 tons per year of sulfur oxides (SO<sub>x</sub>); therefore, an air quality permit is required.
3. ARM 17.8.744 Montana Air Quality Permits--General Exclusions. This rule identifies the activities that are not subject to the Montana Air Quality Permit program.
4. ARM 17.8.745 Montana Air Quality Permits--Exclusion for De Minimis Changes. This rule identifies the de minimis changes at permitted facilities that do not require a permit under the Montana Air Quality Permit Program.
5. ARM 17.8.748 New or Modified Emitting Units--Permit Application Requirements. (1) This rule requires that a permit application be submitted prior to installation, alteration or use of a source. TDW submitted the required permit application for the current permit action. (7) This rule requires that the applicant notify the public by means of legal publication in a newspaper of general circulation in the area affected by the application for a permit. TDW submitted an affidavit of publication of public notice for the July 10, 2005, issue of the *Great Falls Tribune*, a newspaper of general circulation in the Town of Shelby, in Toole County, as proof of compliance with the public notice requirements.

6. ARM 17.8.749 Conditions for Issuance or Denial of Permit. This rule requires that the permits issued by the Department must authorize the construction and operation of the facility or emitting unit subject to the conditions in the permit and the requirements of this subchapter. This rule also requires that the permit must contain any conditions necessary to assure compliance with the Federal Clean Air Act (FCAA), the Clean Air Act of Montana, and rules adopted under those acts.
7. ARM 17.8.752 Emission Control Requirements. This rule requires a source to install the maximum air pollution control capability that is technically practicable and economically feasible, except that Best Available Control Technology (BACT) shall be used. The BACT analysis is discussed in Section III of this Permit Analysis.
8. ARM 17.8.755 Inspection of Permit. This rule requires that the Department shall make air quality permits available for inspection at the location of the source.
9. ARM 17.8.756 Compliance with Other Requirements. This rule states that nothing in the permit shall be construed as relieving TDW of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq.*
10. ARM 17.8.759 Review of Permit Applications. This rule describes the Department's responsibilities for processing permit applications and making permit decisions on those permit applications that do not require the preparation of an environmental impact statement.
11. ARM 17.8.762 Duration of Permit. An air quality permit shall be valid until revoked or modified, as provided in this subchapter, except that a permit issued prior to construction of a new or altered source may contain a condition providing that the permit will expire unless construction is commenced within the time specified in the permit, which in no event may be less than one year after the permit is issued.
12. ARM 17.8.763 Revocation of Permit. An air quality permit may be revoked upon written request of the permittee, or for violations of any requirement of the Clean Air Act of Montana, rules adopted under the Clean Air Act of Montana, the FCAA, rules adopted under the FCAA, or any applicable requirement contained in the Montana State Implementation Plan (SIP).
13. ARM 17.8.764 Administrative Amendment to Permit. An air quality permit may be amended for changes in any applicable rules and standards adopted by the Board of Environmental Review (Board) or changed conditions of operation at a source or stack that do not result in an increase of emissions as a result of those changed conditions. The owner or operator of a facility may not increase the facility's emissions beyond permit limits unless the increase meets the criteria in ARM 17.8.745 for a de minimis change not requiring a permit, or unless the owner or operator applies for and receives another permit in accordance with ARM 17.8.748, ARM 17.8.749, ARM 17.8.752, ARM 17.8.755, and ARM 17.8.756, and with all applicable requirements in ARM Title 17, Chapter 8, Subchapters 8, 9, and 10.
14. ARM 17.8.765 Transfer of Permit. This rule states that an air quality permit may be transferred from one person to another if written notice of Intent to Transfer, including the names of the transferor and the transferee, is sent to the Department.



F. ARM 17.8, Subchapter 8 – Prevention of Significant Deterioration of Air Quality, including, but not limited to:

1. ARM 17.8.801 Definitions. This rule is a list of applicable definitions used in this subchapter.
2. ARM 17.8.818 Review of Major Stationary Sources and Major Modifications--Source Applicability and Exemptions. The requirements contained in ARM 17.8.819 through ARM 17.8.827 shall apply to any major stationary source and any major modification, with respect to each pollutant subject to regulation under the FCAA that it would emit, except as this subchapter would otherwise allow.

This facility is not a major stationary source since this facility is not a listed source and the facility's PTE is below 250 tons per year of any pollutant (excluding fugitive emissions).

G. ARM 17.8, Subchapter 12 – Operating Permit Program Applicability, including, but not limited to:

1. ARM 17.8.1201 Definitions. (23) Major Source under Section 7412 of the FCAA is defined as any source having:
  - a. PTE > 100 tons per year of any pollutant;
  - b. PTE > 10 tons per year of any one HAP, PTE > 25 tons per year of a combination of all HAPs, or lesser quantity as the Department may establish by rule; or
  - c. PTE > 70 tons per year of particulate matter with an aerodynamic diameter of 10 microns or less (PM<sub>10</sub>) in a serious PM<sub>10</sub> nonattainment area.
2. ARM 17.8.1204 Air Quality Operating Permit Program. (1) Title V of the FCAA amendments of 1990 requires that all sources, as defined in ARM 17.8.1204(1), obtain a Title V Operating Permit. In reviewing and issuing Air Quality Permit #3408-00 for TDW, the following conclusions were made:
  - a. The facility's PTE is less than 100 tons per year for any pollutant.
  - b. The facility's PTE is less than 10 tons per year for any one HAP and less than 25 tons per year for all HAPs.
  - c. This source is not located in a serious PM<sub>10</sub> nonattainment area.
  - d. This facility is not subject to any current NSPS.
  - e. This facility is not subject to any current NESHAP standards.
  - f. This source is not a Title IV affected source, nor a solid waste combustion unit.
  - g. This source is not an EPA designated Title V source.

Based on these facts, the Department determined that TDW will be a minor source of emissions as defined under Title V.

### III. BACT Determination

A BACT determination is required for each new or altered source. TDW shall install on the new or altered source the maximum air pollution control capability that is technically practicable and economically feasible, except that BACT shall be used.

SO<sub>2</sub> is the pollutant emitted in greatest quantity from the TDW facility. The majority of SO<sub>2</sub> emissions from the natural gas sweetening plant occur as potential emergency flare emissions. TDW proposed routing the incoming sour gas stream to an emergency flare during facility upsets/emergencies from the natural gas sweetening plant.

The amine reboiler is a relatively small emissions source (1.24 tons NO<sub>x</sub>) and any add-on controls would be cost prohibitive. TDW proposes no control as BACT for the amine reboiler.

Because of the limited amount of emissions produced by the amine reboiler add-on controls would be cost prohibitive. Therefore, the Department determined that proper operation and maintenance with no additional controls would constitute BACT for the amine reboiler. The flare is an emergency flare meant to control upset conditions, and is a control device.

The control options selected as part of this review have controls and control costs that are comparable to other recently permitted similar sources. The control options that were selected are capable of achieving the appropriate emission standards.

### IV. Emission Inventory

Source I.D.#	Source	Tons/year				
		PM	NO <sub>x</sub>	CO	VOC	SO <sub>2</sub>
Unit #1	Amine Reboiler	0.01	1.24	0.53	0.07	0.10
Unit #2	Emergency Flare	0.04	0.30	1.57	0.60	48.33
<b>Totals</b>		<b>0.05</b>	<b>1.54</b>	<b>2.10</b>	<b>0.67</b>	<b>48.43</b>

#### Amine Reboiler

##### NO<sub>x</sub> Emissions

Emission Factor: 94.00 lb/MMSCF (AP-42, Table 1.4-1 7/98)  
 Calculations: 3,000 Scf/hr \* 94.00 lb/MMSCF = 0.28 lb/hr  
 0.28 lb/hr \* 8,760 hr/yr \* 0.0005 ton/lb = 1.24 ton/yr

##### CO Emissions

Emission Factor: 40.00 lb/MMSCF (AP-42, Table 1.4-1 7/98)  
 Calculations: 3,000 Scf/hr \* 40.00 lb/MMSCF = 0.12 lb/hr  
 0.12 lb/hr \* 8,760 hr/yr \* 0.0005 ton/lb = 0.53 ton/yr

##### VOC Emissions

Emission Factor: 5.50 lb/MMSCF (AP-42, Table 1.4-1 7/98)  
 Calculations: 3,000 Scf/hr \* 5.5 lb/MMSCF = 0.02 lb/hr  
 0.02 lb/hr \* 8,760 hr/yr \* 0.0005 ton/lb = 0.07 ton/yr

##### SO<sub>2</sub> Emissions

Emission Factor: 7.60 lb/MMSCF (AP-42, Table 1.4-1 7/98)  
 Calculations: 3,000 Scf/hr \* 7.60 lb/MMSCF = 0.02 lb/hr  
 0.02 lb/hr \* 8,760 hr/yr \* 0.0005 ton/lb = 0.10 ton/yr

PM Emissions

Emission Factor: 0.60 lb/MMSCF (AP-42, Table 1.4-1 7/98)  
Calculations:  $3,000 \text{ Scf/hr} * 0.60 \text{ lb/MMSCF} = 0.002 \text{ lb/hr}$   
 $0.05 \text{ lb/hr} * 8,760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.008 \text{ ton/yr}$

**Emergency Flare (100 hours per year)**

NO<sub>x</sub> Emissions

Emission Factor: 0.07 lb/MMBtu (AP-42, Table 13.5-1 1/95)  
Calculations:  $83,333 \text{ Scf/hr} * 0.07 \text{ lb/MMBtu} * 1,020 \text{ Btu/Scf} = 5.95 \text{ lb/hr}$   
 $5.95 \text{ lb/hr} * 100 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.30 \text{ ton/yr}$

CO Emissions

Emission Factor: 0.37 lb/MMBtu (AP-42, Table 13.5-1 1/95)  
Calculations:  $83,333 \text{ Scf/hr} * 0.37 \text{ lb/MMBtu} * 1,020 \text{ Btu/Scf} = 31.45 \text{ lb/hr}$   
 $31.45 \text{ lb/hr} * 100 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 1.57 \text{ ton/yr}$

VOC Emissions

Emission Factor: 0.14 lb/MMBtu (AP-42, Table 13.5-1 1/95)  
Calculations:  $83,333 \text{ Scf/hr} * 0.14 \text{ lb/MMBtu} * 1,020 \text{ Btu/Scf} = 11.90 \text{ lb/hr}$   
 $11.90 \text{ lb/hr} * 100 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.60 \text{ ton/yr}$

SO<sub>2</sub> Emissions

Emission Factor: 11,600 lb/MMSCF (7% H<sub>2</sub>S converted to SO<sub>2</sub>)  
Calculations:  $83,333 \text{ Scf/hr} * 11,600 \text{ lb/MMSCF} = 966.66 \text{ lb/hr}$   
 $966.66 \text{ lb/hr} * 100 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 48.33 \text{ ton/yr}$

PM Emissions

Emission Factor: 0.01 lb/MMSCF (AP-42, Table 13.5-1 1/95)  
Calculations:  $83,333 \text{ Scf/hr} * 0.01 \text{ lb/MMBtu} * 1,020 \text{ Btu/Scf} = 0.85 \text{ lb/hr}$   
 $0.85 \text{ lb/hr} * 100 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.04 \text{ ton/yr}$

V. Existing Air Quality

The TDW facility is located in eastern Montana in a sparsely populated area with generally very good ventilation throughout the year. The legal description of the facility is the NE¼ of the NE¼ of Section 19, Township 34 North, Range 1 East, in Toole County, Montana. Toole County is unclassifiable/attainment for the National Ambient Air Quality Standards (NAAQS) for all criteria pollutants.

VI. Ambient Air Impact Analysis

The Department determined that any air impacts from the WOG facility will be minor. The Department believes it will not cause or contribute to a violation of any ambient air quality standard.

VII. Taking or Damaging Implication Analysis

As required by 2-10-105, MCA, the Department conducted a private property taking and damaging assessment and determined there are no taking or damaging implications.

VIII. Environmental Assessment

An environmental assessment, required by the Montana Environmental Policy Act, was completed for this project. A copy is attached.

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

**FINAL ENVIRONMENTAL ASSESSMENT (EA)**

*Issued To:* TDW Gas Processing, LLC  
TDW Sweetening Plant  
10 Kevin Highway  
Oilmont, Montana 59466

*Air Quality Permit Number:* 3408-00

*Preliminary Determination Issued:* 08/05/05

*Department Decision Issued:* 08/23/05

*Permit Final:* 09/08/05

1. *Legal Description of Site:* TDW's Sweetening Plant would be located in the NE¼ of the NE¼ of Section 19, Township 34 North, Range 1 East, in Toole County, Montana.
2. *Description of Project:* The TDW Sweetening Plant receives sour field gas withdrawn from local gas fields, compressed at another facility, and then piped to the TDW Sweetening Plant. The gas is sweetened for delivery through pipelines. The amine absorbing fluid is regenerated in the amine reboiler and the H<sub>2</sub>S from the amine reboiler is reinjected into underground wells. An emergency flare is proposed to safely flare H<sub>2</sub>S in the event of upset conditions.
3. *Objectives of Project:* The proposed project would generate business and revenue for the company by allowing them to sweeten sour gas for delivery through pipelines.
4. *Alternatives Considered:* In addition to the proposed action, the Department also considered the "no-action" alternative. The "no-action" alternative would deny issuance of the Montana Air Quality Permit to the proposed facility. However, the Department does not consider the "no-action" alternative to be appropriate because TDW demonstrated compliance with all applicable rules and regulations as required for permit issuance. Therefore, the "no-action" alternative was eliminated from further consideration.
5. *A Listing of Mitigation, Stipulations, and Other Controls:* A list of enforceable conditions, including a BACT analysis, would be included in Permit #3408-00.
6. *Regulatory Effects on Private Property:* The Department considered alternatives to the conditions imposed in this permit as part of the permit development. The Department determined that the permit conditions would be reasonably necessary to ensure compliance with applicable requirements and demonstrate compliance with those requirements and would not unduly restrict private property rights.

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

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

**SUMMARY OF COMMENTS ON POTENTIAL PHYSICAL AND BIOLOGICAL EFFECTS:**

The Department has prepared the following comments.

**A. Terrestrial and Aquatic Life and Habitats**

Minor impacts on terrestrial or aquatic life and habitats would be expected from the proposed project because the facility would be a source of air pollutants and minor amounts of land disturbance would be required to construct the facility. While the facility would emit air pollutants and corresponding deposition of pollutants would occur, the Department determined that any impacts from deposition would be minor due to the relatively small amount of pollutants emitted, dispersion characteristics of the pollutants and the atmosphere (see Section 7.F of this EA), and conditions that would be placed in Permit #3408-00. In addition, minor land disturbance would occur to construct the facility, such as pouring concrete. Any impacts from facility construction would be minor due to the relatively small size of the project. Overall, any impacts to terrestrial and aquatic life and habitats would be minor.

**B. Water Quality, Quantity, and Distribution**

Minor, if any, impacts would be expected on water quality, quantity, and distribution from the proposed project because of the relatively small size of the project. While the facility would emit air pollutants and corresponding deposition of pollutants would occur, the Department determined that any impacts from deposition would be minor due to the relatively small amount of pollutants emitted, dispersion characteristics of the pollutants and the atmosphere (see Section 7.F of this EA), and conditions that would be placed in Permit #3408-00. In addition, facility construction would not impact water quality, quantity, or distribution because there is no surface water at or near the site and only minor amounts of construction would be required to construct the facility, such as pouring concrete. Overall, any impacts to water quality, quantity, and distribution would be minor.

C. Geology and Soil Quality, Stability, and Moisture

Minor impacts would occur on the geology and soil quality, stability, and moisture from the proposed project because minor construction would be required to complete the project. Any impacts to the geology and soil quality, stability, and moisture from facility construction would be minor due to the relatively small size of the project. Typical facility construction would include leveling the site to hold the tanks. In addition, while deposition of pollutants would occur, the Department determined that the chance of pollutant deposition impacting the geology and soil in the areas surrounding the site would be minor due to the relatively small amount of pollutants emitted and the dispersion characteristics of the pollutants and the atmosphere (see Section 7.F of this EA). Permit #3408-00 would contain conditions that would also minimize impacts to geology and soil by limiting the amount of equipment installed at the facility and limiting the emissions from the facility. Overall, any impacts to the geology and soil quality, stability, and moisture would be minor.

D. Vegetation Cover, Quantity, and Quality

Minor impacts would occur on vegetation cover, quantity, and quality because minor construction would be required to complete the project. Any impacts to the vegetation cover, quantity, and quality from facility construction would be minor due to the relatively small size of the project. Typical facility construction would include leveling the site. In addition, while deposition of pollutants would occur, the Department determined that the chance of deposition of pollutants impacting the vegetation in the areas surrounding the site would be minor due to the relatively small amount of pollutants emitted and dispersion characteristics of the pollutants and the atmosphere (see Section 7.F of this EA). Permit #3408-00 contains conditions that would also minimize the impacts to vegetation by limiting the amount of equipment installed at the facility and limiting the emissions from the facility. Overall, any impacts to vegetation cover, quantity, and quality would be minor.

E. Aesthetics

Minor impacts would result on the aesthetics of the area because the facility would be a new facility. The amine reboiler unit and emergency flare would be visible. The facility would create minimal additional noise in the area. Overall, any aesthetic impacts would be minor due to the relatively small size of the facility and the permit conditions that would minimize emissions from the facility.

F. Air Quality

The air quality of the area would realize minor impacts from the proposed project because the facility would emit very small amounts of PM, PM<sub>10</sub>, HAPs, nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), and VOC. Air emissions from the facility would be minimized by conditions that would be placed in Permit #3408-00. Conditions would include, but would not be limited to requirements to control SO<sub>2</sub> emissions from the amine reboiler during upset conditions. The flare is limited to 100 hour per year of operation. Permit #3408-00 would also include conditions requiring TDW to use reasonable precautions to control fugitive dust emissions, as well as requiring inspection and repair requirements for fugitive emissions.

G. Unique Endangered, Fragile, or Limited Environmental Resources

In an effort to identify any unique endangered, fragile, or limited environmental resources in the area, the Department contacted the Montana Natural Heritage Program, Natural Resource Information System (NRIS). The NRIS search did not identify any species of special concern in the vicinity of the project area. In this case, the area was defined by the section, township, and range of the proposed location with an additional 1-mile buffer zone. Due to the minor amounts of construction that would be required, the relatively low levels of pollutants that would be emitted, dispersion characteristics of pollutants and the atmosphere, conditions that would be placed in Permit #3408-00, and because the NRIS search did not identify any species of special concern in the vicinity of the project area, the Department determined that the chance of the project impacting any species of special concern would be minor.

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

The proposed project would have impacts on the demands on the environmental resources of air and water because the facility would be a source of air pollutants. However, any impacts on the environmental resources of air and water would be minor because the facility's potential to emit would be relatively small by industrial standards. While deposition of pollutants would occur, as explained in Sections 7.B and 7.F of this EA, the Department determined that the chance of the proposed project impacting demands on air and water resources would be minor due to dispersion characteristics of pollutants and the atmosphere and conditions that would be placed in Permit #3408-00.

The proposed project would have minor impacts on the demand on the environmental resource of energy because only small energy consuming equipment is proposed for use as part of the project. The non-renewable resource of natural gas would have minor impacts because the facility would sweeten sour natural gas. Overall, any impacts on the demands on the environmental resources of air, water, and energy would be minor.

I. Historical and Archaeological Sites

In an effort to identify any historical and archaeological sites near the proposed project area, the Department contacted the Montana Historical Society, State Historic Preservation Office (SHPO). According to SHPO records, there have not been any previously recorded historic or archaeological sites within the proposed area. In addition, SHPO records indicated that no previous cultural resource inventories have been conducted in the area. SHPO stated that there was a low likelihood that cultural properties would be impacted and that a recommendation for a cultural resource inventory was unwarranted. However, SHPO requested to be contacted to have the site investigated if cultural materials are inadvertently discovered. Therefore, the Department determined that the chance of the project impacting any cultural or historic sites would be minor.

J. Cumulative and Secondary Impacts

Overall, the cumulative and secondary impacts on the physical and biological aspects of the human environment in the immediate area would be minor due to the relatively small size of the project. Potential emissions from the facility would be relatively small by industrial standards. The Department expects this facility to operate in compliance with all applicable rules and regulations outlined in Permit #3408-00. Additional cumulative impacts may result from

continued drilling activity in the gas field. Companies will likely continue to apply for air quality permits for additional facilities. However, impacts from additional facilities that require air quality permits would be evaluated upon the Department's receipt of any future permit applications.

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

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

**SUMMARY OF COMMENTS ON POTENTIAL ECONOMIC AND SOCIAL EFFECTS:**

The Department has prepared the following comments.

**A. Social Structures and Mores**

The proposed project would not cause a disruption to any native or traditional lifestyles or communities (social structures or mores) in the area because the proposed project would take place in a remote location in which oil and gas exploration and extraction activities are present. The proposed project would not change the predominant use of the surrounding area and the facility would be relatively small by industrial standards.

**B. Cultural Uniqueness and Diversity**

The cultural uniqueness and diversity of the area would remain unchanged from the proposed project (no impact) because the proposed project would take place in a remote location in which oil and gas exploration and extraction activities are present. The proposed project would not change the predominant use of the surrounding area and the facility would be relatively small by industrial standards.

**C. Local and State Tax Base and Tax Revenue**

The proposed project would result in minor, if any, impacts to the local and state tax base and tax revenue because the proposed project would not require new permanent employees to be hired. In addition, only minor amounts of construction would be needed to complete the project.



#### D. Agricultural or Industrial Production

The current land use of the proposed location is agricultural; therefore, the proposed project would result in minor impacts to agricultural production from constructing the relatively small facility. The proposed project would not have any impacts to industrial production because the proposed project would not displace any industrial land. However, oil and gas operations, including drilling, are currently present in the area. While air emissions would occur, as Section 7.F of this EA explains, the Department determined that the chance of pollutant deposition impacting agricultural or industrial production in the area surrounding the site would be minor due to dispersion characteristics of pollutants and the atmosphere, and due to conditions that would be placed in Permit #3408-00. Overall, any impacts to agricultural or industrial production would be minor.

#### E. Human Health

The proposed project would result in only minor, if any, impacts to human health because of the relatively small quantity of potential emissions. As explained in Section 7.F of this EA, deposition of pollutants would occur. However, the Department determined that the proposed project, permitted by Permit #3408-00, would comply with all applicable air quality rules, regulations, and standards. These rules, regulations, and standards are designed to be protective of human health.

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

The proposed project would not have any impacts on access to recreational and wilderness activities because of the relatively small size of the facility. The proposed project would have minor, if any, impacts on the quality of recreational and wilderness activities in the area because the facility, while relatively small by industrial standards, would be visible. Overall, any impacts on access to and quality of recreational and wilderness activities would be minor.

#### G. Quantity and Distribution of Employment

The proposed project would not affect the quantity and distribution of employment because no permanent employees would be hired as a result of the proposed project. However, temporary construction-related positions could result from this project. Any impacts to the quantity and distribution of employment would be minor due to the relatively small size of the facility.

#### H. Distribution of Population

The proposed project would not affect distribution of population in the area because the facility would be located in a relatively remote location. The proposed project would not create any new permanent employment that would cause an increase in population in the area. In addition, the proposed project would not have impacts that would cause a decrease in the distribution of population in the surrounding area because the facility would be relatively small by industrial standards and the facility would only emit relatively small amounts of emissions.

#### I. Demands for Government Services

There would be minor impacts on demands of government services because additional time would be required by government agencies to issue Permit #3408-00 and to monitor compliance with applicable rules and standards. However, any impacts on government services would be minor due to the overall small size of the operation. Overall, any impacts on the demands for government services would be minor.

J. Industrial and Commercial Activity

Only minor impacts would be expected on the local industrial and commercial activity because the proposed project would represent only a minor increase in the industrial and commercial activity in the area. However, as natural gas wells in the area continue to produce natural gas, additional natural gas sweetening facilities would locate in the area thereby increasing the industrial and commercial activity. However, any new natural gas sweetening facilities with a PTE greater than 25 tons per year of any regulated air pollutant would be required to obtain a Montana Air Quality Permit and the Department would perform an EA for each permit application, evaluating impacts to industrial and commercial activity for each proposed project.

K. Locally Adopted Environmental Plans and Goals

The Department is not aware of any locally adopted environmental plans and goals affected by issuing Permit #3408-00. The state standards would protect the proposed site and the environment surrounding the site.

L. Cumulative and Secondary Impacts

Overall, cumulative and secondary impacts from the proposed project would result in minor impacts to the economic and social aspects of the human environment in the immediate area due to the relatively small size of the facility. Due to the relatively small size of the project, the industrial production, employment, and tax revenue (etc.) would not be significantly impacted by the proposed project. The Department would not expect other industries to be impacted by the proposed project and the Department believes that this facility could be expected to operate in compliance with all applicable rules and regulations as would be outlined in Permit #3408-00. In addition, further cumulative impacts may result from other companies actively drilling in the natural gas field. The companies would likely apply for air quality permits for additional facilities. However, impacts from additional facilities that require air quality permits would be evaluated upon the Department's receipt of any future permit applications.

Recommendation: No EIS is required.

If an EIS is not required, explain why the EA is an appropriate level of analysis: The current permitting action is for the construction and operation of a natural gas processing facility. Permit #3408-00 would include conditions and limitations to ensure the facility would operate in compliance with all applicable rules and regulations. In addition, there are no significant impacts associated with this proposal.

Other groups or agencies contacted or which may have overlapping jurisdiction: Montana Historical Society – State Historic Preservation Office, Natural Resource Information System – Montana Natural Heritage Program

Individuals or groups contributing to this EA: Department of Environmental Quality – Air Resources Management Bureau, Montana Historical Society – State Historic Preservation Office, Natural Resource Information System – Montana Natural Heritage Program

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