

State/Industry Ambient Monitoring Network

Air Quality Report

2<sup>nd</sup> Quarter 2005

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SECTION ONE

DISCUSSION OF  
MONITORING RESULTS

### Sulfur Dioxide (SO<sub>2</sub>)

There were no exceedances of the federal standards during the quarter. There was no exceedance of the State 1-hour standard. The maximum 1-hour concentration was 193 ppb on April 26 at Amerada Hess - Tioga #3; the maximum 3-hour concentration was 91 ppb on April 26 at Amerada Hess - Tioga #3; and, the maximum 24-hour concentration was 38 ppb on April 26 at Amerada Hess - Tioga #3. The highest arithmetic mean is 4.7 ppb at Amerada Hess - Tioga #3. All sites achieved at least an 80% data recovery for the period operated.

### Sulfur Dioxide (SO<sub>2</sub>) 5-Minute Average

The maximum 5-minute concentration was 358 ppb on April 26 at Amerada Hess - Tioga #3. All sites achieved at least an 80% data recovery for the period operated.

### Ozone (O<sub>3</sub>)

There was no exceedance of the ozone standard during the quarter. The highest observed 1-hour concentration was 78 ppb on June 1 at TRNP - SU. The highest 4<sup>th</sup> highest 8-hour concentration was 58 ppb on April 7 at Fargo - NW. All sites achieved at least an 80% data recovery for the period operated.

### Nitrogen Dioxide (NO<sub>2</sub>)

The highest observed 1-hour concentration was 41 ppb on April 13 at Fargo-NW. The maximum arithmetic mean concentration was 4.9 ppb at Fargo NW. All sites achieved at least an 80% data recovery for the period operated.

### Ammonia (NH<sub>3</sub>)

The highest 1-hour concentration was 61.4 ppb on April 5 at Beulah - North . The site achieved an 80% data recovery for the period.

The data is used as part of the ambient data input used by the newer dispersion models.

### Inhalable Continuous PM<sub>2.5</sub> Particulates

There was no exceedance of the 24-hour standard during the quarter. The highest 24-hour concentration was 32.8 µg/m<sup>3</sup> on May 24 at Lostwood NWR. The highest arithmetic mean concentration was 6.8 µg/m<sup>3</sup> at Hannover. All sites achieved at least an 80% data recovery for the period operated.

### Inhalable PM<sub>2.5</sub> Particulates

There was no exceedance of the 24-hour standard during the quarter. The highest 24-hour average concentration was 22.5 µg/m<sup>3</sup> on April 4 at Bismarck Residential. The highest arithmetic mean was 6.3 µg/m<sup>3</sup> at Fargo NW. All sites achieved at least an 80% data recovery for the period.

### Inhalable Continuous PM<sub>10</sub> Particulates

There was no exceedance of the 24-hour standard during the quarter. The maximum 24-hour concentration was 82.8 µg/m<sup>3</sup> on May 6 at Dunn Center. The highest arithmetic mean was 18.6 µg/m<sup>3</sup> at Fargo NW. The site achieved an 80% data recovery for the period.

### Inhalable PM<sub>10</sub> Particulates

There was no exceedance of the 24-hour standard during the quarter. The maximum 24-hour average concentration was 43 µg/m<sup>3</sup> on April 4 at Bismarck Residential. The highest arithmetic mean was 13.3 µg/m<sup>3</sup> at Bismarck Residential. At least an 80% data recovery for the period was achieved.



SECTION TWO

AMBIENT AIR QUALITY DATA

SUMMARIES

COMPARISON OF AIR QUALITY DATA WITH  
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS \*

POLLUTANT : Sulfur Dioxide (ppb)

LOCATION	YEAR	SAMPLING PERIOD	NUM OBS	1 - HOUR		M A X I M A		24 - HOUR		ARITH MEAN	1HR #>273	24HR #>99	% >MDV
				1ST MM/DD:HH	2ND MM/DD:HH	1ST MM/DD:HH	2ND MM/DD:HH	1ST MM/DD	2ND MM/DD				
Amerada Hess - Tioga #1	2005	APR-JUN	2152	93 06/02:19	90 04/24:05	41 06/10:08	40 05/19:08	11 06/03	11 06/02	1.9			9.8
Amerada Hess - Tioga #3	2005	APR-JUN	2151	193 04/26:07	105 06/05:04	91 04/26:08	67 06/05:08	38 04/26	35 06/05	4.7			25.6
Bear Paw - MGP #3	2005	APR-JUN	2150	80 06/11:08	25 06/11:11	30 06/11:08	16 06/11:11	7 06/11	3 05/18	1.1			1.2
Bear Paw - MGP #5	2005	APR-JUN	2150	81 05/16:13	34 05/16:12	44 05/16:14	22 05/17:14	9 05/16	5 05/17	1.2			4.0
Beulah - North	2005	APR-JUN	2050	28 06/20:11	25 05/06:07	16 06/20:14	13 05/06:08	5 06/20	4 05/16	1.6			18.3
DGC #12	2005	APR-JUN	2168	33 06/20:11	32 06/19:09	21 06/20:11	14 06/20:14	5 06/20	4 05/16	1.6			18.4
DGC #14	2005	APR-JUN	2174	26 06/06:09	20 05/04:08	16 06/06:11	11 05/23:11	4 06/06	3 05/17	1.4			12.5
DGC #16	2005	APR-JUN	2162	27 06/06:09	23 06/15:12	18 06/15:14	17 04/13:20	6 06/15	6 05/16	1.6			15.0
DGC #17	2005	APR-JUN	2164	27 04/03:08	27 06/06:07	21 04/03:08	18 06/06:11	7 05/06	6 04/03	1.6			12.8
Dunn Center	2005	APR-JUN	2164	12 05/30:07	7 05/06:02	6 05/30:08	4 04/04:02	2 05/30	2 04/04	1.1			3.1
Fargo NW	2005	APR-JUN	2167	4 04/13:10	4 04/13:11	4 04/13:11	3 04/13:14	2 04/13	2 04/04	1.0			2.0
Hannover	2005	APR-JUN	2170	49 04/03:08	45 04/19:05	27 04/03:08	26 04/19:05	12 04/19	8 05/16	1.9			14.3
Lostwood NWR	2005	APR-JUN	2166	9 04/12:09	8 06/11:09	6 04/12:11	5 06/11:11	2 04/12	2 05/24	1.1			5.8
Mandan - SPM	2005	APR-JUN	2132	46 04/05:20	46 04/11:19	30 05/14:08	30 04/05:23	14 05/14	12 04/11	2.7			26.2

COMPARISON OF AIR QUALITY DATA WITH  
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS \*

POLLUTANT : Sulfur Dioxide (ppb)

LOCATION	YEAR	SAMPLING PERIOD	NUM OBS	1 - HOUR		M A X I M A 3 - HOUR		24 - HOUR		ARITH MEAN	1HR #>273	24HR #>99	% >MDV
				1ST MM/DD:HH	2ND MM/DD:HH	1ST MM/DD:HH	2ND MM/DD:HH	1ST MM/DD	2ND MM/DD				
Mandan NW - SPM	2005	APR-JUN	2109	48 05/16:21	39 05/16:18	29 05/16:20	24 05/17:02	15 05/16	8 05/17	1.8			16.6
TRNP - NU	2005	APR-JUN	2166	14 06/29:10	10 06/06:06	7 06/06:08	5 06/06:14	3 06/06	2 06/29	1.1			2.7
TRNP - SU	2005	APR-JUN	2028	6 04/04:07	6 06/20:00	5 04/04:08	4 06/20:02	2 04/04	2 04/20	1.0			2.6

The maximum 1-hour concentration is 193 ppb at Amerada Hess - Tioga #3 on 04/26:07  
 The maximum 3-hour concentration is 91 ppb at Amerada Hess - Tioga #3 on 04/26:08  
 the maximum 24-hour concentration is 38 ppb at Amerada Hess - Tioga #3 on 04/26

\* The air quality standards are:

STATE Standards -

- 1) 273 ppb maximum 1-hour average concentration.
- 2) 99 ppb maximum 24-hour average concentration.
- 3) 23 ppb maximum annual arithmetic mean concentration.

FEDERAL Standards -

- 1) 500 ppb maximum 3-hour concentration not to be exceeded more than once per year.
- 2) 140 ppb maximum 24-hour concentration not to be exceeded more than once per year.
- 3) 30 ppb annual arithmetic mean.

COMPARISON OF AIR QUALITY DATA WITH  
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS \*

POLLUTANT : Sulfur Dioxide 5-Minute Averages (ppb)

LOCATION	YEAR	SAMPLING PERIOD	NUM OBS	5 - M I N U T E			M A X I M A			# HOURS >600	% >MDV
				1ST DATE MM/DD:HH	2ND DATE MM/DD:HH	3RD DATE MM/DD:HH	1ST DATE MM/DD:HH	2ND DATE MM/DD:HH	3RD DATE MM/DD:HH		
Amerada Hess - Tioga #1	2005	APR-JUN	2152	205	06/20:06	204	04/03:05	199	06/02:19	0	15.6
Amerada Hess - Tioga #3	2005	APR-JUN	2151	358	04/26:07	219	06/05:04	216	06/30:17	0	39.8
Bear Paw - MGP #3	2005	APR-JUN	2150	131	06/11:08	100	05/18:13	95	06/11:11	0	3.2
Bear Paw - MGP #5	2005	APR-JUN	2150	220	05/16:13	149	05/16:12	107	05/17:12	0	11.9
Beulah - North	2005	APR-JUN	2051	38	05/06:07	38	06/20:11	33	04/02:23	0	27.9
Dunn Center	2005	APR-JUN	2164	21	05/30:07	10	05/06:02	7	04/26:08	0	6.4
Fargo NW	2005	APR-JUN	2167	9	04/01:23	9	04/13:19	8	05/23:23	0	4.4
Hannover	2005	APR-JUN	2170	100	04/03:08	90	04/03:07	78	05/20:10	0	23.3
Lostwood NWR	2005	APR-JUN	2166	25	04/12:09	25	06/08:22	22	04/21:08	0	10.9
Mandan - SPM	2005	APR-JUN	2132	92	04/04:10	82	04/11:20	78	04/11:19	0	34.8
Mandan NW - SPM	2005	APR-JUN	2109	83	05/16:18	72	05/17:06	64	04/03:21	0	28.6
TRNP - NU	2005	APR-JUN	2165	14	04/05:17	13	06/06:07	13	06/14:07	0	5.4
TRNP - SU	2005	APR-JUN	2028	10	06/20:00	10	06/20:01	7	04/22:21	0	6.1

The maximum 5-minute concentration is 358 ppb at Amerada Hess - Tioga #3 on 04/26:07

\* No Standard is currently in effect

COMPARISON OF AIR QUALITY DATA WITH  
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS \*

POLLUTANT : Ozone (ppb)

LOCATION	YEAR	SAMPLING PERIOD	NUM OBS	M A X I M A 8 - HOUR							
				1ST MM/DD	2ND MM/DD	1ST MM/DD	2ND MM/DD	3RD MM/DD	4TH MM/DD	1HR #>120	8HR #>80
Beulah - North	2005	APR-JUN	2158	62 06/02	61 06/12	58 05/06	57 05/03	56 04/17	56 05/04		
Dunn Center	2005	APR-JUN	2039	74 06/01	68 06/02	57 05/06	56 06/02	54 05/03	54 04/04		
Fargo NW	2005	APR-JUN	2167	69 06/03	67 06/18	65 06/18	61 04/09	61 05/06	58 04/07		
Hannover	2005	APR-JUN	2169	64 04/21	61 05/06	59 05/05	59 04/17	58 05/06	57 04/21		
Lostwood NWR	2005	APR-JUN	2165	59 05/06	58 05/05	57 05/03	57 05/05	55 05/06	55 04/16		
TRNP - NU	2005	APR-JUN	2169	72 06/01	63 06/02	58 05/05	56 04/04	55 05/06	52 04/02		
TRNP - SU	2005	APR-JUN	2028	78 06/01	64 04/04	62 04/04	55 04/02	54 04/01	00/00		

The maximum 1-hour concentration is 78 ppb at TRNP - SU on 06/01  
The 4th highest 8-hour concentration is 58 ppb at Fargo NW on 04/07

\* The air quality standards for ozone are:  
STATE - 120 ppb not to be exceeded more than once per year.

FEDERAL - Fourth highest daily maximum 8-hour averages for a 3-year period not to exceed 80 ppb.

COMPARISON OF AIR QUALITY DATA WITH  
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS \*

POLLUTANT : Nitrogen Dioxide (ppb)

LOCATION	YEAR	SAMPLING PERIOD	NUM OBS	M A X I M A 1 - HOUR		ARITH MEAN	% >MDV
				1ST MM/DD:HH	2ND MM/DD:HH		
Beulah - North	2005	APR-JUN	1901	25 05/02:21	25 05/06:07	2.2	83.7
DGC #12	2005	APR-JUN	2157	32 05/02:21	27 05/02:20	2.1	78.6
DGC #17	2005	APR-JUN	2154	28 04/03:07	24 04/03:08	2.0	71.1
Dunn Center	2005	APR-JUN	2157	9 05/07:05	9 05/22:19	1.5	73.7
Fargo NW	2005	APR-JUN	2158	41 04/13:20	35 04/07:03	4.9	85.6
Hannover	2005	APR-JUN	1759	24 04/03:08	21 04/19:05	1.9	68.8
Lostwood NWR	2005	APR-JUN	2161	11 05/24:12	10 05/24:14	1.2	51.2
TRNP - NU	2005	APR-JUN	2168	5 04/25:23	5 05/07:17	1.1	76.4

The maximum 1-hour concentration is 41 ppb at Fargo NW on 04/13:20  
The maximum arithmetic mean is 4.9 ppb at Fargo NW

\* The air quality standards are:  
STATE - 53 ppb maximum annual arithmetic mean.  
FEDERAL - 53 ppb annual arithmetic mean.

COMPARISON OF AIR QUALITY DATA WITH  
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS \*

POLLUTANT : Ammonia (ppb)

LOCATION	YEAR	SAMPLING PERIOD	NUM OBS	M A X I M A					
				1ST MM/DD:HH	2ND MM/DD:HH	3RD MM/DD:HH	4TH MM/DD:HH	5TH MM/DD:HH	6TH MM/DD:HH
Beulah - North	2005	APR-JUN	1760	61.4 04/05:15	41.2 06/20:13	37.9 06/19:10	36.4 06/20:14	36.2 05/25:19	35.7 04/06:04

\* No standard is currently in effect.

COMPARISON OF AIR QUALITY DATA WITH  
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS \*

POLLUTANT : Inhalable Continuous PM<sub>2.5</sub> Particulates (µg/m<sup>3</sup>)

LOCATION	YEAR	SAMPLING PERIOD	NUM OBS	M A X I M A		24 - HOUR				ARITH MEAN	24HR #>65	AM>15
				1ST MM/DD:HH	2ND MM/DD:HH	1ST MM/DD	2ND MM/DD	3RD MM/DD	4TH MM/DD			
Beulah - North	2005	APR-JUN	2159	27.9 06/24:18	24.7 04/09:06	15.0 04/04	14.3 04/17	14.0 04/18	12.9 05/06	6.6		
Dunn Center	2005	APR-JUN	1902	28.6 04/30:09	28.5 04/17:16	13.1 04/17	10.9 05/06	10.1 05/07	9.2 04/04	3.4		
Fargo NW	2005	APR-JUN	2165	32.3 06/23:16	29.8 06/23:15	17.7 06/03	14.1 06/19	13.7 05/06	12.6 06/04	5.1		
Hannover	2005	APR-JUN	1980	26.4 04/18:13	25.8 04/18:12	16.8 04/18	16.3 04/04	14.8 04/17	12.4 05/06	6.8		
Lostwood NWR	2005	APR-JUN	2166	115.2 05/24:13	96.5 05/24:15	32.8 05/24	12.5 05/07	9.3 04/09	9.1 04/17	3.5		
TRNP - NU	2005	APR-JUN	1838	19.8 06/22:19	18.2 06/21:17	9.9 05/07	9.4 05/06	8.3 05/17	8.0 04/04	2.7		
TRNP - SU	2005	APR-JUN	2031	22.0 05/06:23	20.6 05/07:01	14.1 05/06	12.8 04/05	12.0 04/17	11.8 05/07	6.0		

The highest 24-hour concentration is 32.8 µg/m<sup>3</sup> at Lostwood NWR on 05/24  
The highest annual mean concentration is 6.8 µg/m<sup>3</sup> at Hannover

\* The ambient air quality standards are:

FEDERAL Standards -

- 1) 24-hour: 3-year average of 98th percentiles not to exceed 65 µg/m<sup>3</sup>.
- 2) Annual: 3-year average not to exceed 15 µg/m<sup>3</sup>.

COMPARISON OF AIR QUALITY DATA WITH  
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS \*

POLLUTANT : Inhalable PM<sub>2.5</sub> Particulates (µg/m<sup>3</sup>)

LOCATION	YEAR	SAMPLING PERIOD	NUM OBS	MIN	M A X I M A 24 - HOUR			ARITH MEAN	#> 65	AM>15	% >MDV
					1ST MM/DD	2ND MM/DD	3RD MM/DD				
Beulah - North	2005	APR-JUN	15	1.6	18.8 04/04	7.9 05/16	5.5 05/10	4.9			93.3
Bismarck Residential	2005	APR-JUN	31	1.9	22.5 04/04	11.7 04/13	10.8 06/18	5.3			96.8
Fargo NW	2005	APR-JUN	31	1.6	22.3 06/03	16.9 04/04	11.9 05/19	6.3			96.8
TRNP - NU	2005	APR-JUN	15	1.4	12.3 05/10	10.5 04/04	6.6 05/16	4.4			80.0
TRNP - SU	2005	APR-JUN	15	1.1	10.5 04/04	8.8 05/16	7.3 05/10	4.2			80.0

The highest 24-hour concentration is 22.5 µg/m<sup>3</sup> at Bismarck Residential on 04/04  
The highest annual average was 6.3 µg/m<sup>3</sup> at Fargo NW

\* The ambient air quality standards are:  
FEDERAL Standards -

- 1) 24-hour: 3-year average of 98th percentiles not to exceed 65 µg/m<sup>3</sup>.
- 2) Annual: 3-year average not to exceed 15 µg/m<sup>3</sup>.

COMPARISON OF AIR QUALITY DATA WITH  
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS \*

POLLUTANT : Inhalable Continuous PM<sub>10</sub> Particulates (µg/m<sup>3</sup>)

LOCATION	YEAR	SAMPLING PERIOD	NUM OBS	1 - HOUR		M A X I M A		24 - HOUR		ARITH MEAN	24HR #>150	AM>50
				1ST MM/DD:HH	2ND MM/DD:HH	1ST MM/DD	2ND MM/DD	3RD MM/DD	4TH MM/DD			
Dunn Center	2005	APR-JUN	1902	216.0 05/06:10	190.0 05/06:09	82.8 05/06	41.6 05/05	36.0 04/25	32.8 04/08	13.3		
Fargo NW	2005	APR-JUN	2167	149.0 05/07:07	120.0 04/08:16	45.5 06/23	45.3 04/08	45.1 05/06	43.0 05/05	18.6		
Lostwood NWR	2005	APR-JUN	2166	116.0 04/14:19	115.0 05/24:13	39.0 05/24	30.9 04/08	30.9 05/06	28.6 04/09	11.5		
TRNP - NU	2005	APR-JUN	2169	80.0 05/21:19	71.0 05/21:20	35.3 05/06	23.6 05/05	20.5 06/17	20.2 04/08	9.5		

The highest 24-hour concentration is 82.8 µg/m<sup>3</sup> at Dunn Center on 05/06  
The highest annual mean concentration is 18.6 µg/m<sup>3</sup> at Fargo NW

- \* The STATE and FEDERAL air quality standards are:  
1) 150 µg/m<sup>3</sup> maximum averaged over a 24-hour period with no more than one expected exceedance per year.  
2) 50 µg/m<sup>3</sup> expected annual arithmetic mean.

COMPARISON OF AIR QUALITY DATA WITH  
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS \*

POLLUTANT : Inhalable PM<sub>10</sub> Particulates (µg/m<sup>3</sup>)

LOCATION	YEAR	SAMPLING PERIOD	NUM OBS	MIN	M A X I M A			ARITH MEAN	#>150	AM>50	% >MDV
					1ST MM/DD	2ND MM/DD	3RD MM/DD				
Bismarck Residential	2005	APR-JUN	15	6.0	43.0 04/04	16.0 05/04	16.0 05/16	13.3			100.0

The maximum 24-hour concentration is 43.0 µg/m<sup>3</sup> at Bismarck Residential on 04/04  
The highest annual average is 13.3 µg/m<sup>3</sup> at Bismarck Residential

- \* The STATE and FEDERAL air quality standards are:  
1) 150 µg/m<sup>3</sup> maximum averaged over a 24-hour period with no more than one expected exceedance per year.  
2) 50 g/m<sup>3</sup> expected annual arithmetic mean.



SECTION THREE

EXCEEDANCE LISTINGS

By Site Date Hour

All Units Are in Parts Per Billion Except Wind Direction (Degrees),  
Wind Speed (MPH), CO (PPM), and PM<sub>2.5</sub> and PM<sub>10</sub> (µg/m<sup>3</sup>)

The \* Identifies the Exceedances

NONE

By Date Hour Site

All Units Are in Parts Per Billion Except Wind Direction (Degrees),  
Wind Speed (MPH), CO (PPM), and PM<sub>2.5</sub> and PM<sub>10</sub> (µg/m<sup>3</sup>)

The \* Identifies the Exceedances

NONE