

State/Industry Network

Air Quality Report

3rd Quarter 1996

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SECTION ONE

DISCUSSION OF  
MONITORING RESULTS

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

There were no exceedances of either the State or Federal standards during the quarter. The maximum 1-hour concentration was 229 ppb on September 14 at DGC #17; maximum 3-hour concentration was 170 ppb on September 14 at DGC #17; and, maximum 24-hour concentration was 56 ppb on September 14 at DGC #17. All sites achieved at least an 80% data recovery for the period operated except Koch-MGP #3.

The TRNP-NU site was move to a new location inside the park near the roundup corals.

Koch -MGP #3 failed to achieve 80% data recovery due to bi-weekly quality assurance checks not being performed.

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

The maximum 5-minute concentration was 168 ppb on September 27 at Mandan - Refinery.

### Hydrogen Sulfide (H<sub>2</sub>S)

There were five exceedances of the H<sub>2</sub>S standards during the quarter: two at Amerada Hess - Tioga #2 and three at Whiskey Joe - SPM. The maximum 1-hour concentration was 378 at Amerada Hess - tioga #2; the maximum 24-hour, and maximum 3-month concentrations were 48 ppb (September 2), and 14 ppb (September), respectively, at Whiskey Joe - SPM. All sites except Koch - MGP #4 achieved at least an 80% data recovery for the period operated.

The TRNP-NU site was move to a new location inside the park near the roundup corals.

Koch -MGP #4 failed to meed the 80% data recovery due to bi-weekly quality assurance checks not being performed.

At Whiskey Joe - SPM, there were ten 1-hour exceedances during the quarter. All were caused by the Federal 1-7 well owned by Slawson Exploration,Inc., southeast of the monitoring site. Followup action is planned.

The two exceedances at Amerada Hess - Tioga #2 were traced to refilling the oderant tanks at the truck loading facility.

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

There was no exceedance of the ozone standard during the quarter. The maximum observed 1-hour concentration was 69 ppb on September 1 at Fargo Residential. The maximum 8-hour concentration was 66 ppb at Fargo Residential on September 1. All sites achieved at least an 80% data recovery for the period operated except TRNP-NU.

TRNP-NU failed to achieve 80% because the ethylene tank was empty before a replacement tank was available.

The Beulah and TRNP - NU analyzers were shut down for the winter effective September 30.

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

The maximum 1-hour concentration observed was 88 ppb on September 4 at DGC #17. All sites achieved at least an 80% data recovery for the period operated.

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

The maximum 24-hour average concentration was 20.1 µg/m<sup>3</sup> on August 13 at Bismarck Residential. Both sites achieved at least an 80% data recovery for the period operated.

### 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 52.8 µg/m<sup>3</sup> on August 31 at Grand Forks - North. All sites achieved at least an 80% data recovery for the period operated.

The Grand Forks site was moved from the roof of the water treatment plant to a new site on the north end of town.

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	1996	JUL-SEP	2189	108 07/25/10	88 07/25/09	81 07/25/11	10 07/25/14	13 07/25	3 08/09	1.3			9.7
AMERADA HESS - TIOGA #3	1996	JUL-SEP	2185	50 07/24/10	45 07/23/16	40 07/24/11	37 07/23/17	11 07/24	9 09/26	2.1			17.8
BEULAH	1996	JUL-SEP	2196	104 08/14/09	82 08/14/08	51 08/14/11	31 07/01/11	16 08/14	10 08/11	2.3			19.4
DGC #12	1996	JUL-SEP	2195	122 08/13/07	71 08/13/08	67 08/13/08	35 08/19/05	11 08/13	9 08/19	2.8			36.6
DGC #14	1996	JUL-SEP	2170	209 08/16/10	85 09/08/11	99 08/16/11	57 09/08/11	14 08/16	12 09/08	2.6			18.0
DGC #16	1996	JUL-SEP	2192	182 08/26/20	166 08/30/09	110 08/20/08	80 09/04/14	28 08/20	26 09/15	7.8			85.4
DGC #17	1996	JUL-SEP	2159	229 09/14/03	198 09/14/20	170 09/14/05	125 09/14/20	56 09/14	33 09/18	4.8			38.0
DUNN CENTER	1996	JUL-SEP	2194	25 08/12/08	21 08/12/07	16 08/12/08	11 09/30/14	4 08/12	3 09/30	1.2			4.7
FARGO RESIDENTIAL	1996	JUL-SEP	1857	10 09/19/22	6 07/31/21	4 07/31/23	4 09/19/23	2 07/01	2 09/19	1.2			15.2
HANNOVER	1996	JUL-SEP	2184	72 09/03/12	67 08/24/22	40 08/24/23	36 09/03/14	11 09/14	10 09/03	2.6			22.1
KOCH - MGP #3	1996	JUL-SEP	607 ***	17 07/24/07	8 07/17/19	9 07/24/08	5 07/17/20	2 07/24	2 08/21	1.2			9.1
LITTLE KNIFE #5	1996	JUL-SEP	2193	11 07/29/12	10 07/15/08	5 07/29/14	4 09/30/17	2 07/14	2 09/30	1.2			10.0
MANDAN REFINERY - SPM	1996	JUL-SEP	2186	100 09/27/00	96 09/27/01	86 09/27/02	73 09/26/23	33 09/27	30 09/26	4.4			24.9
SHARON	1996	JUL-SEP	2192	4 07/11/11	4 09/09/17	3 09/09/17	2 09/25/17	2 08/07	2 09/12	1.1			11.2

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		24 - HOUR		ARITH MEAN	1HR #>273	24HR #>99	% >MDV
				1ST	2ND	1ST	2ND	1ST	2ND				
				MM/DD/HH	MM/DD/HH	MM/DD/HH	MM/DD/HH	MM/DD	MM/DD				
TRNP - NU	1996	JUL-SEP	2022	7 08/12/10	5 08/09/02	4 07/25/23	4 09/10/05	2 07/30	2 09/07	1.1			7.2
WHISKEY JOE - SPM	1996	JUL-SEP	2193	17 09/16/01	12 09/15/23	7 09/16/02	6 07/06/23	5 09/13	3 07/09	1.3			13.1

The maximum 1-hour concentration is 229 ppb at DGC #17 on 09/14/03  
The maximum 3-hour concentration is 170 ppb at DGC #17 on 09/14/05  
the maximum 24-hour concentration is 56 ppb at DGC #17 on 09/14

\* 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 not to be exceeded in a calendar year.

\*\*\* Less than 80% of the possible samples (data) were collected.

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

POLLUTANT : Sulfur Dioxide 5-Minute Averages (ppb)

LOCATION	YEAR	PERIOD	OBS	5 - M I N U T E			M A X I M A			# HOURS >600	% >MDV
				1ST	DATE	2ND	DATE	3RD	DATE		
				MM/DD/HH	MM/DD/HH	MM/DD/HH	MM/DD/HH	MM/DD/HH			
MANDAN REFINERY - SPM	1996	JUL-SEP	2163	168	9/27/ 2	167	7/ 7/17	158	7/ 7/18	0	31.5

The maximum 1-hour concentration is 168 ppb at MANDAN REFINERY - SPM on 9/27/ 2

\* No standard is currently in effect.

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

POLLUTANT : Hydrogen Sulfide (ppb)

LOCATION	YEAR	SAMPLING PERIOD	NUM OBS	1 - HOUR		24 - HOUR		3 - MONTH		ARITH MEAN	1HR #>200	24HR #>100	% >MDV
				1ST MM/DD/HH	2ND MM/DD/HH	1ST MM/DD	2ND MM/DD	1ST MM	2ND MM				
AMERADA HESS - TIOGA #2	1996	JUL-SEP	2186	378 08/26/09	209 08/26/10	34 08/26	7 07/09	2 07	2 09	2.1	2		20.2
KOCH - MGP #4	1996	JUL-SEP	1117 ***	35 09/10/21	28 08/22/20	6 08/23	4 09/09	***	***	1.9			22.5
LITTLE KNIFE #5	1996	JUL-SEP	2192	41 08/20/17	27 07/06/21	10 08/19	7 07/07	3 07	3 09	2.6			34.8
TRNP - NU	1996	JUL-SEP	2027	27 09/07/02	27 09/07/03	7 09/07	2 07/25	1 09	***	1.1			2.6
WHISKEY JOE - SPM	1996	JUL-SEP	2191	295 09/25/00	241 07/29/01	48 09/02	39 07/04	14 09	12 07	13.9	3		42.4

The maximum 1-hour concentration is 378 ppb at AMERADA HESS - TIOGA #2 on 08/26/09  
the maximum 24-hour concentration is 48 ppb at WHISKEY JOE - SPM on 09/02  
The maximum 3-month concentration is 14 ppb at WHISKEY JOE - SPM on 09

\* The State air quality standards are:

- 1) 10 ppm maximum instantaneous (ceiling) concentration not to be exceeded.
- 2) 200 ppb maximum 1-hour average concentration not to be exceeded more than once per month.
- 3) 100 ppb maximum 24-hour average concentration not to be exceeded more than once per year.
- 4) 20 ppb maximum arithmetic mean concentration averaged over three consecutive months.

\*\*\* Less than 80% of the possible samples (data) were collected.

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			1HR #>120	8HR #>80
				1ST MM/DD/HH	2ND MM/DD/HH	3RD MM/DD/HH	1ST MM/DD/HH	2ND MM/DD/HH	3RD MM/DD/HH		
BEULAH	1996	JUL-SEP	2198	62 07/15/16	62 08/24/12	62 07/15/17	60 08/31/18	56 08/31/17	56 08/31/16		
FARGO RESIDENTIAL	1996	JUL-SEP	2193	69 09/01/14	68 09/01/15	67 09/01/13	66 09/01/18	62 09/01/19	62 09/01/17		
HANNOVER	1996	JUL-SEP	2188	68 08/24/16	65 08/24/15	63 08/24/12	62 08/24/18	55 08/24/17	55 08/24/16		
SHARON	1996	JUL-SEP	2197	68 08/21/06	62 09/01/20	59 07/18/00	55 09/05/21	51 09/05/23	51 09/05/22		
TRNP - NU	1996	JUL-SEP	1704 ***	64 08/28/15	63 08/24/16	62 08/16/14	61 08/31/18	58 08/31/17	58 08/31/20		

The maximum 1-hour concentration is 69 ppb at FARGO RESIDENTIAL on 09/01/14  
The maximum 8-hour concentration is 66 ppb at FARGO RESIDENTIAL on 09/01/18

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

FEDERAL - 120 ppb with no more than one expected exceedance per year.

\*\*\* Less than 80% of the possible samples (data) were collected.

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	1996	JUL-SEP	2194	23 08/11/09	20 09/09/19	3.0	56.1
DGC #12	1996	JUL-SEP	1908	26 09/09/19	25 09/09/20	3.3	92.1
DGC #17	1996	JUL-SEP	2178	88 09/04/17	61 09/14/05	4.6	89.3
FARGO RESIDENTIAL	1996	JUL-SEP	2191	41 07/02/21	39 07/02/20	6.2	95.0
HANNOVER	1996	JUL-SEP	2178	31 08/24/22	26 09/13/21	2.0	29.0
SHARON	1996	JUL-SEP	1883	11 08/26/21	11 08/29/22	1.3	21.9

The maximum 1-hour concentration is 88 ppb at DGC #17 on 09/04/17

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

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	#> 50	AM>20	% >MDV
					1ST MM/DD	2ND MM/DD	3RD MM/DD				
BEULAH	1996	JUN-SEP	16	6.9	15.3 08/31	11.9 08/13	11.1 08/25	9.6			100.0
BISMARCK RESIDENTIAL	1996	JUL-SEP	14	6.3	20.1 08/13	16.9 08/31	13.8 07/14	11.1			100.0

The maximum 24-hour concentration is 20.1 µg/m<sup>3</sup> at BISMARCK RESIDENTIAL on 08/13

\* No standard is currently in effect.

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 24 - HOUR			ARITH MEAN	#>150	AM>50	% >MDV
					1ST MM/DD	2ND MM/DD	3RD MM/DD				
BEULAH	1996	JUL-SEP	16	11	22.8 08/25	21.6 08/31	21.0 08/13	15.6			100.0
BISMARCK RESIDENTIAL	1996	JUL-SEP	14	7.8	27.2 08/13	22.7 08/31	18.8 08/07	14.9			100.0
DICKINSON RESIDENTIAL	1996	JUL-SEP	14	6.2	23.2 08/13	17.4 08/25	16.3 07/02	12.6			100.0
FARGO RESIDENTIAL	1996	JUL-SEP	16	8.7	43.2 09/06	34.2 08/31	27.0 08/01	20.6			100.0
GRAND FORKS - NORTH	1996	JUL-SEP	14	11	52.8 08/31	49.0 09/06	39.4 08/01	26.7			100.0
SHARON	1996	JUL-SEP	16	0.2	30.5 08/31	26.6 08/25	26.4 08/13	15.6			93.7
WILLISTON RESIDENTIAL	1996	JUL-SEP	16	5.3	22.1 08/31	20.1 08/25	17.9 08/13	12.8			100.0

The maximum 24-hour concentration is 52.8 µg/m<sup>3</sup> at GRAND FORKS - NORTH on 08/31

\* 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.

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

----- SITE=AMERADA HESS - TIOGA #2 -----														
DATE	HOUR	1-HOUR SO2	3-HOUR SO2 BLOCK	24-HOUR SO2 BLOCK	5-MIN SO2 MAX	H2S	24-HOUR H2S BLOCK	NO2	O3	WS	WD	PM10	PM25	
August 26, 1996	900					378*				10	179			
August 26, 1996	1000					209*				10	173			

  

----- SITE=WHISKEY JOE - SPM -----														
DATE	HOUR	1-HOUR SO2	3-HOUR SO2 BLOCK	24-HOUR SO2 BLOCK	5-MIN SO2 MAX	H2S	24-HOUR H2S BLOCK	NO2	O3	WS	WD	PM10	PM25	
July 29, 1996	100	2				241*				1	162			
September 2, 1996	2200	<MDV				219*				4	136			
September 25, 1996	0	2				295*				4	151			

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

----- DATE=July 29, 1996 -----													
SITE	HOUR	1-HOUR SO2	3-HOUR SO2 BLOCK	24-HOUR SO2 BLOCK	5-MIN SO2 MAX	H2S	24-HOUR H2S BLOCK	NO2	O3	WS	WD	PM10	PM25
WHISKEY JOE - SPM	100	2				241*				1	162		
----- DATE=August 26, 1996 -----													
SITE	HOUR	1-HOUR SO2	3-HOUR SO2 BLOCK	24-HOUR SO2 BLOCK	5-MIN SO2 MAX	H2S	24-HOUR H2S BLOCK	NO2	O3	WS	WD	PM10	PM25
AMERADA HESS - TIOGA #2	900					378*				10	179		
AMERADA HESS - TIOGA #2	1000					209*				10	173		
----- DATE=September 2, 1996 -----													
SITE	HOUR	1-HOUR SO2	3-HOUR SO2 BLOCK	24-HOUR SO2 BLOCK	5-MIN SO2 MAX	H2S	24-HOUR H2S BLOCK	NO2	O3	WS	WD	PM10	PM25
WHISKEY JOE - SPM	2200	<MDV				219*				4	136		
----- DATE=September 25, 1996 -----													
SITE	HOUR	1-HOUR SO2	3-HOUR SO2 BLOCK	24-HOUR SO2 BLOCK	5-MIN SO2 MAX	H2S	24-HOUR H2S BLOCK	NO2	O3	WS	WD	PM10	PM25
WHISKEY JOE - SPM	0	2				295*				4	151		