



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500  
DENVER, COLORADO 80202-2466

MAY 10 1994

Ref: 8ART-TO



Daniel E. Harman, Manager  
Air Quality Monitoring  
Division of Environmental Engineering  
North Dakota State Department of Health  
and Consolidated Laboratories  
P.O. Box 5520  
Bismarck, ND 58502

Dear Dan,

I was going to kill two birds with one stone, but I am not in the mood for killing anything today. I do need to address two subjects, however.

I received the network review and have read it. I changed the dates of the cover page from 1993 to 1994. I assume that was a leftover in the PC. When I first read page 15, I thought it belonged in the PM<sub>10</sub> section, but I later decided you were addressing SO<sub>2</sub>. In several sections you mention the sources in Moorhead, Minnesota. In order to understand the effect on air quality and air monitoring of all sources in the area, the Minnesota sources should be a part of the list of sources in the network review. Enclosed for your information is the AIRS list for Cass County, Minnesota, sources.

The other "bird" is the set of network modification forms that I received recently. Not having worked with your program for several years, I was a little unsure how to respond to the forms when I received them. With the aid of the network review, I looked at the forms another time. I now have no problem approving the changes. From the network review, I understand we will be receiving additional forms for the relocation of monitors in the near future.

I do not need a reply to my comments at this time. Thank you for a good report; keep up the good work. If anything new comes up, please let me know.

Sincerely,

William J. Basbagill  
Air Monitoring Section

Enclosure



Printed on Recycled Paper

DATE: 05/06/94

AFS PLANT EMISSIONS INVENTORY

PGM: AFP644  
PAGE: 4

CONFIDENTIAL AND DRAFT SIP DATA INCLUDED

PLANT: 0004 - PEAVEY COMPANY \BARNESVILLE ELEVAT  
STATE: MN/27 CITY: 00000 - NOT IN A CITY  
COUNTY: 027 - CLAY CO MSA: 2520 - FARGO-MOORHEAD, ND-M

YEAR OF EMISSIONS : 1990  
NUMBER OF STACKS: 2 NUMBER OF POINTS: 2 NUMBER OF SEGMENTS: 7  
SIP PROGRAM: STATUS AREA:

PLANT NAME: PEAVEY COMPANY \BARNESVILLE ELEVAT  
ADDRESS : I 94 & HWY 9  
CITY, STATE: NOT IN A CITY, MN 56514-0000  
AQCR : 130

LAST PLANT UPDATE : 93/08/24  
REGIONAL PLANNING :  
LOCAL CONTROL REGN:

INSPECTOR :  
AMBIENT MONITORING: SOURCE MONITORING:

STANDARD INDUSTRIAL CLASSIFICATIONS:

5153 - GRAIN

MAILING ADDRESS:  
NAME : PEAVEY CO  
ADDRESS : PO BOX 2906  
CITY, STATE: MINNEAPOLIS, MN 55402

NEDS : 0004 EPA ID NUMBER : DUNN & BRADSTREET : CDS :

EMISSIONS CONTACT : R JOHNSON, (218)493-4481

LATITUDE : 46:38:17  
LONGITUDE : 96:24:47

UTM\_ZONE : 14  
HORIZONTAL : 698.0 KM  
VERTICAL : 5168.0 KM

EMERGENCY CONTROL PLAN : 3 - UNKNOWN STATUS  
STATE DATA ELEMENT 1 :  
STATE DATA ELEMENT 9 :

USER PLANT ID :  
PRINCIPAL PRODUCT :

NUMBER OF EMPLOYEES : 0 PROPERTY AREA (ACRES) : 0.0

PLANT POLLUTANT:

POLLUTANT	ESTIMATED UNITS	ALLOWABLE UNITS	POT. UNCTRL UNITS	POT. CNTRL UNITS	ACTUAL UCNTRL UNITS
CO	.	TY			
SO2	.	TY			
NO2	.	TY			
VOC	.	TY			
PM10	15.99900	TY			

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AFS PLANT EMISSIONS INVENTORY

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CONFIDENTIAL AND DRAFT SIP DATA INCLUDED

PLANT: 0007 - KRAGNES FARMERS ELEVATOR CO \KRAGN  
STATE: MN/27 CITY: 43864 - MOORHEAD  
COUNTY: 027 - CLAY CO MSA: -

YEAR OF EMISSIONS : 1990  
NUMBER OF STACKS: 3 NUMBER OF POINTS: 3 NUMBER OF SEGMENTS: 5  
SIP PROGRAM: STATUS AREA:

PLANT NAME: KRAGNES FARMERS ELEVATOR CO \KRAGN  
ADDRESS : KRAGNES  
CITY,STATE: MOORHEAD,MN 56560-0000  
AQCR : 130

LAST PLANT UPDATE : 93/08/24  
REGIONAL PLANNING :  
LOCAL CONTROL REGN:

INSPECTOR :  
AMBIENT MONITORING: SOURCE MONITORING:

STANDARD INDUSTRIAL CLASSIFICATIONS:

5153 - GRAIN

MAILING ADDRESS:  
NAME : KRAGNES FARMERS ELEV CO  
ADDRESS : RR 1, BOX 217  
CITY,STATE: MOORHEAD,MN 56560-9751

NEDS : 0007 EPA ID NUMBER : DUNN & BRADSTREET : CDS :

EMISSIONS CONTACT : D BROMLEY, (218)233-4247

LATITUDE : 46:52:34  
LONGITUDE : 96:45:59

UTM ZONE : 14  
HORIZONTAL : 670.2 KM  
VERTICAL : 5193.6 KM

EMERGENCY CONTROL PLAN : 3 - UNKNOWN STATUS  
STATE DATA ELEMENT 1 :  
STATE DATA ELEMENT 9 :

USER PLANT ID :  
PRINCIPAL PRODUCT :

NUMBER OF EMPLOYEES : 0 PROPERTY AREA (ACRES) : 0.0

PLANT POLLUTANT:

POLLUTANT	ESTIMATED UNITS	ALLOWABLE UNITS	POT. UNCTRL UNITS	POT. CNTRL UNITS	ACTUAL UCNTRL UNITS
CO	.	TY			
SO2	.	TY			
NO2	.	TY			
VOC	.	TY			
PM10	5.998000	TY			



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AFS PLANT EMISSIONS INVENTORY

PGM: AFP644  
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CONFIDENTIAL AND DRAFT SIP DATA INCLUDED

PLANT: 0008 - MOORHEAD STATE UNIVERSITY  
STATE: MN/27 CITY: 43864 - MOORHEAD  
COUNTY: 027 - CLAY CO MSA: -

YEAR OF EMISSIONS : 1990  
NUMBER OF STACKS: 5 NUMBER OF POINTS: 5 NUMBER OF SEGMENTS: 12  
SIP PROGRAM: STATUS AREA:

PLANT NAME: MOORHEAD STATE UNIVERSITY  
ADDRESS : 1104 7TH AVE S  
CITY, STATE: MOORHEAD, MN 56563-0000  
AQCR : 130

LAST PLANT UPDATE : 93/08/24  
REGIONAL PLANNING :  
LOCAL CONTROL REGN:

INSPECTOR :  
AMBIENT MONITORING: SOURCE MONITORING:

STANDARD INDUSTRIAL CLASSIFICATIONS:  
8221 - COLLEGES AND UNIVERSITIES, NEC

MAILING ADDRESS:  
NAME : MOORHEAD STATE UNIVERSITY  
ADDRESS : 1104 7TH AVE S  
CITY, STATE: MOORHEAD, MN 56563

NEDS : 0008 EPA ID NUMBER : DUNN & BRADSTREET : CDS :

EMISSIONS CONTACT : O ANDERSON, (218)236-3854

LATITUDE : 46:51:55  
LONGITUDE : 96:45:42

UTM ZONE : 14  
HORIZONTAL : 670.6 KM  
VERTICAL : 5192.4 KM

EMERGENCY CONTROL PLAN : 3 - UNKNOWN STATUS  
STATE DATA ELEMENT 1 :  
STATE DATA ELEMENT 9 :

USER PLANT ID :  
PRINCIPAL PRODUCT :

NUMBER OF EMPLOYEES : 0 PROPERTY AREA (ACRES) : 0.0

PLANT POLLUTANT:

POLLUTANT	ESTIMATED UNITS	ALLOWABLE UNITS	POT. UNCTRL UNITS	POT. CNTRL UNITS	ACTUAL UCNTRL UNITS
CO	2.998000	TY			
SO2	13.99800	TY			
NO2	13.99800	TY			
VOC		TY			
PM10	.9990000	TY			

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AFS PLANT EMISSIONS INVENTORY

PGM: AFP644  
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CONFIDENTIAL AND DRAFT SIP DATA INCLUDED

PLANT: 0009 - MOORHEAD PUBLIC SERVICE DEPT  
STATE: MN/27 CITY: 43864 - MOORHEAD  
COUNTY: 027 - CLAY CO MSA: -

YEAR OF EMISSIONS : 1990  
NUMBER OF STACKS: 5 NUMBER OF POINTS: 6 NUMBER OF SEGMENTS: 6  
SIP PROGRAM: STATUS AREA:

PLANT NAME: MOORHEAD PUBLIC SERVICE DEPT  
ADDRESS : 519 S ELM ST  
CITY,STATE: MOORHEAD,MN 56560-0000  
AQCR : 130

LAST PLANT UPDATE : 93/08/24  
REGIONAL PLANNING :  
LOCAL CONTROL REGN:

INSPECTOR :  
AMBIENT MONITORING: SOURCE MONITORING:

STANDARD INDUSTRIAL CLASSIFICATIONS:

4911 - ELECTRIC SERVICES

MAILING ADDRESS:  
NAME : MOORHEAD PUBLIC SERVICE DEPT  
ADDRESS : PO BOX 779, CITY HALL  
CITY,STATE: MOORHEAD,MN 56561-0779

NEDS : 0009 EPA ID NUMBER : MND085357507 DUNN & BRADSTREET : CDS :

EMISSIONS CONTACT : D KAHLY, (218)299-5400

LATITUDE : 46:52:09  
LONGITUDE : 96:46:43

UTM ZONE : 14  
HORIZONTAL : 669.3 KM  
VERTICAL : 5192.8 KM

EMERGENCY CONTROL PLAN : 3 - UNKNOWN STATUS  
STATE DATA ELEMENT 1 :  
STATE DATA ELEMENT 9 :

USER PLANT ID :  
PRINCIPAL PRODUCT :

NUMBER OF EMPLOYEES : 0 PROPERTY AREA (ACRES) : 0.0

PLANT POLLUTANT:

POLLUTANT	ESTIMATED UNITS	ALLOWABLE UNITS	POT. UNCTRL UNITS	POT. CNTRL UNITS	ACTUAL UCNTRL UNITS
CO	.	TY			
SO2	1.000000	TY			
NO2	.	TY			
VOC	.	TY			
PM10	.	TY			

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CONFIDENTIAL AND DRAFT SIP DATA INCLUDED

PLANT: 0010 - TRI COUNTY COOP ASSOCIATION  
STATE: MN/27 CITY: 00000 - NOT IN A CITY  
COUNTY: 027 - CLAY CO MSA: 2520 - FARGO-MOORHEAD, ND-M

YEAR OF EMISSIONS : 1990  
NUMBER OF STACKS: 2 NUMBER OF POINTS: 2 NUMBER OF SEGMENTS: 6  
SIP PROGRAM: STATUS AREA:

PLANT NAME: TRI COUNTY COOP ASSOCIATION  
ADDRESS : ULEN  
CITY,STATE: NOT IN A CITY,MN 56585-0000  
AQCR : 130

LAST PLANT UPDATE : 93/08/24  
REGIONAL PLANNING :  
LOCAL CONTROL REGN:

INSPECTOR :  
AMBIENT MONITORING: SOURCE MONITORING:

STANDARD INDUSTRIAL CLASSIFICATIONS:  
5153 - GRAIN

MAILING ADDRESS:  
NAME : TRI-CNTY COOP ASSN  
ADDRESS : PO BOX 368  
CITY,STATE: ULEN,MN 56585

NEDS : 0010 EPA ID NUMBER : DUNN & BRADSTREET : CDS :

EMISSIONS CONTACT : H OLSEN, (218)596-8821

LATITUDE : 47:04:36  
LONGITUDE : 96:15:41

UTM ZONE : 14  
HORIZONTAL : 707.9 KM  
VERTICAL : 5217.1 KM

EMERGENCY CONTROL PLAN : 3 - UNKNOWN STATUS  
STATE DATA ELEMENT 1 :  
STATE DATA ELEMENT 9 :

USER PLANT ID :  
PRINCIPAL PRODUCT :

NUMBER OF EMPLOYEES : 0 PROPERTY AREA (ACRES) : 0.0

PLANT POLLUTANT:

POLLUTANT	ESTIMATED UNITS	ALLOWABLE UNITS	POT. UNCTRL UNITS	POT. CNTRL UNITS	ACTUAL UCNTRL UNITS
CO	.	TY			
SO2	.	TY			
NO2	.	TY			
VOC	.	TY			
PM10	9.998000	TY			

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AFS PLANT EMISSIONS INVENTORY

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CONFIDENTIAL AND DRAFT SIP DATA INCLUDED

PLANT: 0014 - F-M ASPHALT, INC. \UNIT 1  
STATE: MN/27 CITY: 15976 - DILWORTH  
COUNTY: 027 - CLAY CO MSA: -

YEAR OF EMISSIONS : 1990  
NUMBER OF STACKS: 2 NUMBER OF POINTS: 2 NUMBER OF SEGMENTS: 6  
SIP PROGRAM: STATUS AREA:

PLANT NAME: F-M ASPHALT, INC. \UNIT 1  
ADDRESS : 1 MILE E ON HWY 10  
CITY,STATE: DILWORTH,MN 56529-0000  
AQCR : 130

LAST PLANT UPDATE : 93/08/24  
REGIONAL PLANNING :  
LOCAL CONTROL REGN:

INSPECTOR :  
AMBIENT MONITORING: SOURCE MONITORING:

STANDARD INDUSTRIAL CLASSIFICATIONS:  
2951 - PAVING MIXTURES AND BLOCKS

MAILING ADDRESS:  
NAME : F-M ASPHALT, INC  
ADDRESS : PO BOX 697  
CITY,STATE: MOORHEAD,MN 56560

NEDS : 0014 EPA ID NUMBER : DUNN & BRADSTREET : CDS :

EMISSIONS CONTACT : W PIETERICK, (218)287-2319

LATITUDE : 46:52:32  
LONGITUDE : 96:41:16

UTM ZONE : 14  
HORIZONTAL : 676.2 KM  
VERTICAL : 5193.7 KM

EMERGENCY CONTROL PLAN : 3 - UNKNOWN STATUS  
STATE DATA ELEMENT 1 :  
STATE DATA ELEMENT 9 :

USER PLANT ID :  
PRINCIPAL PRODUCT :

NUMBER OF EMPLOYEES : 0 PROPERTY AREA (ACRES) : 0.0

PLANT POLLUTANT:

POLLUTANT	ESTIMATED UNITS	ALLOWABLE UNITS	POT. UNCTRL UNITS	POT. CNTRL UNITS	ACTUAL UCNTRL UNITS
CO	3.999000 TY				
SO2	11.99800 TY				
NO2	7.999000 TY				
VOC	1.999000 TY				
PM10	13.99900 TY				



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CONFIDENTIAL AND DRAFT SIP DATA INCLUDED

PLANT: 0017 - HAWLEY COOP ELEVATOR COMPANY  
STATE: MN/27 CITY: 00000 - NOT IN A CITY  
COUNTY: 027 - CLAY CO MSA: 2520 - FARGO-MOORHEAD, ND-M

YEAR OF EMISSIONS : 1990  
NUMBER OF STACKS: 1 NUMBER OF POINTS: 1 NUMBER OF SEGMENTS: 6  
SIP PROGRAM: STATUS AREA:

PLANT NAME: HAWLEY COOP ELEVATOR COMPANY  
ADDRESS : 316 5TH ST  
CITY,STATE: NOT IN A CITY,MN 56549-0000  
AQCR : 130

LAST PLANT UPDATE : 93/08/24  
REGIONAL PLANNING :  
LOCAL CONTROL REGN:

INSPECTOR :  
AMBIENT MONITORING: SOURCE MONITORING:

STANDARD INDUSTRIAL CLASSIFICATIONS:  
5153 - GRAIN

MAILING ADDRESS:  
NAME : HAWLEY COOP ELEV CO  
ADDRESS : PO BOX 9  
CITY,STATE: HAWLEY,MN 56549

NEDS : 0017 EPA ID NUMBER : DUNN & BRADSTREET : CDS :

EMISSIONS CONTACT : W LUNNEBORG, (218)483-3351

LATITUDE : 46:52:47  
LONGITUDE : 96:19:08

UTM ZONE : 14  
HORIZONTAL : 704.3 KM  
VERTICAL : 5195.1 KM

EMERGENCY CONTROL PLAN : 3 - UNKNOWN STATUS  
STATE DATA ELEMENT 1 :  
STATE DATA ELEMENT 9 :

USER PLANT ID :  
PRINCIPAL PRODUCT :

NUMBER OF EMPLOYEES : 0 PROPERTY AREA (ACRES) : 0.0

PLANT POLLUTANT:

POLLUTANT	ESTIMATED UNITS	ALLOWABLE UNITS	POT. UNCTRL UNITS	POT. CNTRL UNITS	ACTUAL UCNTRL UNITS
CO	.	TY			
SO2	.	TY			
NO2	.	TY			
VOC	.	TY			
PM10	.	TY			



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AFS PLANT EMISSIONS INVENTORY

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CONFIDENTIAL AND DRAFT SIP DATA INCLUDED

PLANT: 0026 - NORTHERN IMPROVEMENT COMPANY \MADSE  
STATE: MN/27 CITY: 00000 - NOT IN A CITY  
COUNTY: 027 - CLAY CO MSA: 2520 - FARGO-MOORHEAD, ND-M

YEAR OF EMISSIONS : 1990  
NUMBER OF STACKS: 2 NUMBER OF POINTS: 2 NUMBER OF SEGMENTS: 6  
SIP PROGRAM: STATUS AREA:

PLANT NAME: NORTHERN IMPROVEMENT COMPANY \MADSE  
ADDRESS : SE 1/4 SEC 29,TWP 139,RNG 47  
CITY,STATE: NOT IN A CITY,MN 56580-0000  
AQCR : 130

LAST PLANT UPDATE : 93/08/24  
REGIONAL PLANNING :  
LOCAL CONTROL REGN:

INSPECTOR :  
AMBIENT MONITORING: SOURCE MONITORING:

STANDARD INDUSTRIAL CLASSIFICATIONS:  
2951 - PAVING MIXTURES AND BLOCKS

MAILING ADDRESS:  
NAME : NORTHERN IMPROVEMENT CO  
ADDRESS : PO BOX 1254  
CITY,STATE: BISMARCK,ND 58502-1254

NEDS : 0026 EPA ID NUMBER : DUNN & BRADSTREET : CDS :

EMISSIONS CONTACT : J KOLBERG, (701)223-6695

LATITUDE : 46:49:20  
LONGITUDE : 96:38:44

UTM ZONE : 14  
HORIZONTAL : 679.6 KM  
VERTICAL : 5187.9 KM

EMERGENCY CONTROL PLAN : 3 - UNKNOWN STATUS  
STATE DATA ELEMENT 1 :  
STATE DATA ELEMENT 9 :

USER PLANT ID :  
PRINCIPAL PRODUCT :

NUMBER OF EMPLOYEES : 0 PROPERTY AREA (ACRES) : 0.0

PLANT POLLUTANT:

POLLUTANT	ESTIMATED UNITS	ALLOWABLE UNITS	POT. UNCTRL UNITS	POT. CNTRL UNITS	ACTUAL UCNTRL UNITS
CO	1.000000	TY			
SO2	27.000000	TY			
NO2	6.000000	TY			
VOC		TY			
PM10	10.000000	TY			

DATE: 05/06/94

AFS PLANT EMISSIONS INVENTORY

PGM: AFP644  
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CONFIDENTIAL AND DRAFT SIP DATA INCLUDED

PLANT: 0001 - AMERICAN CRYSTAL SUGAR  
STATE: MN/27 CITY: 43864 - MOORHEAD  
COUNTY: 027 - CLAY CO MSA: -

YEAR OF EMISSIONS : 1990  
NUMBER OF STACKS: 11 NUMBER OF POINTS: 12 NUMBER OF SEGMENTS: 28  
SIP PROGRAM: STATUS AREA:

PLANT NAME: AMERICAN CRYSTAL SUGAR  
ADDRESS : N 11TH ST & CNTY RD 18  
CITY,STATE: MOORHEAD,MN 56560  
AQCR : 130

LAST PLANT UPDATE : 94/03/25  
REGIONAL PLANNING :  
LOCAL CONTROL REGN:

INSPECTOR :  
AMBIENT MONITORING: SOURCE MONITORING:

STANDARD INDUSTRIAL CLASSIFICATIONS:  
2063 - BEET SUGAR

MAILING ADDRESS:  
NAME : AMERICAN CRYSTAL SUGAR  
ADDRESS : 101 NORTH 3RD STREET  
CITY,STATE: MOORHEAD,MN 56560

NEDS : 0001 EPA ID NUMBER : MND064792773 DUNN & BRADSTREET : 064792773 CDS : 00001 60001

EMISSIONS CONTACT : A CEDERBERG, (218)236-4347

LATITUDE : 46:54:04  
LONGITUDE : 96:45:37

UTM ZONE : 14  
HORIZONTAL : 670.6 KM  
VERTICAL : 5196.4 KM

EMERGENCY CONTROL PLAN : 0 - NOT REQUIRED  
STATE DATA ELEMENT 1 :  
STATE DATA ELEMENT 9 :

USER PLANT ID :  
PRINCIPAL PRODUCT :

NUMBER OF EMPLOYEES : 0 PROPERTY AREA (ACRES) : 0.0

PLANT POLLUTANT:

POLLUTANT	ESTIMATED UNITS	ALLOWABLE UNITS	POT. UNCTRL UNITS	POT. CNTRL UNITS	ACTUAL UCNTRL UNITS
CO	200.0000	TY			
SO2	619.9980	TY			
NO2	941.9980	TY			
VOC	3.999000	TY			
PM10	33.99800	TY			

DATE: 05/06/94

AFS PLANT EMISSIONS INVENTORY

PGM: AFP644  
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CONFIDENTIAL AND DRAFT SIP DATA INCLUDED

PLANT: 0013 - AMOCO STANDARD OIL  
STATE: MN/27 CITY: 43864 - MOORHEAD  
COUNTY: 027 - CLAY CO MSA: -

YEAR OF EMISSIONS : 1990  
NUMBER OF STACKS: 21 NUMBER OF POINTS: 21 NUMBER OF SEGMENTS: 44  
SIP PROGRAM: STATUS AREA:

PLANT NAME: AMOCO STANDARD OIL  
ADDRESS : 1 MILE E. ON BUS 194  
CITY, STATE: MOORHEAD, MN 56560  
AQCR : 130

LAST PLANT UPDATE : 93/09/02  
REGIONAL PLANNING :  
LOCAL CONTROL REGN:

INSPECTOR :  
AMBIENT MONITORING: SOURCE MONITORING:

STANDARD INDUSTRIAL CLASSIFICATIONS:  
5171 - PETROLEUM BULK STATIONS & TERMINALS

MAILING ADDRESS:  
NAME : AMOCO OIL CO  
ADDRESS : 1101 SE MAIN AVE  
CITY, STATE: MOORHEAD, MN 56560-3811

NEDS : 0013 EPA ID NUMBER : MND000686683 DUNN & BRADSTREET : CDS : 00013

EMISSIONS CONTACT : J WARE, (218)236-8740

LATITUDE : 46:51:51  
LONGITUDE : 90:44:36

UTM ZONE : 15  
HORIZONTAL : 672.0 KM  
VERTICAL : 5192.3 KM

EMERGENCY CONTROL PLAN : 0 - NOT REQUIRED  
STATE DATA ELEMENT 1 :  
STATE DATA ELEMENT 9 :

USER PLANT ID :  
PRINCIPAL PRODUCT :

NUMBER OF EMPLOYEES : 0 PROPERTY AREA (ACRES) : 0.0

PLANT POLLUTANT:

POLLUTANT	ESTIMATED UNITS	ALLOWABLE UNITS	POT. UNCTRL UNITS	POT. CNTRL UNITS	ACTUAL UCNTRL UNITS
CO	.	TY			
SO2	.	TY			
NO2	.	TY			
VOC	167.9960	TY			
PM10	.	TY			

DATE: 05/06/94

AFS PLANT EMISSIONS INVENTORY

PGM: AFP644  
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CONFIDENTIAL AND DRAFT SIP DATA INCLUDED

PLANT: 0022 - BUSCH AGRICULTURAL RESOURCES  
STATE: MN/27 CITY: 43864 - MOORHEAD  
COUNTY: 027 - CLAY CO MSA: -

YEAR OF EMISSIONS : 1990  
NUMBER OF STACKS: 5 NUMBER OF POINTS: 6 NUMBER OF SEGMENTS: 17  
SIP PROGRAM: STATUS AREA:

PLANT NAME: BUSCH AGRICULTURAL RESOURCES  
ADDRESS : 2101 28TH ST S  
CITY,STATE: MOORHEAD,MN 56560  
AQCR : 130

LAST PLANT UPDATE : 94/03/29  
REGIONAL PLANNING :  
LOCAL CONTROL REGN:

INSPECTOR :  
AMBIENT MONITORING: SOURCE MONITORING:

STANDARD INDUSTRIAL CLASSIFICATIONS:  
2083 - MALT  
-  
-

MAILING ADDRESS:  
NAME : BUSCH AGRICULTURAL RESOURCES  
ADDRESS : 2101 SOUTH 28TH ST  
CITY,STATE: MOORHEAD,MN 56560

NEDS : 0022 EPA ID NUMBER : MND095951422 DUNN & BRADSTREET : 095951422 CDS : 00022 90022

EMISSIONS CONTACT : G BALLENTINE, (218)233-8531

LATITUDE : 46:51:04  
LONGITUDE : 96:44:33

UTM ZONE : 14  
HORIZONTAL : 672.1 KM  
VERTICAL : 5190.9 KM

EMERGENCY CONTROL PLAN : 0 - NOT REQUIRED  
STATE DATA ELEMENT 1 :  
STATE DATA ELEMENT 9 :

USER PLANT ID :  
PRINCIPAL PRODUCT :

NUMBER OF EMPLOYEES : 0 PROPERTY AREA (ACRES) : 0.0

PLANT POLLUTANT:

POLLUTANT	ESTIMATED UNITS	ALLOWABLE UNITS	POT. UNCTRL UNITS	POT. CNTRL UNITS	ACTUAL UCNTRL UNITS
CO	7.998000	TY			
SO2	479.9980	TY			
NO2	97.99800	TY			
VOC		TY			
PM10	33.99800	TY			



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AFS PLANT EMISSIONS INVENTORY

PGM: AFP644  
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CONFIDENTIAL AND DRAFT SIP DATA INCLUDED

PLANT: 0048 - NORTHERN IMPROVEMENT COMPANY \BENED  
STATE: MN/27 CITY: 00000 - NOT IN A CITY  
COUNTY: 027 - CLAY CO MSA: 2520 - FARGO-MOORHEAD, ND-M

YEAR OF EMISSIONS : 1990  
NUMBER OF STACKS: 1 NUMBER OF POINTS: 1 NUMBER OF SEGMENTS: 8  
SIP PROGRAM: STATUS AREA:

PLANT NAME: NORTHERN IMPROVEMENT COMPANY \BENED  
ADDRESS : CNTY RD 75  
CITY,STATE: NOT IN A CITY,MN 56580-0000  
AQCR : 130

LAST PLANT UPDATE : 93/08/24  
REGIONAL PLANNING :  
LOCAL CONTROL REGN:

INSPECTOR :  
AMBIENT MONITORING: SOURCE MONITORING:

STANDARD INDUSTRIAL CLASSIFICATIONS:  
1422 - CRUSHED AND BROKEN LIMESTONE

MAILING ADDRESS:  
NAME : NORTHERN IMPROVEMENT CO  
ADDRESS : PO BOX 1254  
CITY,STATE: BISMARCK,ND 58502-1254

NEDS : 0048 EPA ID NUMBER : DUNN & BRADSTREET : CDS :

EMISSIONS CONTACT : J KOLBERG, (701)223-6695

LATITUDE : 46:49:17  
LONGITUDE : 96:38:49

UTM ZONE : 14  
HORIZONTAL : 679.5 KM  
VERTICAL : 5187.8 KM

EMERGENCY CONTROL PLAN : 3 - UNKNOWN STATUS  
STATE DATA ELEMENT 1 :  
STATE DATA ELEMENT 9 :

USER PLANT ID :  
PRINCIPAL PRODUCT :

NUMBER OF EMPLOYEES : 0 PROPERTY AREA (ACRES) : 0.0

PLANT POLLUTANT:

POLLUTANT	ESTIMATED UNITS	ALLOWABLE UNITS	POT. UNCTRL UNITS	POT. CNTRL UNITS	ACTUAL UCNTRL UNITS
CO	.	TY			
SO2	.	TY			
NO2	.	TY			
VOC	.	TY			
PM10	.	TY			



NORTH DAKOTA  
STATE DEPARTMENT OF HEALTH  
AND CONSOLIDATED LABORATORIES

FILE

ENVIRONMENTAL HEALTH SECTION

April 21, 1994

1200 Missouri Avenue  
P.O. Box 5520  
Bismarck, North Dakota 58502-5520  
Fax #701-221-5200  
TDD #701-224-2068

Mr. Bill Basbagill  
U.S. EPA - Region VIII  
One Denver Place  
999 18th Street, Suite 500  
Denver, CO 80202-2405

Re: FY '94 Air Quality Media  
Workplan, Monitoring, Item D

Dear Mr. Basbagill:

Enclosed are two copies of the North Dakota Annual Network Review for FY '94 in response to the above-reference. Since the format and order used for last year's network review was accepted, the same format and order was used for this network review.

If you have any questions, please contact me.

Sincerely,

Daniel E. Harman, Manager  
Air Quality Monitoring  
Div. of Environmental Engineering

DEH:saj  
Enc:

NORTH DAKOTA STATE DEPARTMENT OF HEALTH  
DIVISION OF ENVIRONMENTAL ENGINEERING

AMBIENT AIR QUALITY MONITORING  
ANNUAL NETWORK REVIEW  
1993

May 1993

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## 1.0 INTRODUCTION

The North Dakota State Department of Health, Division of Environmental Engineering, has the primary responsibility of protecting the health and welfare of North Dakotans from the detrimental effects of air pollution. Towards that end, the Division of Environmental Engineering ensures that the ambient air quality in North Dakota is maintained in accordance with the levels established by the State and Federal Ambient Air Quality Standards (AAQS) and the Prevention of Significant Deterioration of Air Quality (PSD) Rules. To carry out this responsibility, the Division of Environmental Engineering operates and maintains a network of ambient air quality monitors and requires seven major industrial pollution sources to conduct source specific ambient air quality monitoring.

To evaluate the effectiveness of the State's air quality monitoring effort, the U.S. Environmental Protection Agency (EPA) requires the Division of Environmental Engineering to conduct an annual review of the State's ambient air quality monitoring (AAQM) network. EPA's requirements, as set forth in 40 CFR 58.20, are (1) to determine if the system meets the monitoring objectives defined in 40 CFR 58, Appendix D, and (2) to identify network modifications such as termination or relocation of unnecessary sites or establishment of new sites which are necessary. 40 CFR 58.25 requires the State to annually develop and implement a schedule to modify the AAQM network to eliminate any unnecessary sites or correct any inadequacies indicated as a result of the annual review required by 40 CFR 58.20(d). This document and subsequent revisions satisfy those annual requirements.



## 1.1 Network Review Process

The locations of sites in a monitoring program are established to meet certain objectives. The May 10, 1979, Federal Register (40 CFR 58), "Air Quality Monitoring, Data Reporting, and Surveillance Provisions", as amended, has specified a minimum of four basic monitoring objectives. These objectives are as follows:

1. To determine the highest pollutant concentrations expected to occur in an area covered by the network.
2. To determine representative concentrations in areas of high population density.
3. To determine the impact on ambient pollution levels by a significant source or class of sources.
4. To determine the general/background concentration levels.

The link between basic monitoring objectives and the physical location of a particular monitoring site involves the concept of spatial scale of representativeness. This spatial scale is determined by the physical dimensions of the air parcel nearest a monitoring site throughout which actual pollutant concentrations are reasonably similar. The goal in locating sites is to match the spatial scale represented by the sample of monitored air with a spatial scale most appropriate for the monitoring objective. Spatial scales of representativeness, as specified by EPA, are described below:

Microscale - dimensions ranging from several meters up to about 100 meters.

Middle Scale - areas up to several city blocks in size with dimensions ranging from about 100 meters to 0.5 km.

Neighborhood Scale - city areas of relatively uniform land use with dimensions of 0.5 to 4.0 km.

Urban Scale - Overall, city-wide dimensions on the order of 4.0 to 50.0 km.  
(Usually requires more than one site for definition.)

Regional Scale - rural areas of reasonably homogeneous geography covering from 50 km to hundreds of km.

The relationship between monitoring objectives and spatial scales of representativeness, as specified by EPA, are as follows:

<u>Monitoring Objective</u>	<u>Appropriate Siting Scales</u>
Highest Concentration	Micro, middle, neighborhood
Population Exposure	Neighborhood, urban
Source Impact	Micro, middle, neighborhood
General/Background	urban, regional

Recommended scales of representativeness appropriate to the criteria pollutants monitored in North Dakota are shown below:

<u>Criteria Pollutant</u>	<u>Spatial Scales</u>
Inhalable Particulate (PM <sub>10</sub> )	micro, middle, neighborhood, urban, regional
Sulfur Dioxide (SO <sub>2</sub> )	middle, neighborhood, urban, regional
Ozone (O <sub>3</sub> )	middle, neighborhood, urban, regional
Nitrogen Dioxide (NO <sub>2</sub> )	middle, neighborhood, urban
Carbon Monoxide (CO)	micro, middle, neighborhood

The use of this physical basis for locating sites allows for an objective approach, ensures compatibility among sites, and provides a common basis for the interpretation and application of data. The annual review process involves an examination of existing sites to evaluate their monitoring objectives and spatial scale, and sites are deleted, added, or modified accordingly. Further details on network design can be found in 40 CFR 58, Appendix D.

## 1.2 General Monitoring Needs

As can be gathered from the prior discussion, each air pollutant has certain characteristics which must be considered when establishing a monitoring site. These characteristics may result from 1) variations in the number and type of sources and emissions in question; 2) reactivity of a particular pollutant with other constituents in the air; 3) local site influences such as terrain and land use; and 4) climatology. The State AAQM network is designed to monitor air quality data for three basic conditions: 1) highest concentration, 2) population oriented monitoring, and 3) background monitoring. The industrial AAQM network sites are designed to monitor air quality data for source specific impacts on a neighborhood scale.

Population oriented monitoring is not a major consideration, except for PM<sub>10</sub>, because of our relatively sparse population.

Population exposure monitoring is conducted at Beulah because of the large sources in the area. Carbon monoxide (CO) is the only parameter for which highest concentration monitoring is done. All PM<sub>10</sub> monitoring in populated areas is population exposure on a neighborhood scale. The CO monitoring is conducted on a micro scale. For the remaining pollutants at state sites, the objective is background monitoring.

Background sites are chosen to determine concentrations of air contaminants in areas remote from urban sources and generally are sited using the regional spatial scale. This is true for NO<sub>2</sub> despite the fact that the regional spatial scale is not normally used for NO<sub>2</sub> monitoring. Once general locations are established, all monitoring sites are established in accordance with the specific probe siting criteria specified in 40 CFR 58, Appendix E.

Since all industrial AAQM network sites are source specific, all the pollutants at industry sites are source oriented.

### 1.3 Monitoring Objectives

The monitoring objectives of the Department are to track those pollutants that are judged to have the potential for violating either State or Federal Ambient Air Quality Standards and to ensure that those pollutants do not cause significant deterioration of our existing air quality. To accomplish these objectives, the Department operates and maintains 11 AAQM sites around the State. Nine are fixed SLAMS/NAMS sites, and two are special purpose monitoring (SPM) sites. There are also seven industries that report ambient air quality data to this Department. Tables 1 and 2 list each site's type and the parameters monitored. Figure 1 shows the approximate site locations.



TABLE 1  
STATE AAQM NETWORK DESCRIPTION

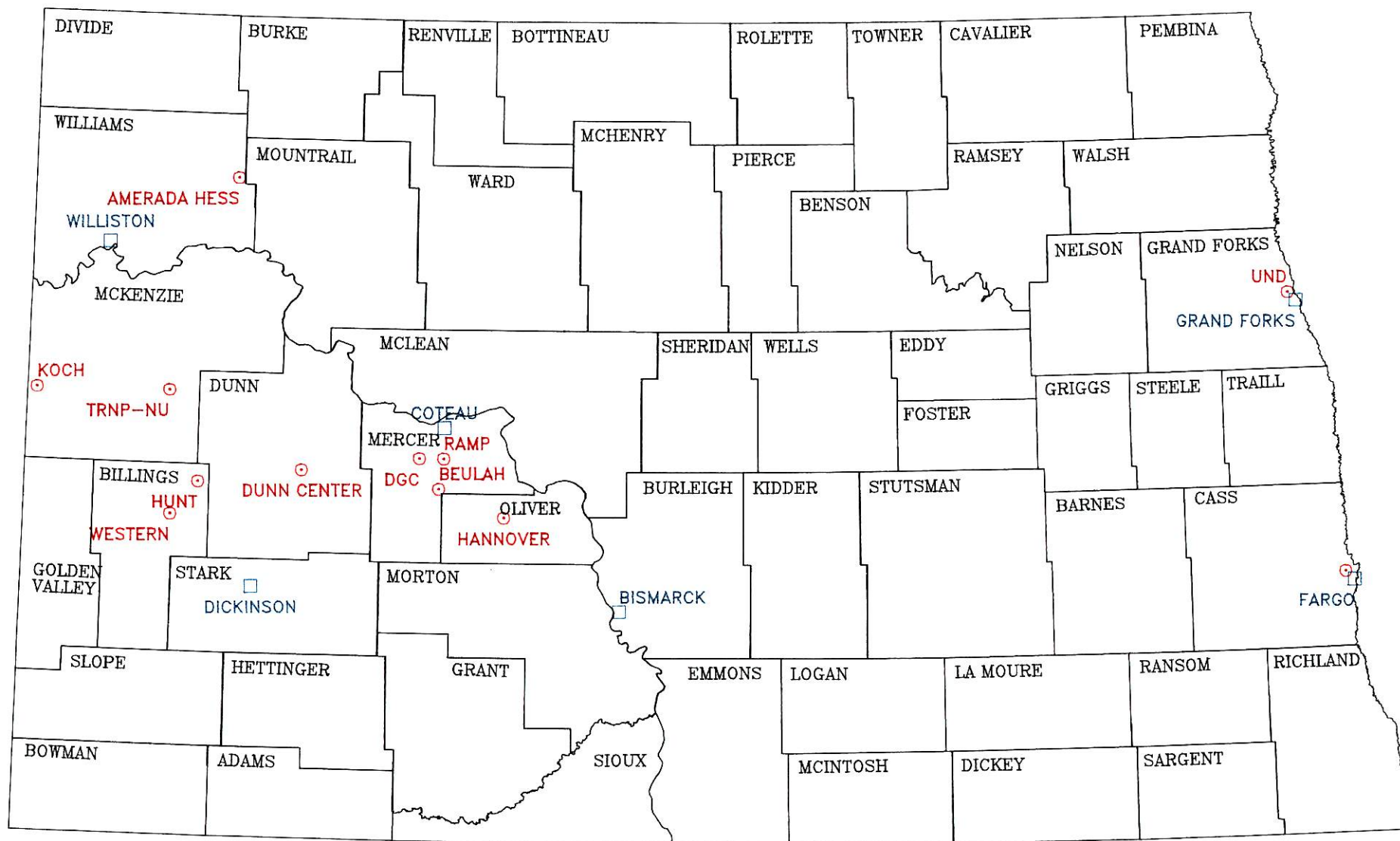
Site Name	Type Station	Parameter Monitored <sup>1</sup>	Operating Schedule	Monitoring Objective	Spatial Scale	Date Site Began
1 Fargo - Commercial Fargo - Commercial Dup.	NAMS	PM <sub>10</sub> PM <sub>10</sub>	6th Day 6th Day	Population Exposure Collocated SSI	Neighborhood N/A	6/85
2 Fargo - Commercial	SPM	CO, MET  O <sub>3</sub>	cont.  cont.	Highest Concentration Population Exposure	Micro Regional	11/90 4/93
3 Beulah - Residential	SLAMS	SO <sub>2</sub> , NO <sub>2</sub> , O <sub>3</sub> , Met	cont.	Population Exposure	Urban	4/80
4 Bismarck - Commercial	SLAMS	PM <sub>10</sub>	6th Day	Population Exposure	Neighborhood	4/85
5 Dickinson - Residential	SLAMS	PM <sub>10</sub>	6th Day	Population Exposure	Neighborhood	7/89
6 Dunn Center - Rural	SLAMS	SO <sub>2</sub> , Met	cont.	General Background	Regional	10/79
7 Grand Forks - Commercial	SLAMS	PM <sub>10</sub>	6th Day	Population Exposure	Neighborhood	7/89
8 Hannover - Rural	SLAMS	SO <sub>2</sub> , NO <sub>2</sub> , O <sub>3</sub> , Met	cont.	General Background	Regional	10/84
9 TRNP(NU) - Rural	SLAMS	SO <sub>2</sub> , O <sub>3</sub> , H <sub>2</sub> S, Met	cont.	General Background	Regional	2/80
10 Williston - Commercial	SLAMS	PM <sub>10</sub>	6th Day	Population Exposure	Neighborhood	5/85
11 UND - Residential	SPM	PM <sub>10</sub>	3rd Day	Source Impact	Middle	1/90

1. MET refers to meteorological and indicates wind speed and wind direction monitoring equipment.

TABLE 2  
INDUSTRY AAQM NETWORK DESCRIPTION

Company	Site Name	Parameter Monitored <sup>1</sup>	Operating Schedule	Monitoring Objective <sup>2</sup>	Spatial Scale	Date Site Began
12 Amerada Hess Corporation	TIOGA #1 TIOGA #2 TIOGA #3	SO <sub>2</sub> H <sub>2</sub> S SO <sub>2</sub>	cont.	Source	Neighborhood	7/87
13 Coteau Mining Co.	Coteau #5 Coteau #6 Coteau #7 Coteau #8	PM <sub>10</sub> PM <sub>10</sub> PM <sub>10</sub> PM <sub>10</sub>	6 <sup>th</sup> day 6 <sup>th</sup> day 6 <sup>th</sup> day 6 <sup>th</sup> day	Source Source Source Source	Neighborhood Neighborhood Neighborhood Neighborhood	5/93 5/93 5/93 5/93
14 Dakota Gasification Company	DGC SO <sub>2</sub> #1 DGC #2 DGC SO <sub>2</sub> #4	SO <sub>2</sub> H <sub>2</sub> S SO <sub>2</sub>	cont. cont. cont.	Source Source Source	Neighborhood Neighborhood Neighborhood	7/84 2/85 1/89
15 Koch Hydrocarbon Company	KOCH #1 KOCH #3A <sup>3</sup>	SO <sub>2</sub> , H <sub>2</sub> S, Met SO <sub>2</sub> , Met	cont. cont.	Source Source	Neighborhood Neighborhood	10/81 7/87
16 RAMP <sup>4</sup>	RAMP #1 RAMP #2 <sup>5</sup>  RAMP #3 RAMP #5 <sup>5</sup>	SO <sub>2</sub> SO <sub>2</sub> , NO <sub>2</sub> , O <sub>3</sub> , Met SO <sub>2</sub> , NO <sub>2</sub> SO <sub>2</sub> , NO <sub>2</sub>	cont. cont.  cont. cont.	Source Source  Source Source	Neighborhood Neighborhood  Neighborhood Neighborhood	1/80 1/80  1/80 1/80
17 W. H Hunt Estate	HUNT #5	SO <sub>2</sub> , H <sub>2</sub> S, Met	cont.	Source	Neighborhood	11/92
18 Western Gas Processors <sup>6</sup>	WESTERN #2 WESTERN #3	H <sub>2</sub> S, MET SO <sub>2</sub>	cont. cont.	Source Source	Neighborhood Neighborhood	3/88 3/88

1. Met refers to meteorological and indicates wind speed and wind direction monitoring equipment.
2. Not applicable to meteorological parameters.
3. Terminated November 2.
4. Terminated December 31.
5. Site location transferred to DGC on December 31.
6. Terminated July 31.



⊙ = Continuous Sites

□ = PM10 Sites

Figure 1. North Dakota Air Quality Monitoring Network

## 2.0 AMBIENT AIR MONITORING NETWORK COVERAGE

The entire State of North Dakota is attainment for all of the criteria pollutants. As such, there are no "problem areas" in the general sense of the term. However, there are areas of concern where the Department has established monitoring sites to track the emissions of specific pollutants from area sources. Also, seven major sources maintain monitoring networks in the vicinity of their plants (see Table 2 and Figure 1).

### 2.1 Sulfur Dioxide

Energy development in the west and west-central portions of North Dakota has produced a number of sources of sulfur dioxide ( $\text{SO}_2$ ). These sources include coal-fired steam-powered electrical generating facilities, a coal gasification plant, natural gas processing plants, an oil refinery, and flaring at oil/gas well sites. As a result,  $\text{SO}_2$  is one of the Department's major concerns in regard to ambient air quality monitoring.

#### 2.1.1 Point Sources

The major point sources of  $\text{SO}_2$  (>100 TPY) are listed in Table 3 along with their emissions as calculated from the most recent emissions inventory. Figure 2 shows the approximate locations of these facilities (the numbers correspond to the respective positions of the source/site in the tables).

TABLE 3

MAJOR SO<sub>2</sub> SOURCES  
(>100 TPY)

1993

#	Name of Company	Type of Source	Location	County	SO <sub>2</sub> Emissions Ton/Yr
1	CPA/UPA (Coal Creek)	Steam Electric Gen. Facility	Underwood	Mc Lean	50969
2	Dakota Gasification Co.	Synthetic Fuel Plant	Beulah	Mercer	37558
3	Minnkota Power Coop.	Steam Electric Gen. Facility	Center	Oliver	39901
4	Basin Electric Power Cooperative (Leland Olds)	Steam Electric Gen. Facility	Stanton	Mercer	29496
5	Montana Dakota Utilities (Coyote Station)	Steam Electric Gen. Facility	Beulah	Mercer	18243
6	Basin Electric Power Cooperative (AVS)	Steam Electric Gen. Facility	Beulah	Mercer	13898
7	United Power Association	Steam Electric Gen. Facility	Stanton	Mercer	6303
8	Amoco Oil Company	Oil Refinery	Mandan	Morton	6305
9	Montana Dakota Utilities (Heskett)	Steam Electric Gen. Facility	Mandan	Morton	2151
10	Amerada-Hess Corporation (Tioga Gas Plant)	Natural Gas Processing	Tioga	Williams	1045
11	Koch Hydrocarbon	Natural Gas Processing Plant	---	McKenzie	843
12	American Crustal Sugar Co.	Sugar Beet Processing Plant	Drayton	Pembina	717
13	Interenergy Sheffield	Natural Gas Processing Plant	Lignite	Burke	601



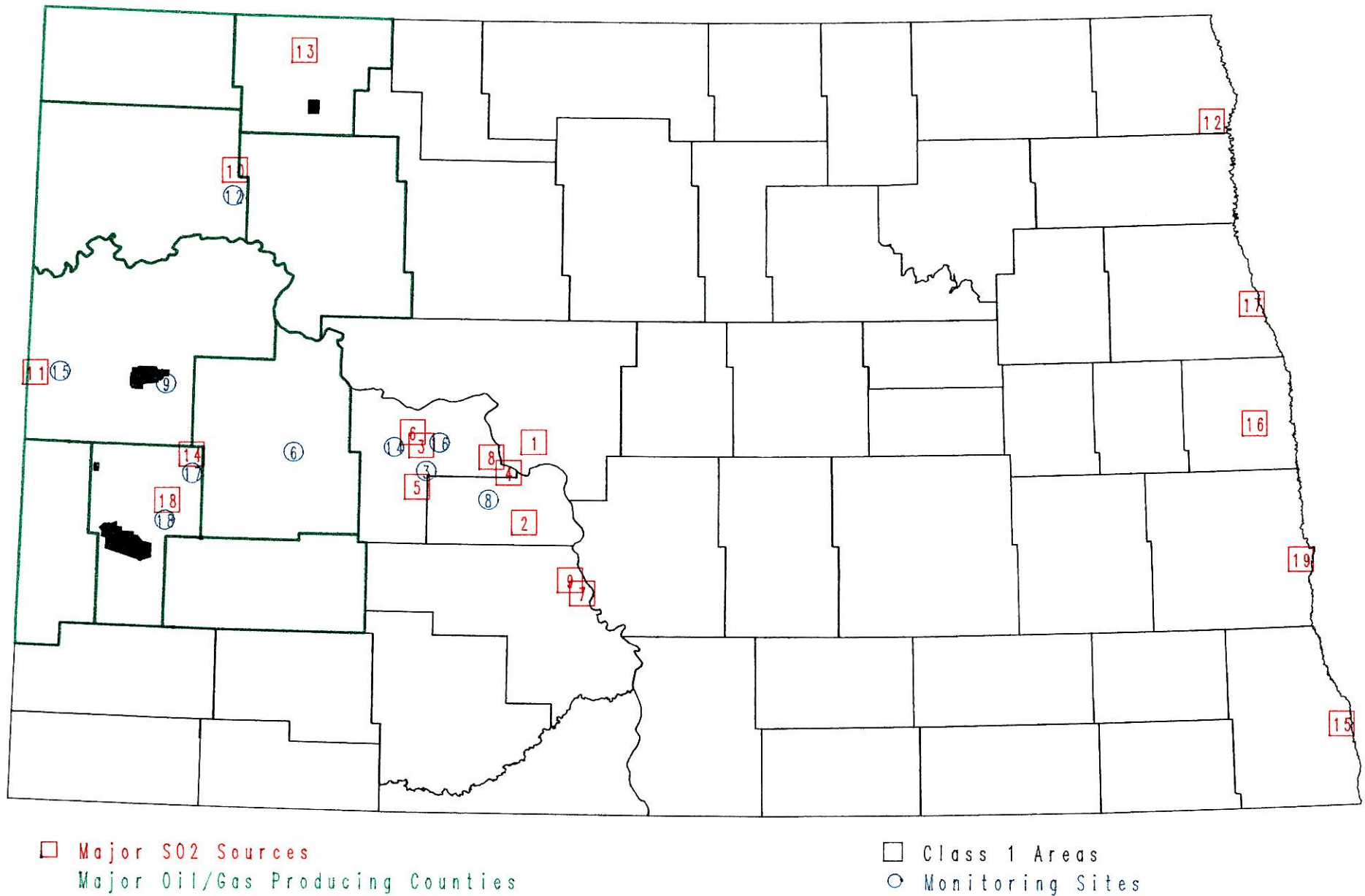
TABLE 3 (Cont.)

MAJOR SO<sub>2</sub> SOURCES  
(>100 TPY)

1993

<u>#</u>	<u>Name of Company</u>	<u>Type of Source</u>	<u>Location</u>	<u>County</u>	<u>SO<sub>2</sub> Emissions Ton/Yr</u>
14	W. H. Hunt Trust Estate	Natural Gas Processing Plant	---	Billings	572
15	Minn-Dak Farmers Cooperative	Sugar Beet Processing Plant	Wahpeton	Richland	560
16	American Crystal Sugar	Sugar Beet Processing Plant	Hillsboro	Traill	546
17	Univ. of North Dakota	Steam Heat	Grand Forks	Grand Forks	534
18	Western Gas Resources	Natural Gas Processing Plant	---	Billings	244
19	North Dakota State	Steam Heat	Fargo	Cass	210

Figure 2. Major Sulfur Dioxide Sources



### 2.1.2 Other Sources

The western part of the State has a number of potential SO<sub>2</sub> sources associated with the development of oil and gas. These sources include individual oil/gas wells, oil storage facilities, and compressor stations. Emissions from such sources can create two problems. First, these sources may directly emit significant amounts of hydrogen sulfide (H<sub>2</sub>S) to the ambient air (see Section 2.7); and second, flaring the H<sub>2</sub>S from these sources can create significant concentrations of SO<sub>2</sub> in the ambient air. The primary counties for such sources in western North Dakota are outlined in green on Figure 2.

### 2.1.3 Monitoring Network

The SO<sub>2</sub> monitoring sites are shown on Figure 2. As can be seen, these monitoring sites are concentrated in the vicinity of the oil and gas development in western North Dakota and the coal-fired steam electrical generating plants in the central part of the State. Table 4 shows the latest SO<sub>2</sub> data summaries for these sites. There were no exceedances of either State or Federal SO<sub>2</sub> standards.

TABLE 4

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

POLLUTANT : SULFUR DIOXIDE (PPB)

LOCATION	YEAR	SAMPLING PERIOD METH	NUM OBS	1 - HOUR 1ST MM/DD/HH	2 - HOUR 2ND MM/DD/HH	3 - HOUR 1ST MM/DD/HH	4 - HOUR 2ND MM/DD/HH	24 - HOUR 1ST MM/DD	2ND MM/DD	ARITH MEAN	1HR #>273	24HR #>99	% >MDV
AMERADA HESS - TIOGA #1	1993	JAN-DEC	7862	249 10/27/04	208 10/27/06	129 10/27/05	106 10/27/08	36 10/27	28 10/31	1.9			11.9
AMERADA HESS - TIOGA #3	1993	JAN-DEC	8557	164 10/19/16	151 10/25/16	106 10/25/17	79 10/28/17	34 10/28	22 10/25	2.5			23.1
BEULAH	1993	JAN-DEC	8709	66 02/07/19	62 04/24/09	45 02/05/17	39 04/24/11	14 02/05	11 01/19	2.6			34.3
DGC S02 #1	1993	JAN-DEC	8680	234 10/04/13	142 04/15/11	133 10/04/14	86 05/01/14	26 10/04	24 05/01	3.3			52.5
DGC S02 #4	1993	JAN-DEC	8702	161 07/08/09	147 09/24/10	114 10/10/11	94 09/24/11	26 10/10	20 06/13	3.6			60.1
DUNN CENTER	1993	JAN-DEC	8685	38 07/12/14	30 01/08/14	22 07/12/14	21 01/08/14	6 02/20	5 07/12	1.3			10.3
GRAND FORKS UND - SPM	1993	JAN-MAY	2880	27 01/02/09	17 01/02/10	20 01/02/11	15 01/21/08	9 01/20	8 01/21	1.8 ***			25.3
HANNOVER	1993	JAN-DEC	8140	60 01/08/05	60 02/07/15	46 02/07/17	44 04/07/14	11 04/07	10 12/14	2.6			35.3
HUNT #5	1993	JAN-DEC	8714	26 01/08/13	23 05/13/13	21 01/08/14	12 07/01/17	5 01/08	5 02/20	1.3			10.9
KOCH - MGP #1	1993	JAN-DEC	8103	90 08/07/23	69 08/07/22	55 08/07/23	24 04/16/08	13 08/07	5 12/04	1.4			13.0
KOCH - MGP #3A	1993	JAN-NOV	7261	41 08/09/10	40 10/12/11	27 08/09/11	18 10/22/14	6 02/13	6 10/10	1.6			20.8
RAMP #1	1993	JAN-DEC	8669	119 05/01/09	109 06/21/09	76 06/21/11	75 05/01/11	20 01/14	15 05/01	2.3			35.3
RAMP #2	1993	JAN-DEC	8181	88 10/12/13	84 05/08/18	58 10/12/14	45 05/08/17	19 05/08	18 05/09	2.9			42.6
RAMP #3	1993	JAN-DEC	8637	68 11/29/00	53 02/07/18	35 02/07/20	31 11/29/02	12 02/05	11 01/14	2.7			50.8
RAMP #5	1993	JAN-DEC	8481	76 04/25/11	65 01/08/08	41 07/26/11	38 01/08/08	16 01/14	13 01/08	2.7			44.0
TRNP - NU	1993	JAN-DEC	8705	33 01/08/11	25 02/20/12	19 02/20/11	19 02/20/14	7 02/20	5 01/08	1.2			7.3
WESTERN #3	1993	JAN-JUL	4465	19 02/20/17	16 02/01/08	11 02/20/20	9 02/01/20	4 02/20	3 02/01	1.1 ***			5.3

\* THE AIR QUALITY STANDARDS ARE: 1) THE MAXIMUM ALLOWABLE 1-HOUR CONCENTRATION IS 273 PPB (715  $\mu\text{g}/\text{m}^3$ ). 2) THE MAXIMUM ALLOWABLE 24-HOUR CONCENTRATION IS 99 PPB (260  $\mu\text{g}/\text{m}^3$ ). 3) THE MAXIMUM ALLOWABLE ANNUAL MEAN IS 23 PPB (60  $\mu\text{g}/\text{m}^3$ ).

\*\*\* LESS THAN 80% OF THE POSSIBLE SAMPLES (DATA) WERE COLLECTED.

The site at Grand Forks - UND has accomplished the purpose for which it was established; respond to a complaint and provide a foundation for enforcement action, if required. Enforcement action was taken, the problem was resolved, and the continuous analyzers were removed. Because of a  $PM_{10}$  exceedance caused by the UND grounds crew power-raking the lawn around the sampler on a sampling day, the  $PM_{10}$  monitor was required to sample every third day during the heating season through the end of the 1993-94 heating season.

An urban population exposure site is planned for Fargo to begin operation in late spring or early summer of 1994. The major sources in the Fargo-Moorhead, Minnesota, area are American Crystal Sugar (MN), Busch Agricultural Resources (MN), and North Dakota State University (ND). This data will be used to evaluate urban and suburban expansion projects in the eastern part of the State.

A rural background site is planned for the east central part of the State to begin operation in late spring or early summer of 1994. The desired location for this site is in the Finley area in Steele county. A site in the Finley area is preferred because it is more centrally located between Fargo, Devils Lake, Grand Forks, and Jamestown.



A source specific site is planned in the vicinity of the Milton R. Young power plant southeast of Center, North Dakota to begin in late summer, 1994. This site will evaluate the operation of the plant in regard to the State 1-hour standard. This site is not expected to be active more than one year. If an SO<sub>2</sub> problem does exist, then MINNKOTA Power Company will be required to establish at least one SO<sub>2</sub> site.

## 2.2 Nitrogen Oxides

Nitrogen oxides (NO<sub>x</sub>) is the term used to represent both nitric oxide (NO) and nitrogen dioxide (NO<sub>2</sub>). NO<sub>2</sub> is formed when NO is oxidized in the ambient air. There are no ambient air quality standards for NO.

### 2.2.1 Point Sources

The larger point sources of NO<sub>x</sub> in North Dakota are associated with coal-fired steam-powered electrical generating plants in the west-central portion of the State and large internal combustion compressor engines in the natural gas fields in the western part of the State. The major stationary point sources (>100 TPY) of NO<sub>x</sub>, as calculated from the most recent emission inventory, are listed in Table 5. Figure 3 shows the approximate locations of these facilities.

TABLE 5

MAJOR NO<sub>x</sub> SOURCES  
( > 100 TPY)

1993

<u>#</u>	<u>Name of Company</u>	<u>Type of Source</u>	<u>Location</u>	<u>County</u>	<u>NO<sub>x</sub> Emissions Ton/Yr</u>
1	Minnkota Power Coop.	Steam Electric Gen. Facility	Center	Oliver	27225
2	CPA/UPA (Coal Creek)	Steam Electric Gen. Facility	Underwood	McLean	26050
3	Basin Electric Power Cooperative (Leland Olds)	Steam Electric Gen. Facility	Stanton	Mercer	15979
4	Montana Dakota Utilities (Coyote Station)	Steam Electric Gen. Facility	Beulah	Mercer	12162
5	Basin Electric Power Cooperative (AVS)	Steam Electric Gen. Facility	Beulah	Mercer	12098
6	United Power Association	Steam Electric Gen. Facility	Stanton	Mercer	3815
7	Dakota Gasification Co.	Synthetic Fuel Plant	Beulah	Mercer	3512
8	Amoco Oil Company	Oil Refinery	Mandan	Morton	1932
9	Amerada Hess Corporation (Tioga Gas Plant)	Natural Gas Processing Plant	Tioga	Williams	1808
10	MDU - Heskett	Steam Electric Gen. Facility	Mandan	Morton	900
11	American Crystal - Drayton	Sugar Beet Processing	Drayton	Pembina	726
12	MINN-DAK Farmers	Sugar Beet Processing	Wahpeton	Richland	714

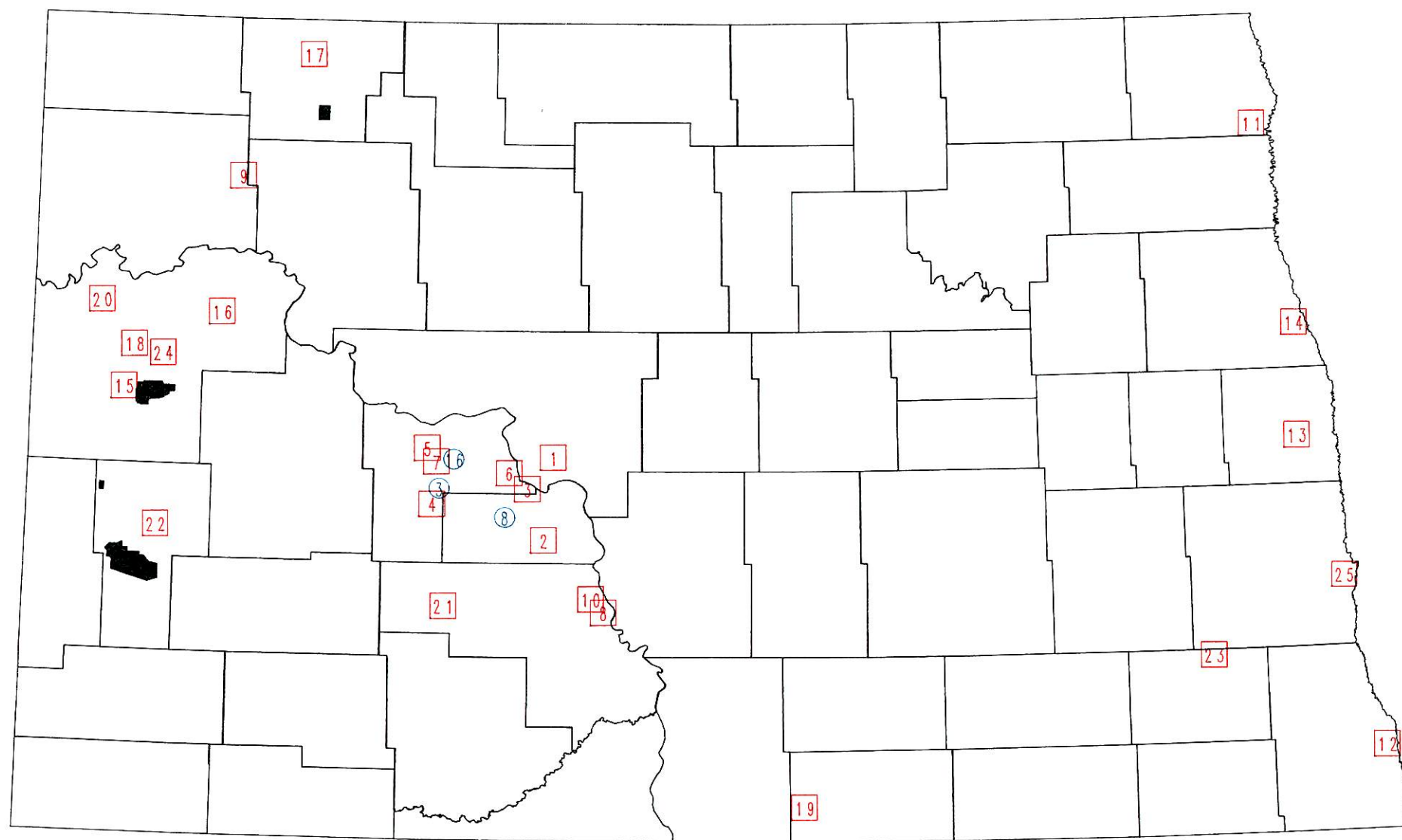
TABLE 5 (Cont.)

MAJOR NO<sub>x</sub> SOURCES  
( > 100 TPY)

1993

#	Name of Company	Type of Source	Location	County	NO <sub>x</sub> Emissions Ton/Yr
13	American Crystal - Hillsboro	Sugar Beet Processing	Hillsboro	Traill	457
14	UND	Heating Plant	Grand Forks	Grand Forks	347
15	True Oil - Red Wing Gas Plant	Compressor Station	---	McKenzie	226
16	Amerada Hess - Hawkeye	Compressor Station	---	McKenzie	223
17	Interenergy Sheffield Processing Co.	Natural Gas Processing	Lignite	Burke	215
18	Northern Border Pipeline - CS #4	Compressor Station	---	McKenzie	182
19	Northern Border Pipeline - CS #8	Compressor Station	---	McIntosh	175
20	Northern Border Pipeline - CS #6	Compressor Station	Glen Ullin	Morton	166
21	Koch Hydrocarbon-Tree Top	Compressor Station	---	Billings	150
22	Amerada Hess-Cherry Creek	Compressor Station	---	McKenzie	135
23	National Sun Industries	Sunflower Seed Proc.	Enderlin	Ransom	135
24	Koch Hydrocarbon - Alexander	Compressor Station	---	McKenzie	115
25	NDSU	Heating Plant	Fargo	Cass	107
26	Koch Hydrocarbon - Cow Creek	Compressor Station	---	Williams	104

Figure 3. Major Nitrogen Oxide Sources



□ Major NOX Sources  
○ Monitoring Sites

□ Class 1 Areas

### 2.2.2 Area Sources

Another source of  $\text{NO}_x$  is automobile emissions. North Dakota has no significant urbanized areas with regard to oxides of nitrogen; the entire population of the State is less than the 1,000,000 population figure that EPA specifies in the  $\text{NO}_2$  requirement for NAMS monitoring.

### 2.2.3 Monitoring Network

The Department currently operates two  $\text{NO}/\text{NO}_2/\text{NO}_x$  analyzers in the State. These are located at Beulah, and Hannover. The UND site was terminated on May 18, 1993, when the site was shutdown. The RAMP network also operates three analyzers. The latest  $\text{NO}_2$  data summary is shown in Table 6. The measured  $\text{NO}_2$  values are quite low, particularly the annual means. From Figure 3 it can be seen that  $\text{NO}/\text{NO}_2/\text{NO}_x$  analyzers are well placed with respect to the major  $\text{NO}_x$  sources.

TABLE 6

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

POLLUTANT : NITROGEN DIOXIDE (PPB)

LOCATION	YEAR	SAMPLING PERIOD	METH	NUM OBS	M A X I M A 1 - HOUR		ARITH MEAN	% >MDV
					1ST MM/DD/HH	2ND MM/DD/HH		
BEULAH	1993	JAN-DEC		8006	45 02/25/18	37 02/25/19	3.3	44.0
GRAND FORKS UND - SPM	1993	JAN-MAY		3256	46 02/25/19	44 01/22/05	8.2 ***	64.8
HANNOVER	1993	JAN-DEC		8017	34 08/25/00	30 11/29/03	1.8	20.2
RAMP #2	1993	JAN-DEC		8638	41 09/24/19	33 02/05/17	3.6	88.0
RAMP #3	1993	JAN-DEC		8609	33 11/29/00	29 02/07/18	2.3	61.7
RAMP #5	1993	JAN-DEC		8261	107 03/02/09	69 12/06/21	2.9	48.4

\* THE AIR QUALITY STANDARDS ARE: 1) 50 PPB ( $100 \mu\text{g}/\text{m}^3$ ) MAXIMUM ANNUAL ARITHMETIC MEAN. 2) 100 PPB ( $200 \mu\text{g}/\text{m}^3$ ) MAXIMUM 1-HOUR CONCENTRATION NOT TO BE EXCEEDED OVER 1 PERCENT OF THE TIME IN ANY CALENDAR QUARTER.

\*\*\* LESS THAN 80% OF THE POSSIBLE SAMPLES (DATA) WERE COLLECTED.



An urban population exposure site is planned for Fargo to begin operation in late spring or early summer of 1994. The major sources in the Fargo-Moorhead, Minnesota, area are American Crystal Sugar (MN), Busch Agricultural Resources (MN), and North Dakota State University (ND). This data will be used to evaluate urban and suburban expansion projects in the eastern part of the State.

A rural background site is planned for the east central part of the State to begin operation in late spring or early summer of 1994. The desired location for this site is in the Finley area in Steele county. A site in the Finley area is preferred because it is more centrally located between Fargo, Devils Lake, Grand Forks, and Jamestown.

### 2.3 Ozone

Unlike most other pollutants, ozone ( $O_3$ ) is not emitted directly into the atmosphere but results from a complex photochemical reaction between volatile organic compounds (VOC), oxides of nitrogen ( $NO_x$ ), and solar radiation. Both VOC and  $NO_x$  are emitted directly into the atmosphere from sources within the State. Since solar radiation is a major factor in  $O_3$  production,  $O_3$  concentrations are known to peak in summer months. 40 CFR 58 defines the  $O_3$

monitoring season for North Dakota as May 1 through September 30. However, we operate the O<sub>3</sub> analyzers from April 1 through September 30 to collect two full quarters of data. The RAMP O<sub>3</sub> monitor operates all four quarters. The Department is reviewing the need to operate O<sub>3</sub> analyzers the full year to collect data for use in the ozone limiting method NO<sub>x</sub> models.

An urban population exposure site is planned for Fargo to begin operation in late spring or early summer of 1994. This data will be used to evaluate urban and suburban expansion projects in the eastern part of the State.

A rural background site is planned for the east central part of the State to begin operation in late spring or early summer of 1994. The desired location for this site is in the Finley area in Steele county. A site in the Finley area is preferred because it is more centrally located between Fargo, Devils Lake, Grand Forks, and Jamestown.

#### 2.3.1 Point Sources

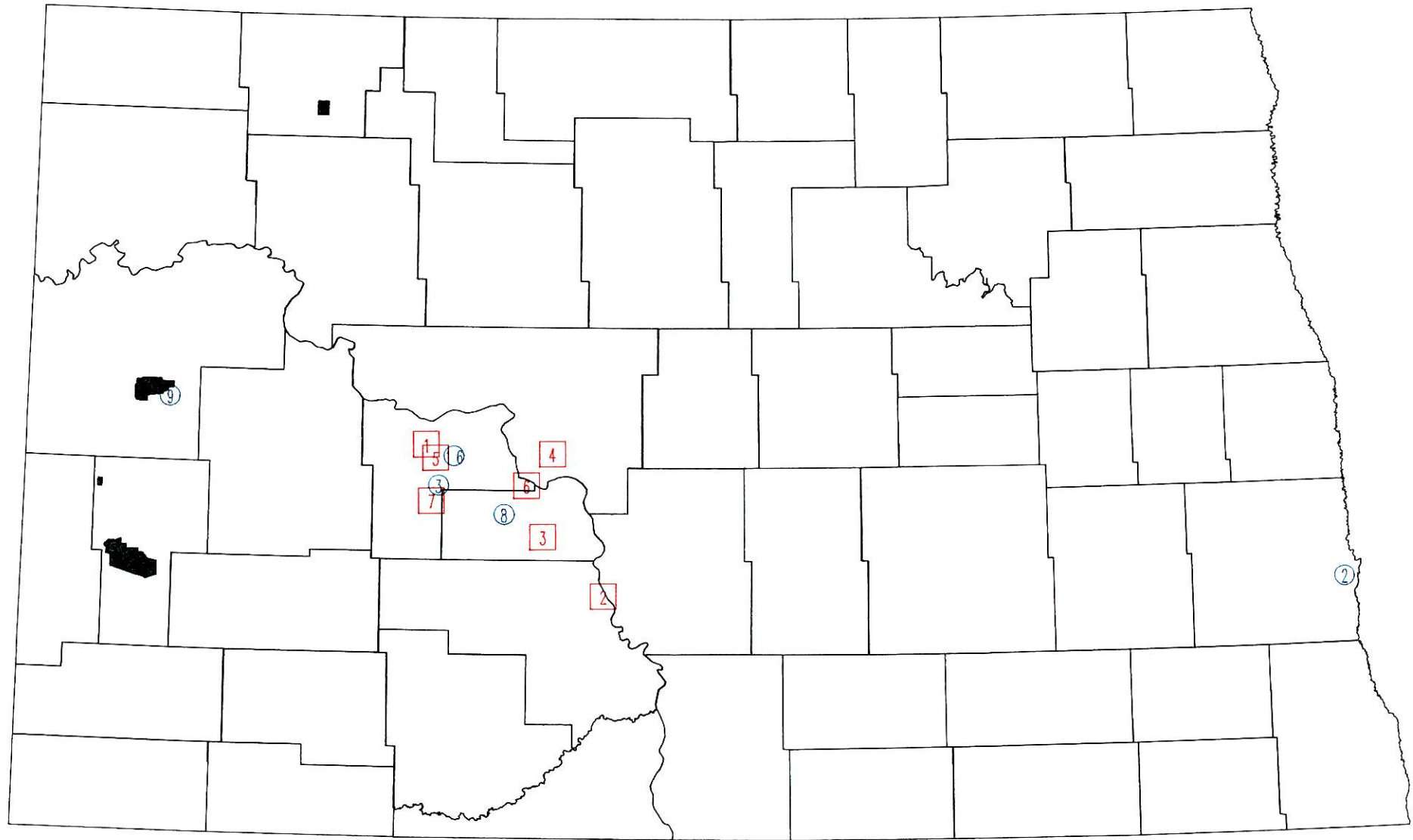
The major stationary point sources (> 100 TPY) of VOC, as calculated from the most recent emission inventory, are listed in Table 7. Figure 4 shows the approximate locations of these facilities.

TABLE 7  
MAJOR VOC SOURCES  
( > 100 TPY)

1993

<u>#</u>	<u>Name of Company</u>	<u>Type of Source</u>	<u>Location</u>	<u>County</u>	<u>VOC Emissions Ton/Year</u>
1	Basin Electric Power Cooperative (AVS)	Steam Electric Gen. Facility	Beulah	Mercer	299
2	Amoco Oil Company	Oil Refinery	Mandan	Morton	249
3	Minnkota Power Coop.	Steam Electric Gen. Facility	Center	Oliver	228
4	CPA/UPA (Coal Creek)	Steam Electric Gen. Facility	Underwood	Mc Lean	214
5	Dakota Gasification Co.	Synthetic Fuel Plant	Beulah	Mercer	161
6	Basin Electric Power Cooperative (Leland Olds)	Steam Electric Gen. Facility	Stanton	Mercer	139
7	Montana-Dakota Utilities (Coyote Station)	Steam Electric Gen. Facility	Beulah	Mercer	121

Figure 4. Major VOC Sources



□ Major VOC Sources  
○ Ozone Monitoring Sites

□ Class 1 Areas

### 2.3.2 Area Sources

Point sources contribute only part of the total VOC and NO<sub>x</sub> emissions. The remaining emissions are attributed to mobile sources in urban areas. The EPA has specified a design criteria for selecting NAMS locations for O<sub>3</sub> as any urbanized area having a population of more than 200,000. North Dakota has no urbanized areas large enough to warrant monitoring for ozone.

### 2.3.3 Monitoring Network

The State currently has four continuous ozone analyzers in operation. These are at Beulah, Hannover, Theodore Roosevelt National Park -North Unit, and Fargo. The RAMP network has one monitor. The latest O<sub>3</sub> data summary is in Table 8. The maximum O<sub>3</sub> values are less than or equal to 67 ppb. Figure 4 shows that the monitoring network is fairly well placed with respect to the major sources. However, most of the O<sub>3</sub> monitored seems to be unrelated to these sources as the values are quite consistent regardless of the monitoring location and wind direction. The O<sub>3</sub> site at Fargo will be evaluated at the completion of the 1994 O<sub>3</sub> monitoring season to determine its future operation.

TABLE 8

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

POLLUTANT : OZONE (PPB)													
LOCATION	YEAR	SAMPLING PERIOD	DAYS SAMPLED	METH	NUM OBS	1ST 1 - H O U R DATE MM/DD/HH	2ND M A X I M A DATE MM/DD/HH	3RD	DATE MM/DD/HH	#HOURS >120	% >MDV		
BEULAH	1993	APR-SEP	183		4306	62	5/12/13	59	5/ 5/10	57	5/11/11	0	98.2
FARGO - SPM	1993	APR-SEP	179		4238	67	5/ 4/15	64	5/ 5/14	61	6/10/15	0	95.0
HANNOVER	1993	APR-SEP	183		4132	59	5/ 7/14	59	5/12/11	58	5/ 5/11	0	100.0
RAMP #2	1993	JAN-DEC	365		8664	62	5/12/12	59	5/ 5/ 9	59	5/ 7/ 9	0	99.8
TRNP - NU	1993	APR-SEP	183		4281	64	5/ 5/11	63	5/12/12	59	5/11/14	0	100.0

\* THE AIR QUALITY STANDARD IS 120 PPB (235  $\mu\text{g}/\text{m}^3$ ) MAXIMUM 1-HOUR CONCENTRATION NOT TO BE EXCEEDED MORE THAN ONCE PER YEAR.



## 2.4 Inhalable Particulates

The inhalable particulate standard is designed to protect against those particulates that can be inhaled deep into the lungs and cause respiratory problems. These particulates have an aerodynamic diameter less than or equal to a nominal 10 micrometers and are designated as  $PM_{10}$ .

### 2.4.1 Sources

Table 9 lists the sources of  $PM_{10}$  emissions in the State that are >100 TPY. Most of these sources are large coal-fired facilities, and the  $PM_{10}$  particles are part of the boiler stack emissions; however, some of the emissions are the result of processing operations. Not included in this table are sources of fugitive dust such as coal mines, gravel pits, agricultural fields, and unpaved roads. The major point sources of  $PM_{10}$  are shown on Figure 5.

### 2.4.2 Monitoring Network

The State operates seven  $PM_{10}$  monitors at six sites; the Fargo site has collocated samplers. Since  $PM_{10}$  is mainly of concern because of its effects on

TABLE 9  
MAJOR PM<sub>10</sub> SOURCES  
( > 100 TPY)

1993

<u>#</u>	<u>Name of Company</u>	<u>Type of Source</u>	<u>Location</u>	<u>County</u>	<u>PM<sub>10</sub> Emissions Ton/Year</u>
1	CPA/UPA (Coal Creek)	Steam Electric Gen. Facility	Underwood	Mc Lean	1333
2	Basin Electric Power Cooperative (AVS)	Steam Electric Gen. Facility	Beulah	Mercer	1092
3	Montana Dakota Utilities (Coyote Station)	Steam Electric Gen. Facility	Beulah	Mercer	802
4	Minnkota Power Coop.	Steam Electric Gen. Facility	Center	Oliver	457
5	Basin Electric Power Cooperative (Leland Olds)	Steam Electric Gen. Facility	Stanton	Mercer	430
6	United Power Association	Steam Electric Gen. Facility	Stanton	Mercer	412
7	Dakota Gasification Co.	Synthetic Fuel Plant	Beulah	Mercer	269
8	Amoco Oil Company	Oil Refinery	Mandan	Morton	204
9	Montana Dakota Utilities (Heskett Plant)	Steam Electric Gen. Facility	Mandan	Morton	153
10	Minn-Dak Farmers Coop.	Sugar Beet Processing Plant	Wahpeton	Richland	128
11	American Crystal Sugar Co.	Sugar Beet Processing Plant	Drayton	Pembina	126
12	National Sun Industries	Sunflower Seed Processing	Enderlin	Ransom	104

people, we concentrate our monitoring efforts in the population centers of the State. There is one industrial network located at the Coteau Mine which began operation May 19, 1993. The latest inhalable particulate monitoring data for the network are shown in Table 10.

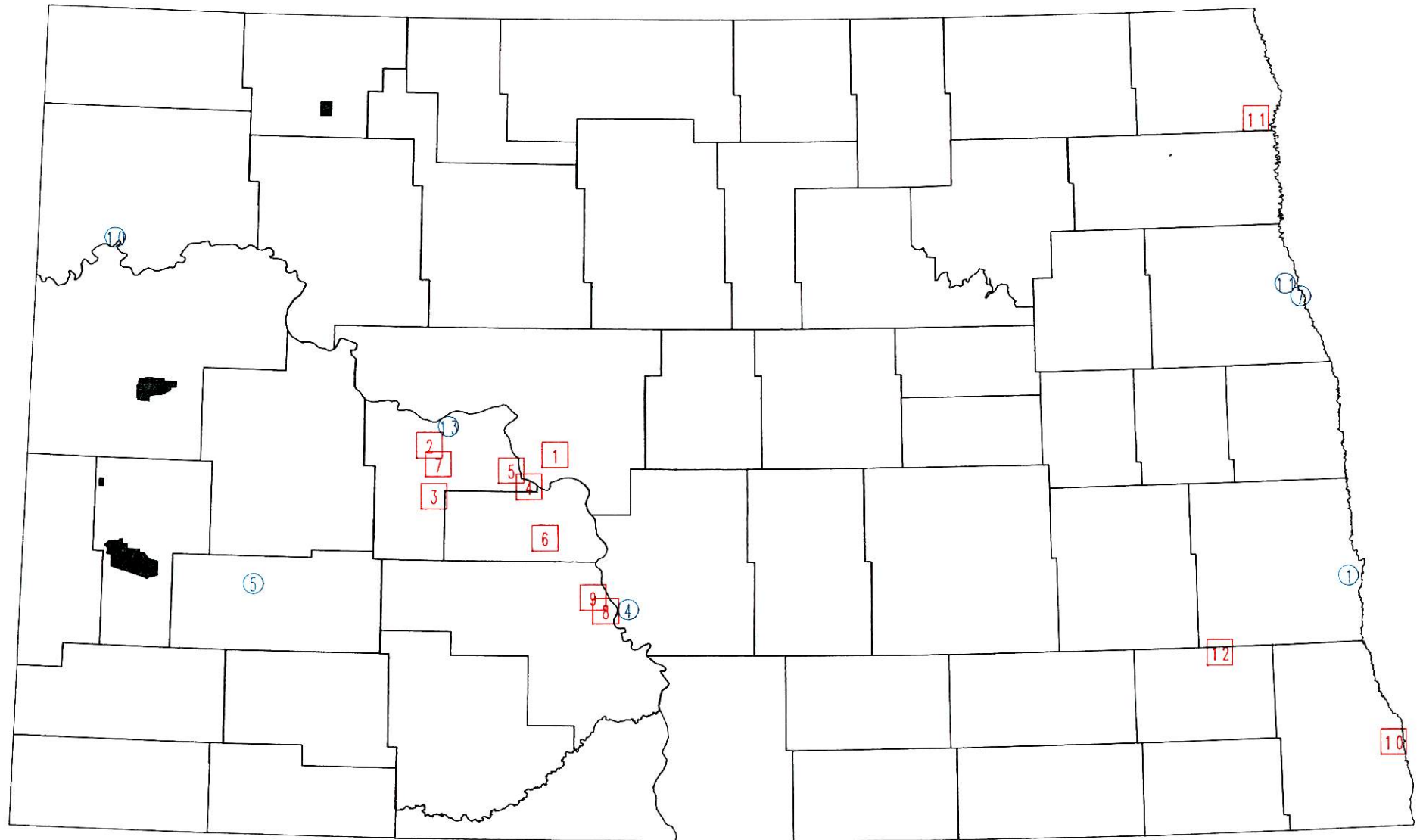
The  $PM_{10}$  samplers at Fargo will be moved to a roof area one story below their present location. This move would greatly improve the accessibility to the samplers and will lower the sampling height by about three meters, thereby, making the site more representative.

A rural background site is planned for the east central part of the State to begin operation in late spring or early summer of 1994. The desired location for this site is in the Finley area in Steele county. This area is preferred because it is more centrally located between Fargo, Devils Lake, Grand Forks, and Jamestown.

## 2.5 Carbon Monoxide

Many large urban areas in the United States have problems attaining the AAQS for carbon monoxide (CO). The primary source of CO in these urban areas is automobiles. North Dakota does not have sufficient population and the corresponding traffic congestion and geographical/meteorological conditions to create significant CO emission problems. However, there are several stationary sources in the State that emit more than 100 TPY of CO.

Figure 5. Major PM10 Sources



□ Major PM10 Sources  
○ Monitoring Sites

□ Class 1 Areas

TABLE 10

COMPARISON OF AIR QUALITY DATA WITH  
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS \*POLLUTANT : INHALABLE PARTICULATES ( $\mu\text{g}/\text{m}^3$ )

LOCATION	YEAR	SAMPLING PERIOD	NUM OBS	MIN	M 1ST MM/DD	A 2ND MM/DD	X 3RD MM/DD	ARITH MEAN	#>150	AM>50	% >MDV
BISMARCK	1993	JAN-DEC	59	6.8	55.6 03/02	44.8 03/26	37.1 11/03	18.7			100.0
COTEAU #5	1993	MAY-DEC	36	0.4	45.8 11/09	24.4 08/11	20.2 08/17	11.4 ***			83.3
COTEAU #6	1993	MAY-DEC	37	0.2	28.3 09/11	21.0 08/23	20.9 10/22	11.0 ***			94.5
COTEAU #7	1993	MAY-DEC	37	4.6	84.3 09/11	67.0 10/22	47.8 05/19	18.3 ***			100.0
COTEAU #8	1993	MAY-DEC	33	3.4	56.2 09/28	41.0 10/04	33.0 05/19	16.6 ***			96.9
DICKINSON RES	1993	JAN-DEC	61	2.3	27.8 05/19	27.5 03/26	24.7 10/16	11.9			98.3
FARGO	1993	JAN-DEC	61	5.9	45.5 03/26	39.1 03/02	34.9 11/03	17.8			100.0
GRAND FORKS	1993	JAN-DEC	61	6.5	41.3 03/26	37.9 10/06	33.9 03/02	17.4			100.0
GRAND FORKS UND - SPM	1993	JAN-DEC	75	7.1	85.1 05/07	46.4 09/25	43.7 04/16	20.7 ***			100.0
WILLISTON	1993	JAN-DEC	55	5.9	27.7 05/19	26.4 05/13	23.4 03/26	13.5			100.0

\* THE STATE AIR QUALITY STANDARDS ARE: (1) 50  $\mu\text{g}/\text{m}^3$  EXPECTED ANNUAL ARITHMETIC MEAN. (2) A MAXIMUM OF 150  $\mu\text{g}/\text{m}^3$  AVERAGED OVER A 24-HOUR PERIOD WITH NO MORE THAN ONE EXPECTED EXCEEDANCE PER YEAR.

\*\*\* LESS THAN 80% OF THE POSSIBLE SAMPLES (DATA) WERE COLLECTED.

### 2.5.1 Sources

Table 11 lists the major (>100 TPY) stationary sources of CO in the State. Most of these sources are the same sources that are the major emitters of SO<sub>2</sub> and NO<sub>x</sub>, but the corresponding levels of CO from these sources are considerably lower. The major sources of CO in the State are shown on Figure 6.

### 2.5.2 Monitoring Network

The CO monitor is located in Fargo near the busiest traffic intersection in the State and is operated only during the cold weather quarters (first and fourth). The monitoring results are shown in Table 12. The observed concentrations are well below the standards. The CO monitor would not seem to be well placed with respect to the major sources. However, these sources are relatively small, and we have concentrated on mobile sources and major population centers.

The Fargo - SPM site is being reviewed for possible termination. CO levels monitored over the last four winters have been well below the ambient standards.

TABLE 11

MAJOR CO SOURCES  
( > 100 TPY)

1993

<u>#</u>	<u>Name of Company</u>	<u>Type of Source</u>	<u>Location</u>	<u>County</u>	<u>CO Emissions Ton/Year</u>
1	Dakota Gasification Co.	Synthetic Fuel Gen. Plant	Beulah	Mercer	2009
2	Minnkota Power Coop.	Steam Electric Gen. Facility	Center	Oliver	1039
3	Montana Dakota Utilities (Heskett Plant)	Steam Electric Gen. Plant	Mandan	Morton	1003
4	Basin Electric Power Coop. (Leland Olds)	Steam Electric Gen. Plant	Stanton	Mercer	753
5	Basin Electric Power Cooperative (AVS)	Steam Electric Gen. Facility	Beulah	Mercer	684
6	Montana Dakota Utilities (Coyote Station)	Steam Electric Gen. Plant	Beulah	Mercer	548
7	Amerada Hess	Natural Gas Processing	Tioga	Williams	520
8	American Crystal Sugar Co.	Sugar Beet Processing Plant	Hillsboro	Pembina	387
9	CPA/UPA (Coal Creek)	Steam Electric Gen. Facility	Underwood	Mc Lean	357
10	American Crystal Sugar Co.	Sugar Beet Processing Plant	Drayton	Pembina	317
11	MINN-DAK Farmers Cooperative	Sugar Beet Processing Plant	Wahpeton	Richland	253
12	National Sun Industries	Sunflower Seed Processing	Enderlin	Ransom	151



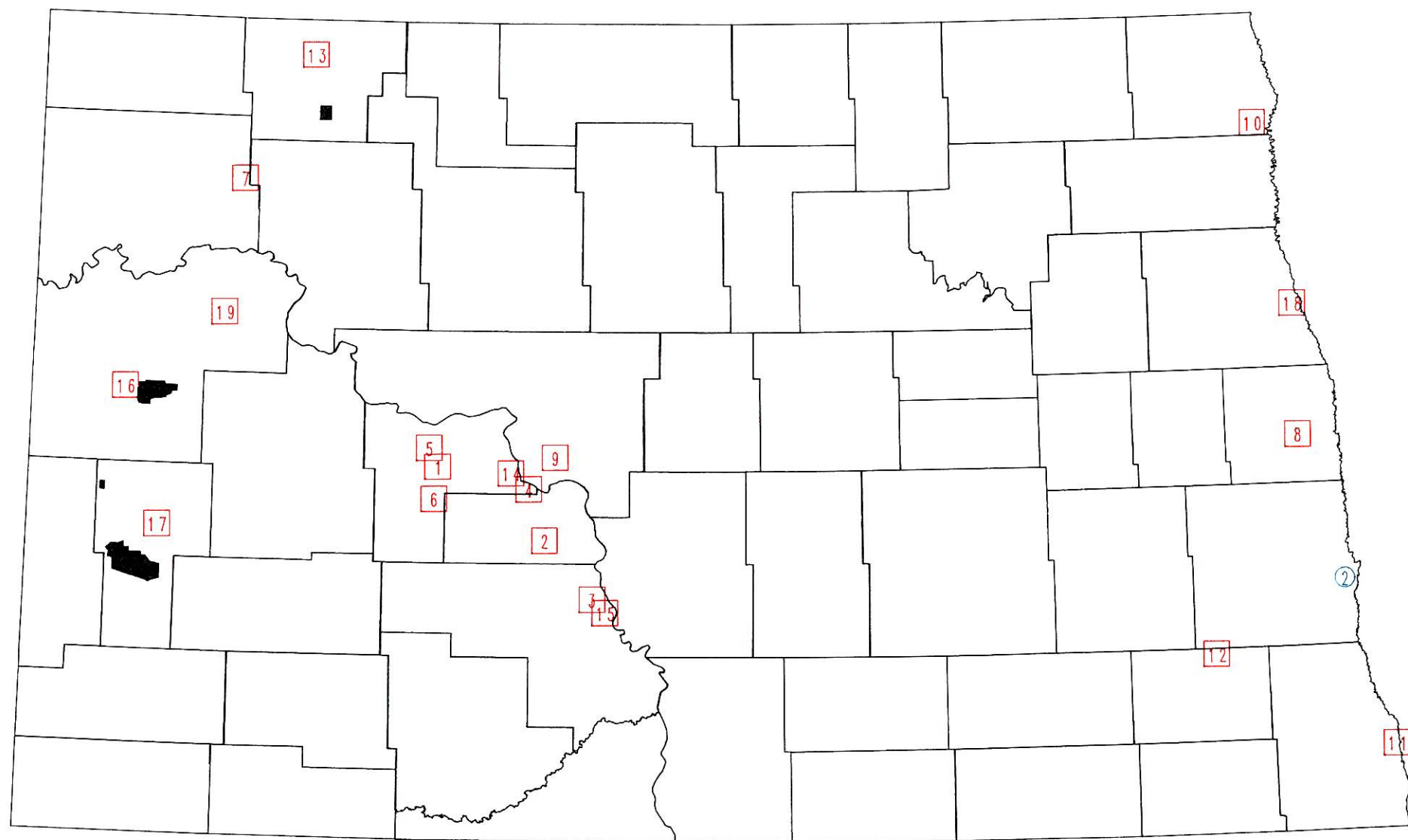
TABLE 11 (Cont.)

MAJOR CO SOURCES  
( > 100 TPY)

1993

<u>#</u>	<u>Name of Company</u>	<u>Type of Source</u>	<u>Location</u>	<u>County</u>	<u>CO Emissions Ton/Year</u>
13	Interenergy Sheffield Processing Company	Natural Gas Processing	Lignite	Burke	145
14	United Power Association	Steam Electric Gen. Facility	Stanton	Mercer	140
15	Amoco Oil Company	Oil Refinery	Mandan	Morton	139
16	True Oil - Red Wing	Compressor Station	---	McKenzie	137
17	Koch Hydrocarbon-Tree Top	Compressor Station	---	Billings	129
18	Univ. of North Dakota	Steam Heat	Grand Forks	Grand Forks	127
19	Amerada Hess Hawkeye Station	Compressor station	---	McKenzie	124

Figure 6. Major CO Sources



□ Major CO Sources  
○ Monitoring Site

□ Class 1 Areas

TABLE 12

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

POLLUTANT : CARBON MONOXIDE (PPM)

LOCATION	YEAR	SAMPLING PERIOD	METH	NUM OBS	MIN	M A X I M A		HOUR		1HR #>35	8HR #>9	% >MDV
						1ST	2ND	1ST	2ND			
						MM/DD/HH	MM/DD/HH	MM/DD/HH	MM/DD/HH			
FARGO - SPM	1993	JAN-DEC		3926	0.0	9.3 01/18/20	6.9 01/07/20	3.2 01/07/23	3.1 01/07/22			43.3

\* THE AIR QUALITY STANDARDS ARE: 1) THE MAXIMUM ALLOWABLE 1-HOUR CONCENTRATION IS 35 PPM (40 mg/m<sup>3</sup>). 2) THE MAXIMUM ALLOWABLE 8-HOUR CONCENTRATION IS 9 PPM (10 mg/m<sup>3</sup>).

## 2.6 Lead

Through prior sampling efforts, the Department has determined that the State of North Dakota does not have any significant sources of lead. This determination, coupled with the Federal requirement for a NAMS network only in urbanized areas with populations greater than 500,000, resulted in the termination of the lead monitoring program effective January 1, 1984.

## 2.7 Hydrogen Sulfide

Although no Federal Ambient Air Quality Standards exist for hydrogen sulfide ( $H_2S$ ), the State of North Dakota has developed  $H_2S$  standards.

### 2.7.1 Sources

$H_2S$  emissions of concern stem almost totally from the oil and gas operations in the western part of the State and principally from the green outlined area on Figure 2. Flares and treater stacks associated with oil/gas wells, oil storage tanks, compressor stations, pipeline risers, and natural gas processing plants are all potential sources of  $H_2S$  emissions.

### 2.7.2 Monitoring Network

There currently is only one State-operated monitoring site for  $H_2S$  emissions. This is the TRNP-NU site. There are five industry-operated  $H_2S$  monitoring sites. The latest  $H_2S$  data summary is shown in Table 13.

TABLE 13

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

POLLUTANT : HYDROGEN SULFIDE (PPB)

LOCATION	YEAR	SAMPLING PERIOD METH	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	1993	JAN-DEC	8373	157 10/24/09	93 10/24/06	20 10/24	9 04/22	2 04	2 12	1.5			10.4
DGC #2	1993	JAN-DEC	8548	220 08/22/00	103 04/09/23	10 08/22	9 01/01	3 05	3 12	2.2	1		46.1
HUNT #5	1993	JAN-DEC	8611	234 04/07/22	233 10/11/18	28 01/04	28 05/24	9 01	8 02	5.3	2		60.0
KOCH - MGP #1	1993	JAN-DEC	6504	23 04/16/00	22 04/10/06	4 05/19	3 12/02	1 06	1 12	1.2 ***			9.8
TRNP - NU	1993	JAN-DEC	8297	30 01/14/10	25 01/14/11	10 01/14	6 12/02	1 01	1 12	1.1			2.6
WESTERN #2	1993	JAN-JUL	3986	128 06/29/16	33 02/23/19	7 06/29	3 02/23	1 04	1 07	1.2 ***			7.6

\* THE AIR QUALITY STANDARDS ARE: 1) THE MAXIMUM INSTANTANEOUS (CEILING) CONCENTRATION IS 10 PPM (14 Mg/m<sup>3</sup>).2) THE MAXIMUM 1-HOUR CONCENTRATION IS 200 PPB (280 µg/m<sup>3</sup>) NOT TO BE EXCEEDED MORE THAN ONCE PER MONTH.3) THE MAXIMUM 24-HOUR CONCENTRATION IS 100 PPB (140 µg/m<sup>3</sup>) NOT TO BE EXCEEDED MORE THAN ONCE PER YEAR.4) THE MAXIMUM 3-MONTH CONCENTRATION IS 20 PPB (28 µg/m<sup>3</sup>) AVERAGED OVER 3 CONSECUTIVE MONTHS.

\*\*\* LESS THAN 80% OF THE POSSIBLE SAMPLES (DATA) WERE COLLECTED.

There were three exceedances, but no violations, of the 1-hour H<sub>2</sub>S standard (200 ppb). The two exceedances at Hunt #5 were due to equipment malfunctions at the tank battery northeast of the plant. The exceedance at DGC #2 was due to construction activities on the coal lock vents.

### 3.0 SUMMARY AND CONCLUSIONS

The North Dakota Ambient Air Quality Monitoring Network is designed to monitor those air pollutants which demonstrate the greatest potential for deteriorating the air quality of North Dakota. Due to a greater number of pollution producing sources in the western part of the State (primarily associated with the energy producing industries) the greatest percentage of the network is located in the western part of the State.

#### 3.1 SULFUR DIOXIDE (SO<sub>2</sub>)

None of the State or Federal SO<sub>2</sub> standards were exceeded at any of the monitoring sites. The Air Quality Media Workplan for 1993 contains a requirement for an analysis of SO<sub>2</sub> air quality in the State. The maximum concentrations and the maximum concentrations expressed as a percentage of the applicable standard are as follows: 1-hour - 249 ppb (91.2%); 3-hour - 133 ppb (26.8%); 24-hour - 36 ppb (36.4%); and, annual (partial year) - 1.8 ppb (7.8%) annual (full year) - 3.6 ppb (15.7%). We feel these numbers demonstrate that the concentrations of SO<sub>2</sub> in our air are low and we are committing the proper level of resources to monitoring this pollutant.

#### 3.2 NITROGEN DIOXIDE (NO<sub>2</sub>)

None of the State or Federal NO<sub>2</sub> standards were exceeded at any of the monitoring sites. The maximum concentrations and the maximum concentrations expressed as a percentage of the applicable standard are as follows: 1-hour - 107 ppb (107%); annual (partial year) - 8.2 ppb (16.4%); annual (full year) - 3.6 ppb (7.2%). The State 1-hour NO<sub>2</sub> standard also will be evaluated to determine its need to remain an ambient air quality standard.



### 3.3 HYDROGEN SULFIDE (H<sub>2</sub>S)

There were three exceedances, but no violations, of the 1-hour State standard. The maximum 1-hour average was 243 ppb at the Hunt #5 Site. There were no exceedances of the 24-hour or 3-month State standards. The maximum concentrations and the maximum concentrations expressed as a percentage of the applicable standard are as follows: 1-hour - 234 ppb (117%); 24-hour - 28 ppb (28%); 3-month - 9 ppb (45%).

### 3.4 OZONE (O<sub>3</sub>)

Neither the State nor Federal standard was exceeded during the year. The maximum concentration and the maximum concentration expressed as a percentage of the applicable standard is 67 ppb (55.5%).

### 3.5 CARBON MONOXIDE (CO)

Neither the State nor Federal standards were exceeded during the year. The maximum concentrations and the maximum concentrations expressed as a percentage of the applicable standard are as follows: 1-hour - 9.3 ppb (26.6%); 8-hour - 3.2 ppm (35.6%).

### 3.6 INHALABLE PARTICULATES (PM<sub>10</sub>)

Neither the State nor Federal standards were exceeded during the year. The maximum concentrations and the maximum concentrations expressed as a percentage of the applicable standard are as follows: 24-hour - 85.1 µg/m<sup>3</sup> (56.7%); annual(partial year) - 20.7 µg/m<sup>3</sup> (41.4%); annual (full year) - 18.7 µg/m<sup>3</sup> (37.4%).

Table 14 summarizes the evaluations for each of the sites in the State network.

TABLE 14  
MONITORING SITE EVALUATION

Site	Parameter*	Meets Needs	Modification Needed	New Site Needed	Parameter Not Needed	Date Deleted
Beulah Residential	SO <sub>2</sub>	X				
	NO <sub>2</sub>	X				
	O <sub>3</sub>	X				
	MET	X				
Bismarck Commercial	PM <sub>10</sub>	X				
Dickinson Residential	PM <sub>10</sub>	X				
Dunn Center Rural	SO <sub>2</sub>	X				
	MET	X				
Fargo Commercial (SPM)	PM <sub>10</sub>		X			
	CO					
	MET	X			?	
	O <sub>3</sub>	X			?	
Fargo - North	SO <sub>2</sub>			X		
	NO <sub>2</sub>			X		
	O <sub>3</sub>			X		
	MET			X		
East - Rural	SO <sub>2</sub>			X		
	NO <sub>2</sub>			X		
	O <sub>3</sub>			X		
	MET			X		
	PM <sub>10</sub>			X		
Grand Forks Commercial	PM <sub>10</sub>	X				
Hannover Rural	SO <sub>2</sub>	X				
	NO <sub>2</sub>	X				
	O <sub>3</sub>	X				
	MET	X				
Portable Unit (SPM) (Minnkota Power Plant)	SO <sub>2</sub>			X		
	MET			X		
University of North Dakota (SPM)	PM <sub>10</sub>				X	
TRNP-NU	SO <sub>2</sub>	X				
	O <sub>3</sub>	X				
	H <sub>2</sub> S	X				
	MET	X				
Williston Commercial	PM <sub>10</sub>	X				

\* MET refers to meteorology and indicates wind speed and wind direction data are available from those sites.