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Meteorological Influences on Vapor Incidents in the 200 East and 200 West Tank Farms, from Calendar Years 1995 to 2004

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Abstract: Revised for a more comprehensive overview of vapor incidents reported at the Hanford Tank Farms. Investigation into the meteorological influences on vapor incidents in the tank farms to determine what, if any, meteorological influences contribute to the reporting of odors, smells, vapors, and other gases. Weather phenomena, specifically barometric pressure, and wind velocity and direction can potentially cause or exacerbate a vapor release within the farm systems.

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Meteorological Influences on Vapor Incidents in the 200 East and 200 West Tank Farms, from Calendar Years 1995 to 2004

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TERMS

Abbreviations and Acronyms

CAM	Continuous Air Monitor
DST	Double-shell tank
FDNW	Fluor Daniel Northwest
FFS	Fluor Federal Services
FLS	First line supervisor
HEHF	Hanford Environmental Health Foundation
HEPA	High-efficiency particulate air (filter)
HIHTL	Hose-In-Hose Transfer Line
HMS	Hanford Meteorological Station
HPT	Health Physicist Technician
IH	Industrial Hygiene
IHT	Industrial Hygiene Technician
LOW	Liquid Observation Well
MT	manual tape
NA	Not applicable
NCO	Nuclear Chemical Operator
OE	Operating engineer
OVM	organic vapor monitor
PER	Problem Evaluation Request
PIC	Person in charge
RMW	Radioactive mixed waste
SCBA	Self-contained breathing apparatus
SOE	Stationary Operating Engineer (Power Operator)
SST	Single-shell tank
UT	Ultrasonic Testing
VOC	Volatile organic compound

Units

cm^2	square centimeters
m^3/hr	cubic meters per hour
mph	miles per hour
ppb	parts per billion
ppm	parts per million
°F	degrees Fahrenheit

1.0 PURPOSE

The purpose of this document is to gather and evaluate the meteorological and weather information for the Tank Farms Shift Log Vapor Incident entries and determine what, if any, meteorological influences contribute to the reporting of odors, smells, vapors, and other gases such as propane. A part of the evaluation will be determining which of the incidents are related to actual "intrusive" work, and which are "transient." Transient vapor incidents are herein defined as those vapors encountered during walkdowns, surveys, or other activities that did not require working directly with the tanks, pits, transfer lines, etc. Another part of the investigation will involve determining if there are barometric pressures or other weather related phenomena that might cause or contribute vapors being released when there are no "intrusive" activities. A final purpose is to evaluate whether there is any correlation between the 242-A Evaporator operations and Vapor Incidents entered on the Shift Log.

2.0 METHODOLOGY

The Hanford Meteorological Station (HMS) continuously records the barometric pressure in one-hour increments and retains those files as text documents. HMS also operates a weather station in both the 200 East and 200 West Areas, and these stations record barometric pressure, wind direction and velocity, precipitation, and the temperature as high, low, and average in fifteen-minute intervals throughout each day. HMS and weather station data were gathered for each day (24 hours) for which a record was made in the shift log incident reports. Once the text delimited files were received, they were converted into Excel[1] formats and the appropriate data were gathered and charted.

The initial charts attempted to use all of the weather station parameters and the HMS barometric pressure for the day (24 hours) in which the incident occurred, but the ranges required for the wind direction and velocity minimized the barometric pressure fluctuations. In order to define the barometric changes during each recorded incident, it was necessary to plot only the pressure from HMS and the appropriate weather station against time for each date. The reported time of the vapor incident is represented as a vertical line bisecting the pressure curves, one each from HMS and the appropriate weather station.

Operational information for the 242-A Evaporator was collected for the same period of time. These data were evaluated as to whether the evaporator exhaust may have been influential during some of the vapor incidents.

[1] Microsoft® Excel is a registered trademark of Microsoft Corporation, Redmond, Washington.

3.0 ANALYSES

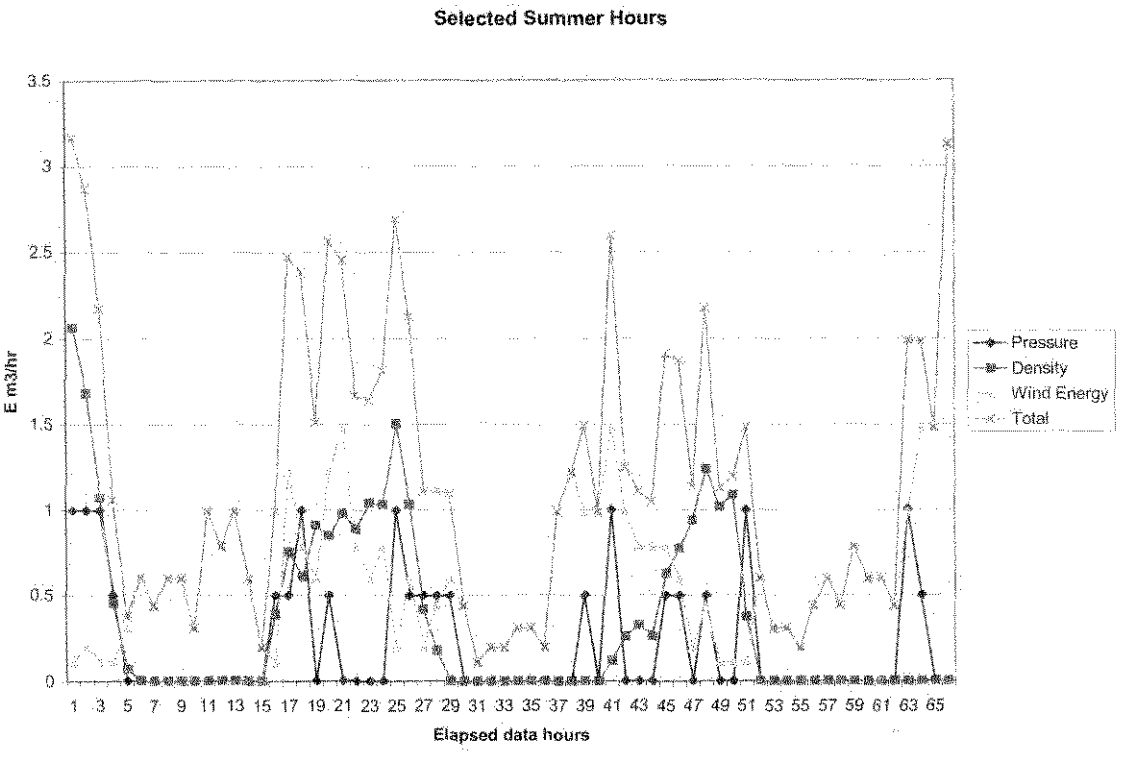
In addition to the hard data acquired from the Shift Log, HMS, and the outlying weather stations, information was obtained from James Droppo, an atmospheric physicist working at HMS. The tenor of discussion centered on the cumulative kinetic energy related to atmospheric pressure, air density, and wind velocity, and how the energy acting on any of the tank systems would be the total kinetic energy of these weather parameters. According to the data, the total release from a tank would be greater than what would be assumed from the headspace calculation alone. There are five different types of vent risers installed on the single-shell tanks (SSTs) and double-shell tanks (DSTs) at the Hanford Site, and there is no reason to believe that each type will respond in the same manner. Therefore, the magnitude of the vapor incident may be in part a function of the vent system response to the weather.

The charts provided by Mr. Droppo cover a period of three days (beginning at midnight) during the summer and a similar time during the winter for the U-108 tank, as an example.

Although the following summer and winter charts are for a single specific tank, the physics and science are applicable to the system(s) of each of the tank farms. The summer chart indicates the primary influence for potential vapor exhausting during the daytime hours is the energy generated from the wind velocity, and the energy supplied by the other weather parameters is negligible. The charted exhaust rate, in m^3/hr, is nearly identical to the wind velocity for a period of 10 to 13 hours per day of direct sun. The daytime low air density would permit a rapid dispersion of exhausting gases or vapors, and in an environment of moderate to high wind would tend to remove the low density vapors relatively quickly from the point of release. The higher density vapors or gases would tend to accumulate in the depressions and structurally low areas of the tank farms, support structures, or facilities.

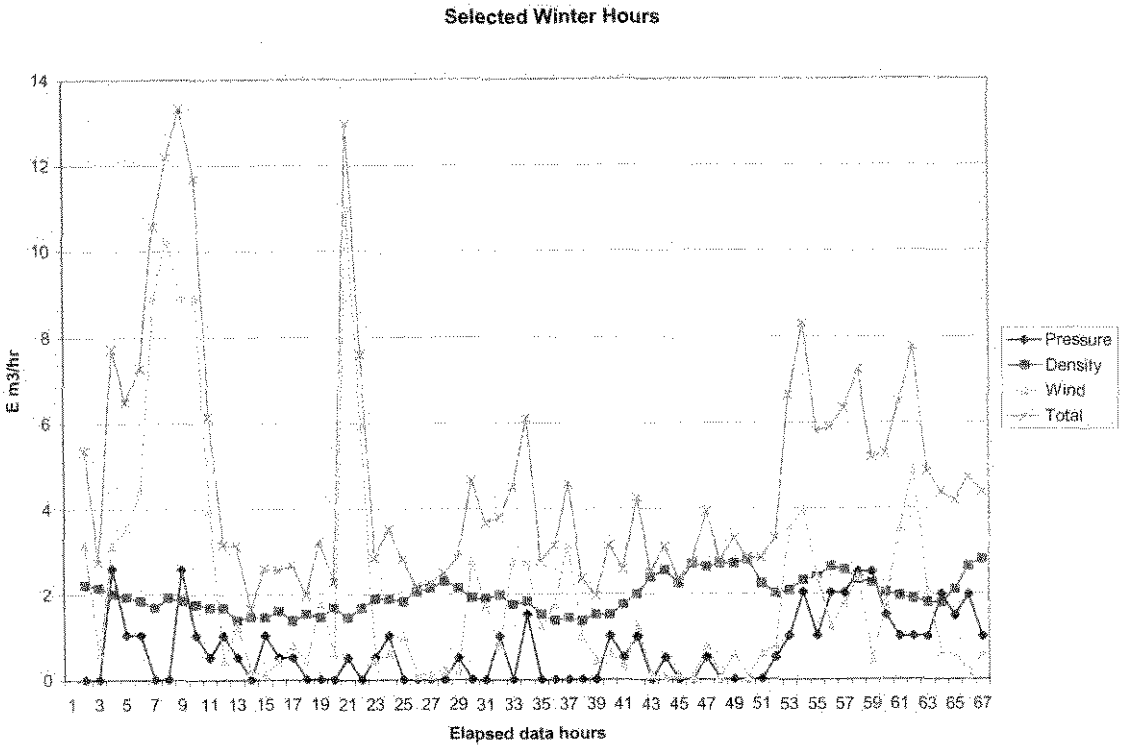
In the evening, the energy from barometric pressure and air density increases which raises the total energy acting on the system and increases the potential exhausting rate from the tanks. The higher energy acting on the system would enhance the dispersion of not only the lighter gases and vapors, but also the heavier ones. It would appear from the charts that the exhaust volumes would be much higher in the overnight hours, and there would be lesser accumulations in low areas due to the energy acting on the system.

Figure 3-1. Energy Distribution (Selected Summer Hours)



The energy distribution for the winter charts indicate the wind velocity and barometric pressure are the primary contributors affecting the potential vapor releases. The air density is more consistent throughout the winter due to the lack of extremes of temperature and, therefore, plays a more passive role in vapor releases and distribution, but it does provide enough energy to make the baseline energy level higher during the winter than the summer. The inference is that there should be more vapor incidents during the winter than summer, provided the remaining weather phenomena are stable. Using a time frame of October 1 to March 31 as a nominal winter period and without regard to other weather influences, there were more reported vapor incidents over the nine year period during the winter than in the summer.

Figure 3-2. Energy Distribution (Selected Winter Hours)



The charts indicate that the exhausting discharge rate during times of high kinetic energy are significantly higher than would be produced simply by calculating the head space volume available to be discharged over the course of the change of barometric pressure. During the summer, the wind velocity and air density are the primary contributors to the total energy acting upon the systems, but the pressure contributes during the cooler hours of the day. The summer chart indicates that the primary influence during the daytime hours is the wind velocity; across the chart the total energy acting on the system in the daytime is wind related.

During the winter, there is a more consistent contribution by all the components, but here again, the high energy days are definitely related to the increase in wind velocity.

3.1 ANALYTICAL GRAPHICS METHODOLOGY

Inquiries for specific information, such as barometric pressure for the entire 200 East or West Areas on a specific day, were put out to the Hanford Meteorological Station (HMS) on site. Before receiving this information, the events reported in the Event Shift-Log Report were separated into three categories: intrusive work, transient work, and work unrelated to Tank Farms for each year (1995-2004) as indicated in Table 3-1and Appendix A. After dividing the shift-log events into three categories and receiving the HMS data, the suspected vapor events (i.e., transient and intrusive work only) were analyzed by making graphical representations of the

barometric pressure from the 200 East or West Area HMS station and the general area HMS station data during a specific 24-hour period and plotting when the event occurred on this same graph. Work unrelated to the Tank Farms was not analyzed further.

Table 3-1. Incidents per Year by Work Category

	Years									
Incidents	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Related to TF Work (intrusive & transient)	6	3	9	18	13	23	32	26	49	25
Not Related to TF Work	1	2	4	3	2	8	6	3	7	11
Total Incidents	7	5	13	21	15	31	38	29	56	36

This gave a general understanding of the barometric pressure trend for that specific day and whether or not weather conditions could have exacerbated a potential release of vapor from one of the several Tank Farms located throughout the Hanford Site. Wind speed and direction also played a key role in the analyzing of these events. This process was done for two of the three categories (intrusive and transient), because it did not seem pertinent to analyze events unrelated to Tank Farms, such as the odor of an animal carcass or the diesel exhaust from a truck outside the fence line.

3.2 GRAPHICAL DATA AND REPRESENTATIONS OF METEOROLOGICAL CONDITIONS

Graphical representations (Appendix B) show barometric pressure for the 200 East or West Area and the general HMS station data over twenty-four hours (given in fifteen minute intervals). This data plots a pressure trend for a specific day or event. This information coupled with wind speed and direction data paints a picture to assess whether or not weather conditions played a role in the vapor events reported. Typically, if the plotted data trends downward, then that particular day was experiencing low pressure. Generally speaking, during a low-pressure day, vapors under pressure (for example, in the headspace of a SST or DST) would be capable of release into the atmosphere given the atmospheric pressure is lower than that of the headspace of the tank; inversely, if the plotted data trends upwards, then that particular day was experiencing high pressure. During a high pressure day, natural vapor release is not likely, because the atmospheric pressure is greater than that which is underground forcing it to stay that way. Wind speed and direction play a key role on low-pressure days as mode of transport. For instance, a tank riser or an activity inside a fence line may vent a vapor during a low pressure day in one farm and, given the right speed and direction of the wind, the vapor may be carried into another adjacent and/or parallel farm exposing employees not directly involved in the specific work activities of the original farm. However, ongoing stack dilution and dispersion studies indicate vapor concentrations are diluted and/or dispersed from the original source. Therefore, vapor concentrations that employees may encounter in adjacent farm systems should be lower than those found nearer to the vapor source.

4.0 ANALYTICAL RESULTS

4.1 BAROMETRIC PRESSURE

The graphical representations of barometric pressure over a twenty-four hour period on the specific days of incidents reported from 1995 to 2004 (Appendix A) indicate that barometric pressure alone can cause and/or exacerbate a vapor release; the majority of the occurrences reported show a downward trend in barometric pressure which indicates a release by this means could have been possible. However, the aforementioned study performed by Mr. Droppo shows that low barometric pressure can not be the sole offender during either intrusive or transient work to result in vapor release. Graphical representations are presented in Appendix B.

4.2 WIND SPEED AND DIRECTION

Wind velocity and/or direction play a key role in the transporting of certain heavy vapors (lighter vapors tend to dissipate quickly in moderate to heavy winds) should they have been released into the atmosphere. Moderate to heavy winds could transport certain types of vapors to other areas in the originating farm or to other nearby farms, while low to non-existent winds could result in vapor accumulation in low-lying areas, which could intensify exposure to personnel working in those areas. This transportation of vapors could also explain the numerous accounts of Tank Farm personnel reporting exposure to a substance that may or may not have originated from a Farm they were working in or around. For example, PER-2004-0333 stated that Nuclear Chemical Operators (NCOs) located and working in C-Farm reported an organic vapor odor coming from the direction of AN-Farm. Upon further research, it was determined that wind patterns and velocities recorded through HMS for this particular incident and intrusive work being performed in the AN-Farm at the time indicated that a vapor if released could have been transported across farms via the wind. Wind speed and temperature correlation graphs, as well as tank farm maps showing the approximate location of incidents and correlation of wind speed and direction, are shown in Appendix C.

4.3 242-A EVAPORATOR

After reviewing the operating dates for the 242-A exhauster, only nineteen total incidents reported from 1995 to 2004 coincide with dates the exhauster was in operation. Of these nineteen, only five were possible given wind patterns recorded in 200 East Area on those particular days. Though the majority of these incidents occur within the potential originating farm, some of these possible incidents occur in adjacent farm systems such as AN, AP, and AY Farms or ancillary buildings such as the 244-A Lift Station or 204-AR Waste Unloading Station. The five possible incidents are summarized in Table 4-1. A map showing their approximate location, wind direction and speed during the time an incident was reported is included in Appendix C. Operation campaigns are shown in Table 4-2.

Table 4-1. Possible Vapor Incidents Related to 242-A Exhauster Operations

Record #	Date	Time	Wind Direction	Wind Speed	Baro. Pressure	Temp	Location	Work
1995-5	7/21/95	03:51	300°(NW)	13 mph	29.04	73°	204 AR	Rail car hook-up
2001-10	3/26/01	20:50	290° (NW)	11 mph	29.42	44°	244-A	Fire Watch
2004-15	3/17/04	10:15	180° (S)	4 mph	29.24	58°	AW TF	Unknown
2004-18	3/17/04	15:00	170° (SE)	6 mph	29.14	68°	AY TF	CAM filter change
2004-20	3/25/04	09:55	30° (NE)	3 mph	29.09	51°	AN TF	Pit Entry

Note: CAM = continuous air monitor
TF = tank farm

Table 4-2. 242-A Operation Campaigns

Year	Campaign	Date Started	Date Ended
1995	95-01	6/24/95	7/26/95
1996	96-01	5/10/96	5/25/96
1997	97-01	3/24/97	4/3/97
1998	NO CAMPAIGNS		
1999	99-01	7/24/99	8/14/99
2000	00-01	4/20/00	5/4/00
2001	01-01	3/13/01	3/28/01
2002	02-02	11/7/02	11/23/02
2003	03-01	1/8/03	1/17/03
	03-02	2/25/03	3/6/03
	03-03	6/28/03	7/12/03
	03-04	8/28/03	9/3/03
2004	04-01	3/16/04	4/4/04

4.3.1 Percentage of Events by Farm

After analyzing all of the events and placing them in their individual graphical representations, the percentage of events by farm was determined. Between 1995 and 2004, the "A" Farms (A, AX, AY, AN, AW, AP, and AZ) had more reported vapor events than all the rest of the Farms combined coming in at 98 reported incidents (39% of the total amount of reported incidents). The "B" Farms (B, BX, and BY) reported 17 incidents (6.8% of the total reported); the "C" Farm reported 24 incidents (9.6% of the total reported). The "S" Farms (S, SX/SY) reported 24 incidents (9.6% of the total reported); the "T" Farms (T, TX, and TY) reported only 3 incidents in nine years (1.2% of the total reported). "U" Farm reported 18 incidents (7.2% of the total reported incidents). Areas not specifically identified as a Tank Farm or within the Tank Farm boundaries reported 67 incidents (27% of the total). The percent total incidents reported

between 1995 and 2004 are summarized in Table 4-3. Table D-1 located in Appendix D shows individual farm percentages over the course of the nine years.

Table 4-3. Percent Total Incidents Reported (1995 to 2004).

Total Incidents Reported over 1995 – 2004 [through 9/30/04] (251)	
SST (86)	
A & AX Farms (14)	5.6%
B, BX, & BY Farms (17)	6.8%
C Farm (24)	9.6%
S & SX Farm (10)	4%
T, TX, & TY Farms (3)	1.2%
Total	34.3%
DST (165)	
AY, AZ, AN, AP & AW Farms (84)	33.5%
SY Farm (14)	5.6%
Total	39.1%
OTHER (67)	26.7%
TOTAL (251)	100%

Note:
See Appendix D for incidents by Tank Farm.

5.0 CONCLUSIONS

After reviewing all of the information and the analytical data created, it is concluded that weather phenomena, specifically barometric pressure, and wind velocity and direction can potentially cause or exacerbate a vapor release within the farm systems, be it SST or DST.

During intrusive work regimens, a small decrease in the barometric pressure could potentially result in a release of vapors that would affect the workers if the remaining weather parameters are relatively stable.

Vapor reports recorded during transient work routines (walkdowns and surveys, etc.) are generally related to wind direction and velocity, which in itself could generate the vapor release.

6.0 RECOMMENDATIONS

During the initial review of the vapor incident Shift Log reports, it was determined that there are numerous incomplete entries throughout the review period. The following recommendations are independent of whether a Problem Evaluation Request (PER) was filed. Although incident numbers were assigned and the fields associated with the weather and other physical phenomena were completed, the remaining fields were generally incomplete. The data are difficult to process in any real sense when there is no work process description, no specific work location, no mention of the number of personnel affected, no details of symptoms or medical attention, and most importantly, the incomplete data regarding Industrial Health (IH) Technicians monitoring and results.

Vapor incident reports and charts were made to correlate the data for wind and temperature against the recorded incident data. An observation is that there is little correlation between the actual reported temperature plus wind velocity and direction for the reported incident and the weather station recorded data for the Shift Log incident time. Trying to correlate the Shift Log stated wind velocity and direction along with the temperature to match a data set in the weather stations information generally leads one to conclude an incident happened at a different time from that reported in the Shift Log entry; examples of this can be found in Appendix B.

Evaluating vapor incidents from the weather-related aspect must out of necessity address issues of tank venting, vent construction and placement, interconnectivity of tank venting in addition to the spatial relationship of the tank farms to one another. By the same reasoning, each incident should be isolated and identified on the appropriate map with the shift log entry number so that the weather related phenomena may be applied properly.

The following recommendations have been implemented into procedure TFC-AOP-015 "Response to Reported Odors or Vapor Exposures" and should greatly enhance future reviews of incidents:

- Recording the exact date and time of the event, as well as the location and the number of employees involved.
- Reporting the initial symptoms, if any, during and after the event occurs.
- Reporting the description of the odor or vapor and what might have caused the event to happen.
- Reporting the specific work package or task number.
- Obtaining and recording the meteorological data at the time of the incident.
- Notifying the Employee Health Advocate or Industrial Hygienist as soon as the event has occurred.

7.0 REFERENCES

PER-2004-0333, "C-106 Caustic Flush, Employee Got a Whiff of Vapor Odor," CH2M HILL Hanford Group, Inc., Richland, Washington.

TFC-AOP-015, "Response to Reported Odors or Vapor Exposures," CH2M HILL Hanford Group, Inc., Richland, Washington.

APPENDIX A

VAPOR INCIDENTS

APPENDIX A

A1.0 REPORTED VAPOR INCIDENTS 1995 - 2004

Generated table for the nine year period taken from the Shift-Log for all vapor incidents reported during specified intrusive, transient, or non-Tank Farm related activities.

Table A-1. Reported Vapor Incidents 1995 – 2004 (22 Sheets)

Classification	Record No	Year	Exp # for Year	Date	Time	Wind Dir	Wind Speed (mph)	Baro. pressure (In.Hg)	Temp (degrees F)	Affected Emp Log Desc	Affected Job Class	Log Location	Location	Comments	Work Process	Log Type Desc	Type	PER (PERs system start May-Jun 01)	Occurrence Report	EIT
Intrusive	1995-1	1995	1	1/15/95	13:45	210	2	28.92	40	NCO, HPT	NCO	241-BY-254	BY Farm	No indications of rats or mice	BY-109 saltwell pumping	Urine odor	Sewer	NA		
Intrusive	1995-2	1995	2	2/10/95	14:30	330	3	29.33	48	Two IH	IH	105-BY	BY Farm	IH: found less than detectable readings	Working on Rotary Mode Truck Exhauster	Urine odor	Sewer	NA		
Intrusive	1995-3	1995	3	3/22/95	14:00	120	5	28.73	53	HPT	HPT	C-103	C Farm	PIC stated: As team approached C-103, smelled vapor, cleared area. Nothing detectable found.	C-103 ENRAF wire drum change out.	odor	Odor	NA		
Intrusive	1995-4	1995	4	5/3/95	12:44	210	3	29.19	68	Two HPTs	HPT	C-Farm	C Farm	IH found no detectable readings	Reinstall of C-Farm Valve pit cover	strong odor	Odor	NA		
Transient	1995-5	1995	5	7/21/95	3:51	300	13	29.04	73	HPT	HPT	204-AR	204AR	IH found no organics, door on the tank car valve assembly left open.	204AR commencing hookup of rail car.	strange odor	Odor	NA		
Intrusive	1995-6	1995	6	8/3/95	9:05	20	5	29.16	84	NCO	NCO	C-Farm	C Farm	Worker went home after shift, requested that he go to HEHF 8/4/95	1000 gallon water addition to C-106	strong odor	Odor	NA		
Not Related	1995-7	1995	7	8/5/95	1:30	270	8	28.98	80	NCO	NCO	106-C	C Farm	Odor from discarded Armstrong Adhesive containers. IH Acetone 3000ppm, Toluene 150ppm, TOC on OVM of 848, and NH_3 not detectable	Routine rounds, odor from glue used to seal RMW drums at C-Farm	odor	glue	NA		
Not Related	1996-1	1996	1	2/8/96	20:25	260	9	28.80	57	Unknown	IH	AN Farm K2-5-1	AN Farm	Burning smell from K2-5-1, switched annulus fans, now has belt noise, but no bearing noise	Not Clear	Burning Insulation	Burning/Burnt	NA		
Intrusive	1996-2	1996	2	4/4/96	11:20	100	4	29.59	58	NCO	NCO	T-104 Saltwell	T Farm	IH: 16ppm organic, 500ppm NH_3 at source (At tape on bracket into pump pit)	Flush of T-104 Saltwell	Ammonia	Ammonia	NA		
Not Related	1996-3	1996	3	5/7/96	21:10	280	10	29.23	45	Operator	NCO	W030 Control Room	W030	Examined Equipment, but could not identify source of odor.	Not Clear	Hot Electrical odor	Burning/Burnt	NA		

Table A-1. Reported Vapor Incidents 1995 – 2004 (22 Sheets)

Classification	Record No	Year	Exp # for Year	Date	Time	Wind Dir	Wind Speed (mph)	Baro. pressure (in.Hg)	Temp (degrees F)	Affected Emp Log Desc	Affected Job Class	Log Location	Location	Comments	Work Process	Log Type Desc	Type	PER (PERs system start May-Jun 01)	Occurrence Report	EIT
Transient	1996-4	1996	4	7/22/96	14:10	60	9	29.33	96	U-Farm Operator	NCO	U-Farm NE of pump pit	U Farm	IH: Nothing detectable in breathing zones, at breather filter - 400ppm NH3 & 17.3ppm organics	Routine rounds	Ammonia	Ammonia	NA		
Intrusive	1996-5	1996	5	10/16/96	9:48	300	15	29.42	51	Laborer	FDNW Labor	AY-102, SL-503	AY Farm	IH found no abnormalities, smelled like old insulation.	Excavation of SL-503 pit at AY 102	Rotten Eggs	Sulfur	NA		
Transient	1997-1	1997	1	2/13/97	9:25	250	13	29.50	45	HPT	HPT	Near BY 101	BY Farm	BY Breathing Air zone down posted	Weekly readings	Rancid smell	Rotting	NA		
Transient	1997-2	1997	2	3/13/97	7:59	250	7	29.53	32	NCO	NCO	A-101	A Farm	IH: Found nothing	Not Clear	Ammonia	Ammonia	NA		
Transient	1997-3	1997	3	4/16/97	14:10	230	22	29.16	70	Unknown	Unknown	241-SY 101-SY	SY Farm	IH: Nothing detected, fumes suspected to be from weed control upwind of 241 SY	Construction forces working outside of SY Farm	fumes	Fumes	NA		
Intrusive	1997-4	1997	4	5/7/97	7:50	300	7	29.51	53	Unknown	Unknown	C-105	C Farm	IH: Found nothing detectable	Inserted 25' hose in C-106 for vapor sampling	Vapor smell	Vapor	NA		
Not Related	1997-5	1997	5	5/8/97	2:07	310	9	29.37	46	Unknown	Unknown	East Tank Farms	East Tank Farms	Patrol received two calls about chemical odors, similar to bug spray	Not Clear	Bug Spray	Chemical	NA		
Not Related	1997-6	1997	6	5/8/97	2:20	310	9	29.37	46	Patrol from PFP	Patrol	SW fence line of PFP	West Tank Farms	Offered to call IH to survey area - said they would call back.	Not Clear	strong odor	Odor	NA		
Transient	1997-7	1997	7	5/28/97	15:05	130	7	29.17	79	Electrician	Electrician	A-101	A Farm	IH: did not detect any NH3 1 ft. from breather filters	Not Clear	NH_3	NH_3	NA		
Not Related	1997-8	1997	8	6/3/97	23:00	270	6	28.99	62	Operator	NCO	801-AX-B building	AX Farm	IH will investigate on day shift, sounds like possible air leak	Not Clear	cleaning fluid	Chemical	NA		
Not Related	1997-9	1997	9	6/13/97	9:12	260	4	29.11	76	NCO	NCO	Restroom 204-AR	204AR	IHT verified odor @204-AR, due to dry shower trap, will add water/	Not Clear	Strong odor	Odor	NA		
Transient	1997-10	1997	10	7/31/97	9:23	30	8	29.24	79	NPO	NCO	SE Corner of CR Vault	CR Vault	IHT reported no hazardous odors detected @ CR Vault	Not Clear	bad odor	Odor	NA		NA

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Intrusive	1997-11	1997	11	10/10/97	11:05	220	11	29.01	60	HPT	HPT	103-BX	BX Farm	IH: Found nothing at BX-103, traced odor to BX-105 breather (BX-105 reading: 60ppm ammonia, & 5ppm organics	During surveys at BX-103	Musty odor	Musty	NA		
Transient	1997-12	1997	12	11/17/97	12:15	90	2	29.30	47	HPT	HPT	BX-109	BX Farm	IH: 00ppm ammonia	Not Clear	Ammonia	Ammonia	NA		
Intrusive	1997-13	1997	13	12/26/97	5:55	300	10	28.91	36	HPT	HPT	AW K1 stack CAM	AW Farm	Odor stronger when opening cabinet	AW Stack Cam replacement	Ammonia	Ammonia	NA		NA
Intrusive	1998-1	1998	1	3/2/98	14:30	30	6	29.02	54	NCO	NCO	C Farm SAA	C Farm	IH: 40ppm organics @ drum with lid cracked open	Investigating unidentified waste drum in C-Farm	Strong odor	Odor	NA		NA
Intrusive	1998-2	1998	2	3/10/98	15:10	280	10	29.38	51	Electrician	Electrician	107-S Heat Trace Control panel	S Farm	Ammonia smell emanating from control panel, IH: Ammonia 50ppm inside control panel	Install permanent labels on light poles in S Farm	Ammonia	Ammonia	NA		NA
Intrusive	1998-3	1998	3	3/25/98	4:53	250	8	28.86	42	HPT	HPT	110-U breather filter	U-Farm	IH: ammonia 40ppm, 5ppm organics	Facility perimeter checks, U-Farm	Ammonia	Ammonia	NA		NA
Intrusive	1998-4	1998	4	3/25/98	15:10	350	4	28.82	66	HPT HPT	HPT	241-AZ Evaporator cooling tower	AZ Farm	Odor of Chlorine	102 AZ shutting down chiller for primary tank due to high DP	Odor of Chlorine	Chlorine	NA		NA
Intrusive	1998-5	1998	5	4/9/98	23:34	280	4	29.11	50	HPT	HPT	C-106	C Farm	HPT reports he is fine, no medical needed.	During C-Farm Routines	chemical smell	Chemical	NA		NA
Intrusive	1998-6	1998	6	4/29/98	13:43	20	4	29.13	84	Electrician	Electrician	U Farm Heat trace cabinet, next to valve pit C	U-Farm	IH: ammonia 200ppm	Wiring in U-Farm	Ammonia	Ammonia	NA		NA
Intrusive	1998-7	1998	7	6/24/98	14:00	260	10	28.87	74	HPT	HPT	CPO exhauster U-107	U-Farm	IH: ammonia 10ppm	Opening exhauster cabinet	Ammonia	Ammonia	NA		NA
Intrusive	1998-8	1998	8	7/13/98	10:40	230	7	29.19	76	NCO HPT NCO FLS NCO NCO HPT	NCO	Exhauster U-107	U-Farm	IH:No measurable ammonia in field, 120ppm in dome	Start up of exhauster on U-107	Ammonia	Ammonia	NA		NA

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Not Related	1998-9	1998	9	7/22/98	3:47	320	10	29 09	74	HPT IH NCO NCO NCO HPT NCO	HPT	AN-Farm from RMW Drum	AN Farm	IH: Readings were less than detectable.	Grab sample AN-102	Dead cat	Dead Animal	NA		NA
Intrusive	1998-10	1998	10	7/31/98	15:31	260	5	29.15	73	HPT	HPT	C-Farm	C Farm	IH:No detectable NH3 in breathing zones, 700ppm at stack	Taking C-Farm readings	Ammonia/Musty	Ammonia	NA		NA
Intrusive	1998-11	1998	11	8/10/98	10:15	180	6	29.24	85	Operator	NCO	244-S DCRT, near a-3 valve	244S	IH:No detectable NH3 in breathing zones, 700ppm at stack	Filling SX-104 Dilution Tank	Ammonia	Ammonia	NA		NA
Intrusive	1998-12	1998	12	9/15/98	23:34	260	9	28 96	76	HPT	HPT	Between AW 102 & 104	AW Farm	Restricted access to AW til morning. 9-16-98, 0845, IHT reports no detectable reading @ 241 AW.	102-AY Exhauster fan replacement	Ammonia	Ammonia	NA		NA
Transient	1998-13	1998	13	9/22/98	10:44	30	4	29.22	68	HPT	HPT	BY-102	BY Farm	IH: Nothing detectable on instruments, but IH could smell odor	Working in BY Farm	Strong Odor	Odor	NA		NA
Intrusive	1998-16	1998	16	10/15/98	10:05	320	7	29.16	57	HPT	HPT	AX-103	AX Farm	Turned down first aid	While performing routines	Ammonia	Ammonia	NA		NA
Transient	1998-14	1998	14	10/15/98	9:20	360	3	29.16	54	Engineer	Exempt	Between 274-AW & 272 AW	AW Farm	OE investigated and detected no odor. Contacted IH to take samples.(no record of sample).	Momentarily exceeded max. flow rate on 296-C-006 exhauster	Strong odor	Odor	NA		
Not Related	1998-15	1998	15	10/15/98	9:50	360	3	29.16	54	IHT	IH	MO 263	MO 263	Nothing detected on instruments. (Later noted, 17:54, transported to Kadlec since he was also present at "sampling event")	While performing routines	Musty Smell	Musty	NA		NA
Intrusive	1998-17	1998	17	10/29/98	12:35	270	12	29.27	59	Operator	NCO	B Complex	B Farm	smelled nauseous odors	Filling SX-104 Dilution Tank	odor	Odor	NA		NA
Intrusive	1998-18	1998	18	11/2/98	13:50	20	3	29.30	51	NCO	NCO	AZ-101	AZ Farm	Experienced Respiratory irritation	Smoke test of exhauster HEPAs on AZ-101	throat irritation	Vapor	NA		

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Intrusive	1998-19	1998	19	11/18/98	15:05	270	3	29.33	56	NCO IH FLS FLS Electrician Electrician Electrician Electrician	Mgr	C-006	C Farm	SCUBAs required for C-Farm. No access allowed after 15:43 Noted later: EDO reports 4 Elec.reported to HEHF on 11/19/04, 12:30 for the C-006 sampling event.	Obtaining C-006 Stack Sample	Vapor	Vapor	NA		
Not Related	1998-20	1998	20	11/18/98	16:24	300	9	29.34	54	IHT	IH	AW-Farm & Control Room	AW Farm	Due to type of Cleaner used on MCCs	Not Clear	Fumes	Fumes	NA		
Intrusive	1998-21	1998	21	12/10/98	7:55	240	3	29.64	32	Operator	NCO	T-104	T Farm	Turned down first aid; noticed a stronger than normal ammonia smell. IH reports Ammonia @ 50 ppm in pump pit and 0ppm in breathing zone	Shutting down T-104 saltwell	Ammonia	Ammonia	NA		NA
Intrusive	1999-1	1999	1	1/20/99	2:50	50	4	28.87	36	Operator	NCO	UX-302-A	U Farm	Checking leak detector on UX-302 during flush of T-110 Saltwell transfer line. IH found no detectable levels	Shutting down T-104 saltwell	Acidic odor	Acidic	NA		NA
Transient	1999-2	1999	2	3/30/99	12:29	220	12	28.96	52	NCO	NCO	K-1 CAM cabinet in 241-AN	AN Farm	Drill stopped, IHT reports 2ppm OVM, S.2ppm, notified IH per SO RWO-99-15	Emergency Preparedness Drill	Ammonia	Ammonia	NA	Off Normal Occurrence	
Transient	1999-3	1999	3	6/24/99	7:32	310	15	28.88	66	HPT	HPT	241-AY	AY Farm	IH: reports nothing detectable	Not Clear	odor	Odor	NA		
Intrusive	1999-4	1999	4	7/20/99	10:55	230	4	29.03	84	HPT	HPT	244-A	244A	IH: Organic 6ppm, limit is 2ppm	IH sampling tube installation in pit	odor	Odor	NA		
Intrusive	1999-5	1999	5	7/22/99	4:05	270	8	29.23	61	Operator	NCO	S-102	S Farm	IH not aval. Until day shift, SCBA required within 25' of S-102	S-102 saltwell pumping	Ammonia	Ammonia	NA		NA
Intrusive	1999-6	1999	6	8/23/99	9:42	290	8	29.10	79	Operator	NCO	SX-109	SX Farm	IH: Nothing detected	SX 109 Borehole	odor	Odor	NA		NA
Not Related	1999-7	1999	7	8/25/99	11:15	260	20	29.07	89	Operator	NCO	244-AR Control Room	244AR	IH: Nothing detectable, suspect portable air compressor	Not Clear	odd smell/vapor	Vapor	NA		NA

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Intrusive	1999-8	1999	8	9/20/99	7:59	20	2	29.23	57	HPT	HPT	241-AP primary stack	AP Farm	IH: Nothing detected	Hourly record sample readings on 241-AP primary stack	odor	Odor	NA		NA
Intrusive	1999-9	1999	9	9/27/99	17:40	30	8	29.52	63	Operator	NCO	U-103	U Farm	Entries into U farm directed to use SCBA, IH: 400ppm ammonia 3 ft from center of valves, 50 ppm 2 ft from NO corner.	filling dilution tank U-103	Ammonia	Ammonia	NA		NA
Transient	1999-10	1999	10	10/6/99	15:30	250	5	29.12	69	Operator	NCO	U Farm	U Farm	Operator advised to see private physician, returned to work - not restrictions. (No IH report)	Working in U-Farm	Ammonia	Ammonia	NA		NA
Transient	1999-11	1999	11	10/26/99	21:20	270	6	29.41	37	FDNW Laborer	FDNW	AN Farm	AN Farm	Detected for < 1 minute. IHT found nothing detectable.	Crane in AN Farm to place tent on AN valve pit.	Ammonia	Ammonia	NA		
Intrusive	1999-12	1999	12	11/10/99	14:10	130	5	29.07	60	Operator	NCO	S-102	S Farm	IH: 15 ppm in breathing area around S-102	S-102 saltwell recirc. & transfer line flush	Strong Odor	Odor	NA		NA
Intrusive	1999-13	1999	13	11/11/99	12:30	310	8	29.13	51	HPT	HPT	SY B Pit	SY Farm	B Pit: 200,000dpm/100 cm^2.beta/gamma, 3,000dpm/100cm^2. alpha.	Dropping Jumper into SY-B Pit	Strong Odor	Odor	NA		NA
Transient	1999-14	1999	14	11/15/99	15:55	80	7	29.17	54	Sign Painter	Painter	B-101	B Farm	Emp had not symptoms and did not feel the need for medical evaluation	Not Clear	noxious odor	Odor	NA		NA
Not Related	1999-15	1999	15	11/18/99	14:48	360	3	29.35	48	WM Laborer	WM	209-E Propane storage area	209E	Fire Dept called, no com. Gas levels, ordered change out of all #30 tanks.	Not Clear	Propane	Propane	NA	NA	NA
Not Related	2000-1	2000	1	1/14/00	12:50	350	4	29.05	37	Engineer	Exempt	No stated in log (Medical: odor from computer printer in 274AW)	274AW	odor from computer causing headache	Not Clear	ink fumes	Ink	NA		
Not Related	2000-2	2000	2	2/4/00	15:00	170	7	29.29	44	Operator	NCO	2607 WA	2607 WA	IH: Chlorine odor from Decon, no organics present	Cleaning up mouse feces	Strong Chlorine	Chlorine	NA		

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Intrusive	2000-3	2000	3	2/8/00	14:10	180	3	29.20	42	Saltwell Operator & Saltwell OE	NCO	U-Farm	U Farm	IH:reports no detectable readings, All emp entering U-Farm will be required to wear stained badges	Saltwell Pumping	Sulfur or rotten eggs	Sulfur	NA		
Transient	2000-4	2000	4	2/15/00	12:50	270	6	29.37	49	Operator Operator Operator HPT Operator Other Crafts Pipefitter IH Electrician	NCO	AN Farm	AN Farm	STEL CO level of 30ppm exceeded, work stopped. Nine personnel transported to HEHF	Performing Vent and Balance work in AN Tank Farm	CO Exposure	Exhaust	NA	RP--CHG-TANKFARM-2000-0015	
Intrusive	2000-5	2000	5	2/29/00	9:50	300	4	29 08	41	101-SY OE	Exempt	101-SY	SY Farm	IH: no detectable levels, will continue to monitor	101-SY Transfer	Ammonia	Ammonia	. NA		
Intrusive	2000-6	2000	6	2/29/00	13:55	70	3	29.10	49	HPT	HPT	101-SY	SY Farm	IH: 5ppm ammonia at SY primary filter bank, admittance to exclusion zone restricted.	101-SY Transfer	Ammonia	Ammonia	NA	Classified as Off Normal occurrence	
Intrusive	2000-7	2000	7	3/1/00	14:53	160	4	29.33	54	OE	Exempt	Outside SY Fence boundary	SY Farm	IH: Nothing detectable on instruments	Taking manual tap readings for 102-SY	Ammonia	Ammonia	NA		
Intrusive	2000-8	2000	8	3/9/00	9:40	360	2	29.20	41	HPT	HPT	SY Farm	SY Farm	IH: no detectable levels	FIC truck into SY Farm for ENRAF flush	Ammonia	Ammonia	NA		
Intrusive	2000-9	2000	9	3/9/00	12:16	230	7	29.24	49	IS Electrician	Electrician	U-105	U Farm	(Emp later developed rash on face)	Restart of U-105 Saltwell pump	vapor	Vapor	NA		
Intrusive	2000-10	2000	10	3/15/00	19:18	330	6	29.15	50	Operator	NCO	A-101	A Farm	Smelled ammonia around A-01A, No ammonia or organics found.	A-101 Install Pic Skid power / excavate	Ammonia	Ammonia	NA		
Transient	2000-11	2000	11	4/3/00	11:56	90	5	29.24	65	Operator	NCO	AY#1 Change Trailer	AY Farm	Nitrogen Tank next to AY Change trailer is venting.	entering change trailer	nitrogen odor	Nitrogen	NA		
Intrusive	2000-12	2000	12	4/27/00	16:15	270	6	28.83	71	HPT	HPT	AY-01A	AY Farm	Workers were on supplied air. Sample results were 4.3E-12MCI/MLB, 4.2E-13 MCI/MLX	Adding lead shielding to AY-01A Pit.	odor	Odor	NA		

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Not Related	2000-13	2000	13	5/17/00	7:10	310	24	29.20	60	NCO NCO Secretaries NCO	NCO	Driving up 200 East Hill, and Rt 4 South, South of 4th Street	East Tank Farms	Activated Crash phone due to unknown event. US Ecology investigating odor source.	Driving	Strong Sulfur	Sulfur	NA		
Not Related	2000-14	2000	14	5/17/00	8:57	310	25	29.21	63	Unknown	Unknown	200E, Route 4, So.	200E	Employees reported strong smell of sulfur when driving on route 4, in 200E. Crash phone message & take cover in 200E	Driving	Sulfur	Sulfur	NA		NA
Not Related	2000-15	2000	15	5/19/00	7:46	110	3	29.37	60	Exempt	Exempt	272-AW Maint. Shop	272AW	Reading were within the normal range	Performing inspection of Maintenance Shop	odor	Odor	NA		
Not Related	2000-16	2000	16	5/22/00	14:00	310	5	29.13	81	Exempt	Exempt	Driving down 2East Hill	East Tank Farms	Responded to scene, found no detectable odors	Driving	Sulfur	Sulfur	NA		
Intrusive	2000-18	2000	18	5/30/00	8:41	50	6	29.13	60	FLS	Mgr	A-Farm Gate, west side of farm	A Farm	IH: Did not detect any abnormal readings at gate. (Winds are blowing E to W)	A-101 Flush	Sulfur	Sulfur	NA		
Intrusive	2000-19	2000	19	5/30/00	8:50	50	6	29.13	60	Unknown	Unknown	AX-Change Trailer	AX Farm	IH: Did not detect any abnormal readings @ AX Change Trailer	IS crew at AX-101	Sulfur	Sulfur	NA		
Not Related	2000-17	2000	17	5/30/00	7:31	30	7	29.13	56	HPT	HPT	Driving up 2East Hill	East Tank Farms	Notified POC	Driving	Sulfur	Sulfur	NA		
Intrusive	2000-21	2000	21	6/14/00	9:55	70	5	29.32	74	HPTElectrician	HPT	A - B Valve Pit heat trace box	A Farm	IH: A-B Valve, E.side of Pit: 60ppm organics; A-B Valve Vapor Space: 19.2ppm organics; A-A Valve Pit: 2.4ppm organics.	Working on heat trace conduit A A-B Valve pit.	Strong odor	Odor	NA		
Not Related	2000-20	2000	20	6/14/00	6:55	180	2	29.35	63	IHT	IH	Driving up 2East Hill	East Tank Farms	Notified POC, IH: found nothing detectable	Driving	Sulfur	Sulfur	NA		
Intrusive	2000-22	2000	22	6/22/00	9:17	120	3	29.17	73	Unknown	Millwright	701-A	A Farm	IH: found nothing detectable	Closing valve A-38 @ 701-A	Ammonia	Ammonia	NA		
Intrusive	2000-23	2000	23	7/9/00	10:15	360	5	29.15	76	HPT	HPT	101-A, 01H Pit	A Farm	IH: 0ppm ammonia & organics	Taking surveys south of 101-A	Strong Ammonia	Ammonia	NA		

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Transient	2000-24	2000	24	7/26/00	10:28	340	7	29.10	76	Pipefitter	Pipefitter	South Boundary of C-Farm	C Farm	IH: No measurable ammonia, but did detect odor of weed spray	Not Clear	Ammonia	Ammonia	NA		
Intrusive	2000-25	2000	25	9/4/00	13:31	180	6	29.30	69	Operator	NCO	Inside 801-AY	AY Farm	IH: found nothing detectable	Install shield plug - 101 AY	Ammonia	Ammonia	NA		
Transient	2000-26	2000	26	9/5/00	16:00	320	20	29.24	74	DYNCORP HPT supporting the I-N-S at AY	HPT	AY I-N-S	AY Farm	IH: found nothing detectable on instruments. Operator with HPT did not smell anything.	Not Clear	Odor	Odor	NA		
Transient	2000-27	2000	27	9/26/00	10:00	40	3	29.32	62	HPT	HPT	AZ Farm	AZ Farm	IH: found nothing detectable	Supporting Construction in AZ farm	noxious odor	Odor	NA		
Transient	2000-28	2000	28	11/1/00	20:15	320	5	29.38	42	NCO NCO	NCO	SY Farm	SY Farm	IH: No abnormal readings	CPO Sampling in SY farm	Brownish vapor	Vapor	NA		
Intrusive	2000-29	2000	29	11/6/00	2:30	250	6	29.19	44	Electrician Electrician	Electrician	U-106	U Farm	IH: Did not find any ammonia or organics at U-106 cabinets or general area.	Flushing U-106	Ammonia	Ammonia	NA		
Intrusive	2000-30	2000	30	11/14/00	20:40	240	6	29.28	27	NCO	NCO	U-109 Pump Pit	U Farm	IH reported ammonia 200ppm	Shutdown and restart of U-109 saltwell pumping	Strong ammonia	Ammonia	NA		
Transient	2000-31	2000	31	11/29/00	8:02	300	9	29.03	33	HPT	HPT	244-A Exhaust fan	A Farm	IH: Found no detectable readings, HPT went to medical again on 12/29/00-no additional exposure, continuing symptoms	244-A Cam Alarm	Sulfur/sewage	Sulfur	NA		
Not Related	2001-1	2001	1	1/9/01	9:07	310	10	29.16	28	Operator	NCO	715-AR	715AR	IH: no detectable readings, found dead mouse inside building	Not Clear	Dead animal odor	Dead Animal	NA		
Intrusive	2001-2	2001	2	1/10/01	13:54	10	5	29.13	32	OE	Exempt	AW Farm	AW Farm	IH:Not detectable on instruments, No detectable smell	UT work 101 AW	Sulfur	Sulfur			
Intrusive	2001-3	2001	3	1/11/01	09:31	230	7	29.01	37	IH	IH	244-A Lift Station	244A	IH: TOC 12ppm, Ammonia 1.7ppm	244-A Stack flow job	Ammonia	Ammonia			
Not Related	2001-4	2001	4	1/12/01	15:07	250	4	29.18	42	HPT	HPT	244-A	244A	MED: Symptoms not verified by Medical, IH: Sample @ 104-AP 260ppm ammonia	Not Clear	Dirty or Dead	Dead Animal			

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Classification	Record No	Year	Exp # for Year	Date	Time	Wind Dir	Wind Speed (mph)	Baro. pressure (in.Hg)	Temp (degrees F)	Affected Emp Log Desc	Affected Job Class	Log Location	Location	Comments	Work Process	Log Type Desc	Type	PER (PERs system start May-Jun 01)	Occurrence Report	EIT
Intrusive	2001-5	2001	5	1/13/01	16:00	80	4	29.27	37		Unknown	244-A & AY Farm Edge	244A	None	Taking readings at 244-A	Odor	Odor			
Intrusive	2001-6	2001	6	2/6/01	14:05	10	18	29.27	38	HPT	HPT	244-A	244A	IH: Monitoring detected nothing	Performing Perimeter surveys of 244-A	Odor	Odor			
Not Related	2001-7	2001	7	2/22/01	08:35	280	4	29.20	37		Unknown	Unknown	Unknown		Blank		Unknown			
Intrusive	2001-8	2001	8	3/17/01	18:17	100	7	29.20	53	IH	IH	244-A	244A	IH: Ongoing Monitoring detected nothing	Monitoring 244-A Stack	Propane	Propane			
Intrusive	2001-9	2001	9	3/17/01	20:28	120	2	29.23	49	HPT	HPT	244-A Change Trailer	244A	IH: Nothing detectable in/around 244-A change trailer	244-A Exhauster Start-up	Ethyl mercaption (smells like propane)	Propane			
Intrusive	2001-10	2001	10	3/26/01	20:50	290	11	29.42	44	IH	IH	244-A	244A	None	Fire Watch	Sewer	Sewer			
Transient	2001-11	2001	11	4/9/01	16:30	180	6	29.15	61	HPT	HPT	AZ Farm	AZ Farm	Wearing respirator, started coughing, and exited. No other personnel experienced problems	Not Clear		Unknown			
Not Related	2001-12	2001	12	5/21/01	08:45	90	4	29.48	63	NCO (2)	NCO	Vehicle	Other	Smell in vehicle cab, rolled down windows and smell went away.	Transporting samples from 222-S Lab to 325 building	Gasoline	Gasoline			
Not Related	2001-13	2001	13	6/1/01	07:35	180	7	28.78	83	IT	Instrument Technician	Entry of Submarine Burial Trench	Burial Trench	IH: No smell or gasoline could be detected	Not Clear	Gasoline	Gasoline			
Intrusive	2001-14	2001	14	6/20/01	09:24	150	4	29.37	79	NCO (2)	NCO	BY Farm/P-28 Stack	BY Farm	IH: 0 ppm NH 3 at breathing level, 500 ppm (slightly above normal at stack)	Low Van Exit of BY-Farm	NH 3	NH-3			
Intrusive	2001-15	2001	15	6/27/01	11:07	100	3	29.09	67	HPT (2)	HPT	C Farm/C-109	C Farm		CAM Checks	NH 3-from PER/Shift log-None	NH-3	2001-0681		
Transient	2001-16	2001	16	7/25/01	15:15	270	4	29.10	90	HPT	HPT	AZ Farm/101-AZ	AZ Farm	IH: Sampling at 101-AZ yielded negative results	Not Clear	Vapor Odor	Vapor			
Transient	2001-17	2001	17	7/26/01	11:30	170	6	29.12	85	Elec (*)	Electrician	SY-Farm	SY Farm	IH: Reports 0 detection of Ammonia in breathing space of SY Farm	Not Clear	Ammonia	Ammonia			
Intrusive	2001-18	2001	18	8/28/01	13:30	350	4	29.10	90	NCO	NCO	SY Farm	SY Farm		Not Clear	NH 3	NH-3			

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Classification	Record No	Year	Exp # for Year	Date	Time	Wind Dir	Wind Speed (mph)	Baro. pressure (in.Hg)	Temp (degrees F)	Affected Emp Log Desc	Affected Job Class	Log Location	Location	Comments	Work Process	Log Type Desc	Type	PER (PERs system start May-Jun 01)	Occurrence Report	EIT
Transient	2001-19	2001	19	8/28/01	05:08	310	8	29.14	70	HPT	HPT	AZ-02A Pit	AZ Farm	Trouble started after removing mask	Pit Work		Unknown	2001-1342		
Transient	2001-20	2001	20	8/28/01	09:56	330	4	29.15	80	PF	Pipefitter	SY Farm	SY Farm		Blank		Unknown			
Transient	2001-21	2001	21	8/29/01	14:39	10	5	29.00	92	NCO	NCO	AY-Farm	AY Farm	Odor from Waste Container 241-AY IH: Caution Tape placed until further Eval	Not Clear	Vapors	Vapor			
Intrusive	2001-22	2001	22	9/6/01	10:02	180	5	29.31	68	Drill Workers	Drill Workers	SY-Farm	SY Farm	Downwind or P-28, Personnel left affected area	Drill Activities	Ammonia	Ammonia			
Intrusive	2001-23	2001	23	9/9/01	08:00	310	7	29.13	68	NCO (2)	NCO	SY-Farm	SY Farm	IH: No detectable odor or ammonia concentrations	Saltwell Pumping	Ammonia	Ammonia			
Intrusive	2001-24	2001	24	10/5/01	10:22	340	7	29.31	60	Elec	Electrician	AY-Farm	AY Farm	Elec felt no ill effects	Maint. 804-AY	Musty smell	Musty			
Intrusive	2001-25	2001	25	10/5/01	10:27	340	7	29.31	60	IH	IH	AY-Farm	AY Farm	Smell detected at A-, A-B Valve Pit	Monitoring for vapor	Musty smell	Musty			
Intrusive	2001-26	2001	26	11/1/01	11:48	190	8	29.23	57	HPT	HPT	AW Farm	A Farm	Working in tent AW-A Tent with mask	Sampling	Ammonia	Ammonia	2001-1726		
Intrusive	2001-27	2001	27	11/21/01	15:00	110	8	28.94	53	HPT (2)	HPT	AZ Farm	AZ Farm	IH: Completed Air Sampling at AZ-102, all results negative	W-314 Work in 241 AZ	Odor	Odor			
Intrusive	2001-28	2001	28	11/27/01	13:37	80	4	29.48	30	Not Clear	Unknown	AN Farm	AN Farm	IH: Samples at stack were <1ppm	244 BX transfer to 102-AP	Odor	Odor			
Intrusive	2001-29	2001	29	11/28/01	13:55	310	8	28.59	32	FWS	FWS	AN Farm	AN Farm	Area secured pending IH evaluation	Pulling up tent floor at 04A Pit in 241-AN	Organic smell	Organic			
Not Related	2001-30	2001	30	12/3/01	19:50	220	16	29.15	40	HPT	HPT	AW Farm	AW Farm	Employee exited: transport to KADLEC	W-314 at AW-A Pit	SIMPLE GREEN	Simple Green			
Intrusive	2001-31	2001	31	12/10/01	13:56	350	4	29.07	33	FWS	FWS	C Farm/C-104	C Farm	Crew exited Area - No symptoms	Opening containment tent	Odor	Odor			
Intrusive	2001-33	2001	33	12/11/01	13:11	310	7	29.10	35	Elec/Carpenter	Electrician		Unknown		Spread of Sika Flex	Sika Flex Vapors	Silka Flex			
Transient	2001-32	2001	32	12/11/01	11:02	360	4	29.10	34	HPT (2)	HPT	ER-311	Other	IH: Reports 0 detection at ER-311 Instrument building	Not Clear	Odor	Odor			
Intrusive	2001-34	2001	34	12/20/01	21:04	240	5	29.16	35	NCO	NCO	AN Farm/AN-04A	AN Farm	Med: Elec diagnosed with Low Blood Sugar at KADLAC	Pit Work	Odor	Odor	2001-2306		

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Intrusive	2001-35	2001	35	12/27/01	10:35	320	11	29.43	30	HPT (2)	HPT	SX-Farm (SY-102	SX Farm	IH:Levels of ammonia were 75 ppm; Exposure was above limit of 35 ppm	Saltwell Pumping	Ammonia	Ammonia	2001-2306		
Intrusive	2001-37	2001	37	12/27/01	15:00	300	3	29.29	31	HPT	HPT		Unknown		Spread of Sika Flex	Sika Flex Vapors	Silka Flex	2001-2489 and 2002-0002		
Transient	2001-36	2001	36	12/27/01	10:57	320	11	29.43	30	FFS Emp	FFS	MO 277	MO 277	IH: Reports no detectable chlorine at MO-277	Blank	Chlorine smell	Chlorine	2002-0001		
Transient	2001-38	2001	38	12/31/01	13:00	300	7	29.41	40	HPT (2)	HPT	AN farm/AN-271	AN Farm	IH: Samples of the area did not detect any organics	Blank	Garlic & Onions	Onion			
Intrusive	2002-1	2002	1	1/9/02	14:21	150	6	29.48	50	HPT	HPT	244-A	244A	IH: There is some netting that may be moldy, No chemical stored in Conex, 0% TOC	Working in FFS Conex	Musty Odor	Musty	2002-0136		
Not Related	2002-2	2002	2	1/14/02	20:45	310	8	29.39	33	Technical Specialist	Technical	2750-A Wing	2750	Suspected that activation of Heating system caused odor	Admin	Odor	Odor			
Transient	2002-3	2002	3	1/16/02	12:14	360	6	29.34	33	Elec (2)	Electrician	U-Farm	U Farm	IH: Reports no noticeable odors, NH 3 0%, TOC 0%, in U-Farm	Blank	Odor	Odor	2002-0275 & 2002-0287		
Not Related	2002-4	2002	4	1/17/02	11:33	130	3	29.55	32	Exempt	Exempt	2750-A Wing	2750	Burning odor from ventilation system	Engineering	Burning odor	Burning/Burnt			
Transient	2002-5	2002	5	1/26/02	21:10	260	7	28.96	36	Pipefitter (NOTE: PER says SOE)	Pipefitter	SX-Farm	SX Farm	IH: Vapor source sampling at SX-102 & SX-105 200-300 ppm NH 3 at breather filters	Blank	Ammonia	Ammonia	2002-0457		
Intrusive	2002-6	2002	6	1/28/02	12:00	300	12	29.31	37	HPT	HPT	AN-Farm edge	AN Farm	NE side of AN Farm	Supporting excavation outside AN-Farm	Diesel	Diesel	2002-0488		
Intrusive	2002-7	2002	7	1/29/02	11:22	80	2	29.37	31	Pipefitter	Pipefitter	SX-Farm	SX Farm	Activating EIT	Walkdown of SX Farm	Ammonia	Ammonia	2002-0499 & 2002-0493 same event (0499 1st aid) (0493 compliance issue)		
Intrusive	2002-8	2002	8	2/28/02	15:35	10	10	29.50	47	Elec	Electrician	A-Farm/A-101	A Farm	PER: Old Diesel Spill	Saltwell pumping	Chemical odor	Chemical	2002-1257		

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Transient	2002-9	2002	9	4/1/02	12:48	30	11	29.35	59	FFS Emp	FFS	AN Farm/241-AN	AN Farm	Null	Blank	Smell	Unknown			
Intrusive	2002-10	2002	10	4/3/02	14:56	40	6	29.33	62	HPT; NCO	HPT	U-Farm/U-111	U Farm	IH: Readings were 10 ppm in area and 30ppm at steam source	Line Flushing	Chlorine odor	Chlorine	2002-1812		
Not Related	2002-11	2002	11	4/16/02	17:42	110	8	28.91	52	SM	Shift Mgr	2404-HV, D Suite	2704	Notified HFD	Admin	Burnt odor	Burning/Burnt			
Transient	2002-12	2002	12	5/14/02	13:44	260	10	29.30	66	Carpenters	Carpenter	C-Farm/South Side	C Farm	Null	Blank	Paint odor	Paint			
Transient	2002-13	2002	13	6/11/02	09:50	30	6	29.26	68	NCO	NCO	S Farm/242-S	S Farm		Not Clear	Methane	Methane			
Intrusive	2002-14	2002	14	6/25/02	09:59	10	4	29.27	81	Operator (2)	NCO	C Farm/C-203	C Farm		Video surveillance	Odors	Odor	2002-3432		
Transient	2002-15	2002	15	6/29/02	16:00	310	15	29.11	78	HPT	HPT	AZ Farm/702-AZ Primary Stack Cabinet	AZ Farm		Not Clear	Odors	Odor			
Intrusive	2002-16	2002	16	7/9/02	14:40	260	5	29.43	86	NCO	NCO	BY Farm	BY Farm		Collecting MT readings	Odors	Odor			
Transient	2002-17	2002	17	8/9/02	11:32	140	6	29.37	85	OE	Operations Engineer	AP Farm/AP Exhauster	AP Farm		Not Clear	Ammonia	Ammonia	2002-4333		
Intrusive	2002-18	2002	18	8/10/02	13:10	170	8	29.10	89		Unknown	AN Farm/ Outside of 271-AN	AN Farm		Tour	Chlorine (Swimming pool odor)	Chlorine			
Transient	2002-19	2002	19	8/23/02	17:15	310	5	29.16	88	NCO	NCO	AP Farm/AP-104	AP Farm		Not Clear	Ammonia	Ammonia			
Transient	2002-20	2002	20	8/27/02	08:54	230	4	29.34	72	Inst. Tech. (2)	Instrument Technician	AP Farm/West of VTP CAM Cabinet	AP Farm		Not Clear	Ammonia	Ammonia	2002-4579		
Transient	2002-21	2002	21	9/9/02	07:32	330	4	29.40	60	NCO	NCO	BY Farm/ BY-106 and AX Farm/244-AX	BY Farm	PER: Actual Event 9/3/02	Not Clear	Ammonia	Ammonia	2002-4926		
Transient	2002-22	2002	22	9/9/02	14:02	250	4	29.37	82	NCO	NCO	AN Farm/ AN-104	AN Farm		Not Clear	Chlorine	Chlorine			
Transient	2002-23	2002	23	9/10/02	10:27	360	9	29.25	76	FFS Workers (2)	FFS	Gate A2, 8 corridor	Other		Not Clear	Ammonia	Ammonia			
Transient	2002-24	2002	24	9/11/02	05:48	140	2	29.15	58	NCO	NCO	BY Farm/ BY-106 and AX Farm/244-AX	BY Farm		Not Clear	Ammonia	Ammonia			
Transient	2002-25	2002	25	9/11/02	07:44	310	4	29.17	63		Unknown	C Farm/C-103	C Farm		Not Clear	Odor	Odor			

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Transient	2002-26	2002	26	10/1/02	13:55	360	7	29.42	64	NCO	NCO	A Farm/A-101	A Farm		Not Clear	Ammonia	Ammonia	2002-5348		
Transient	2002-27	2002	27	10/31/02	15:46	100	3	29.67	40	HPT	HPT	C Farm/C-103	C Farm	IHT received a small spike of ammonia on meter.	Not Clear	Ammonia	Ammonia	2002-5837		
Transient	2002-28	2002	28	11/13/02	12:45	240	10	29.40	58	NCO	NCO	SY Farm/SY-101 & SY-102	SY Farm	OII Log: Date 12/17/2002	Not Clear	Ammonia	Ammonia	2002-6054		
Intrusive	2002-29	2002	29	12/18/02	10:41	70	4	29.17	32	FFS Mechanic	FFS	AP Farm	AP Farm		Guzzler work	Vapor	Vapor			
Transient	2003-1	2003	1	1/9/03	08:24	300	7	29.51	31	Unknown	Unknown	AN Farm	AN Farm	Null	Blank	Onion odor	Onion			
Intrusive	2003-2	2003	2	1/10/03	23:20	270	6	29.38	32	ER Operator	NCO	AW Farm	AW Farm		Opening 241-AW VTP Stack CAM Cabinet	Ammonia	Ammonia	2003-0129		
Intrusive	2003-3	2003	3	1/22/03	09:43	10	4	29.37	31	HPT	HPT	AW Farm	AW Farm		Supporting work at 241-AW exhauster	Odor	Odor	2002-0493		
Transient	2003-4	2003	4	1/24/03	14:30	310	4	29.33	45	NCO	NCO	Vehicle	Other		Not Clear	Odor	Odor			
Intrusive	2003-5	2003	5	1/29/03	07:50	320	4	29.41	36	NCO	NCO	AW Farm	AW Farm		Supported AW VTP A Train Mov work	Odor	Odor	2002-0457		
Not Related	2003-6	2003	6	1/30/03	16:50	340	5	29.32	40		Unknown	242-S	242S	Null	Blank	Diesel fumes	Diesel			
Intrusive	2003-7	2003	7	2/3/03	20:55	310	15	29.43	43	ER Operator	NCO	AW Farm	AW Farm		Performing rounds in AW Farm	Odor	Odor	2003-0498		
Intrusive	2003-8	2003	8	2/6/03	15:53	160	3	29.65	47	Operator	NCO	AN Farm	AN Farm		Performing SR 2.1.4.2 work	Vapors	Vapor	2003-0544		
Transient	2003-9	2003	9	2/7/03	20:55	310	9	29.50	33	NCO	NCO	AN Control Room	AN Farm		Not Clear	Odor	Odor	2003-0584		
Transient	2003-10	2003	10	2/11/03	09:30	270	4	29.38	35	IHT	IH	AN Farm- Near 241-AN K1-5-2 Fan Housing	AN Farm	Measured source levels 567 PPB Organics/0 PPM NH3.	Not Clear	Odor	NH-3	2003-0642		
Not Related	2003-11	2003	11	2/27/03	08:40	290	7	29.21	35	NCO	NCO	2715 Warehouse	Other	Vehicle odors that entered the building through the roll-up door.	Not Clear	Gasoline	Gasoline			

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Transient	2003-12	2003	12	4/16/03	11:05	170	8	29.24	57	Elect. (5) NCO, HPT	Electrician	U-Farm /Between U-107 and U-104	U Farm	It was determined that the odor was from ground sealant (fish guts) that was sprayed throughout the Tank Farm years ago.	Not Clear	Sewer like odor	Sealant	2003-1491		
Transient	2003-13	2003	13	4/18/03	13:35	220	8	29.29	57	HPT	HPT	AP Farm /AP-02D Pit	AP Farm	Exposed to Simple Green Vapors	Not Clear	Simple Green Vapor	Simple Green			
Transient	2003-14	2003	14	4/22/03	10:41	100	3	28.99	56	HPT	HPT	AN Farm /AN-107	AN Farm	IH: Reported no detectable TOC near 107-AN Recommends nuisance masks for individuals	Not Clear	Ammonia	Ammonia			
Transient	2003-15	2003	15	4/28/03	14:20	10	16	28.96	71	Unknown	Unknown	An-Farm /AN-101	AN Farm	Several construction workers smelled ammonia odor near AN-101 and AN-102. People directed away from the general area until IH Tech conducted readings	Not Clear	Ammonia	Ammonia			
Transient	2003-16	2003	16	4/28/03	15:25	50	12	28.93	70	Carpenter	Carpenter	An-Farm /AN-101	AN Farm	IH: 16:10 reports no detectable TOC or ammonia in breathing zones or work areas around AN Farm	Blank	Ammonia	Ammonia	2003-1620		
Transient	2003-17	2003	17	4/28/03	15:40	50	12	28.93	70		Unknown	AN Farm / AN-A Pit	AN Farm	IH: 16:10 reports no detectable TOC or ammonia in breathing zones or work areas around AN Farm	Not Clear	Ammonia	Ammonia	2003-1620		
Transient	2003-18	2003	18	5/1/03	11:09	90	6	29.23	67	HPT	HPT	AN Farm	AN Farm	Odors were near new concrete pads in center of AN Farm. IH: reported 0 ppb TOC. Exhaust stack readings are normal.	Not Clear	Ammonia	Ammonia			
Transient	2003-19	2003	19	6/10/03	13:30	320	19	28.91	83	Unknown	Unknown	AN Farm - near primary stack	AN Farm	IH:)ppm reading in breathing zone, 0 ppm in general area	Not Clear	Ammonia	Ammonia			
Transient	2003-20	2003	20	6/25/03	10:15	10	5	29.39	79	NCO	NCO	AW Farm - AW01A Pit	AW Farm	When a jumper was disconnected, a brown substance fell and landed on floor causing a "puff" of dry substance to become airborne	Not Clear	Brown substance	Unknown			

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Transient	2003-21	2003	21	7/1/03	10:20	290	5	29.15	71	NCO (2)	NCO	AW Farm / 241-AW AM2	AW Farm		Not Clear		Unknown	2003-2583		
Transient	2003-22	2003	22	7/16/03	09:03	270	8	29.15	77	Unknown	Unknown	AN Farm	AN Farm	IH: No detectable chlorine, ammonia, or organic vapors.	Not Clear	Chlorine	Chlorine			
Transient	2003-23	2003	23	7/16/03	08:22	260	7	29.15	76	Unknown	Unknown	AN Farm	AN Farm	Herbicide Spray W. of AN Farm in progress. Instructed SSS to stop spraying	Not Clear	Chlorine	Herbicide			
Transient	2003-24	2003	24	7/29/03	09:15	40	5	29.21	90	Unknown	Unknown	AW Farm – 241-AW	AW Farm	IH: Performed monitoring in the breathing air zone and received no indications on instruments. Odor was easily smelled by others in area.	Not Clear	Ammonia	Ammonia	2003-2894		
Not Related	2003-25	2003	25	8/7/03	12:52	240	9	29.20	77	Unknown	Unknown	SY Farm - Pit	SY Farm	IH: Results with OVM were non-detectable. Results with Flam Gas were 0% LFL	Not Clear	Electrical	Electrical			
Transient	2003-26	2003	26	8/17/03	20:55	140	4	29.13	76	NCO	NCO	C Farm	C Farm	IH: No ammonia or organics in breathing air zone. Identified the source of odor. C-103 not C-106. Conduit tray running from C-103 pit to the WFIE Cabinet was reading 200ppm NH3 at source and 13 ppm TOC organics. WFIE cabinet was reported to be outside the air monitoring zone. IH also reported reading 12 ppm NH3 and 1 ppm TOC organic at C106 POR-008 Exhauster Stack.	Not Clear	Ammonia	Ammonia	2003-3207		
Transient	2003-27	2003	27	8/18/03	23:15	300	16	29.02	80	FLM, NCO	NCO	C Farm/C-106	C Farm	IH:Restricted access into C-Farm; all personnel entering C-Farm must don a full face AOPR with GME-P-=100 cartridges and IHT coverage until odor issues are resolved.	Not Clear	Odor	Odor	2003-3207		

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Transient	2003-28	2003	28	8/21/03	08:20	300	6	29.13	70	Unknown	Unknown	C Farm/241-C	C Farm	Stop work invoked by Dave Roberts on further access into 241-C due to concerns surrounding vapors	Not Clear	Vapors	Vapor			
Transient	2003-29	2003	29	8/28/03	08:20	350	8	29.25	73	Unknown	Unknown	AP Farm	AP Farm	IH: No levels of sulfur or other TOC above HASP detected.	Not Clear	Sulfur smell	Sulfur			
Transient	2003-30	2003	30	9/2/03	15:50	350	7	29.19	94	HPT	HPT	AW Farm/241-AW	AW Farm	IH: No ammonia detected other than in AW AMZ.	Not Clear	Ammonia	Ammonia			
Transient	2003-31	2003	31	9/4/03	12:30	100	5	29.08	97	Unknown	Unknown	Camden Ave in 200W	Other	3 employees walking on Camden Ave smelled strong ammonia vapors on roadway.	Not Clear	Ammonia	Ammonia			
Transient	2003-32	2003	32	9/5/03	04:25	300	11	29.09	75	NCO, FLM	NCO	AN Farm/An101 and AN-103	AN Farm	IH: 0 ppm Ammonia and 0 ppm Organics	Not Clear	Ammonia	Ammonia			
Intrusive	2003-33	2003	33	9/10/03	23:05	250	7	29.27	63	HPT	HPT	C Farm/AN Farm	C Farm		Performing walkdown (surveys) of the HIHTL outside of C-Farm between C-Farm and AN Farm	Ammonia/Dirty Odor	Ammonia	2003-3552		
Intrusive	2003-34	2003	34	9/10/03	19:15	230	14	29.25	70	IHT	IH	AN Farm	AN Farm	IH: Readings of 15ppm NH3 in CAM cabinet and >30 ppm at shaft motor housing	Performing sweeps in support of C-106 to AN-106 transfer.	Vapor	Vapor			
Transient	2003-35	2003	35	9/16/03	11:30	250	16	29.01	66	NCO	NCO	Unknown	Unknown	Reported to Dr. that she was exposed to vapors on 4/1/03.	Not Clear	Vapor	Vapor	2003-3604		
Not Related	2003-36	2003	36	9/17/03	12:40	150	10	29.36	65	Unknown	Unknown	244-A, North side of ATCO shop	244A	IH: No reports of ammonia or organic vapors	Not Clear	Decay of animals odor	Dead Animal			
Transient	2003-37	2003	37	9/19/03	08:33	70	4	29.10	65	NCO	NCO	204-AR	204AR	IH: performed a sweep outside of A Farm, no organics or ammonia reported.	Not Clear	Vapor	Vapor			
Transient	2003-38	2003	38	9/19/03	14:35	270	14	29.08	81	Unknown	Unknown	C-Farm	C Farm	Reported smelling the same odor as M. Bussleman and K. Gilley	Not Clear	Vapor	Vapor			

Table A-1. Reported Vapor Incidents 1995 – 2004 (22 Sheets)

Classification	Record No	Year	Exp # for Year	Date	Time	Wind Dir	Wind Speed (mph)	Baro. pressure (in.Hg)	Temp (degrees F)	Affected Emp Log Desc	Affected Job Class	Log Location	Location	Comments	Work Process	Log Type Desc	Type	PER (PERs system start May-Jun 01)	Occurrence Report	EIT
Transient	2003-39	2003	39	9/20/03	10:18	180	5	29.37	67	NCO	NCO	AN Farm/AN-106	AN Farm	IH: No odors present in AN-Farm or surrounding area, also no report of any organic or ammonia readings on meters.	Not Clear	Sewage	Sewer			
Transient	2003-40	2003	40	9/22/03	09:40	130	5	29.24	63	Unknown	Unknown	204-AR	204AR		Not Clear	Sewage	Sewer			
Transient	2003-41	2003	41	9/22/03	14:17	80	5	29.12	85	Exempt	Exempt	B-Farm/ 241-B	B Farm		Not Clear	Vapor	Vapor			
Transient	2003-42	2003	42	9/23/03	12:11	280	5	29.14	82	Subcontractor-Facility Management	Subcontractor	204-AR, 242-A, 272-AW	204AR		Not Clear	Odor	Odor	2003-3727		
Not Related	2003-43	2003	43	9/29/03	13:10	40	12	29.11	85	Unknown	Unknown	Canton & 4th	Other	Dead animal odor coming from a septic tank	Not Clear	Odor	Odor			
Transient	2003-44	2003	44	10/1/03	10:20	330	7	29.27	72	Unknown	Unknown	AN Farm / 106-AN	AN Farm	IH: did not receive indications of ammonia or organics on instruments	Not Clear	Odor	Odor			
Transient	2003-46	2003	46	10/2/03	07:45	190	4	29.16	55	Unknown	Unknown	Unknown	Unknown	Stop work invoked on all mask use because issuers/users are not properly training on the two types of Ultra Twin View Mask.	Not Clear		Unknown			
Transient	2003-47	2003	47	10/2/03	09:51	320	7	29.16	69	SOE	Operations Engineer	U Farm/between U-107 & U-108	U Farm		Not Clear	Vapor	Vapor	2003-3913		
Not Related	2003-45	2003	45	10/2/03	13:04	40	7	29.14	80	Unknown	Unknown	AW Farm	AW Farm	IH: no detectable organics or ammonia	Not Clear	Odor	Odor			
Transient	2003-48	2003	48	10/3/03	10:50	360	5	29.14	71	HPT	HPT	204-AR	204AR		Not Clear	Vapor smell	Vapor			
Transient	2003-49	2003	49	10/7/03	11:12	310	9	29.07	67	FFS Electricians (2)	FFS	AY #1 Trailer	AY Farm		Not Clear	Body odor	Body			
Transient	2003-50	2003	50	10/16/03	15:35	200	22	29.11	65	FFS Workers	FFS	ATCO Bldg.	Other		Not Clear	Dead animal odor	Dead Animal			
Transient	2003-51	2003	51	10/16/03	09:06	160	8	29.16	55	SSM	Shift Mgr	AZ Farm/ near west side of 702-AZ, MO-979	AZ Farm	IHT sampled and obtained 0 ppm organics and 0 ppm ammonia	Not Clear	Odor	Odor			
Not Related	2003-52	2003	52	10/16/03	07:05	80	8	29.16	50	HPT	HPT	MO-979-Nearby	Other		Not Clear	Odors	Odor			
Transient	2003-53	2003	53	10/22/03	15:35	250	17	29.09	80	NCO	NCO	BX Farm	BX Farm		Not Clear	something-Caught a whiff of	Unknown			

Table A-1. Reported Vapor Incidents 1995 – 2004 (22 Sheets)

Classification	Record No	Year	Exp # for Year	Date	Time	Wind Dir	Wind Speed (mph)	Baro. pressure (in.Hg)	Temp (degrees F)	Affected Emp Log Desc	Affected Job Class	Log Location	Location	Comments	Work Process	Log Type Desc	Type	PER (PERs system start May-Jun 01)	Occurrence Report	EIT
Transient	2003-54	2003	54	11/6/03	09:48	310	10	29.66	29	SOE	Operations Engineer	BY Farm/BY-106	BY Farm		Not Clear	odor stronger than normal	Unknown	2003-4559		
Transient	2003-55	2003	55	11/15/03	09:00	170	4	29.09	41	NCO	NCO	BY Farm/BY-102, 3, 6, 8 & 9	BY Farm		Not Clear	odor stronger than normal	Unknown			
Transient	2003-56	2003	56	12/13/03	07:25	250	7	28.95	32	NCO	NCO	BY Farm/BY-105 & 106	BY Farm		Not Clear	ammonia smell above normal	Ammonia	2003-4945		
Transient	2004-1	2004	1	1/20/04	10:35	220	3	29.61	37	SOE	Operations Engineer	U Farm	U Farm		Not Clear	Ammonia: Higher than usual smell	Ammonia	2004-0299		
Not Related	2004-2	2004	2	1/24/04	21:15	260	15	28.93	36	Mgr	Mgr	2101-HV	2101-HV		Admin	odor	Odor			
Not Related	2004-3	2004	3	2/4/04	11:28	80	4	29.29	38	HPT	HPT	Hazardous Chemical Awareness class	Other	Null		White Board Cleaner- Sanford	White Board Cleaner	2004-0588		
Intrusive	2004-4	2004	4	2/12/04	08:03	250	4	29.66	28	NCO	NCO	SX change trailer	SX Farm		Working with waste bag	Ammonia gas	Ammonia	2004-0760		
Transient	2004-5	2004	5	2/19/04	08:02	250	4	29.39	34	FSS Laborer	FFS	S Farm/S-102	S Farm		Not Clear	Odor	Odor	2004-0918		
Transient	2004-6	2004	6	2/19/04	11:45	100	3	29.43	46	Elec	Electrician	U Farm	U Farm		Not Clear	Odor	Odor	2004-0919		
Intrusive	2004-7	2004	7	3/1/04	8:55	320	9	29.20	40	FSS Construction Workers	FFS	AY #1 Trailer	AY Farm	IHT, Pam Aardahl also smelled rotten egg/catalytic converter odor. 0 ppm VOC and 0 ppm NH_3	Flush from AP Flush Pit to AP-108	Rotten Egg Smell	Sulfur			
Not Related	2004-8	2004	8	3/2/04	9:50	300	7	29.37	46	Inst. Tech.	Instrument Technician	272-WA/Conex Box	272WA	FLM reports IH & HPT monitored Conex at 272-WA, No sign of source of smell	Monitoring	Dead animal	Dead Animal			
Intrusive	2004-9	2004	9	3/4/04	12:54	310	8	28.98	53	NCO	NCO	C-105	C Farm	IH monitoring showed 10 ppm Ammonia & 35 ppb organic at C-105 Sluice Pit	Pit Work	odor stronger than normal	Ammonia	2004-1301		
Intrusive	2004-10	2004	10	3/8/04	13:35	290	4	29.62	65	HPT	HPT	TY-103 & TY-104	TY Farm	IHT reports TX-113: 3.6 ppm VOC and 100 ppm NH3, TY-103: 148 ppb VOC and 50 ppm NH_3, TY-104: 260 ppb VOC and 70 ppm NH_3	LOW Van in TX Farm	Odor	Odor			

Table A-1. Reported Vapor Incidents 1995 – 2004 (22 Sheets)

Classification	Record No	Year	Exp # for Year	Date	Time	Wind Dir	Wind Speed (mph)	Baro. pressure (in.Hg)	Temp (degrees F)	Affected Emp Log Desc	Affected Job Class	Log Location	Location	Comments	Work Process	Log Type Desc	Type	PER (PERs system start May-Jun 01)	Occurrence Report	EIT
Intrusive	2004-11	2004	11	3/8/04	14:35	50	5	29.60	69	FFS Workers and HPT	HPT	241-AP	AP Farm	IHT, Pam Aardahl reports 100 ppm VOC	Preparing to remove covers from 241-AP	Body Odor & Onion Odor	Onion	2004-1345		
Intrusive	2004-12	2004	12	3/9/04	12:05	170	4	29.34	56	NCO	NCO	AN Farm	AN Farm	IH, Mike Zabel reports source of smell was AN Farm primary B shaft: 97 ppm NH3 and 2.1 ppm VOC	Rounds in AN Farm	Chemical odor	Chemical			
Transient	2004-13	2004	13	3/11/04	8:55	270	4	29.52	41	NCO	NCO	204-AR and 4th & Buffalo	204AR	Odors were due to cutting activities in ten at 204-AR, no measurable levels of VOC or NH3	Unclear	Odor	Odor			
Intrusive	2004-14	2004	14	3/16/04	10:03	90	3	29 40	54	NCOs, IT	NCO	AY-102	AY Farm	IH reports no measurable readings in breathing zones	Performing Flush	Odor	Odor	2004-1524 2004-1521 2004-1524 2004-1526		2004-003
Intrusive	2004-15	2004	15	3/17/04	15:00	170	6	29.14	68	Inst Tech (2)	Instrument Technician	AW Exhauster Pad	AW Farm	Nothing detected in breathing zones	Unclear	Ammonia	Ammonia			
Transient	2004-16	2004	16	3/17/04	14:20	210	4	29.16	68	Janitor	Janitor	2752 East	2752	Chemicals have been removed from janitor closet	janitorial	Cleaning Chemicals	Chemical	2004-1388		
Transient	2004-18	2004	18	3/17/04	11:00	330	4	29.24	62	FSS Laborer	FFS	AY Farm	AY Farm	IH: At 102 AY Inlet Filter-50ppb VOC and 0ppm NH3; 0ppm VOC & NH3 in breathing zones	Unclear	Vapor Odor	Vapor			
Not Related	2004-17	2004	17	3/17/04	10:15	180	4	29.24	58	HPT, NCO	HPT	AY #1 Trailer	AY Farm	IH reports 0 ppm NH3 & VOC	CAM Filter paper exchange	Vapor Odor	Vapor			
Intrusive	2004-19	2004	19	3/25/04	21:20	70	2	28.83	48	HPT	HPT	AN Farm perimeter	AN Farm	Vapor smelled at 19:00 reported at 21:20	AN Farm perimeter surveys	musty odor	Musty		2004-0019	
Intrusive	2004-20	2004	20	3/25/04	9:55	30	3	29.09	51	Field Crew: 2 HPT	HPT	241-AN	AN Farm	Entire Crew evaluated at medical, entered AN Farm on respirators to place pit in safe condition, Sweeps at 16:30 found nothing detectable in breathing zones.	Pit entry	Sweet smell	Sweet smell	2004-1765	2004-0019	

Table A-1. Reported Vapor Incidents 1995 – 2004 (22 Sheets)

Classification	Record No	Year	Exp # for Year'	Date	Time	Wind Dir	Wind Speed (mph)	Baro. pressure (in.Hg)	Temp (degrees F)	Affected Emp Log Desc	Affected Job Class	Log Location	Location	Comments	Work Process	Log Type Desc	Type	PER (PERs system start May-Jun 01)	Occurrence Report	EIT
Intrusive	2004-21	2004	21	3/25/04	13:55	300	5	28.98	58	IHT	Instrument Technician	241-AN	AN Farm	Entire Crew evaluated at medical, entered AN Farm on respirators to place pit in safe condition, Sweeps at 16:30 found nothing detectable in breathing zones.	Pit entry	Sweet smell	Sweet smell	2004-1765	2004-0019	
Intrusive	2004-22	2004	22	3/30/04	11:47	160	5	29.04	64	IHT	Instrument Technician	Outside 204 AR	204AR	Nothing above detectable levels	Investigating odors	odor	Odor			
Transient	2004-23	2004	23	4/7/04	-	-	-	-	-	NCO	NCO	AW-Farm	AW Farm	Reported at 11:45 4/12/04, occurred 4/7/04.	Unclear	Vapor Odor	Vapor	2004-2072		
Intrusive	2004-24	2004	24	4/9/04	12:40	170	4	29.50	66	IHT	Instrument Technician	AY-102	AY Farm	Found 2,700 PPB VOC @ AY-102 Inlet Filter, nothing detected in breathing zones	AY/AZ sweeps	Medicinal odor	Medicinal			
Not Related	2004-25	2004	25	4/20/04	-	-	-	-	-	Eng/Mgr	Mgr	2440 Stevens	2440 Stvns	Reported 4/21/04, called in sick from odor on 4/20/04	Engineering	Rotten Potato Smell	Rotting			
Intrusive	2004-26	2004	26	6/14/04	14:10	250	10	29.35	71	Nuc. Waste Process Oper, HPT, Nuc. Waste Process Oper, Millwright, HPT, IH First Line Sup.	Nuclear Waste Process Operator	702-AZ	702-AZ	IHT reports highest organic reading during filter removal was 27 PPB, 2 PPM Ammonia.	Supporting Filter Replacement	musty odor	Musty			
Not Related	2004-27	2004	27	6/30/04	8:16	340	7	29.09	75	HPT	HPT	MO-979	MO-979	IHT reports no measurable readings.	Unclear	Septic Tank Odor	Septic	2004-3690		
Intrusive	2004-28	2004	28	7/9/04	13:10	210	9	28.98	83	Construction	Utility System Operator	Outside AZ-Farm	AZ Farm	IH suspects chlorine bleach was used nearby as a disinfectant, concurs event hasn't triggered AOP-IS	Construction forces working outside of AZ Farm	Chlorine Odor	Chlorine			
Transient	2004-29	2004	29	7/9/04	13:27	210	9	28.98	83	Subcontractor	Non-CH2M HILL	Between AN-Farm and AZ-Farm	AZ Farm	SM verified no chemicals were being used for work in AN-Farm, no unusual odors when he arrived	Unclear	Chlorine Odor	Chlorine			

Table A-1. Reported Vapor Incidents 1995 – 2004 (22 Sheets)

Classification	Record No	Year	Exp # for Year	Date	Time	Wind Dir	Wind Speed (mph)	Baro. pressure (in.Hg)	Temp (degrees F)	Affected Emp Log Desc	Affected Job Class	Log Location	Location	Comments	Work Process	Log Type Desc	Type	PER (PERs system start May-Jun 01)	Occurrence Report	EIT
Transient	2004-30	2004	30	7/11/04	9:15	240	5	29.3	70	Mgr NCO	Mgr NCO	271-AN	271-AN	IHT reports no ammonia or organics were detected. Misc NCO noticed odor about 08:30 and was unable to identify source of odor.	Unclear	Rotten Egg Odor	Rotting			
Not Related	2004-31	2004	31	8/4/04	8:47	20	6	29.12	76	HPT	HPT	MO-979	MO-979	IH reports slight odor, no hazard present, personnel allowed.	Pumping Septic Tank	Septic Tank Odor	Septic			
Not Related	2004-32	2004	32	8/9/04	8:45	330	8	29.3	79	HPT	HPT	MO-979	MO-979	IH reports slight odor and S4 PPB Organics at MO-979	Pumping Septic Tank	Septic Tank Odor	Septic			
Not Related	2004-33	2004	33	8/10/04	8:40	260	4	29.29	80	NCO	NCO	Between MO-266 and MO-268	MO-266	IHT reports detecting no odors, suspect garbage truck source of smell.	Unclear	Garbage Odor	Garbage			
Not Related	2004-34	2004	34	8/19/04	11:40	320	6	29.15	87	*Teamster*	*Teamster*	2750E	2750E	IHT reports no total organics, no NH3, O2 level was 20.9, extensive mold problem.	Duct Surveys	musty smell	Musty	2004-4589		
Not Related	2004-35	2004	35	9/2/04	11:05	310	10	29.21	70	Nuclear Waste Process Operator	Nuclear Waste Process Operator	2704HV Mask Station	2704HV	Mask Station vacuum burned up.	Vacuuming	Electrical Burn Smell	Electrical	2004-4808		
Intrusive	2004-36	2004	36	9/16/04	18:45	230	11	28.99	67	HPT	HPT	Outside C-Farm (SE Corner)	C-Farm	IHT reports no NONH3 or TOC detectable on instruments, smelled a faint whiff.	Sampling	Odor	Odor	2004-4968		

A2.0 REFERENCES

PER-2002-0001, "Two HPTs Smelled Chlorine in MO-377 and Felt Ill," CH2M HILL Hanford Group, Inc., Richland, Washington.

PER-2002-1257, "Potential Vapor Exposure," CH2M HILL Hanford Group, Inc., Richland, Washington.

PER-2002-1812, "Odor Detected at U-111 Pump Pit," CH2M HILL Hanford Group, Inc., Richland, Washington.

PER-2002-3432, "Operators Smelled Vapors at C-203," CH2M HILL Hanford Group, Inc., Richland, Washington.

PER-2002-4333, "Employee Smelled Ammonia in 241-AP," CH2M HILL Hanford Group, Inc., Richland, Washington.

PER-2002-4579, "Vapor Exposure 241-AP," CH2M HILL Hanford Group, Inc., Richland, Washington.

PER-2002-4926, "Suspected Ammonia Exposure LOW Installation BY-108," CH2M HILL Hanford Group, Inc., Richland, Washington.

PER-2002-5348, "IS Operator Smelled Ammonia Odor at A-101," CH2M HILL Hanford Group, Inc., Richland, Washington.

PER-2002-5837, "Ammonia Exposure," CH2M HILL Hanford Group, Inc., Richland, Washington.

PER-2002-6054, "Vapor Exposure in 241-SY," CH2M HILL Hanford Group, Inc., Richland, Washington.

PER-2003-0129, "Ambulance Run due to Vapor Exposure," CH2M HILL Hanford Group, Inc., Richland, Washington.

PER-2003-0498, "Potential Vapor Exposure – AW Farm," CH2M HILL Hanford Group, Inc., Richland, Washington.

PER-2003-0544, "Injury Report, Chest Pains," CH2M HILL Hanford Group, Inc., Richland, Washington.

PER-5003-0584, "Vapor Exposure Reported in AN-271," CH2M HILL Hanford Group, Inc., Richland, Washington.

PER-2003-0642, "Injury," CH2M HILL Hanford Group, Inc., Richland, Washington.

PER-2003-1491, "CP Odor in U-Farm," CH2M HILL Hanford Group, Inc., Richland, Washington.

PER-2003-1620, "Ammonia Odors Smelled in AN Farm," CH2M HILL Hanford Group, Inc., Richland, Washington.

PER-2003-2583, "Injury – NCOs Evaluated Due to Potential Ammonia Exposure," CH2M HILL Hanford Group, Inc., Richland, Washington.

PER-2003-2894, "WFO First Aid Case," CH2M HILL Hanford Group, Inc., Richland, Washington.

PER-2003-3207, "C-Farm Odor Issues," CH2M HILL Hanford Group, Inc., Richland, Washington.

PER-2003-3552, "Ammonia Odor during C-106 Transfer Rad Surveys," CH2M HILL Hanford Group, Inc., Richland, Washington.

PER-2003-3604, "WFO Sampling First Aid Case," CH2M HILL Hanford Group, Inc., Richland, Washington.

PER-2003-3913, "First Aid/Vapor Exposure U-Farm," CH2M HILL Hanford Group, Inc., Richland, Washington.

PER-2003-4559, "BY-Farm Vapors," CH2M HILL Hanford Group, Inc., Richland, Washington.

PER-2003-4945, "Continuous Air Monitoring Surveillance Not Completed Per Procedure," CH2M HILL Hanford Group, Inc., Richland, Washington.

PER-2004-0299, "Unusual Odor in U-Farm," CH2M HILL Hanford Group, Inc., Richland, Washington.

PER-2004-0588, "Vapor Exposure – White Board Cleaner at Training," CH2M HILL Hanford Group, Inc., Richland, Washington.

PER-2004-0760, "S-112 Secured Pending Safety Basis Classification," CH2M HILL Hanford Group, Inc., Richland, Washington.

PER-2004-0918, "Vapor Exposure in 241-S," CH2M HILL Hanford Group, Inc., Richland, Washington.

PER-2004-0919, "Vapor Exposure in 241-U," CH2M HILL Hanford Group, Inc., Richland, Washington.

PER-2004-1301, "Employee Evaluated at HEHF after Ammonia Exposure at C-105," CH2M HILL Hanford Group, Inc., Richland, Washington.

PER-2004-1521, "Employee Smelled Odors Near 241-AY-102 Inlet Station," CH2M HILL Hanford Group, Inc., Richland, Washington.

PER-2004-1524, "Maintenance Employee Smelled Odor in AY-Farm," CH2M HILL Hanford Group, Inc., Richland, Washington.

PER-2004-1526, "Employee Smelled Chemical Odor at 102-AY Inlet Station," CH2M HILL Hanford Group, Inc., Richland, Washington.

PER-2004-1765, "Occurrence 10 (5) SC-4 Declared for Vapor Exposure and Response," CH2M HILL Hanford Group, Inc., Richland, Washington.

PER-2004-2072, "Employees Smelled Diesel Outside 241-AW," CH2M HILL Hanford Group, Inc., Richland, Washington.

PER-2004-3690, "Septic Tank Next to MO-979," CH2M HILL Hanford Group, Inc., Richland, Washington.

PER-2004-4589, "Employee Smelled Strong Odor In Storage Shed at 2750," CH2M HILL Hanford Group, Inc., Richland, Washington.

PER-2004-4808, "Employees Taken to AMH for Headache and Sore Throat," CH2M HILL Hanford Group, Inc., Richland, Washington.

PER-2004-4968, "HPT Smelled a Sharp Musty Odor," CH2M HILL Hanford Group, Inc., Richland, Washington.

APPENDIX B

VAPOR INCIDENT GRAPHICAL REPRESENTATIONS

B1.0 INTRUSIVE WORK VAPOR INCIDENT GRAPHICAL REPRESENTATIONS (YEARS 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, and 2004)

Work Intrusive Vapor Incidents Analysis and Conclusions

After analyzing the graphical representations of barometric pressure over a twenty-four hour period on the specific days of work defined incidents reported between the years of 1995 and 2004, it was found that in the majority of occurrences that barometric pressure alone could have caused or exacerbated a vapor release. However, wind velocity and/or direction could also play a key role in the transporting of certain heavy vapors (lighter vapors tend to dissipate in moderate to heavy winds) should they have been released into the atmosphere by some other method.

B2.0 TRANSIENT WORK VAPOR INCIDENT GRAPHICAL REPRESENTATIONS (YEARS 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, and 2004)

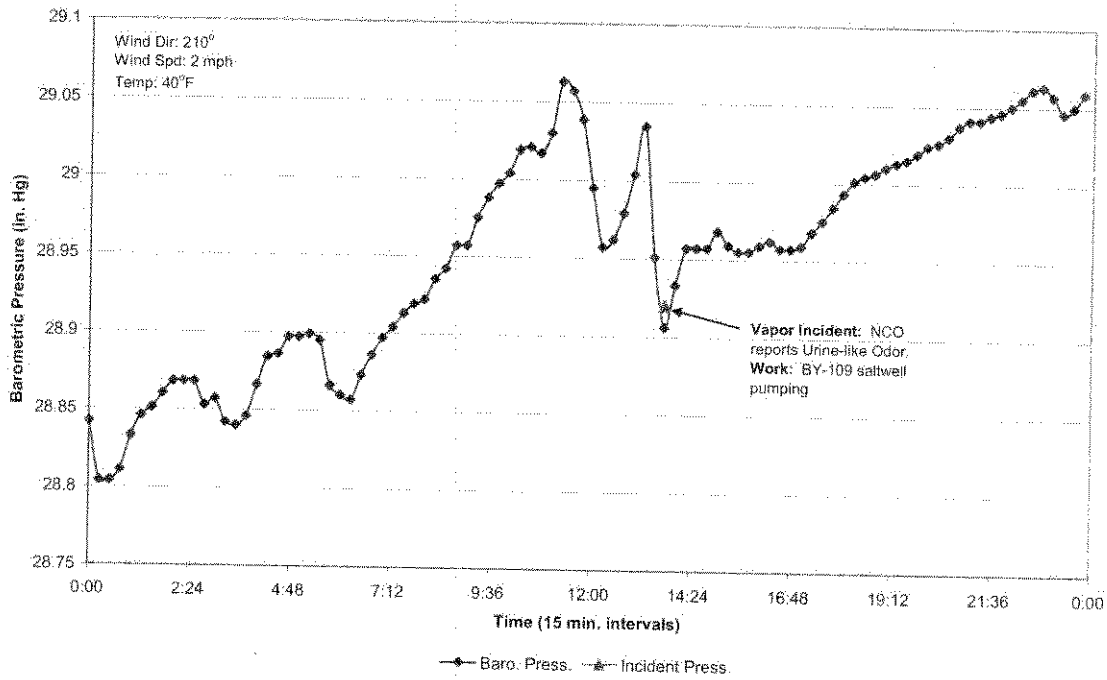
Work Transient Vapor Incidents Analysis and Conclusions

After analyzing the graphical representations of barometric pressure over a twenty four hour period on the specific days of work non-defined incidents reported between the years of 1995 and 2004, it was found that in the majority of occurrences that barometric pressure alone could have caused or exacerbated a vapor release. Wind velocity and/or direction could also play a part in the transporting of certain heavy vapors (lighter vapors tend to dissipate in moderate to heavy winds) should they have been released into the atmosphere by some other process.

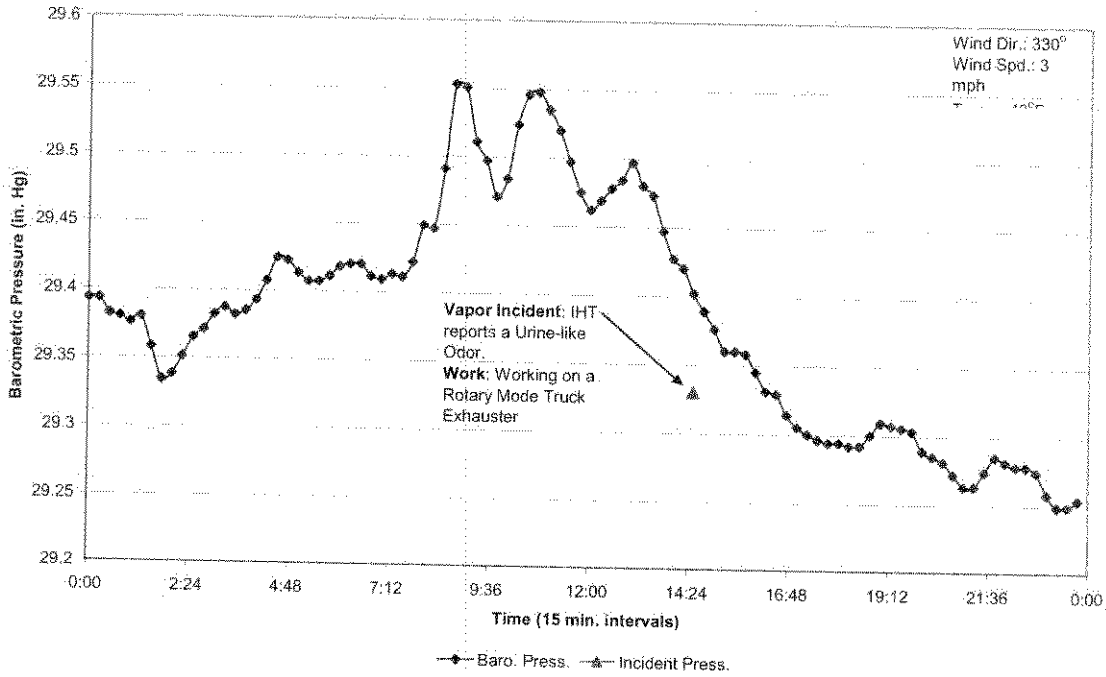
Note: The Hanford Meteorological Station's computer crashed in 1995 resulting in no data collection for the months of May and July.

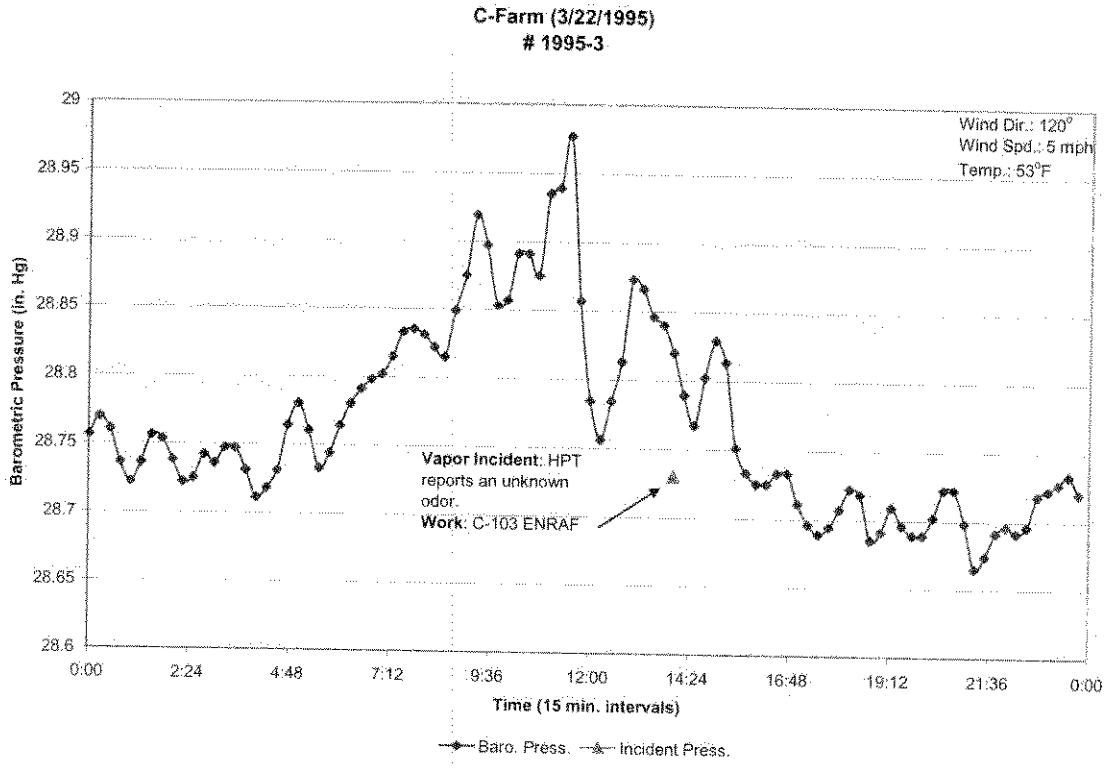
B1.0 INTRUSIVE WORK VAPOR INCIDENT GRAPHICAL REPRESENTATIONS (YEARS 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, and 2004)

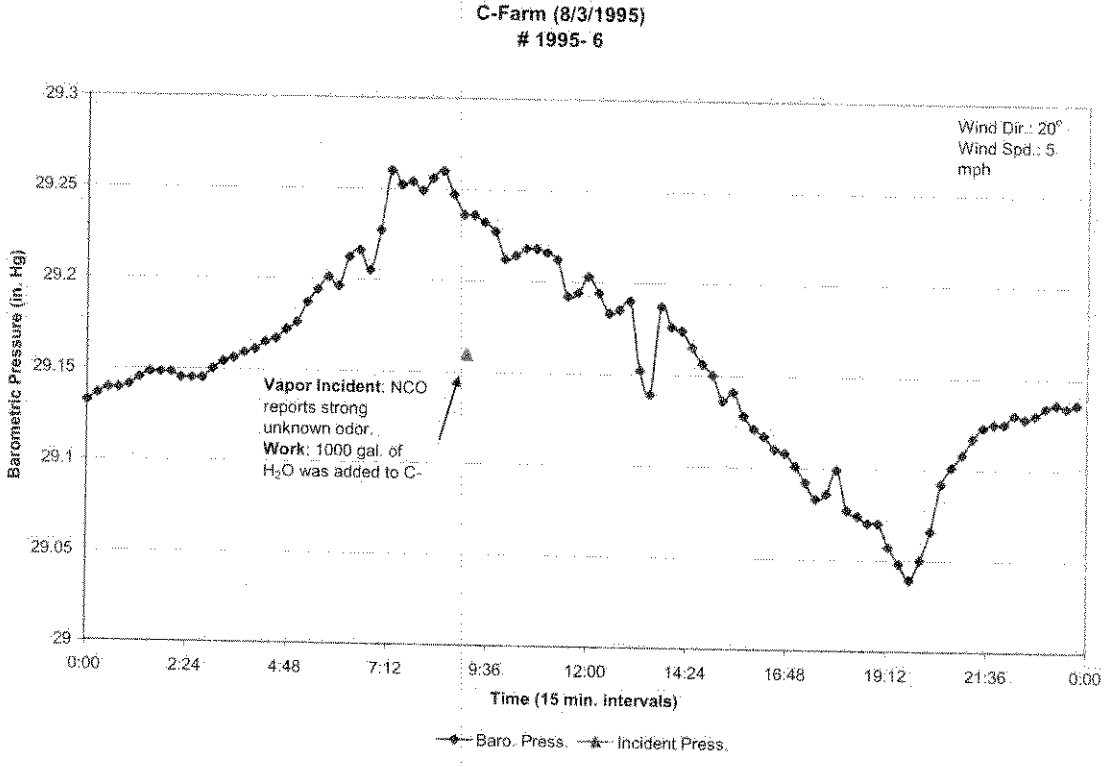
BY Farm (1/15/1995)
 # 1995-1

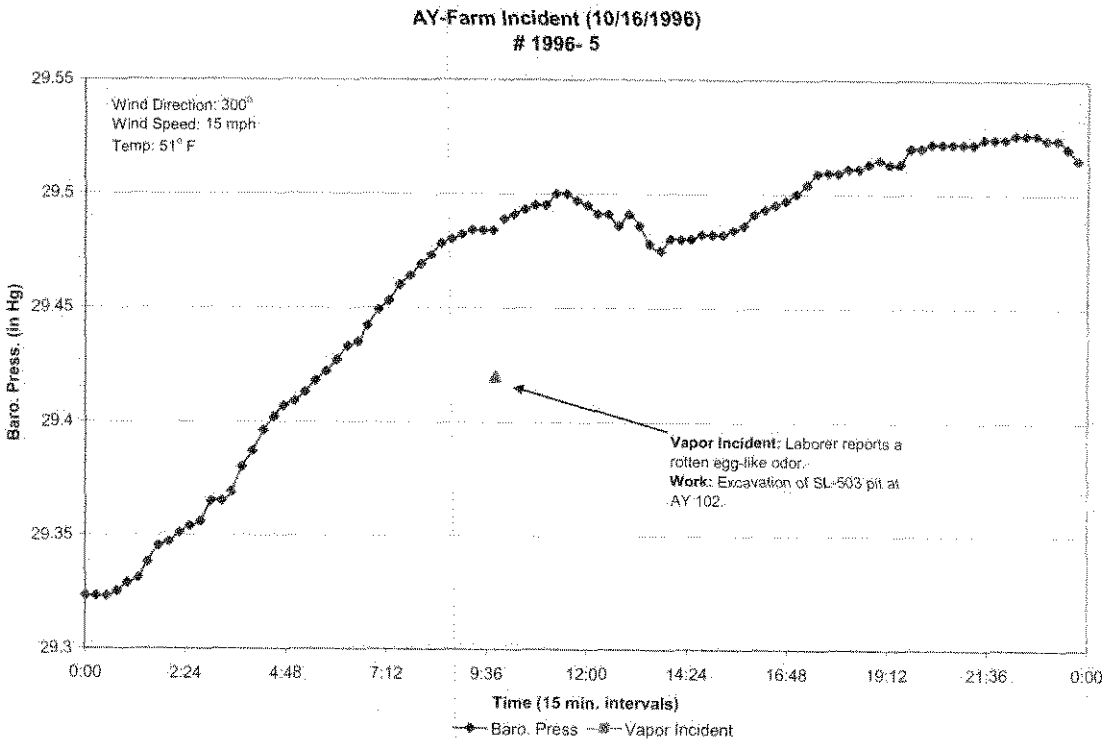


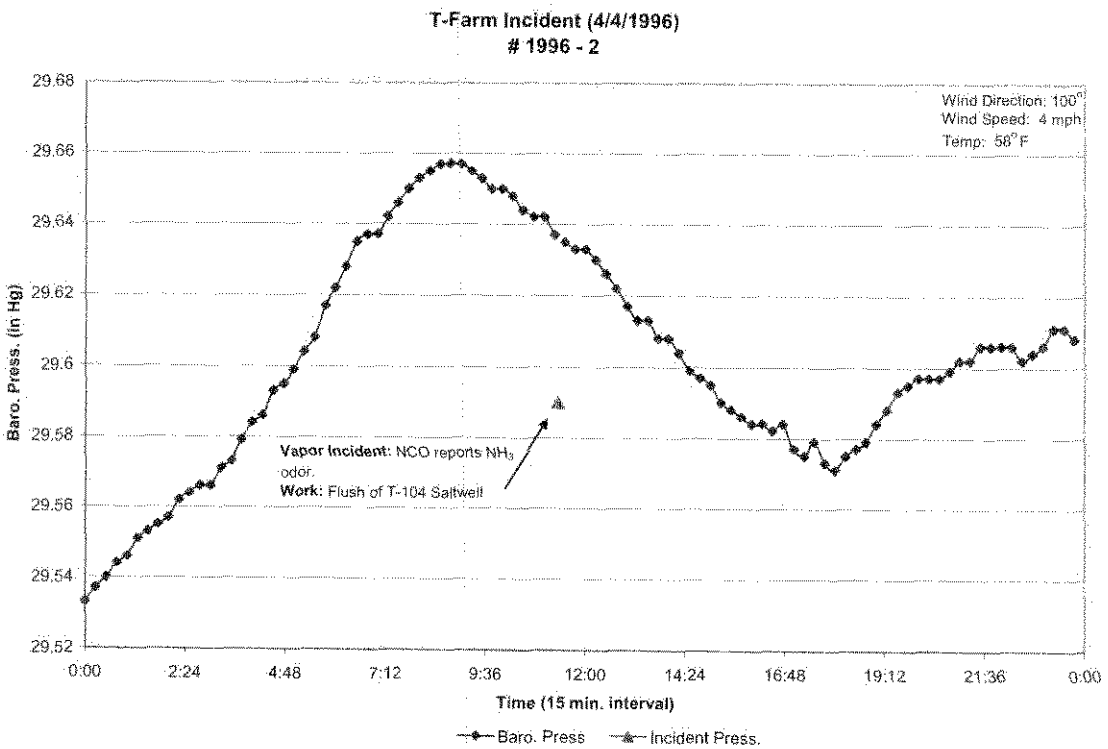
BY Farm (2/10/1995)
 # 1995-2

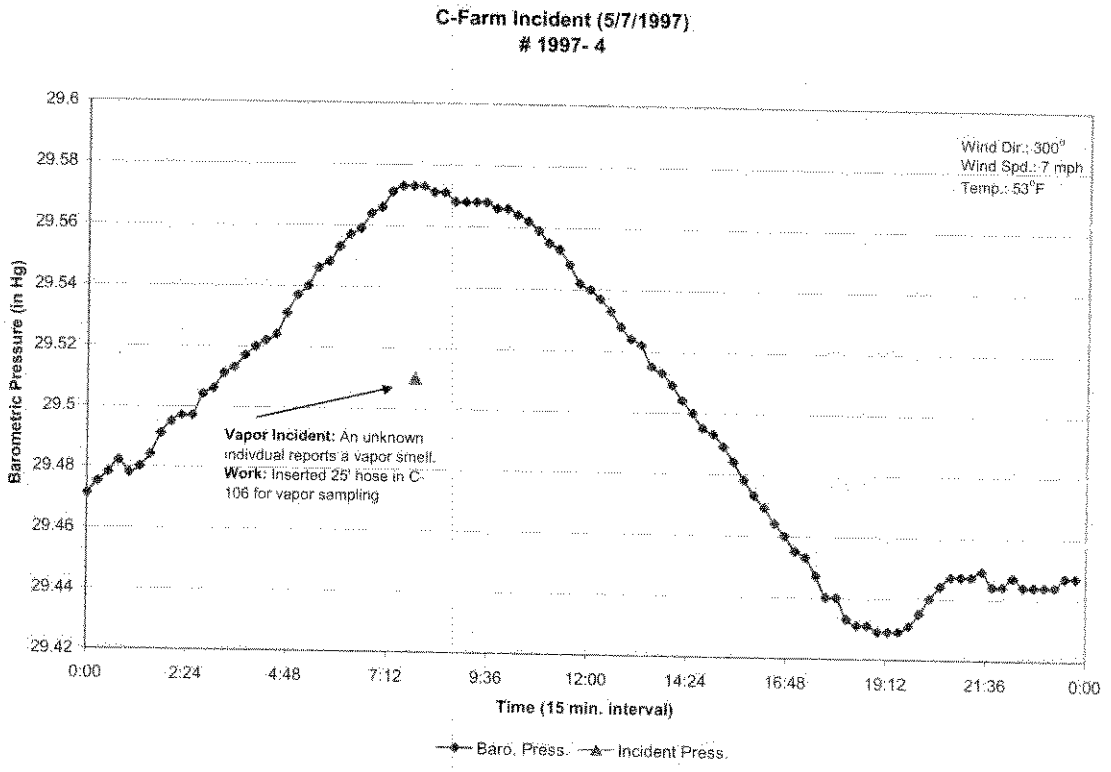


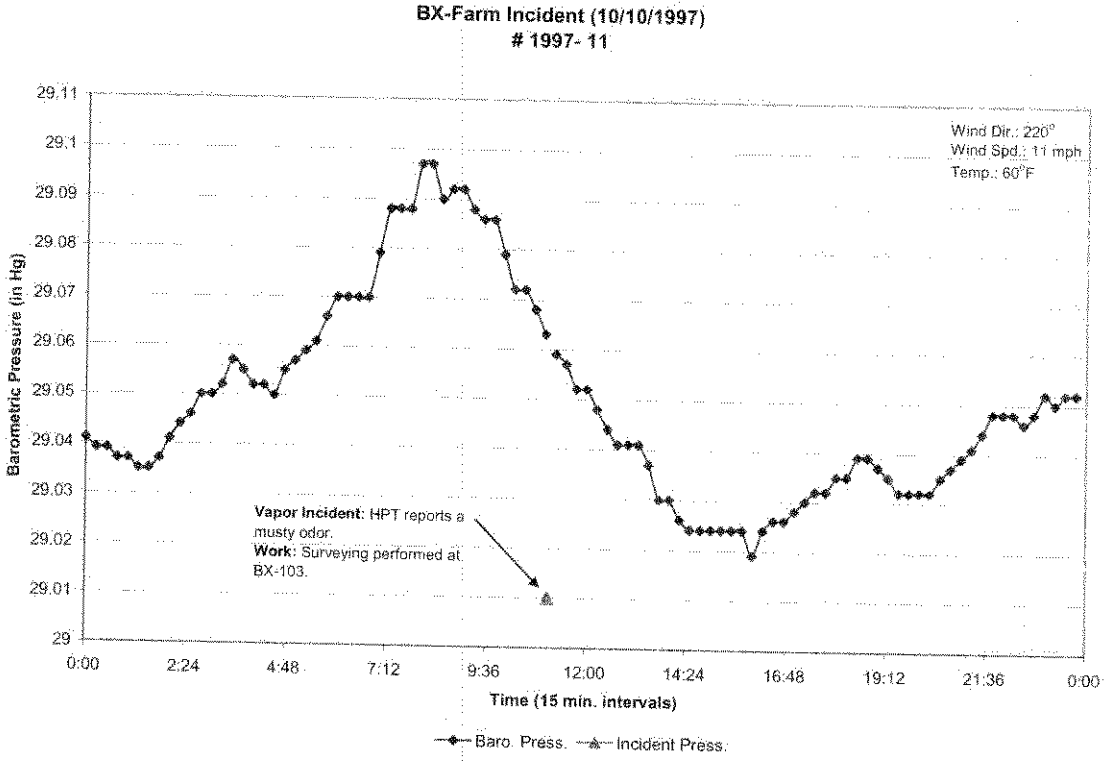

C-Farm (3/22/1995)
1995-3
Wind Dir.: 120°
Wind Spd.: 5 mph
Temp.: 53°F
Vapor Incident: HPT reports an unknown odor.
Work: C-103 ENRAF
Barometric Pressure (in. Hg)
29
28.95
28.9
28.85
28.8
28.75
28.7
28.65
28.6
0:00
2:24
4:48
7:12
9:36
12:00
14:24
16:48
19:12
21:36
0:00
Time (15 min. intervals)
Baro. Press.
Incident Press.


C-Farm (8/3/1995)
1995- 6
Wind Dir.: 20°
Wind Spd.: 5 mph
Vapor Incident: NCO reports strong unknown odor.
Work: 1000 gal. of H_2O was added to C-
Barometric Pressure (in. Hg)
29.3
29.25
29.2
29.15
29.1
29.05
29
0:00
2:24
4:48
7:12
9:36
12:00
14:24
16:48
19:12
21:36
0:00
Time (15 min. intervals)
Baro. Press.
Incident Press.

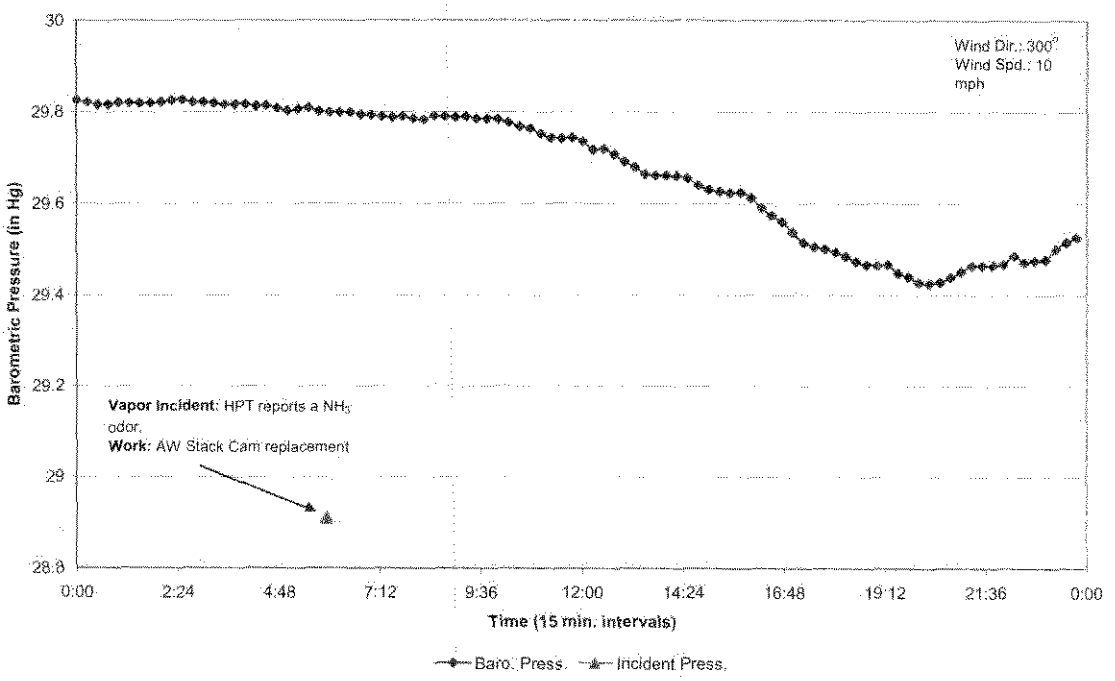

AY-Farm Incident (10/16/1996)
1996- 5
Wind Direction: 300°
Wind Speed: 15 mph
Temp: 51° F
Vapor Incident: Laborer reports a rotten egg-like odor.
Work: Excavation of SL-503 pit at AY 102.
Baro. Press. (in Hg)
29.55
29.5
29.45
29.4
29.35
29.3
0:00
2:24
4:48
7:12
9:36
12:00
14:24
16:48
19:12
21:36
0:00
Time (15 min. intervals)
Baro. Press
Vapor Incident


T-Farm Incident (4/4/1996)
1996 - 2
Wind Direction: 100°
Wind Speed: 4 mph
Temp: 58° F
Vapor Incident: NCO reports NH3 odor.
Work: Flush of T-104 Saltwell
Baro. Press. (in Hg)
29.68
29.66
29.64
29.62
29.6
29.58
29.56
29.54
29.52
0:00
2:24
4:48
7:12
9:36
12:00
14:24
16:48
19:12
21:36
0:00
Time (15 min. interval)
Baro. Press
Incident Press.

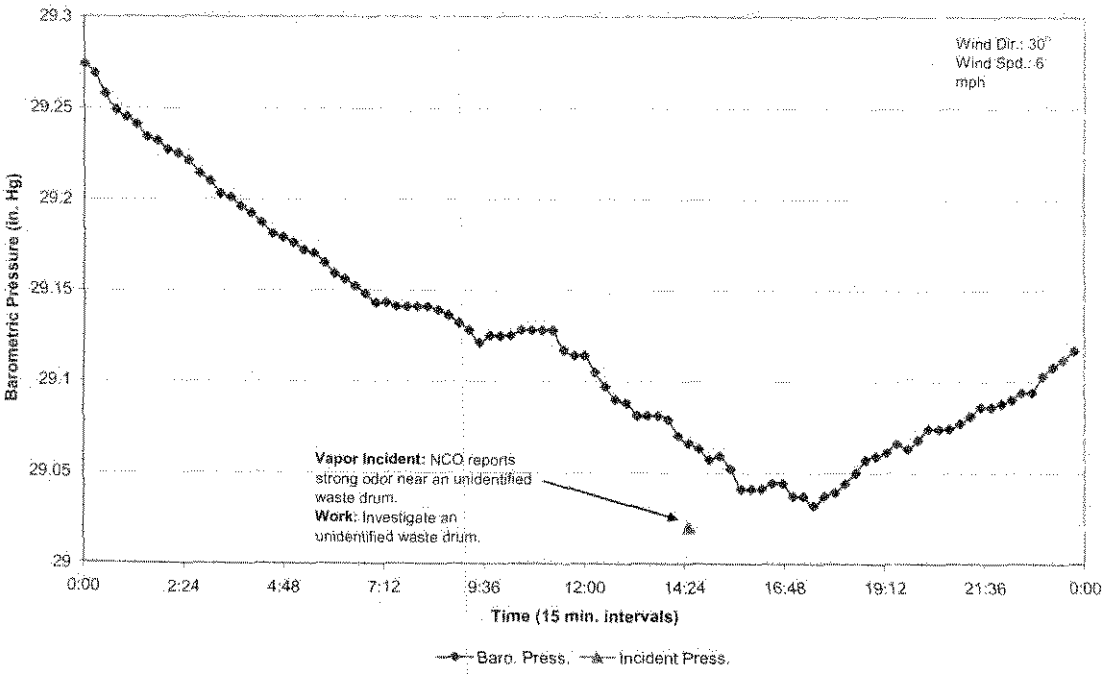

C-Farm Incident (5/7/1997)
1997- 4
Wind Dir.: 300°
Wind Spd.: 7 mph
Temp.: 53°F
Vapor Incident: An unknown indivdual reports a vapor smell.
Work: Inserted 25' hose in C-106 for vapor sampling
Barometric Pressure (in Hg)
29.6
29.58
29.56
29.54
29.52
29.5
29.48
29.46
29.44
29.42
0:00
2:24
4:48
7:12
9:36
12:00
14:24
16:48
19:12
21:36
0:00
Time (15 min. interval)
Baro. Press.
Incident Press.


BX-Farm Incident (10/10/1997)
1997- 11
Wind Dir.: 220°
Wind Spd.: 11 mph
Temp.: 60°F
Vapor Incident: HPT reports a musty odor.
Work: Surveying performed at BX-103.
Barometric Pressure (in Hg)
29.11
29.1
29.09
29.08
29.07
29.06
29.05
29.04
29.03
29.02
29.01
29
0:00
2:24
4:48
7:12
9:36
12:00
14:24
16:48
19:12
21:36
0:00
Time (15 min. intervals)
Baro. Press.
Incident Press.

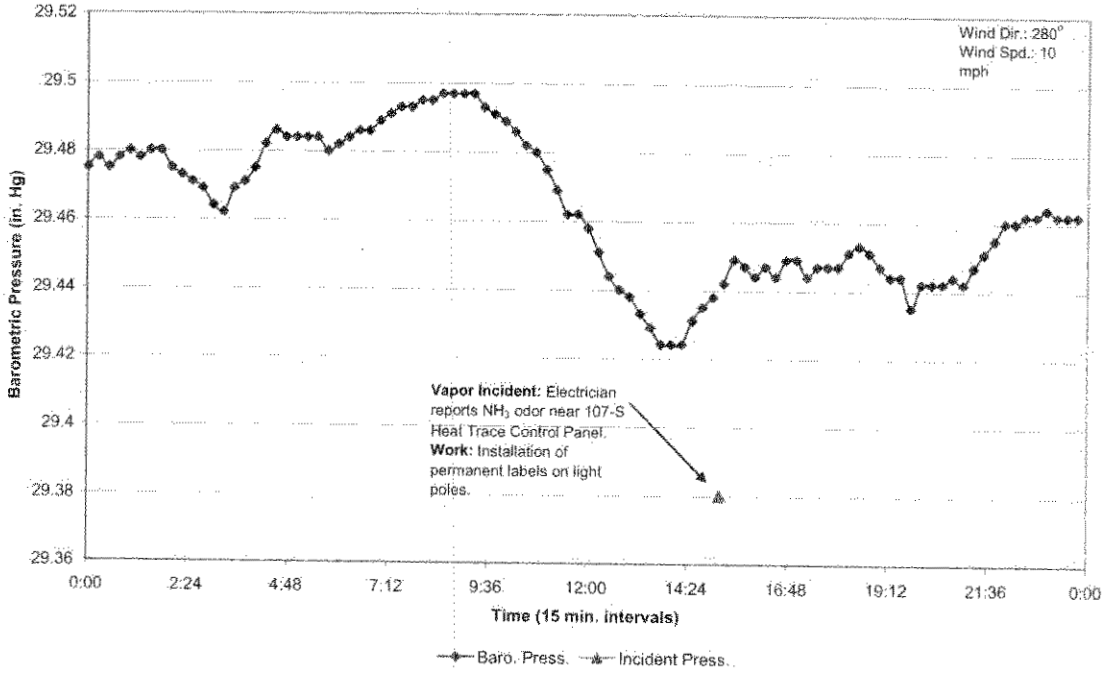
AW-Farm Incident (12/26/1997)
 # 1997 - 13



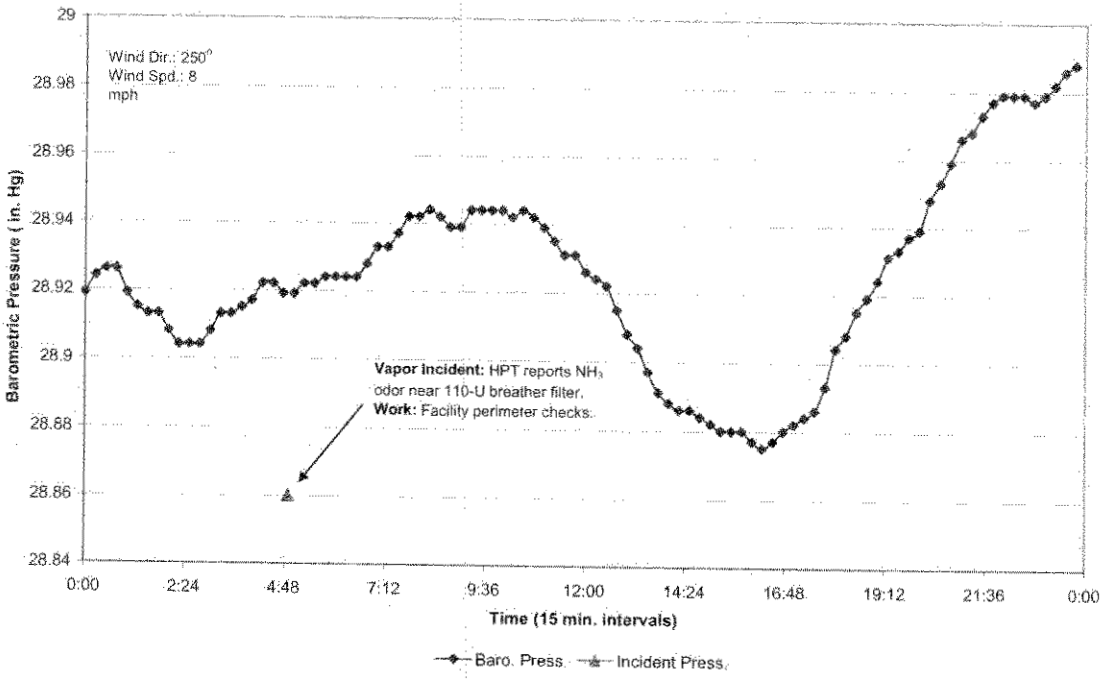
C-Farm Incident (3/2/1998)
 # 1998-1



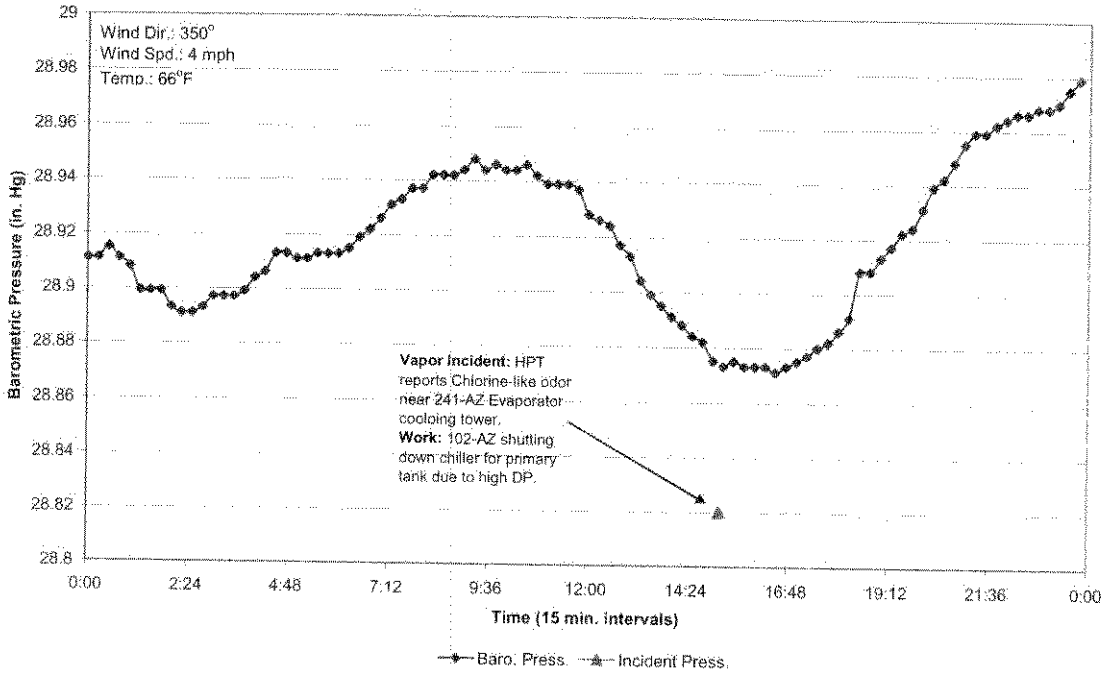
S-Farm Incident (3/10/1998)
 # 1998 - 2



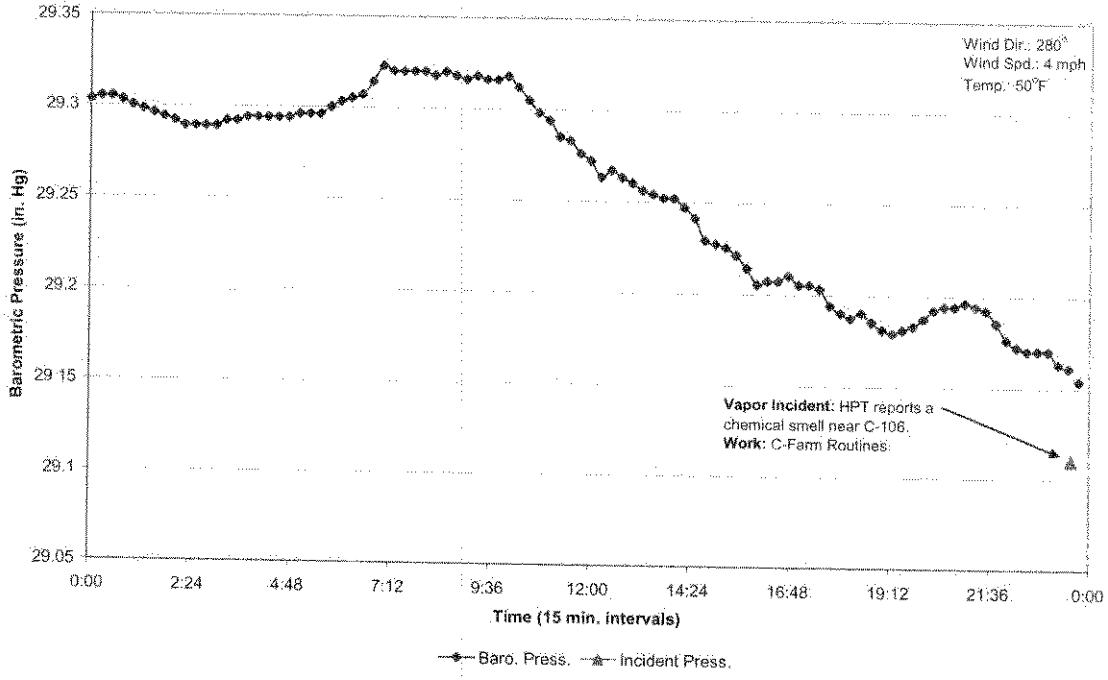
U-Farm Incident (3/25/1998)
 # 1998 - 3



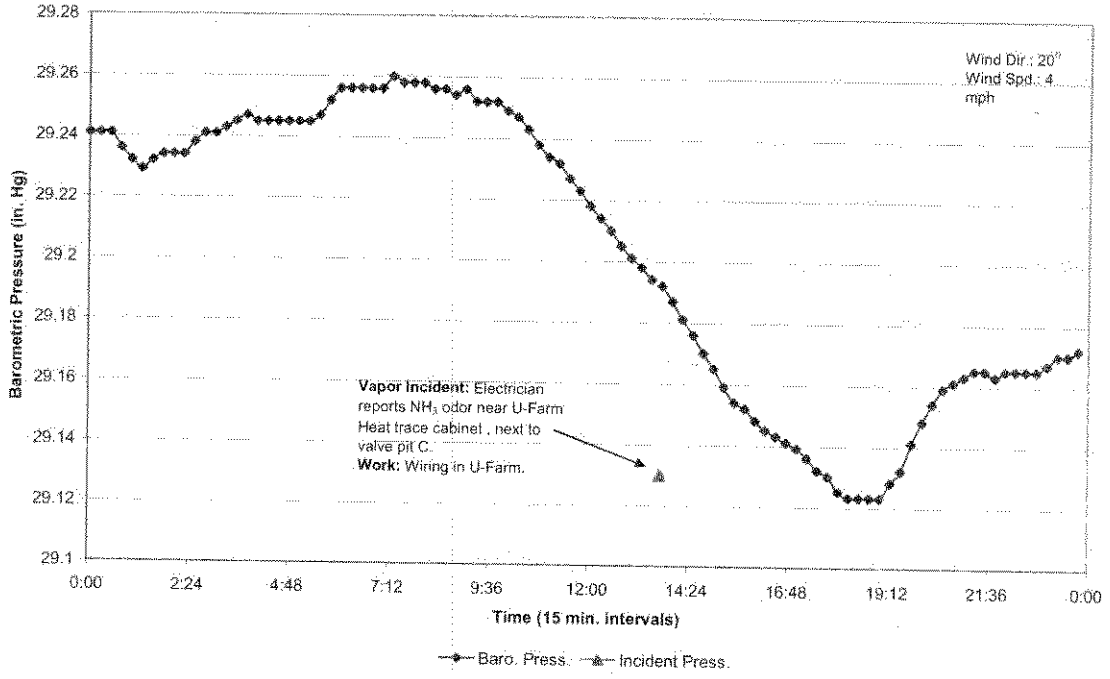
AZ-Farm Incident (3/25/1998)
 # 1998 - 4



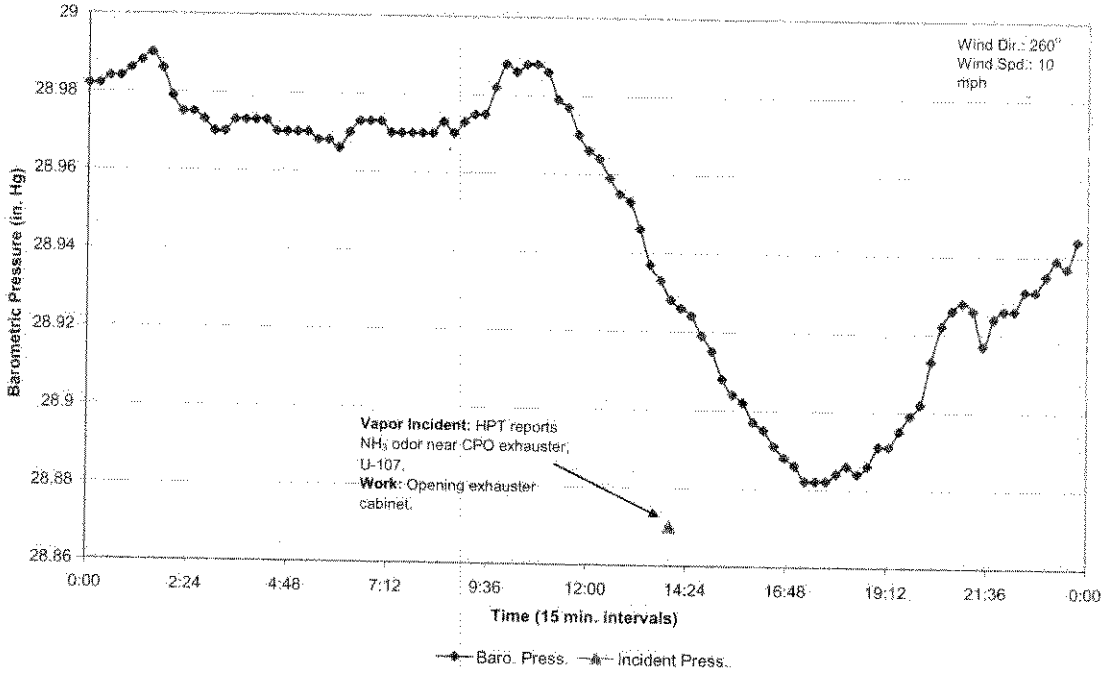
C-Farm Incident (4/9/1998)
 # 1998 - 5



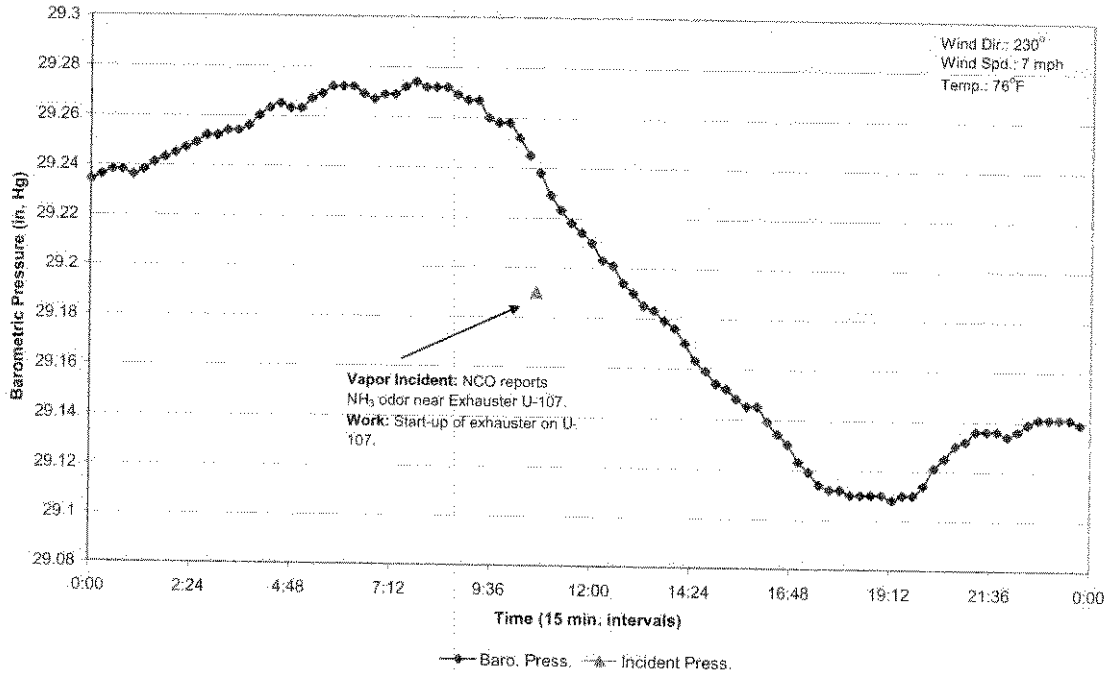
U-Farm Incident (4/29/1998)
 # 1998 - 6



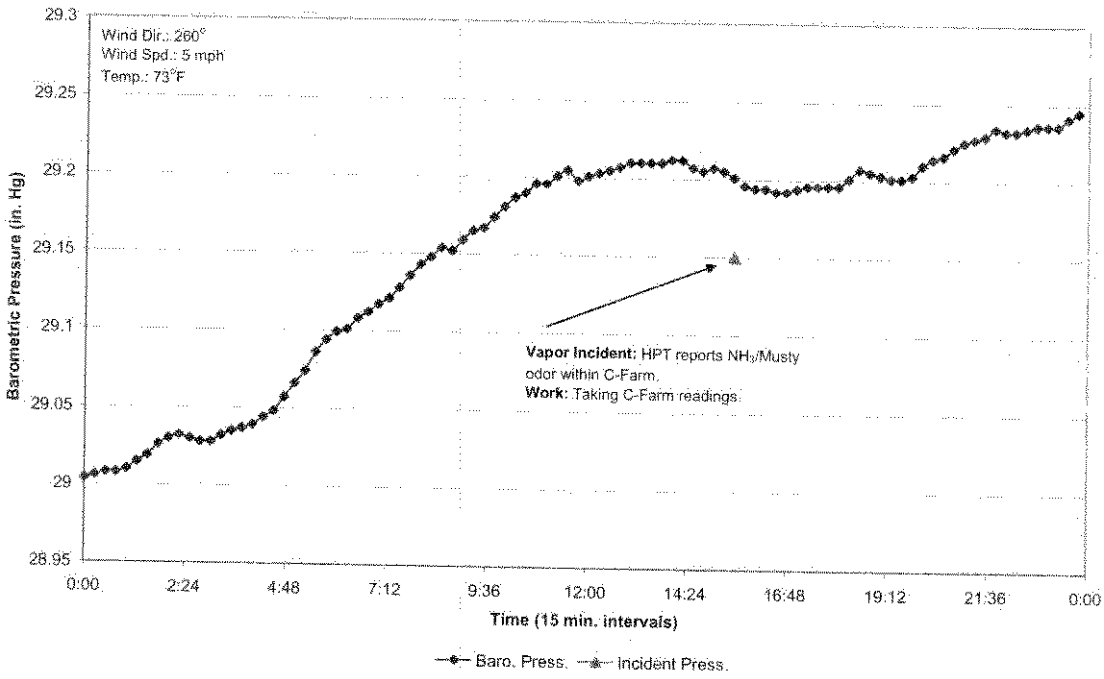
U-Farm Incident (6/24/1998)
 # 1998 - 7

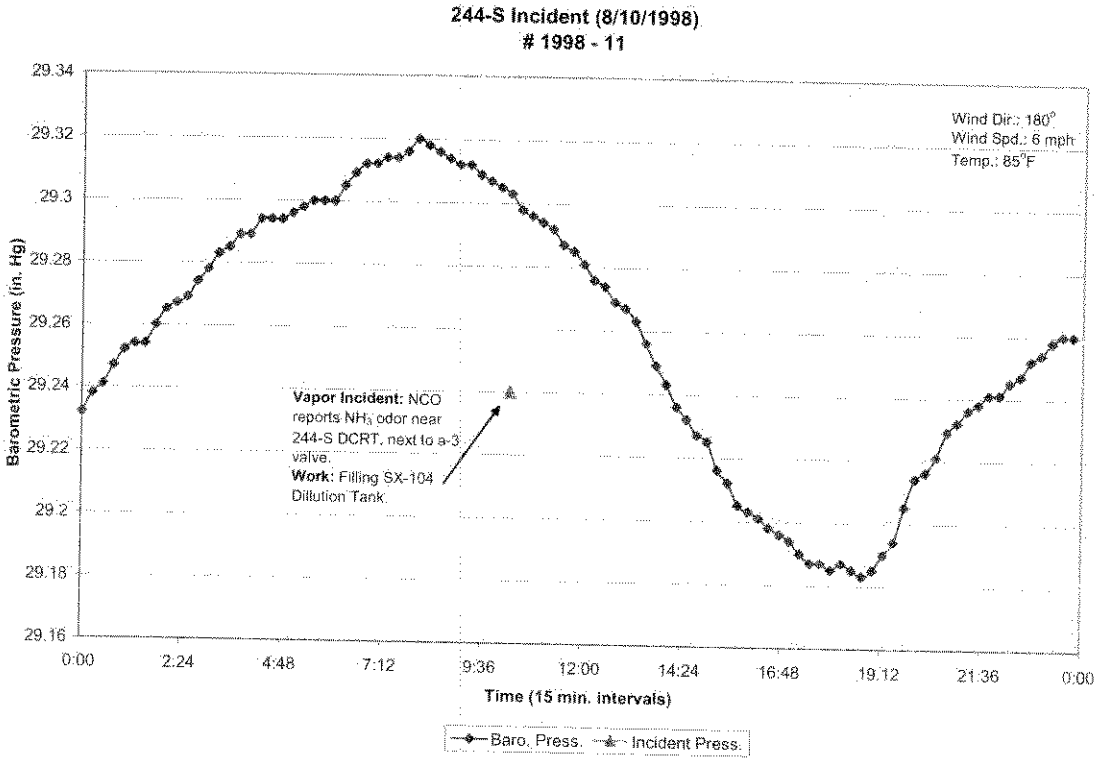


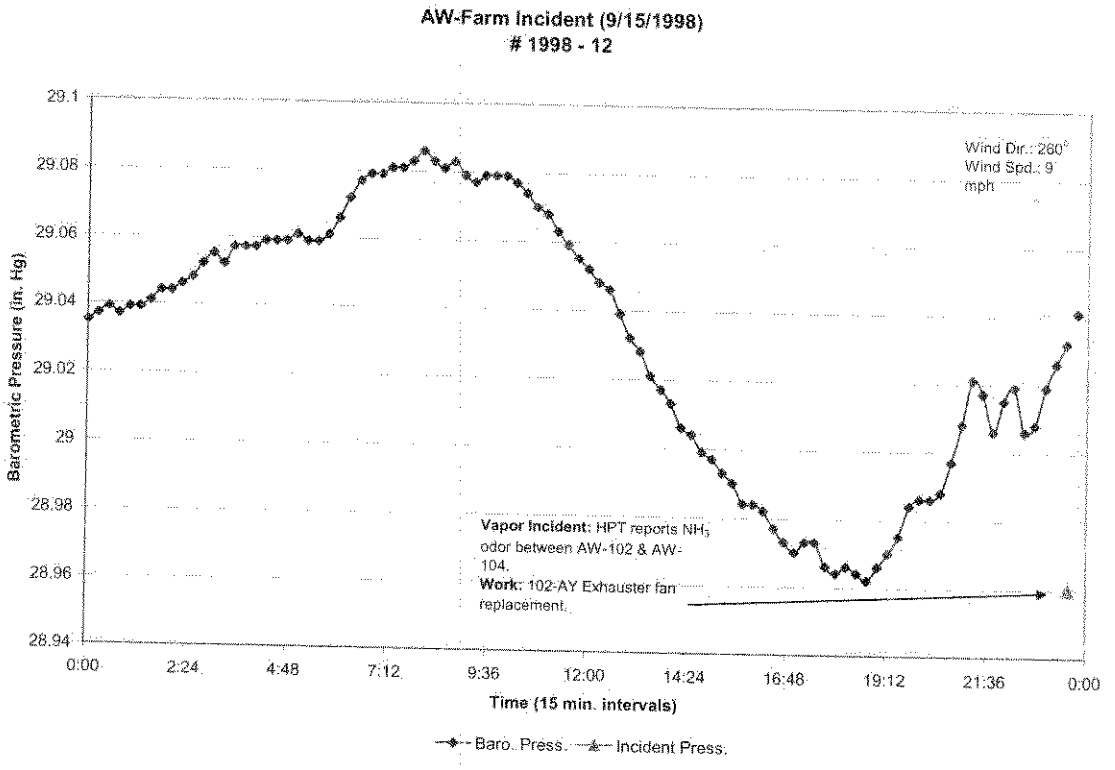
U-Farm Incident (7/13/1998)
 # 1998 - 8

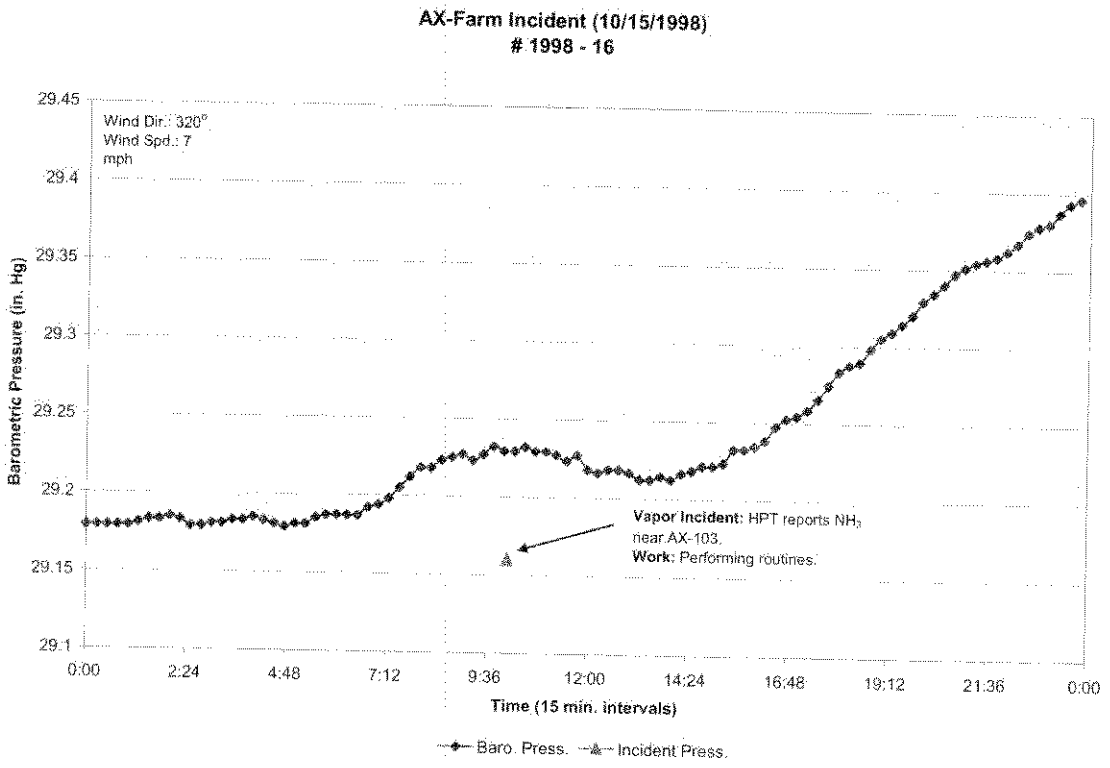


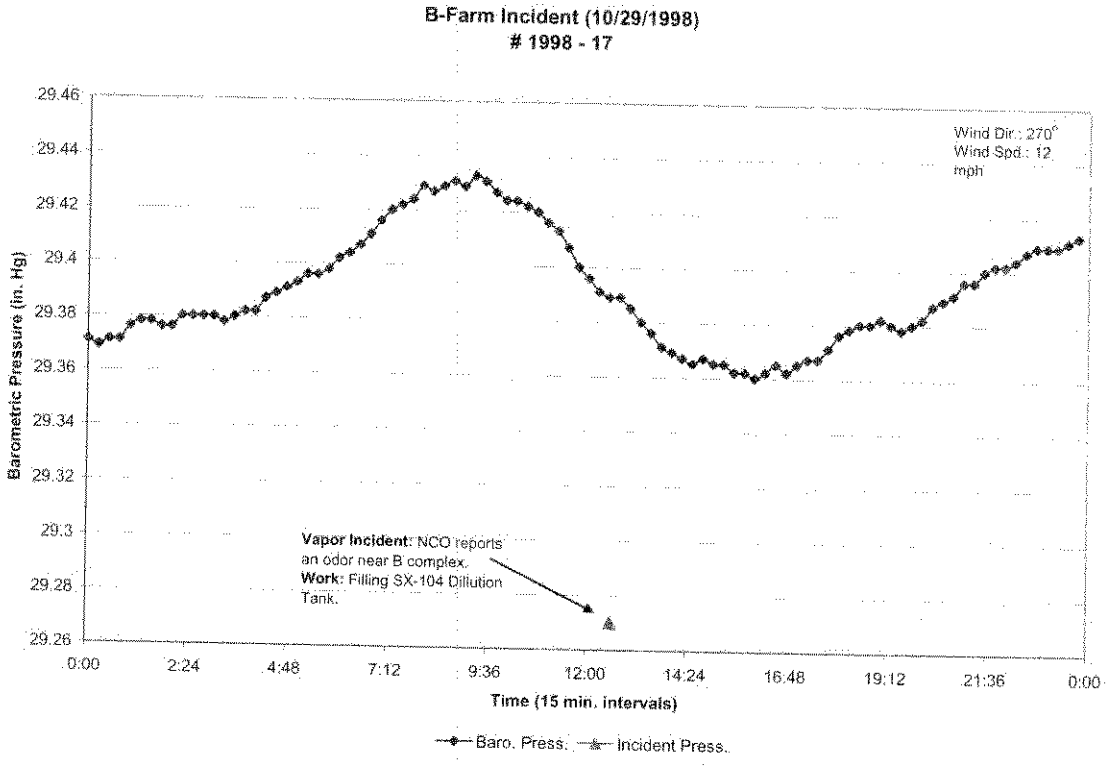
C-Farm Incident (7/31/1998)
 # 1998 - 10



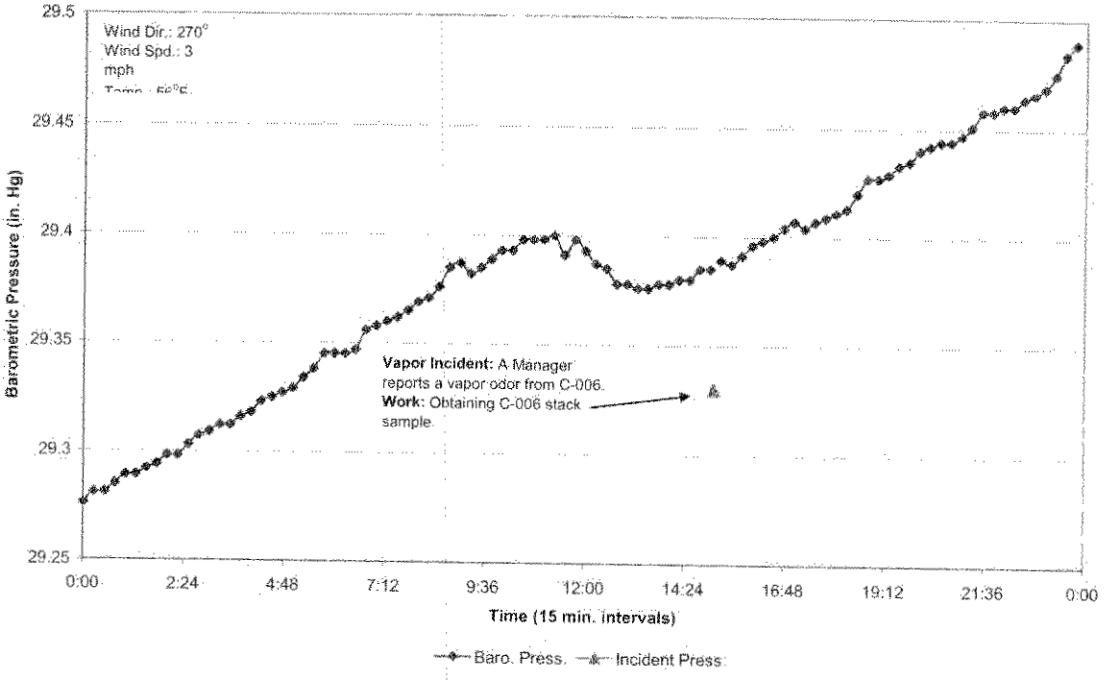

244-S Incident (8/10/1998)
1998 - 11
Wind Dir.: 180°
Wind Spd.: 6 mph
Temp.: 85°F
Vapor Incident: NCO reports NH3 odor near 244-S DCRT, next to a-3 valve.
Work: Filling SX-104 Dillution Tank.
Barometric Pressure (in. Hg)
29.34
29.32
29.3
29.28
29.26
29.24
29.22
29.2
29.18
29.16
0:00
2:24
4:48
7:12
9:36
12:00
14:24
16:48
19:12
21:36
0:00
Time (15 min. intervals)
Baro. Press.
Incident Press.


AW-Farm Incident (9/15/1998)
1998 - 12
Wind Dir.: 260°
Wind Spd.: 9 mph
Vapor Incident: HPT reports NH3 odor between AW-102 & AW-104.
Work: 102-AY Exhauster fan replacement.
Barometric Pressure (in. Hg)
29.1
29.08
29.06
29.04
29.02
29
28.98
28.96
28.94
0:00
2:24
4:48
7:12
9:36
12:00
14:24
16:48
19:12
21:36
0:00
Time (15 min. intervals)
Baro. Press.
Incident Press.

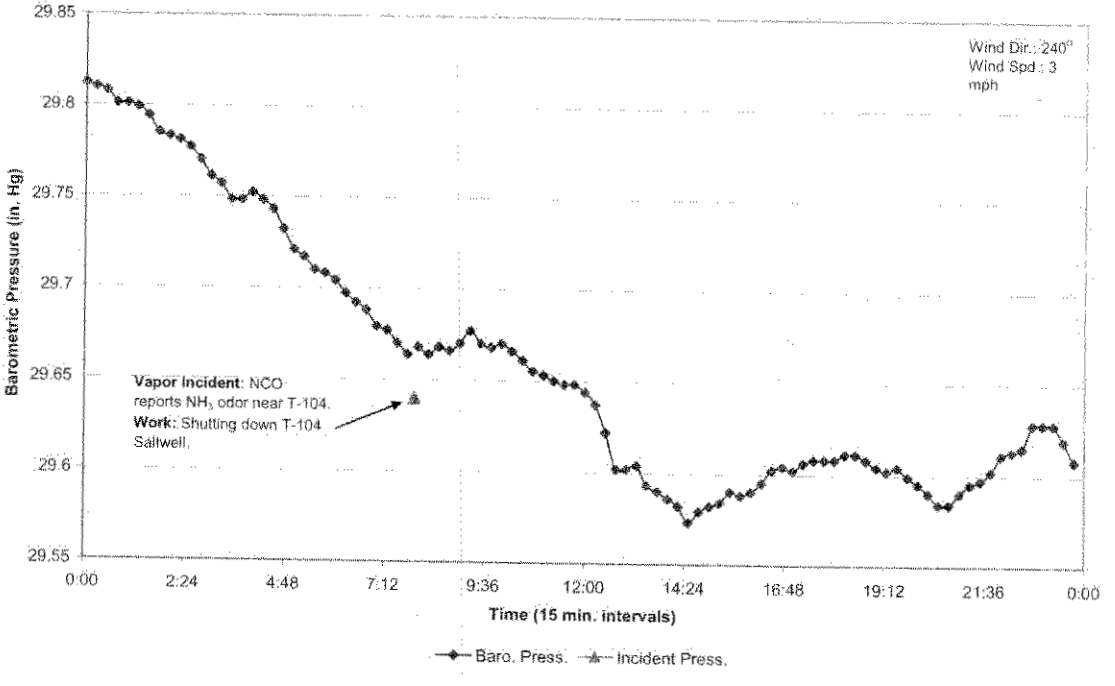

AX-Farm Incident (10/15/1998)
1998 - 16
Wind Dir.: 320°
Wind Spd.: 7 mph
Vapor Incident: HPT reports NH3 near AX-103.
Work: Performing routines.
Barometric Pressure (in. Hg)
29.45
29.4
29.35
29.3
29.25
29.2
29.15
29.1
0:00
2:24
4:48
7:12
9:36
12:00
14:24
16:48
19:12
21:36
0:00
Time (15 min. intervals)
Baro. Press.
Incident Press.


B-Farm Incident (10/29/1998)
1998 - 17
Wind Dir.: 270°
Wind Spd.: 12 mph
Vapor Incident: NCO reports an odor near B complex.
Work: Filling SX-104 Dilution Tank.
Barometric Pressure (in. Hg)
29.46
29.44
29.42
29.4
29.38
29.36
29.34
29.32
29.3
29.28
29.26
0:00
2:24
4:48
7:12
9:36
12:00
14:24
16:48
19:12
21:36
0:00
Time (15 min. intervals)
Baro. Press.
Incident Press.

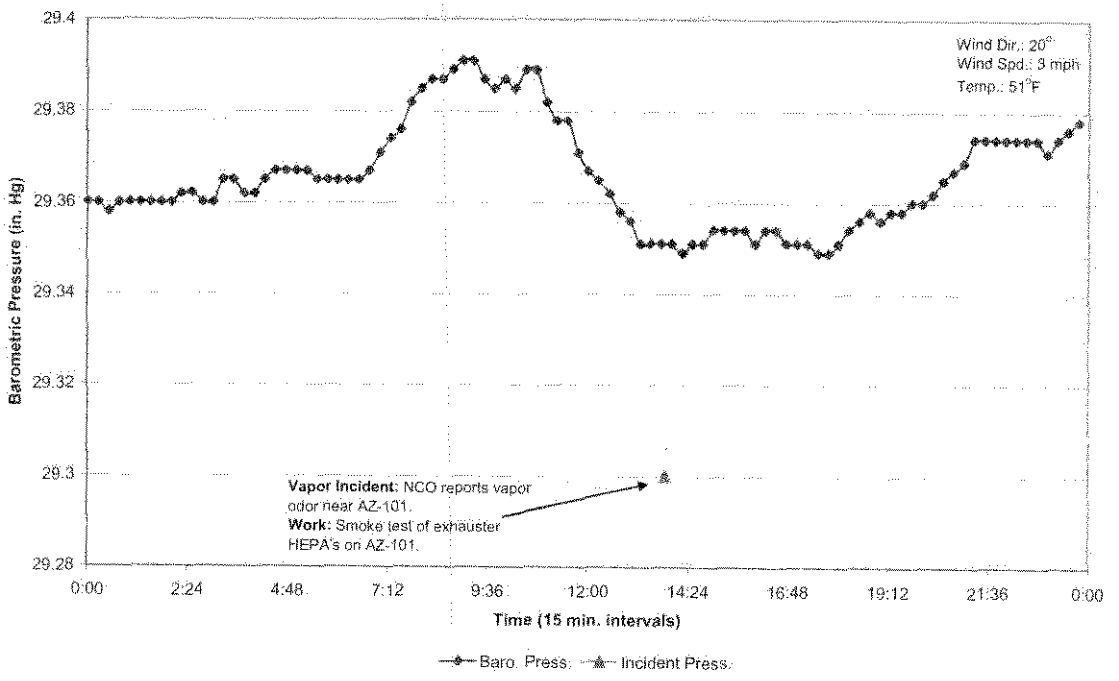
C-Farm Incident (11/18/1998)
 # 1998 - 19



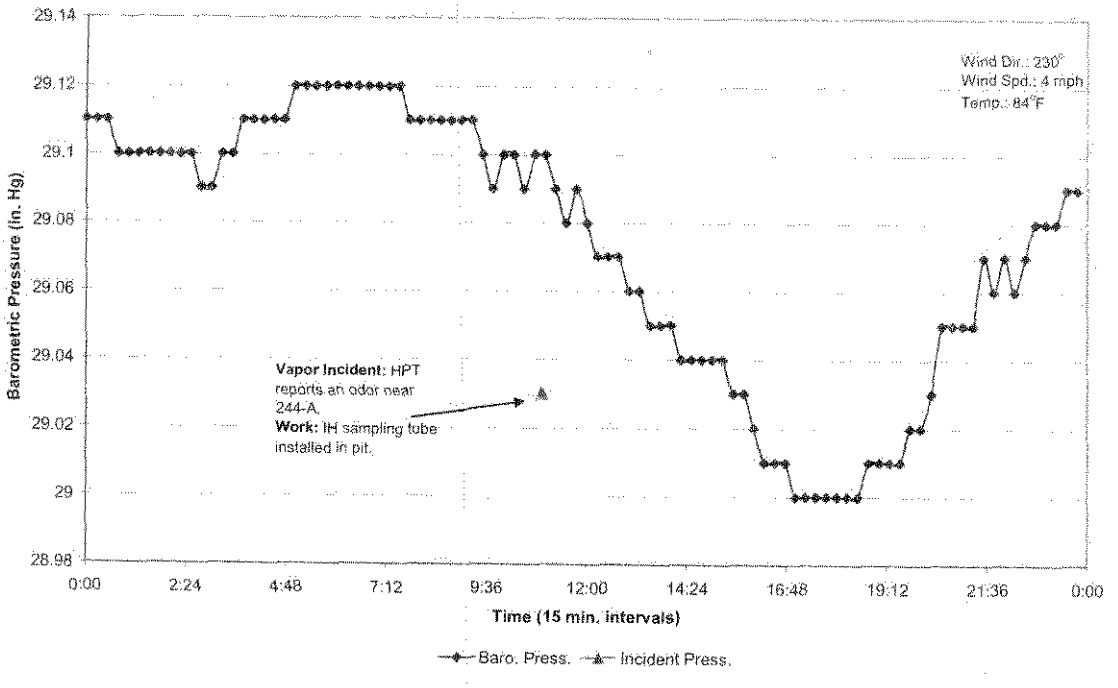
T-Farm Incident (12/10/1998)
 # 1998 - 21



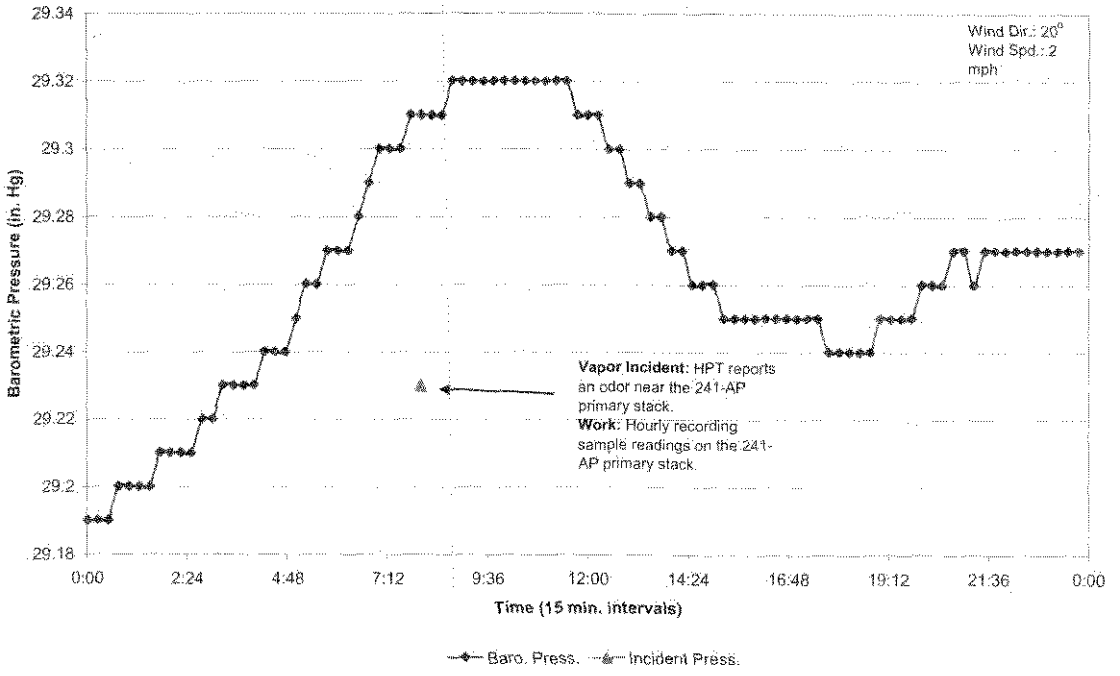
AZ-Farm Incident (11/2/1998)
 # 1998- 18



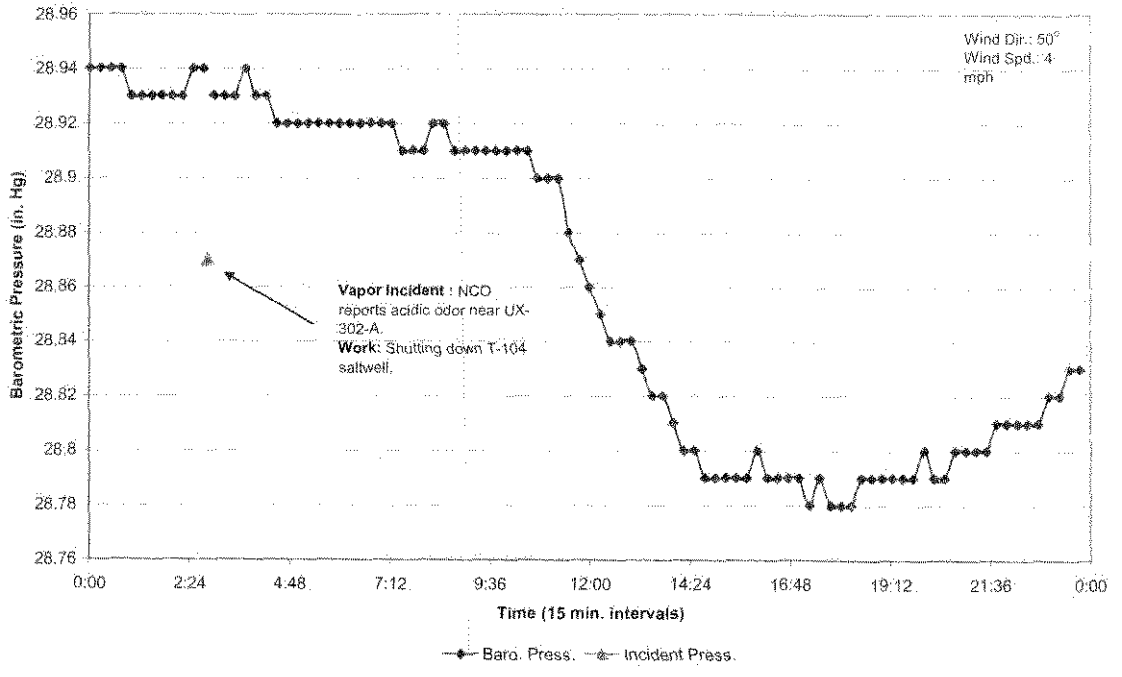
244-A Incident (7/20/1999)
 # 1999 - 4



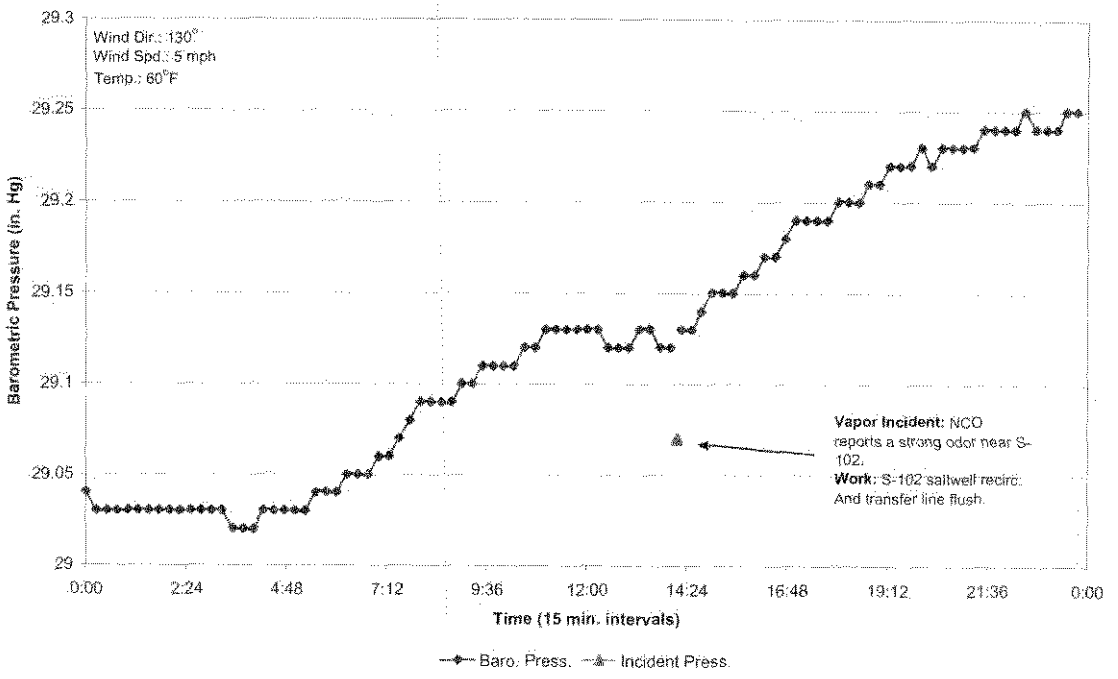
AP-Farm Incident (9/20/1999)
 # 1999 - 8



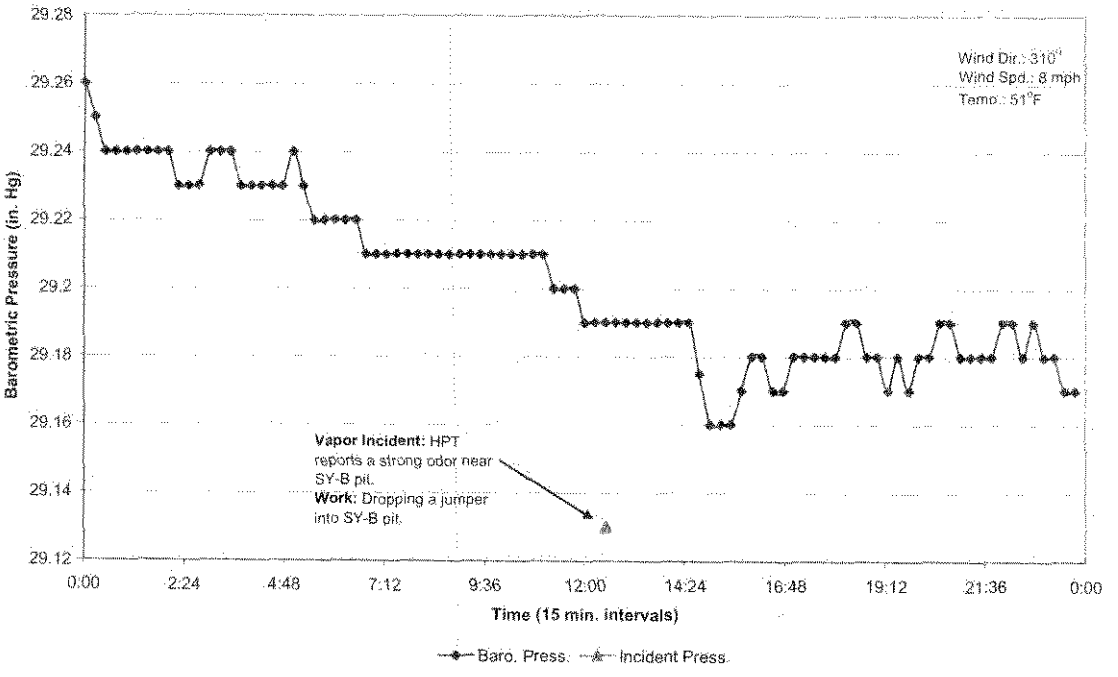
U-Farm Incident (1/20/1999)
 # 1999 - 1

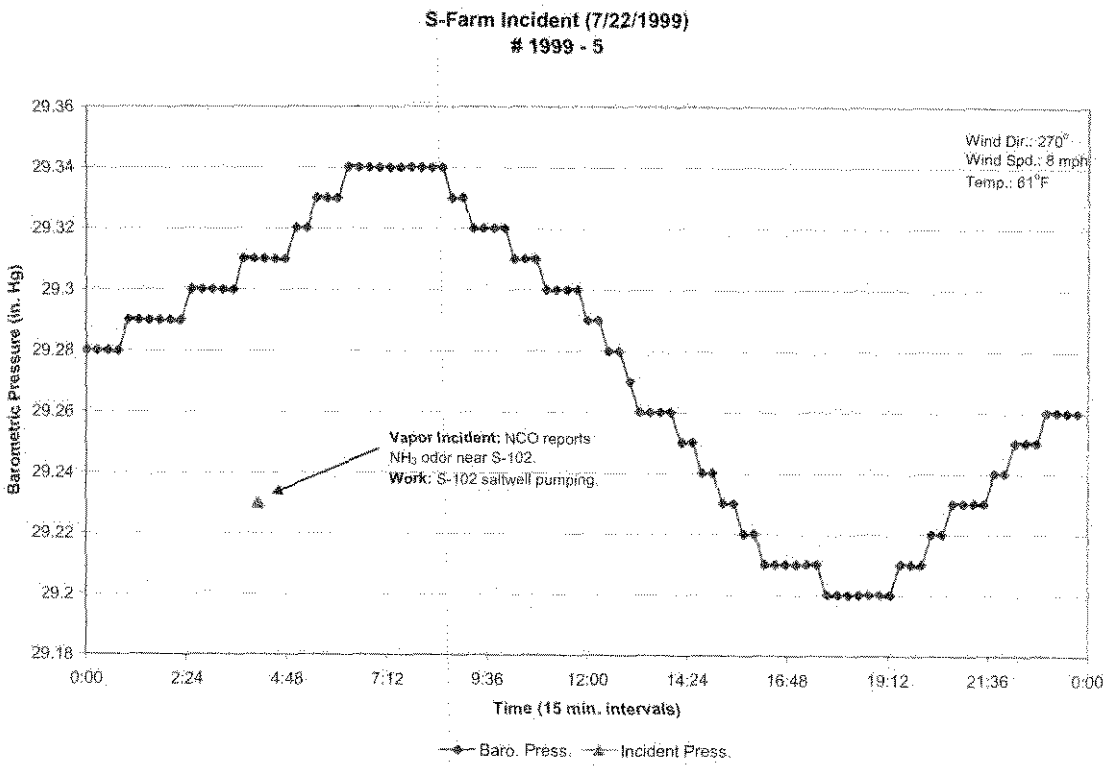


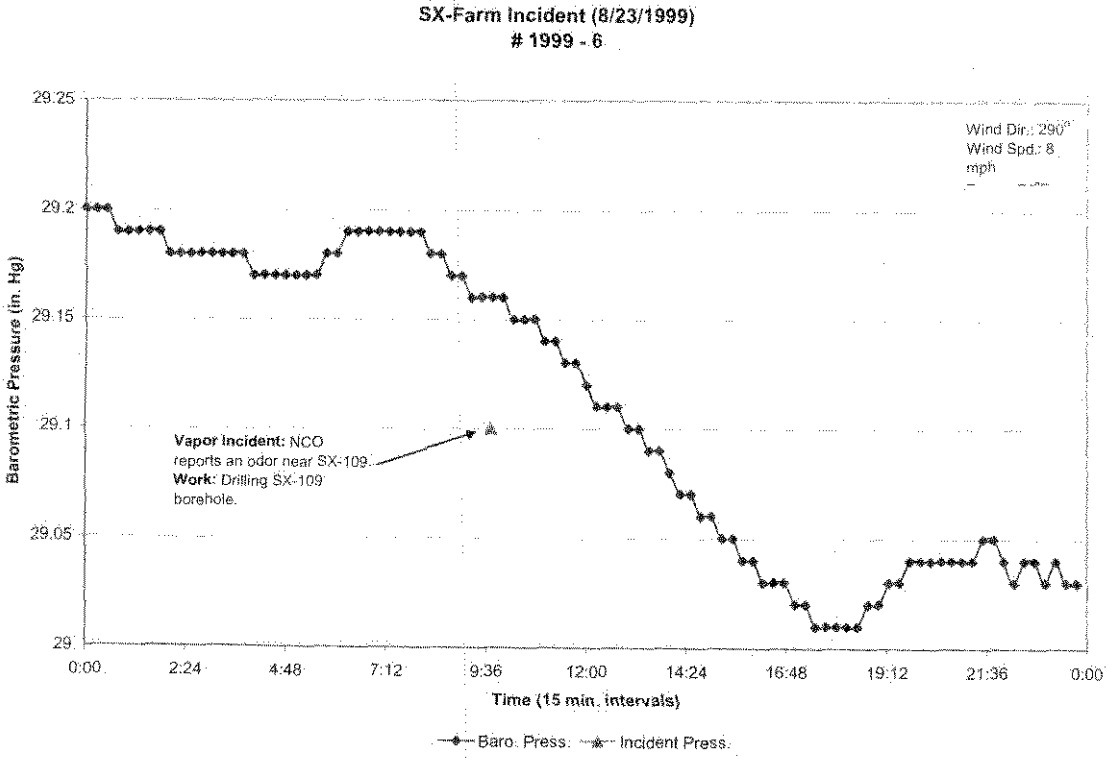
S-Farm Incident (11/10/1999)
 # 1999 - 12



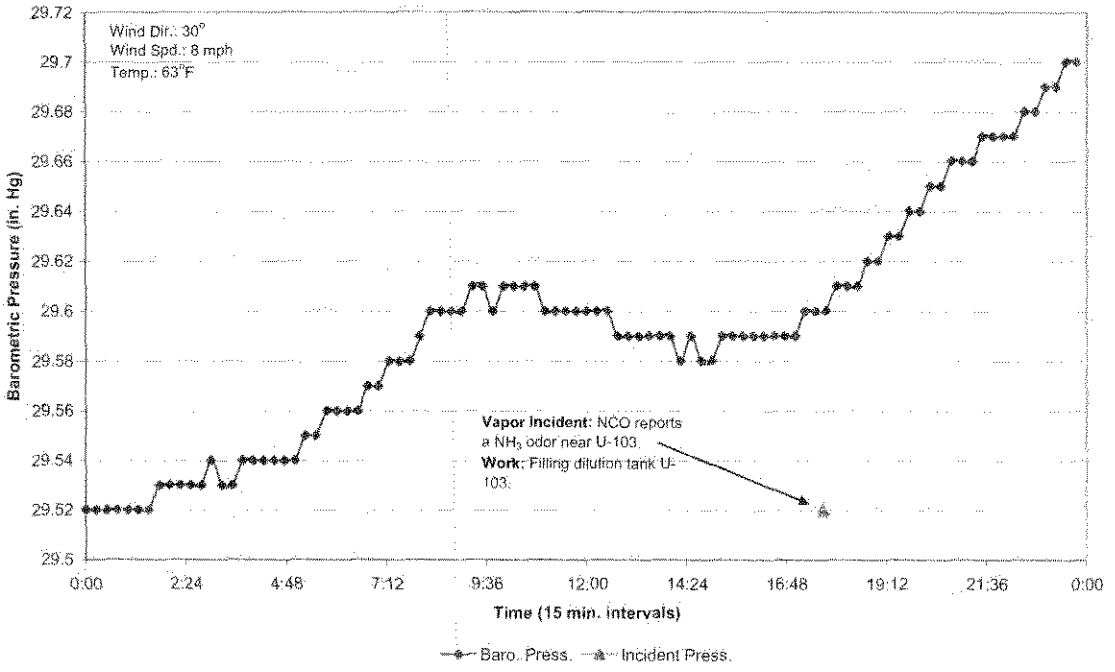
SY-Farm Incident (11/11/1999)
 # 1999 - 13



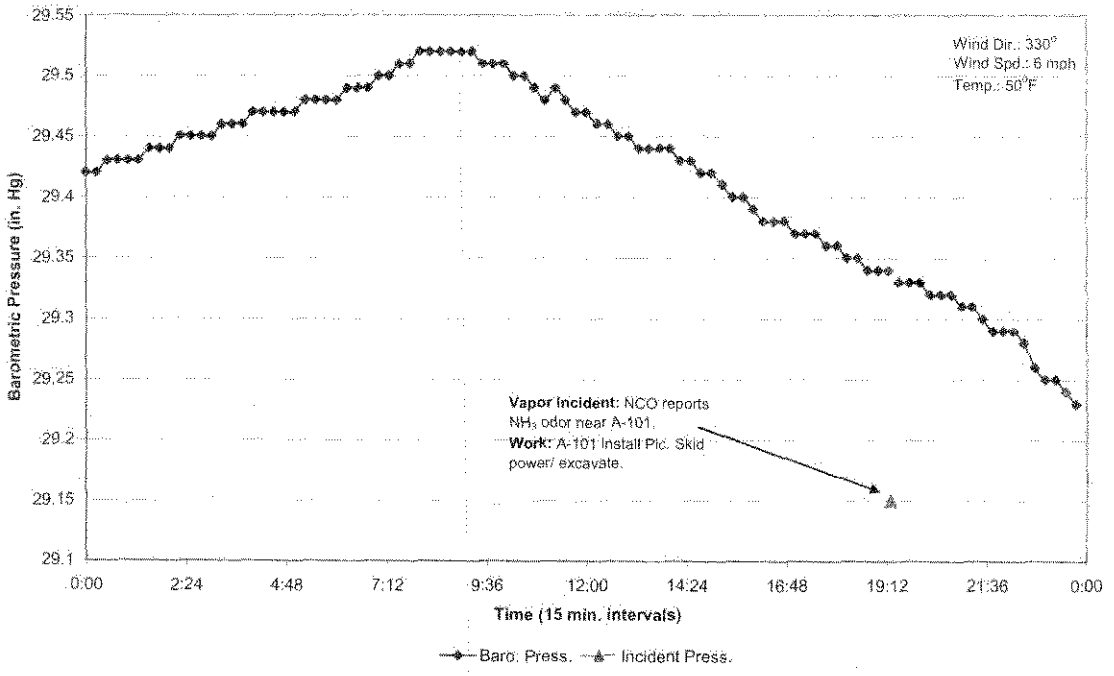

S-Farm Incident (7/22/1999)
1999 - 5
Wind Dir.: 270°
Wind Spd.: 8 mph
Temp.: 61°F
Vapor Incident: NCO reports NH3 odor near S-102.
Work: S-102 saltwell pumping.
Barometric Pressure (in. Hg)
29.36
29.34
29.32
29.3
29.28
29.26
29.24
29.22
29.2
29.18
0:00
2:24
4:48
7:12
9:36
12:00
14:24
16:48
19:12
21:36
0:00
Time (15 min. intervals)
Baro. Press.
Incident Press.


SX-Farm Incident (8/23/1999)
1999 - 6
Wind Dir.: 290°
Wind Spd.: 8 mph
Vapor Incident: NCO reports an odor near SX-109.
Work: Drilling SX-109 borehole.
Barometric Pressure (in. Hg)
29.25
29.2
29.15
29.1
29.05
29
0:00
2:24
4:48
7:12
9:36
12:00
14:24
16:48
19:12
21:36
0:00
Time (15 min. intervals)
Baro. Press.
Incident Press.

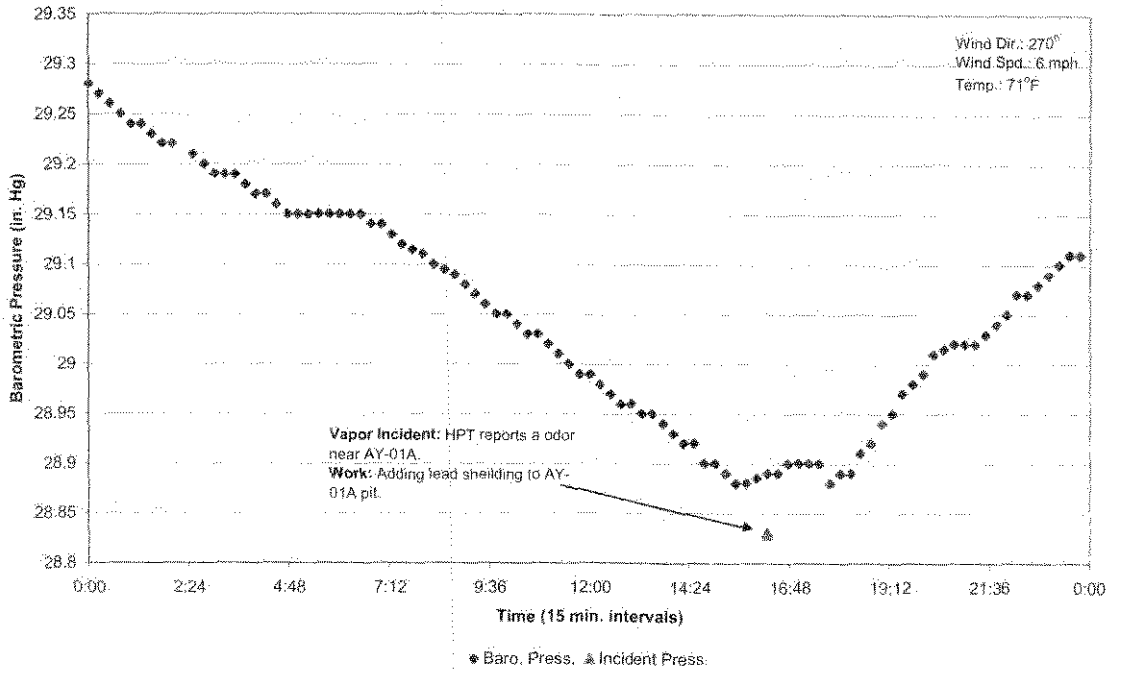
U-Farm Incident (9/27/1999)
 # 1999 - 9



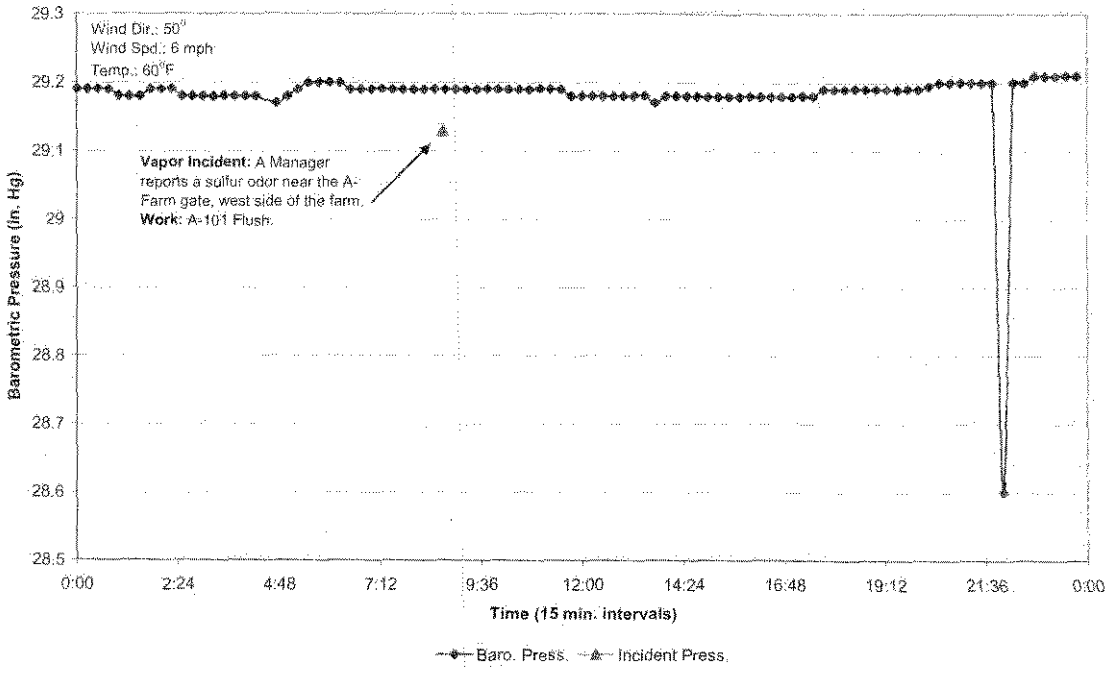
A-Farm Incident (3/15/2000)
 # 2000 - 10



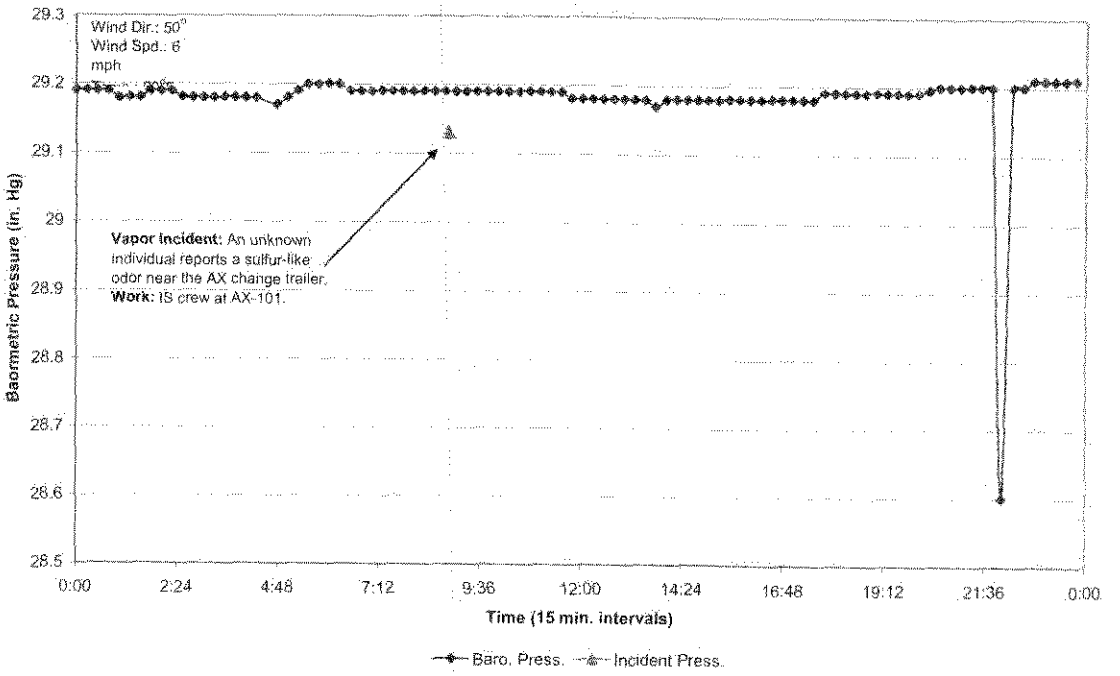
AY Farm Incident (4/27/2000)
 # 2000 - 12



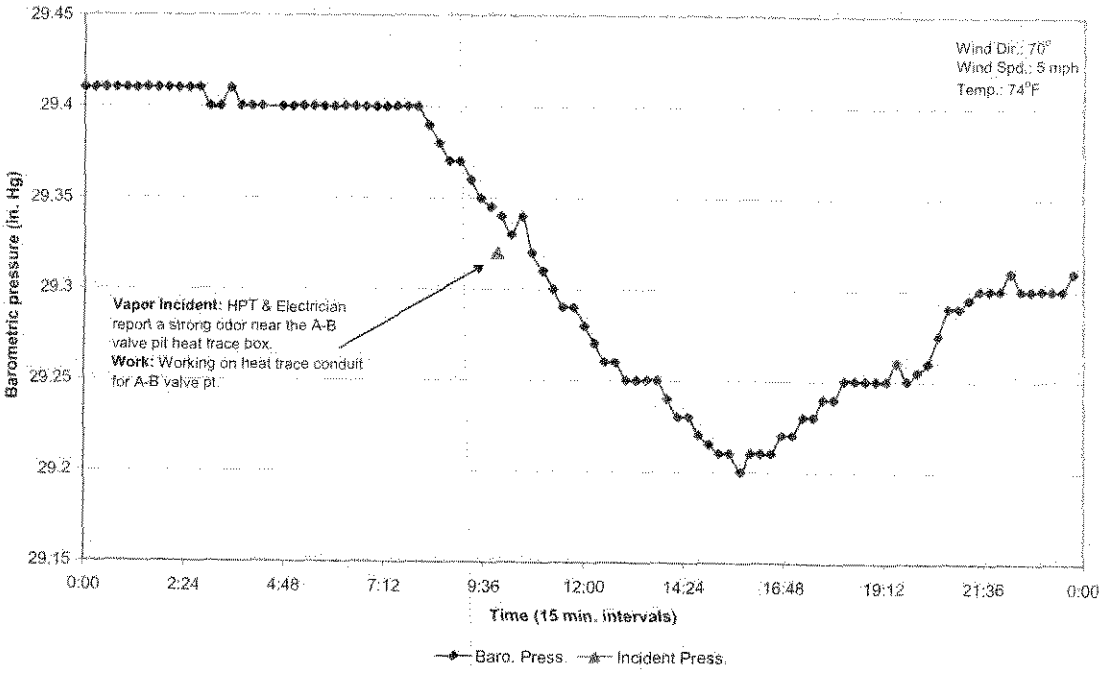
A-Farm Incident (5/30/2000)
 # 2000 - 18



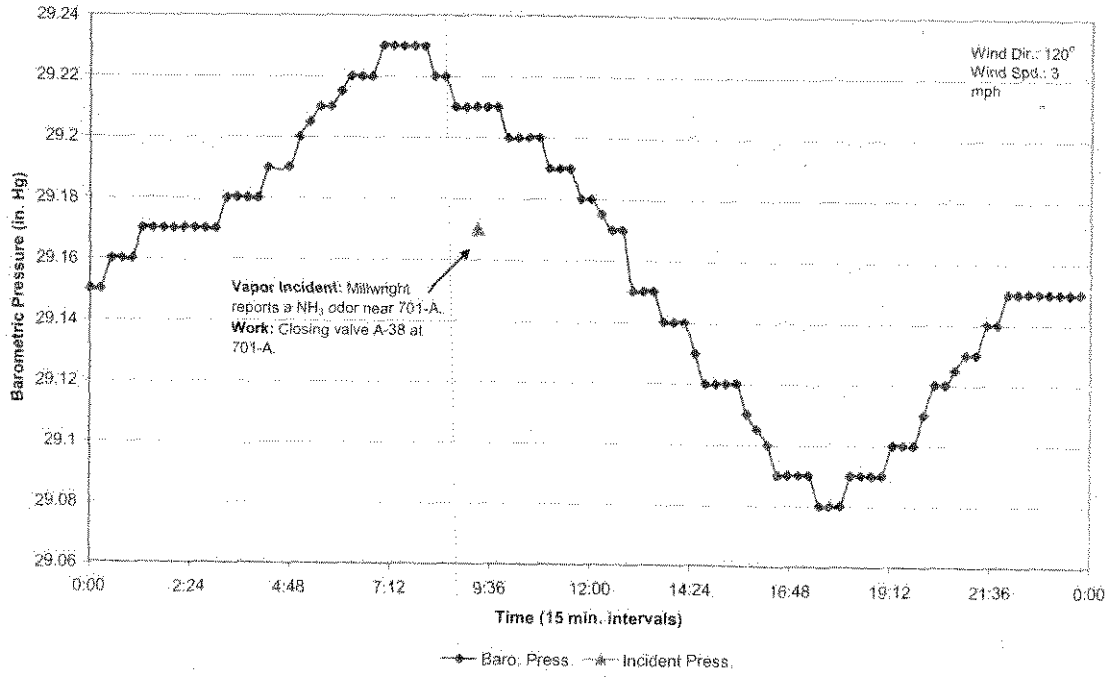
AX-Farm Incident (5/30/2000)
 # 2000 - 19



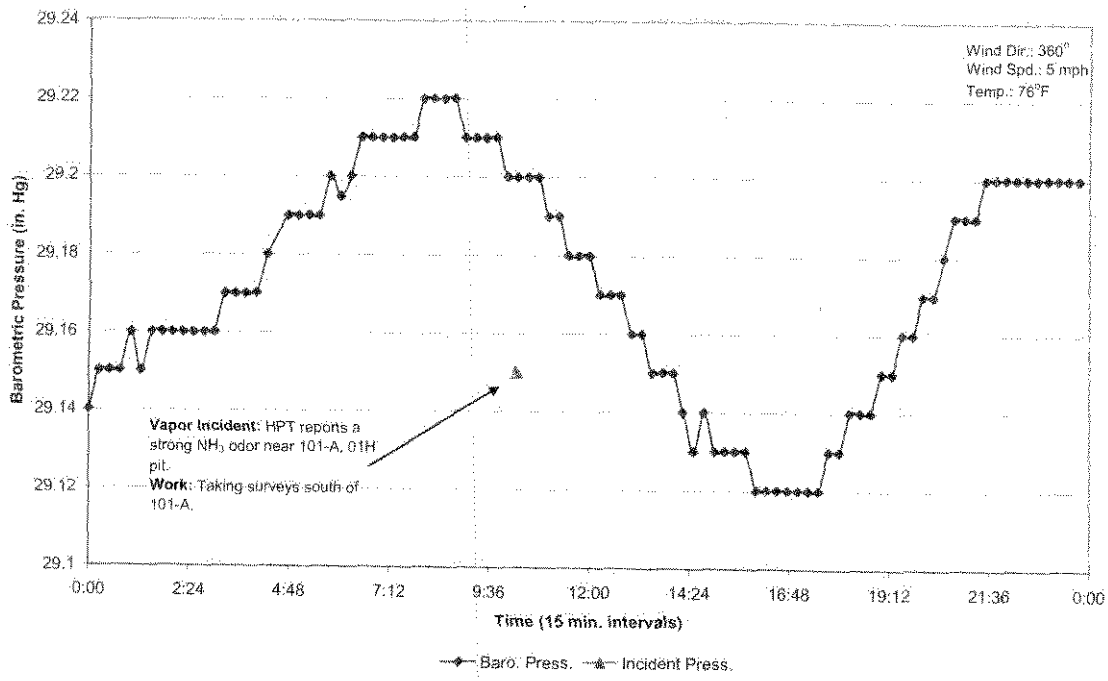
A-Farm Incident (6/14/2000)
 # 2000 - 21

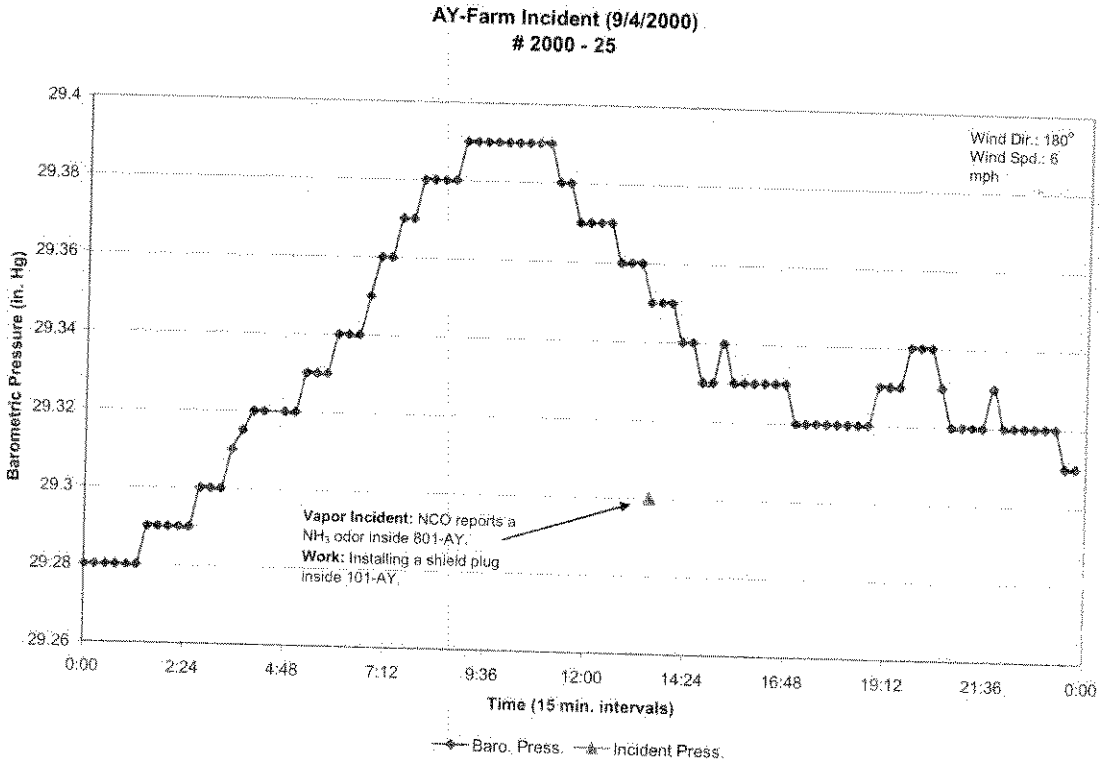


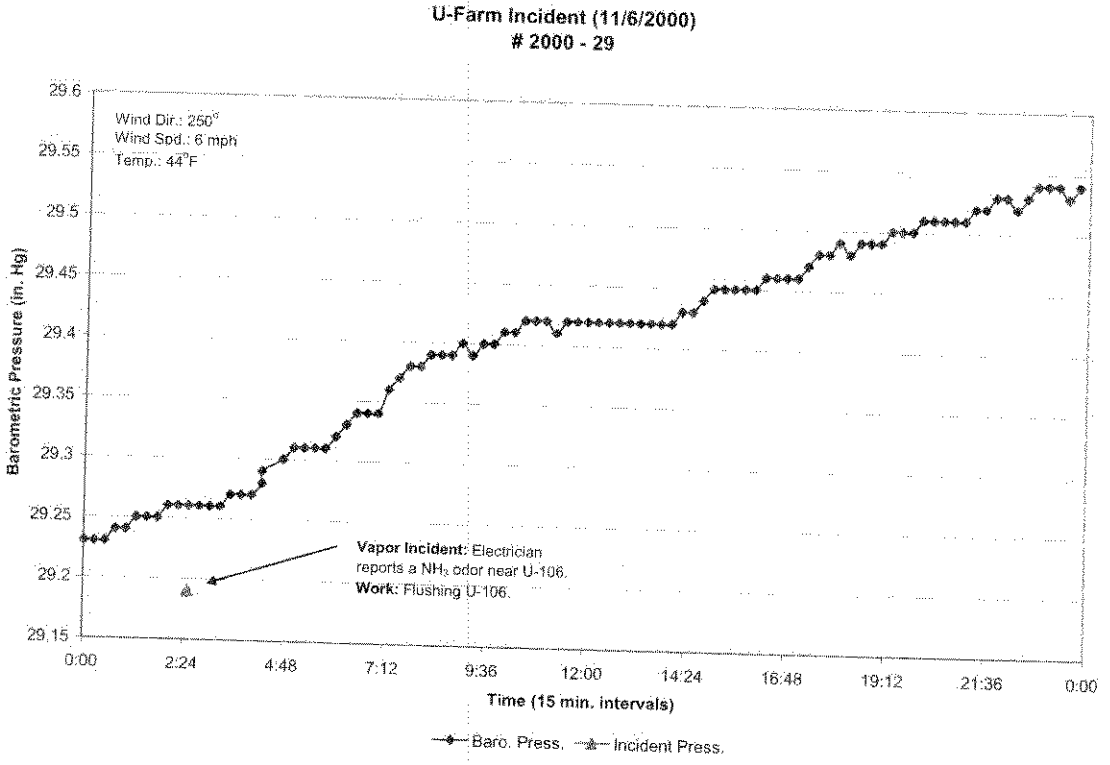
A-Farm Incident (6/22/2000)
 # 2000 - 22



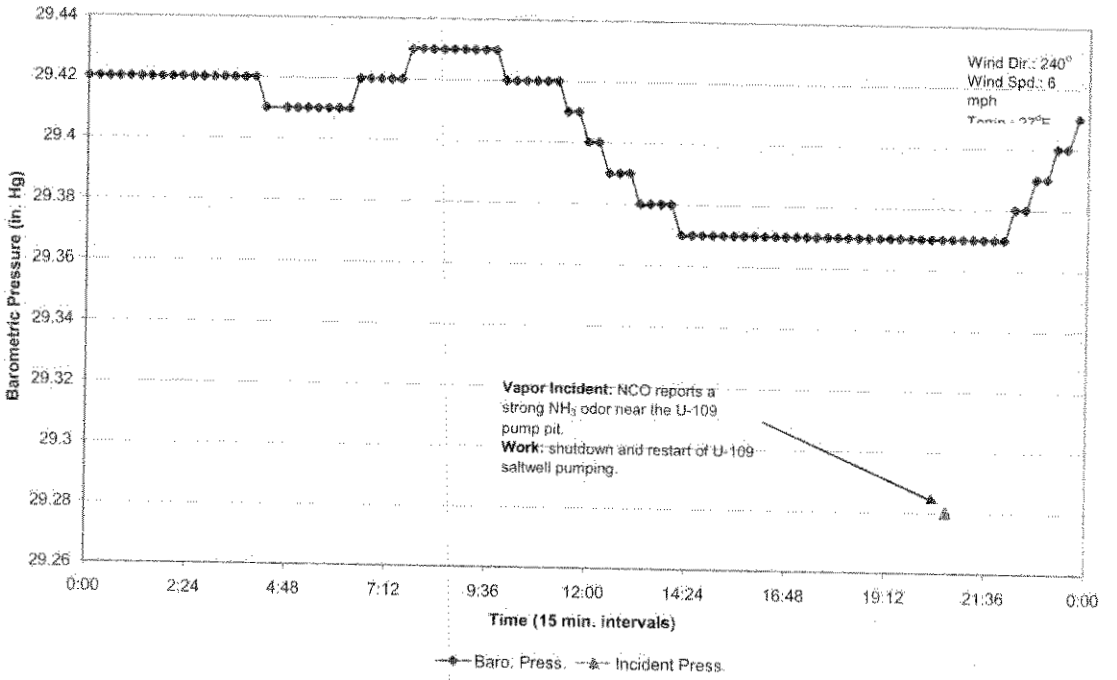
A-Farm Incident (7/9/2000)
 # 2000 - 23



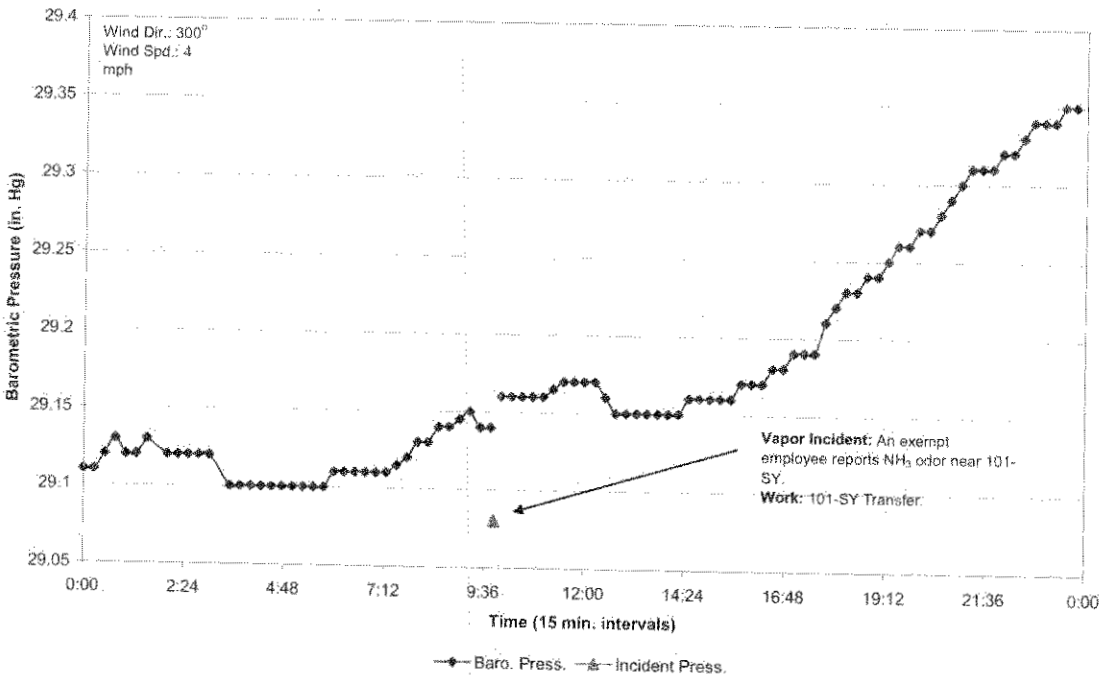

AY-Farm Incident (9/4/2000)
2000 - 25
Wind Dir.: 180°
Wind Spd.: 6 mph
Vapor Incident: NCO reports a NH3 odor inside 801-AY.
Work: Installing a shield plug inside 101-AY.
Barometric Pressure (in. Hg)
29.4
29.38
29.36
29.34
29.32
29.3
29.28
29.26
0:00
2:24
4:48
7:12
9:36
12:00
14:24
16:48
19:12
21:36
0:00
Time (15 min. intervals)
Baro. Press.
Incident Press.


U-Farm Incident (11/6/2000)
2000 - 29
Wind Dir.: 250°
Wind Spd.: 6 mph
Temp.: 44°F
Vapor Incident: Electrician reports a NH3 odor near U-106.
Work: Flushing U-106.
Barometric Pressure (in. Hg)
29.6
29.55
29.5
29.45
29.4
29.35
29.3
29.25
29.2
29.15
0:00
2:24
4:48
7:12
9:36
12:00
14:24
16:48
19:12
21:36
0:00
Time (15 min. intervals)
Baro. Press.
Incident Press.

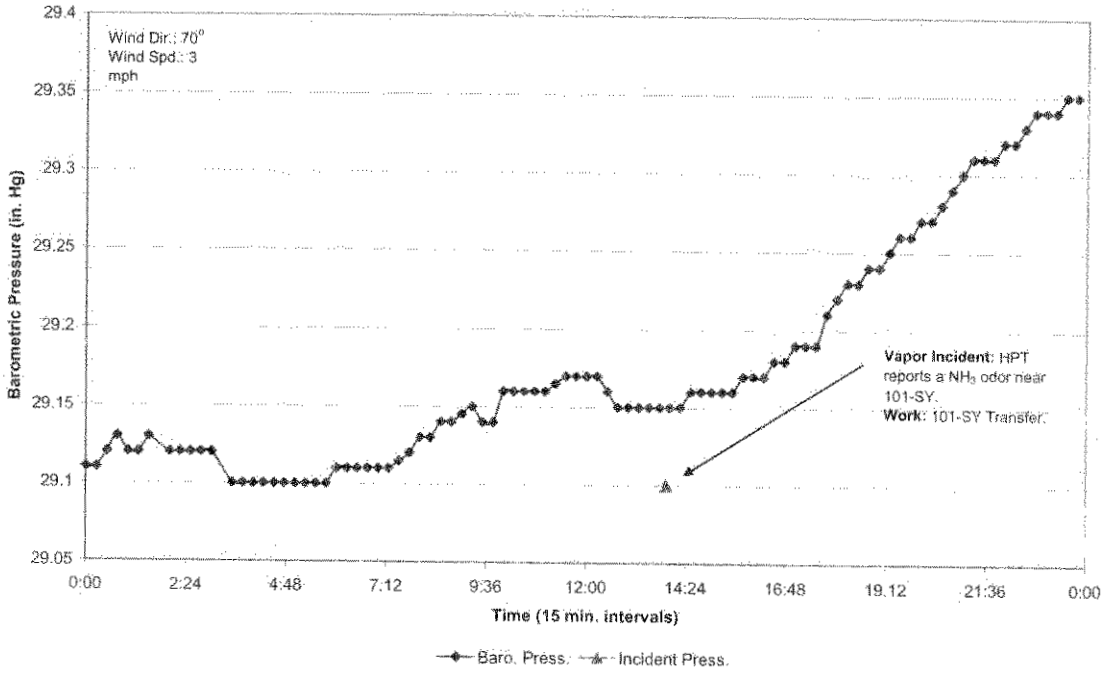
U-Farm Incident (11/14/2000)
 # 2000 - 30



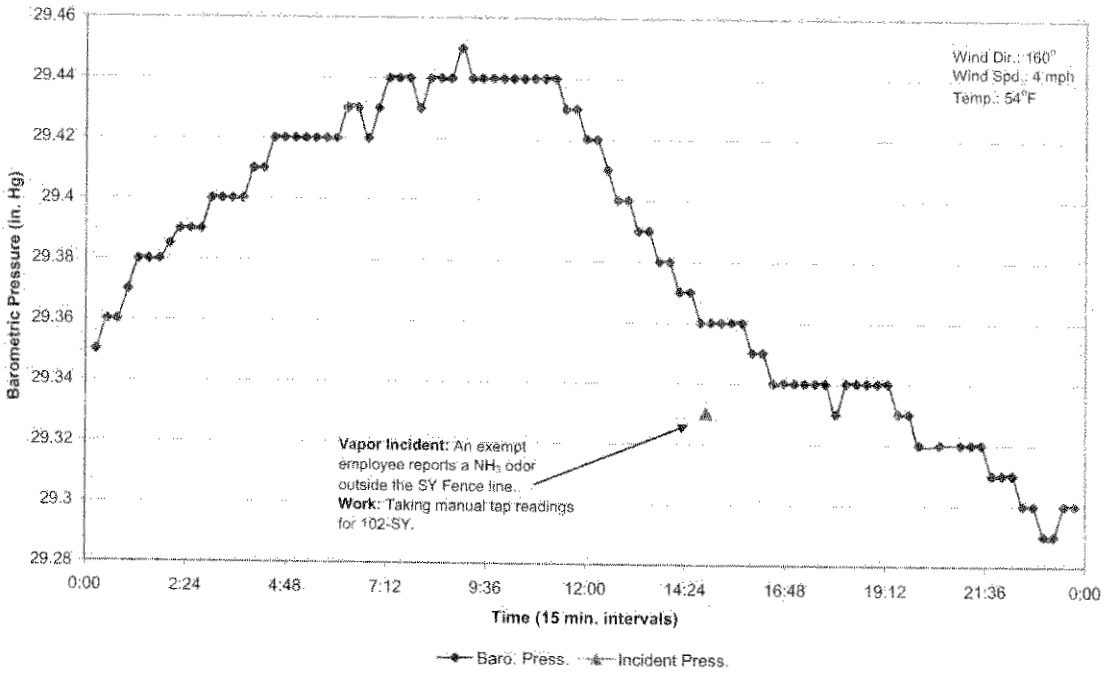
SY-Farm Incident (2/29/2000)
 # 2000 - 5



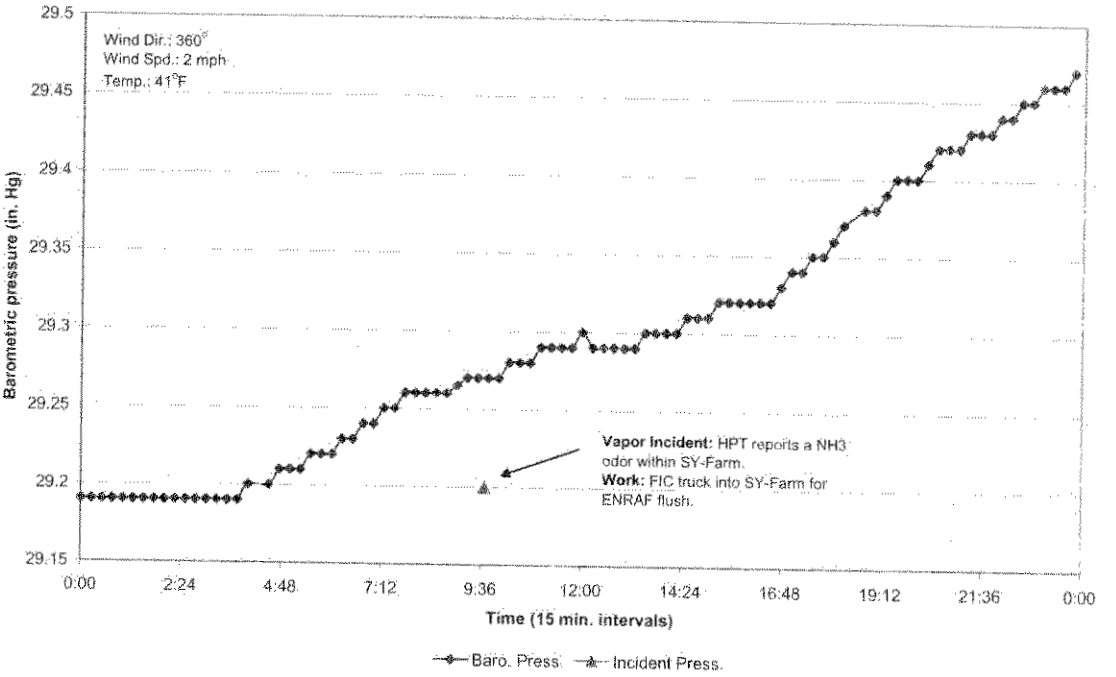
SY-Farm Incident (2/29/2000)
 # 2000 - 6



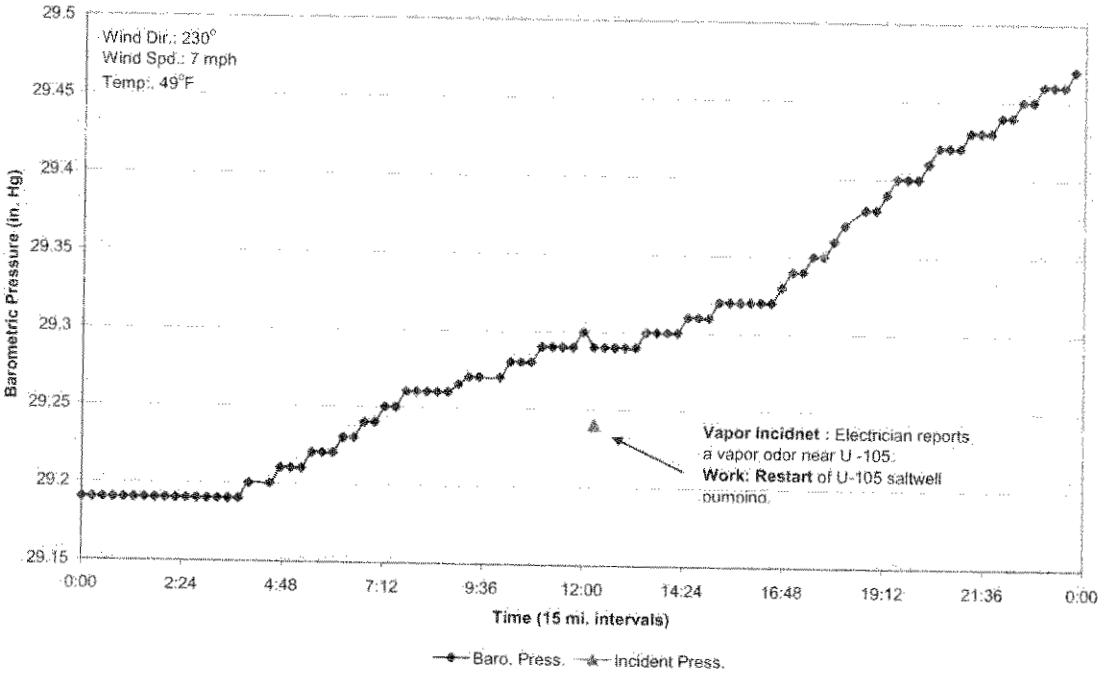
SY-Farm Incident (3/1/2000)
 # 2000 - 7

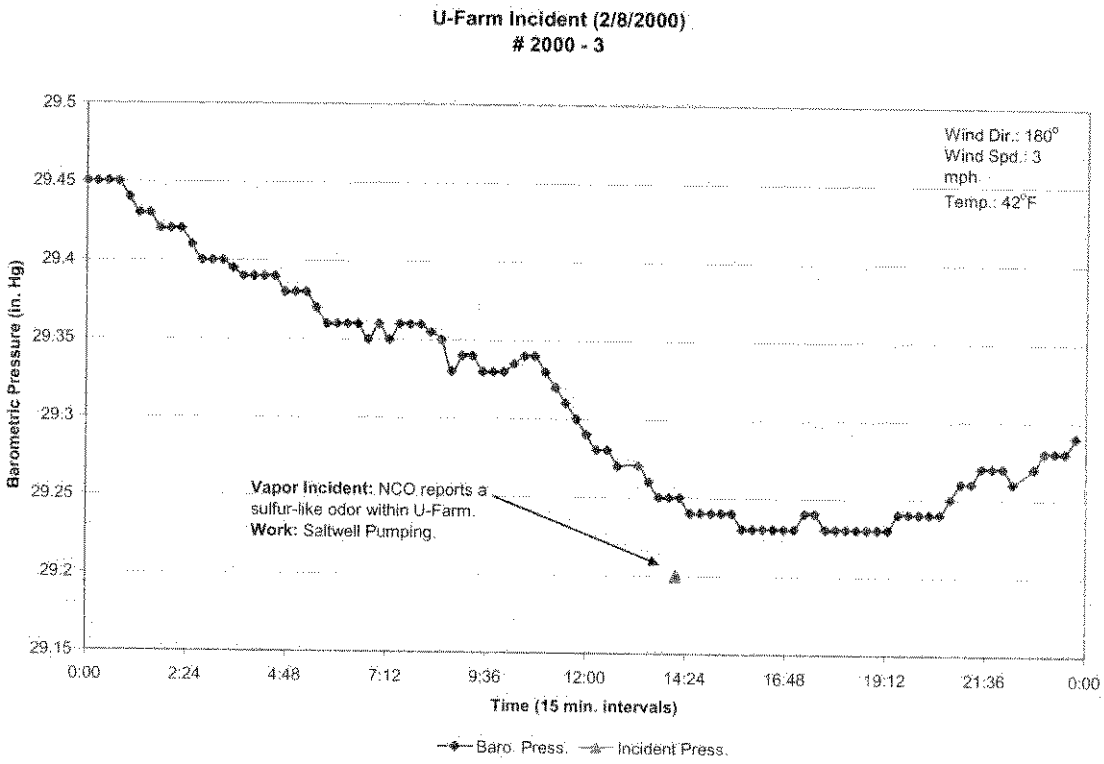


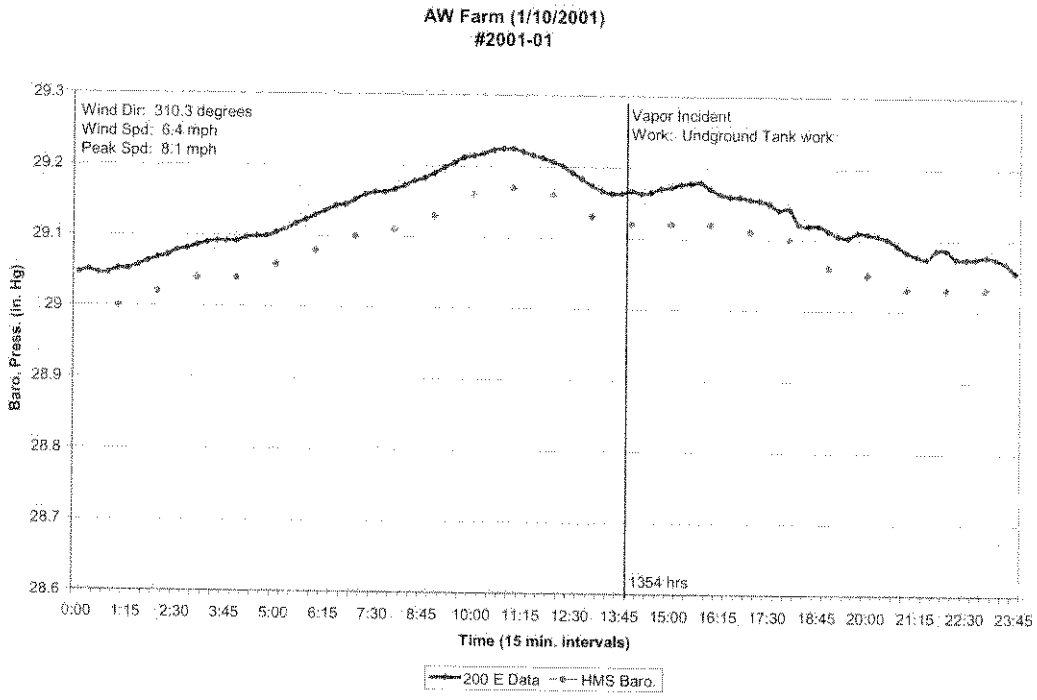
SY-Farm Incident (3/9/2000)
 # 2000 - 8



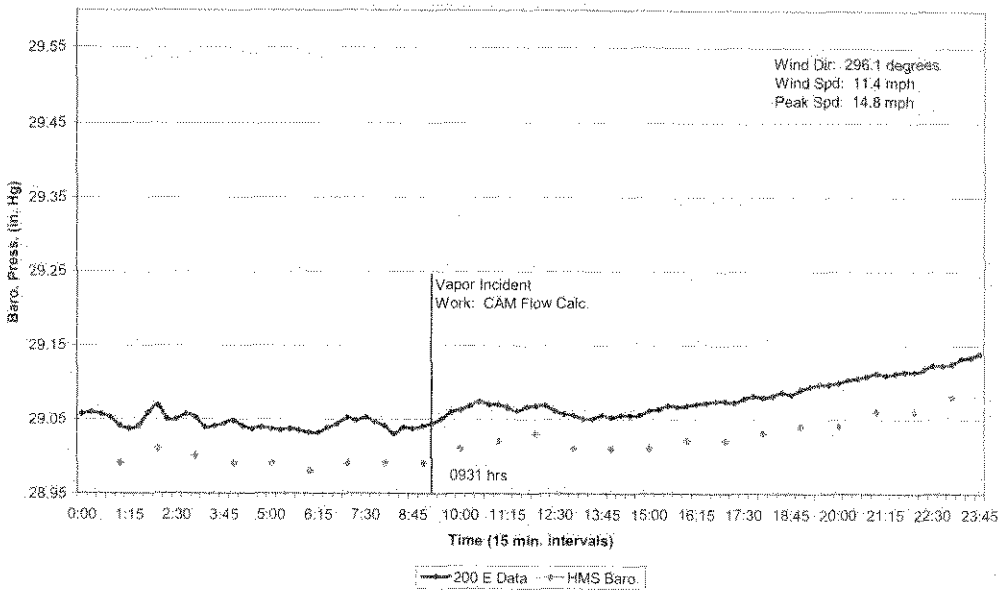
U-Farm Incident (3/9/2000)
 # 2000 - 9



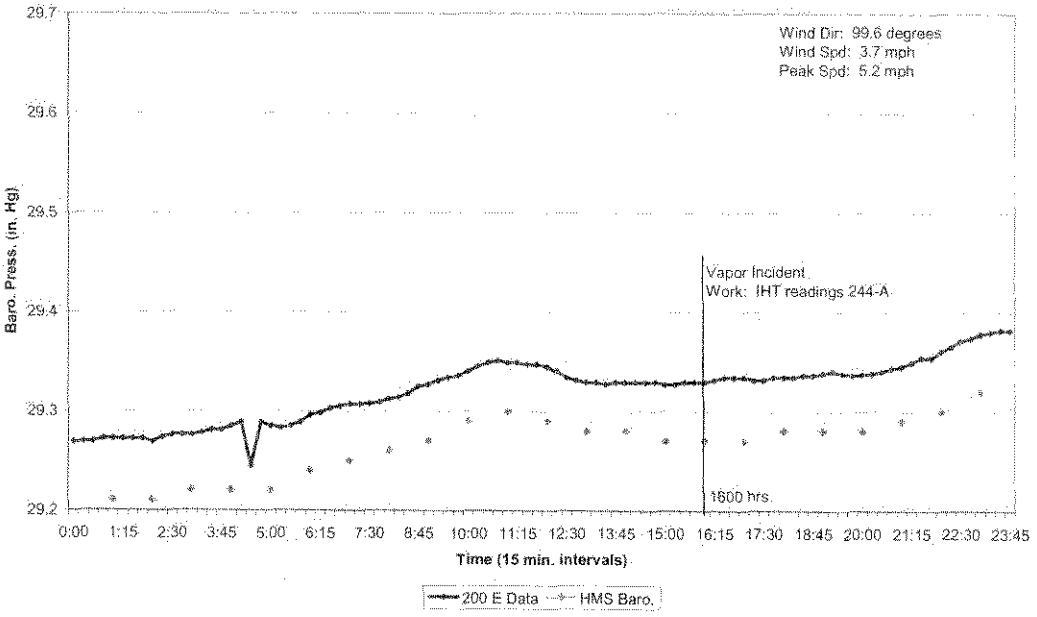

U-Farm Incident (2/8/2000)
2000 - 3
Wind Dir.: 180°
Wind Spd.: 3 mph
Temp.: 42°F
Vapor Incident: NCO reports a sulfur-like odor within U-Farm.
Work: Saltwell Pumping.
Barometric Pressure (in. Hg)
29.5
29.45
29.4
29.35
29.3
29.25
29.2
29.15
0:00
2:24
4:48
7:12
9:36
12:00
14:24
16:48
19:12
21:36
0:00
Time (15 min. intervals)
Baro. Press.
Incident Press.


AW Farm (1/10/2001)
#2001-01
Wind Dir: 310.3 degrees
Wind Spd: 6.4 mph
Peak Spd: 8.1 mph
Vapor Incident
Work: Undground Tank work
1354 hrs
Baro. Press. (in. Hg)
29.3
29.2
29.1
29
28.9
28.8
28.7
28.6
0:00
1:15
2:30
3:45
5:00
6:15
7:30
8:45
10:00
11:15
12:30
13:45
15:00
16:15
17:30
18:45
20:00
21:15
22:30
23:45
Time (15 min. intervals)
200 E Data
HMS Baro.

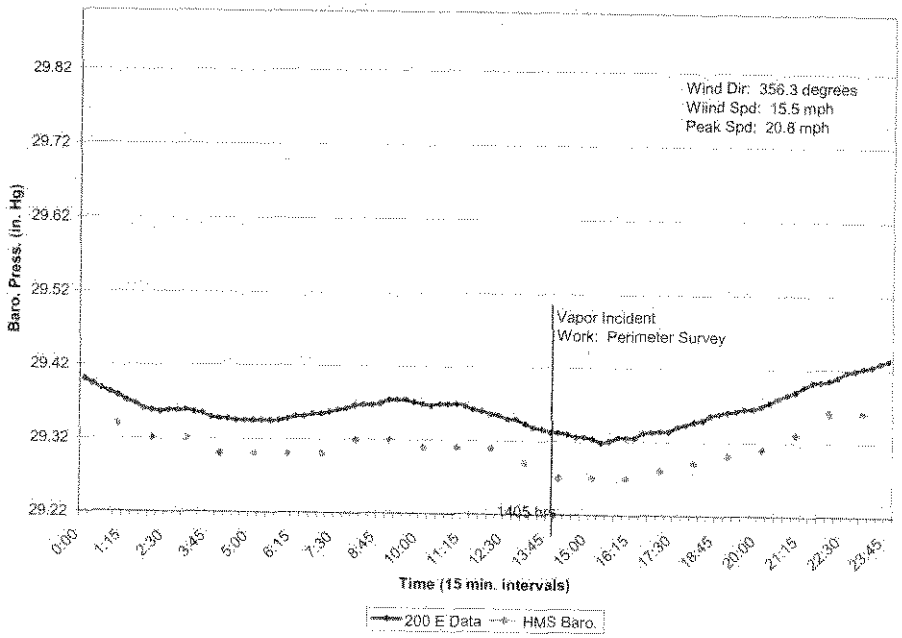
244-A (1/11/2001)
#2001-02



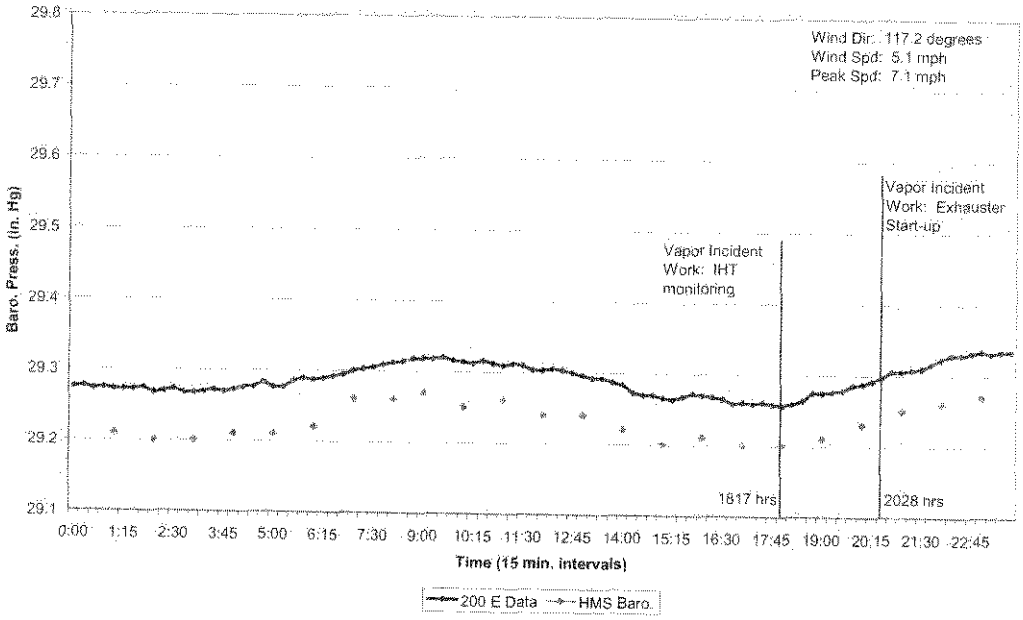
244-A (1/13/2001)
#2001-04



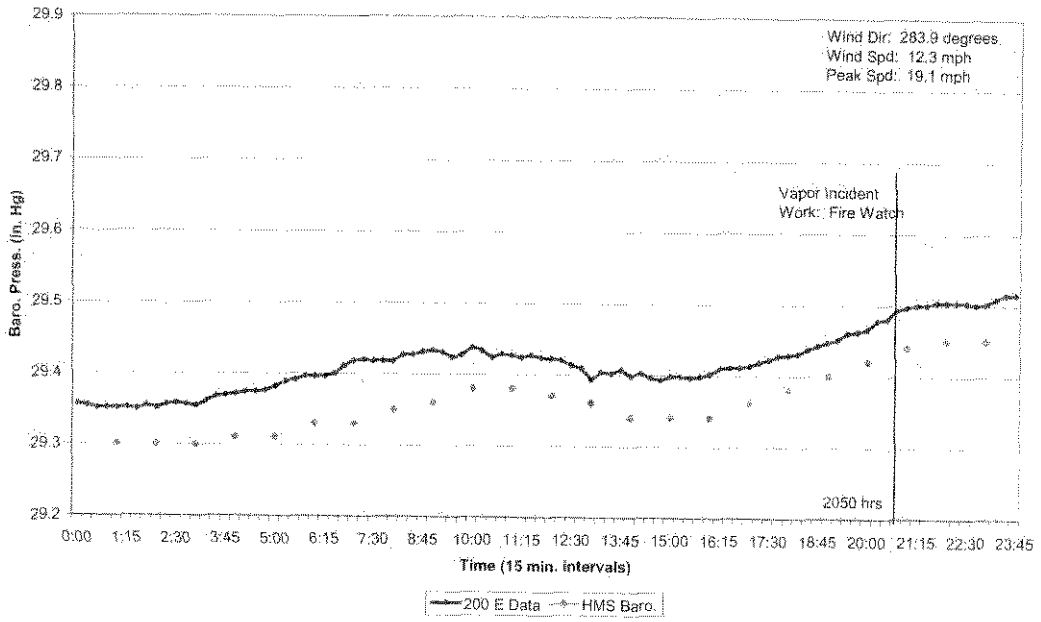
244-A (2/6/2001)
#2001-05



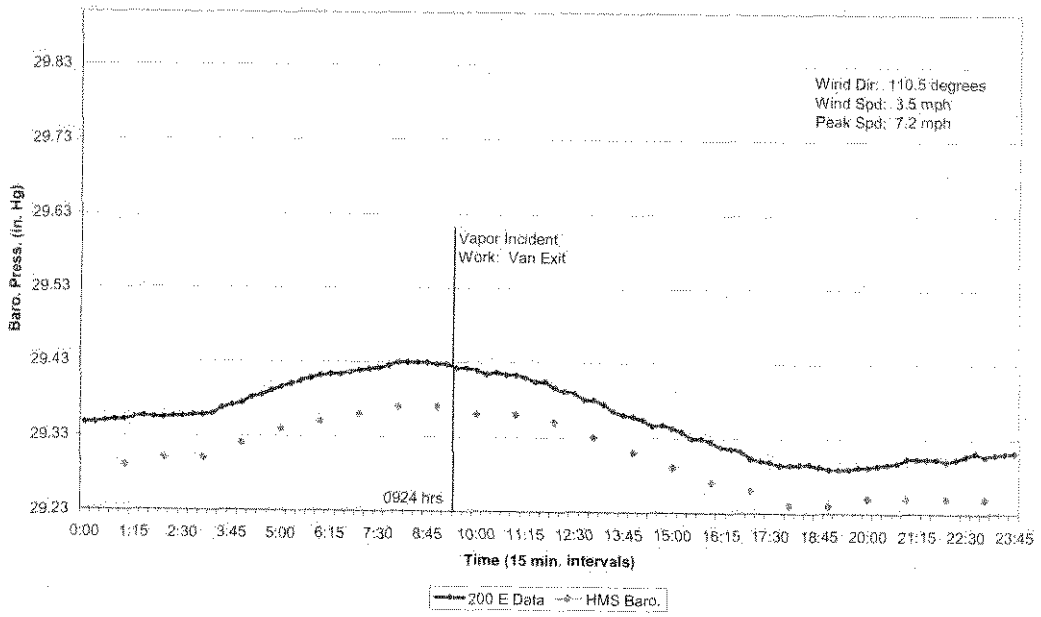
244-A (3/17/2001)
#2001-07 & #2002-08

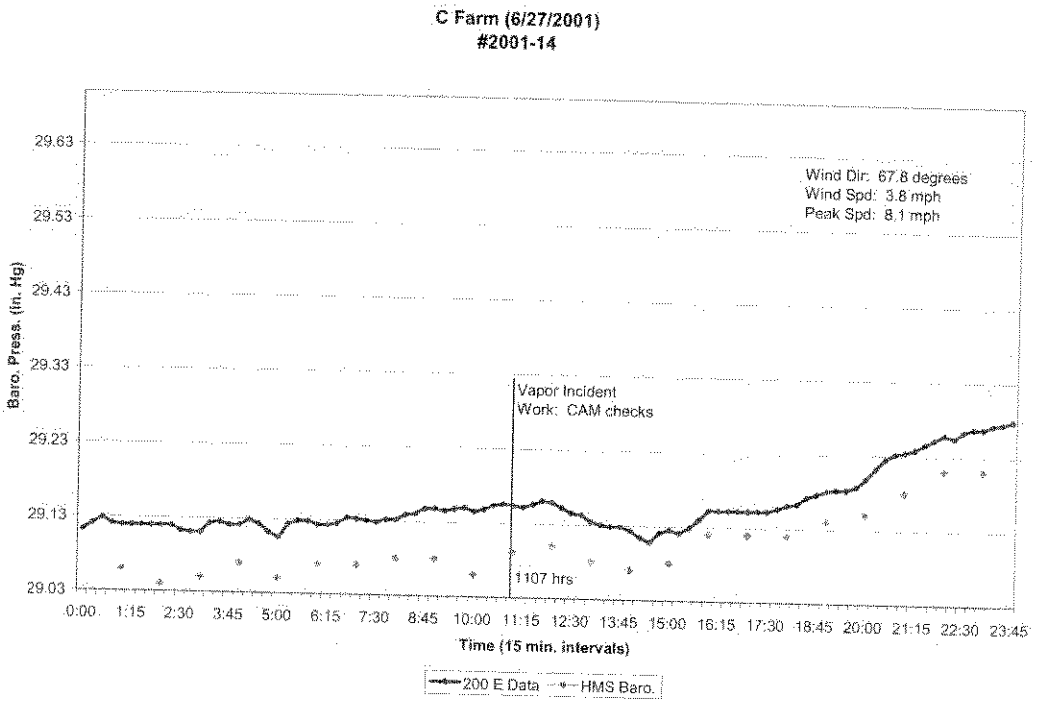


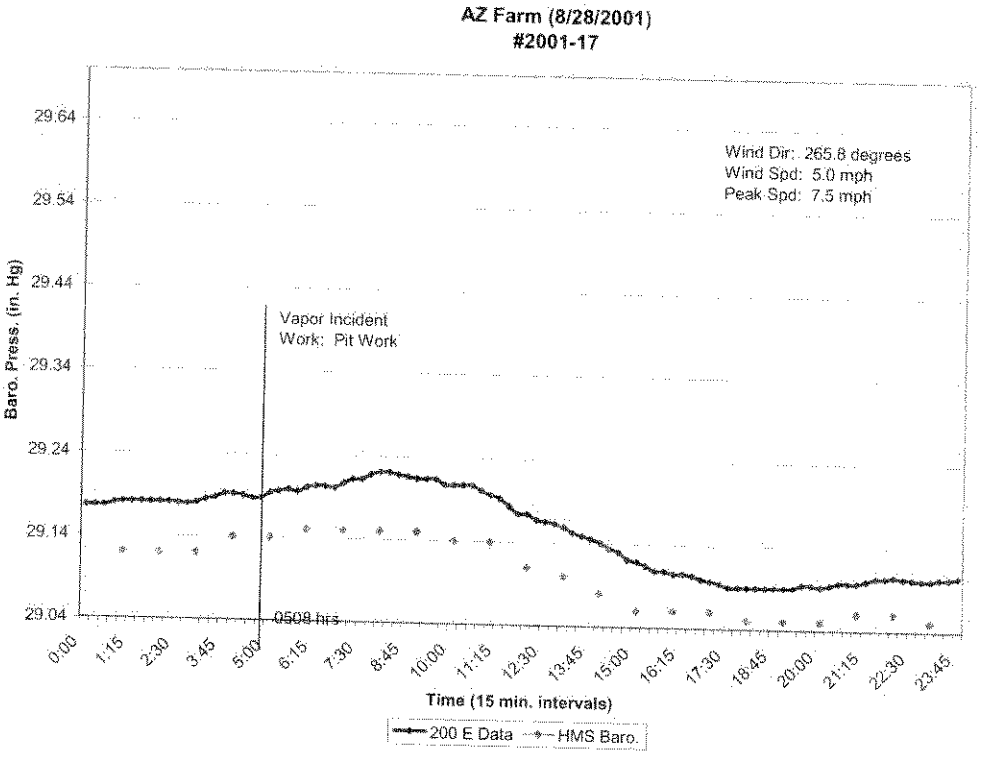
244-A (3/26/2001)
#2001-09



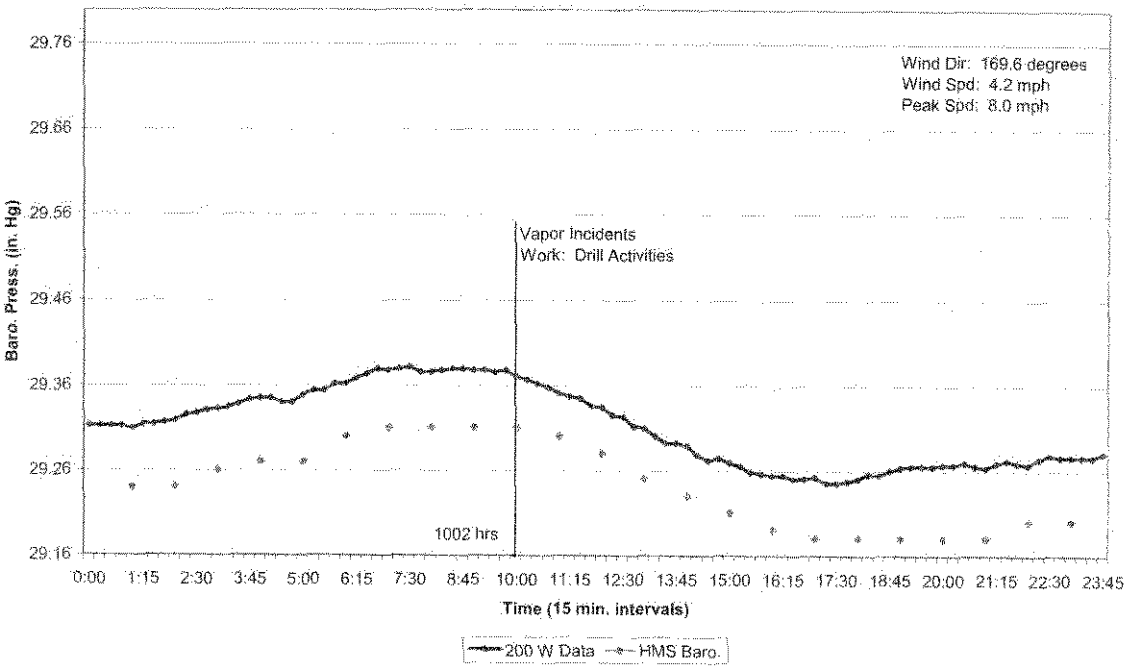
BY Farm (6/20/2001)
#2001-13



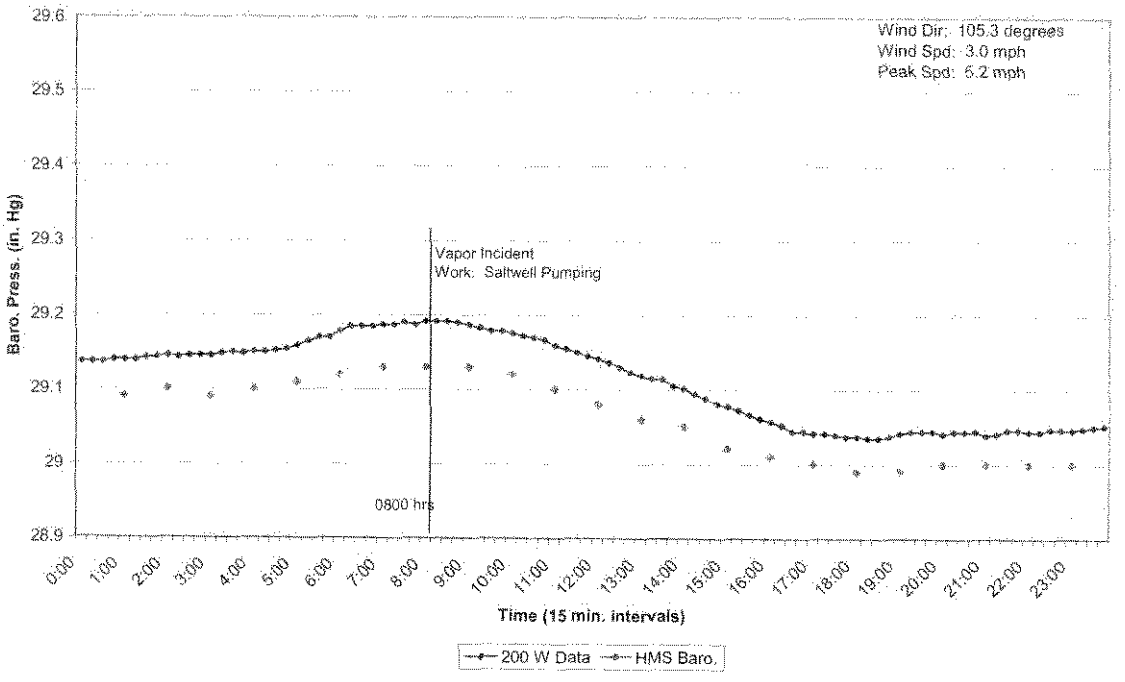

C Farm (6/27/2001)
#2001-14
Wind Dir: 67.8 degrees
Wind Spd: 3.8 mph
Peak Spd: 8.1 mph
Vapor Incident
Work: CAM checks
1107 hrs
Baro. Press. (in. Hg)
29.63
29.53
29.43
29.33
29.23
29.13
29.03
0:00 1:15 2:30 3:45 5:00 6:15 7:30 8:45 10:00 11:15 12:30 13:45 15:00 16:15 17:30 18:45 20:00 21:15 22:30 23:45
Time (15 min. intervals)
200 E Data
HMS Baro.


AZ Farm (8/28/2001)
#2001-17
Wind Dir: 265.8 degrees
Wind Spd: 5.0 mph
Peak Spd: 7.5 mph
Vapor Incident
Work: Pit Work
0508 hrs
Baro. Press. (in. Hg)
29.64
29.54
29.44
29.34
29.24
29.14
29.04
0:00 1:15 2:30 3:45 5:00 6:15 7:30 8:45 10:00 11:15 12:30 13:45 15:00 16:15 17:30 18:45 20:00 21:15 22:30 23:45
Time (15 min. intervals)
200 E Data
HMS Baro.

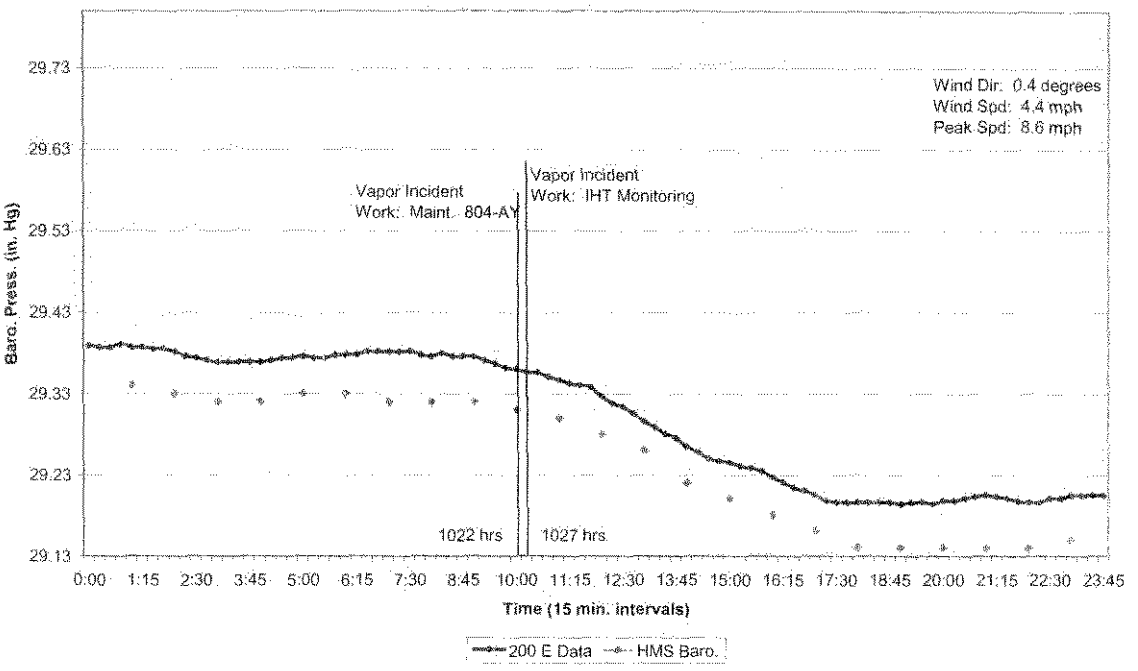
SY Farm (9/6/2001)
#2001-21



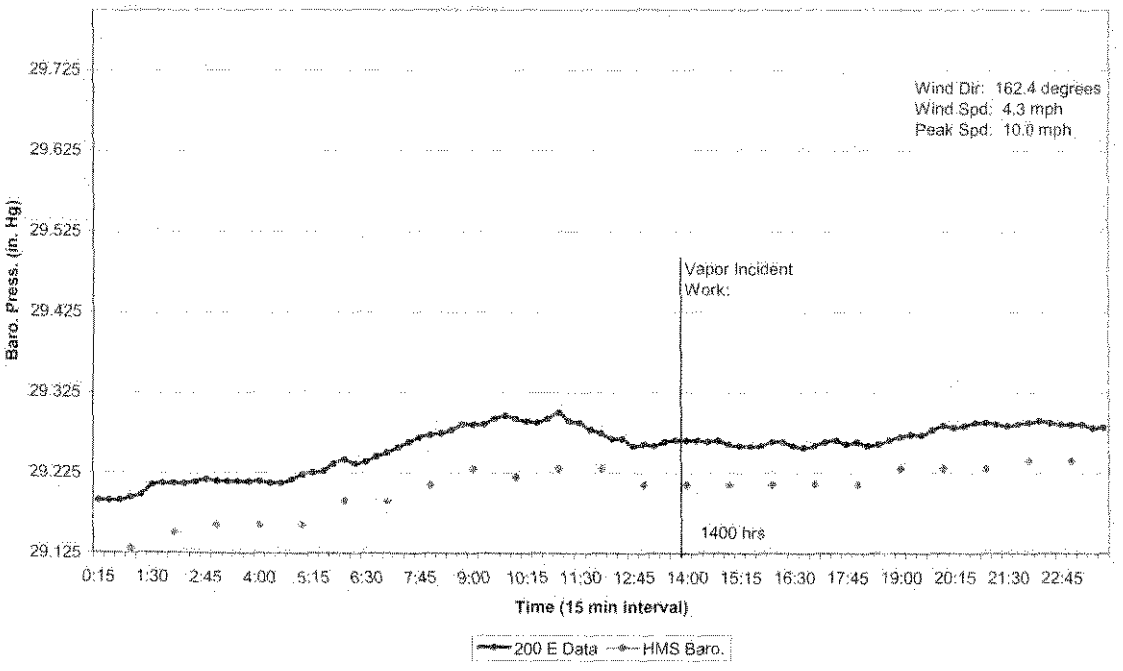
SY Farm (9/9/2001)
#2001-22



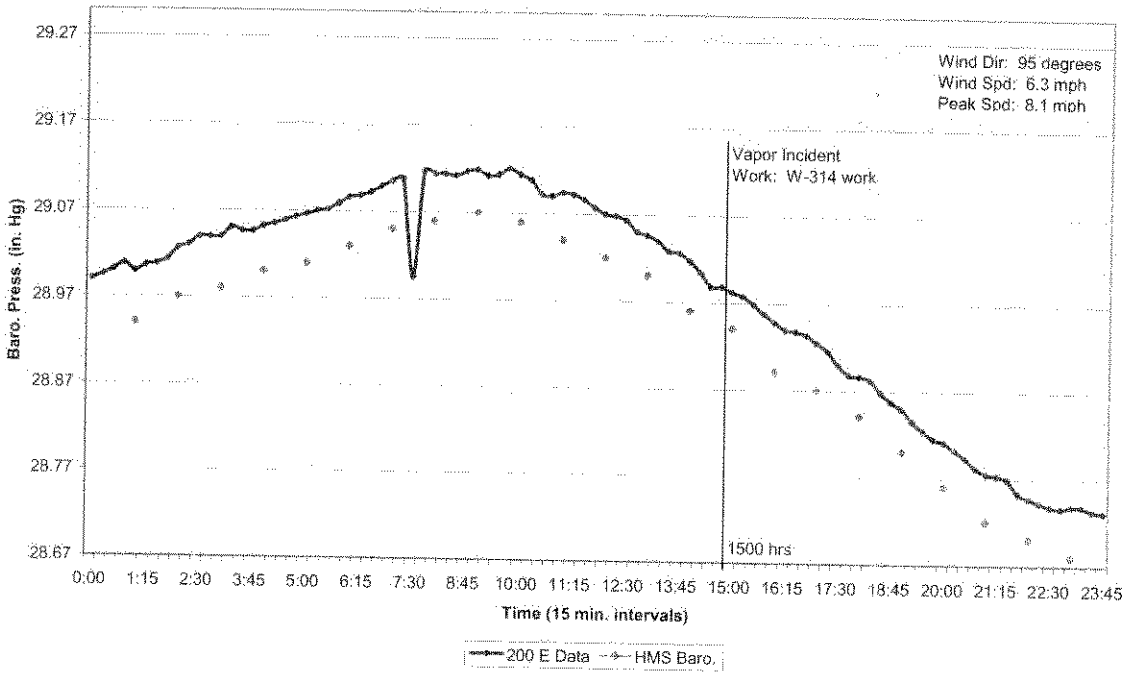
AY Farm (10/5/2001)
#2001-23 & #2001-24



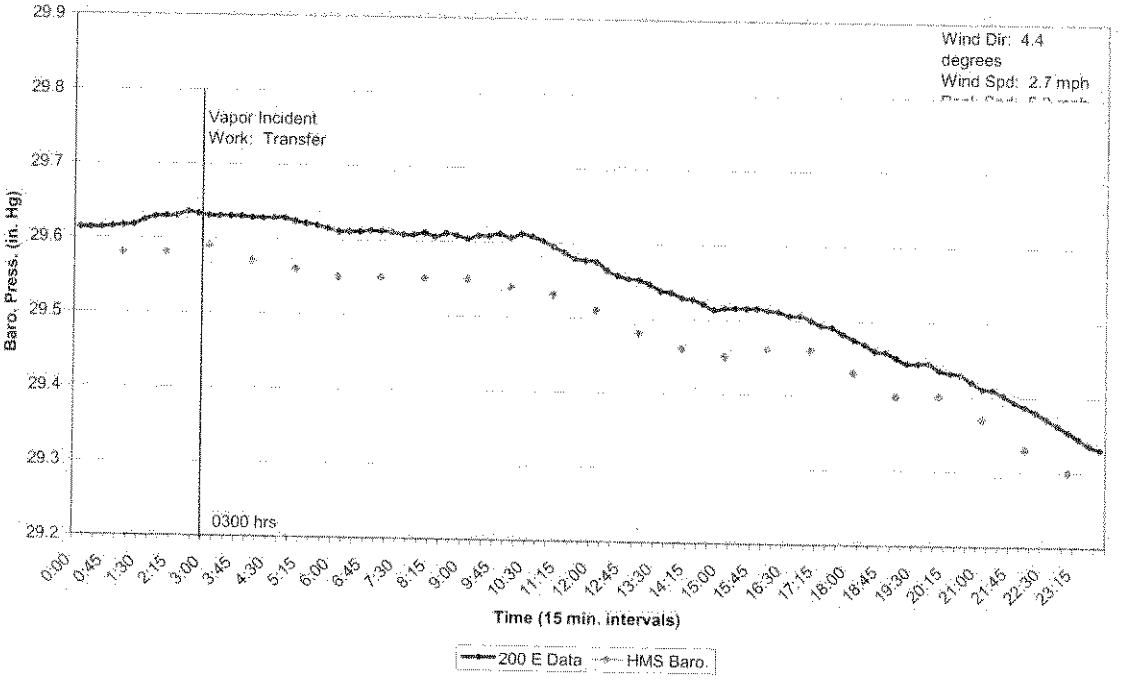
A Farm (11/1/2001)
#2001-25

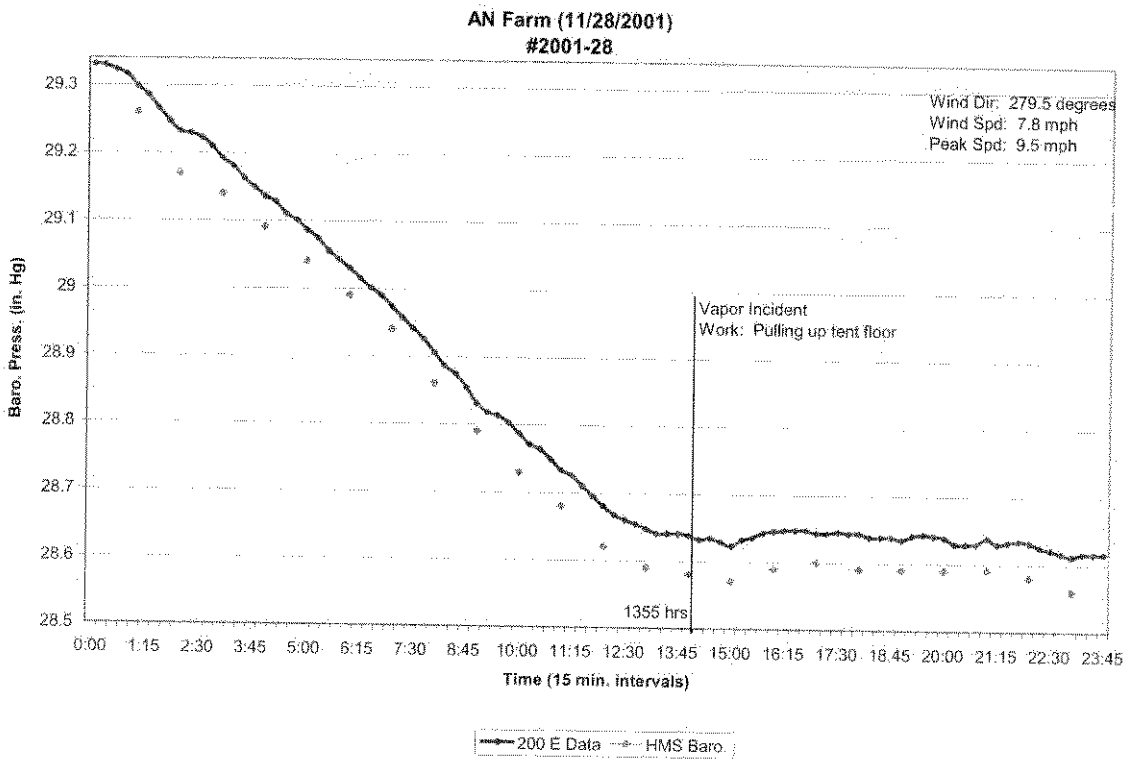


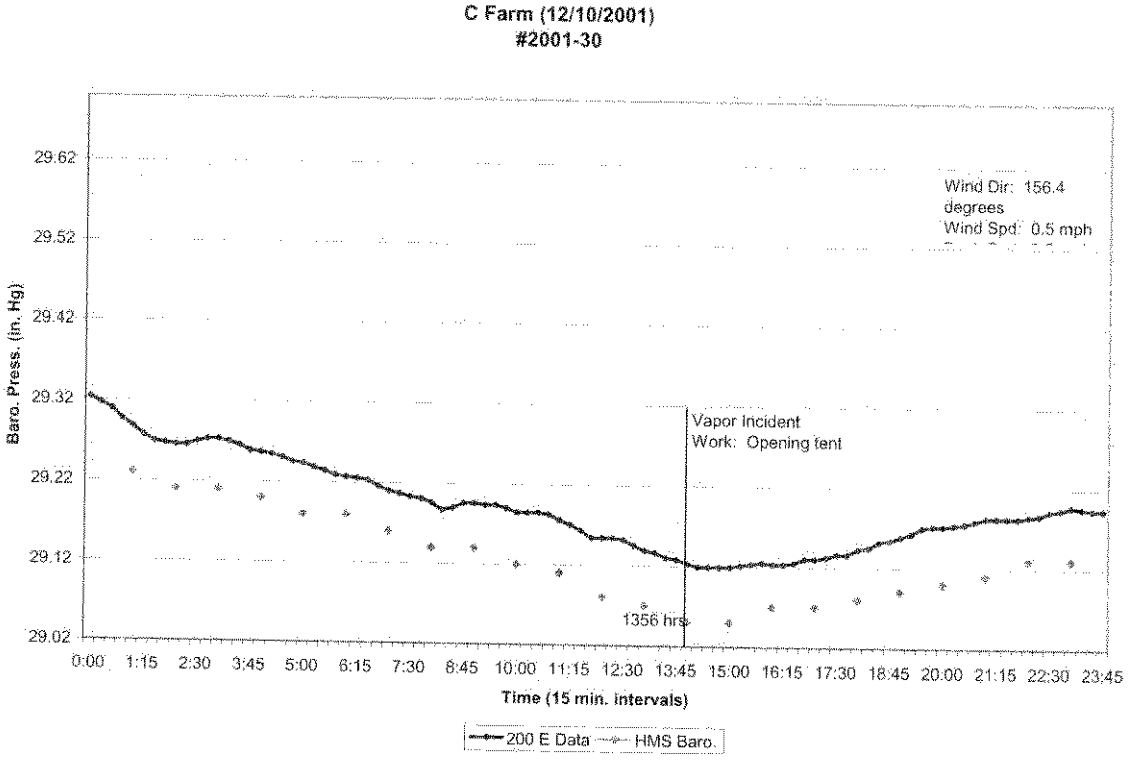
AZ Farm (11/21/2001)
#2001-26



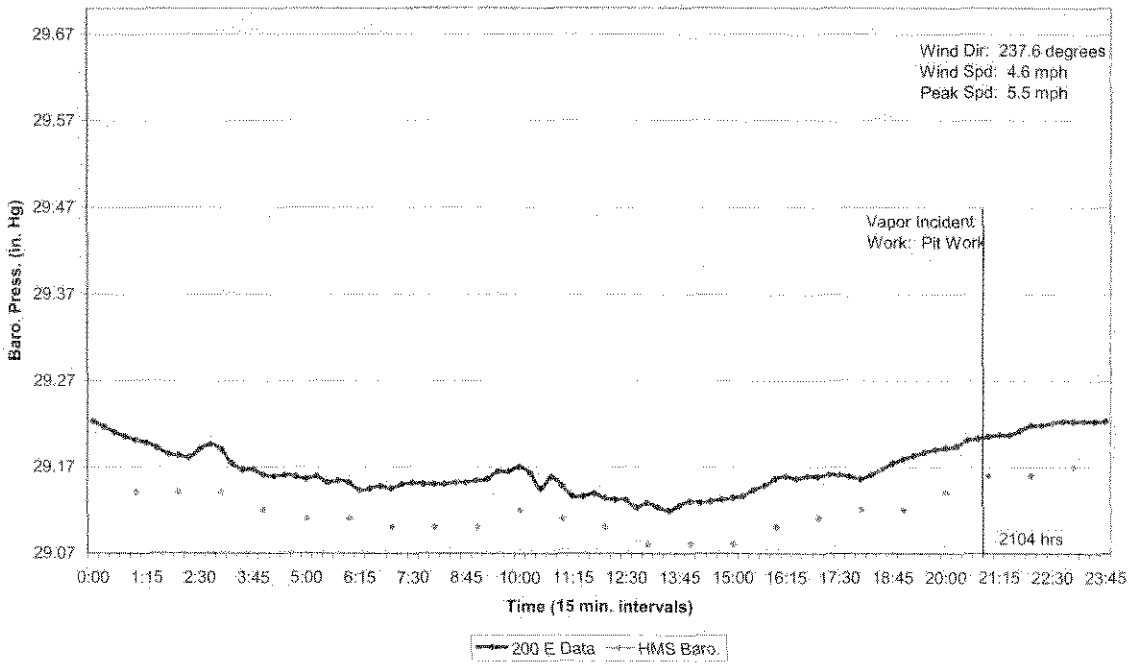
AN Farm (11/27/2001)
#2001-27



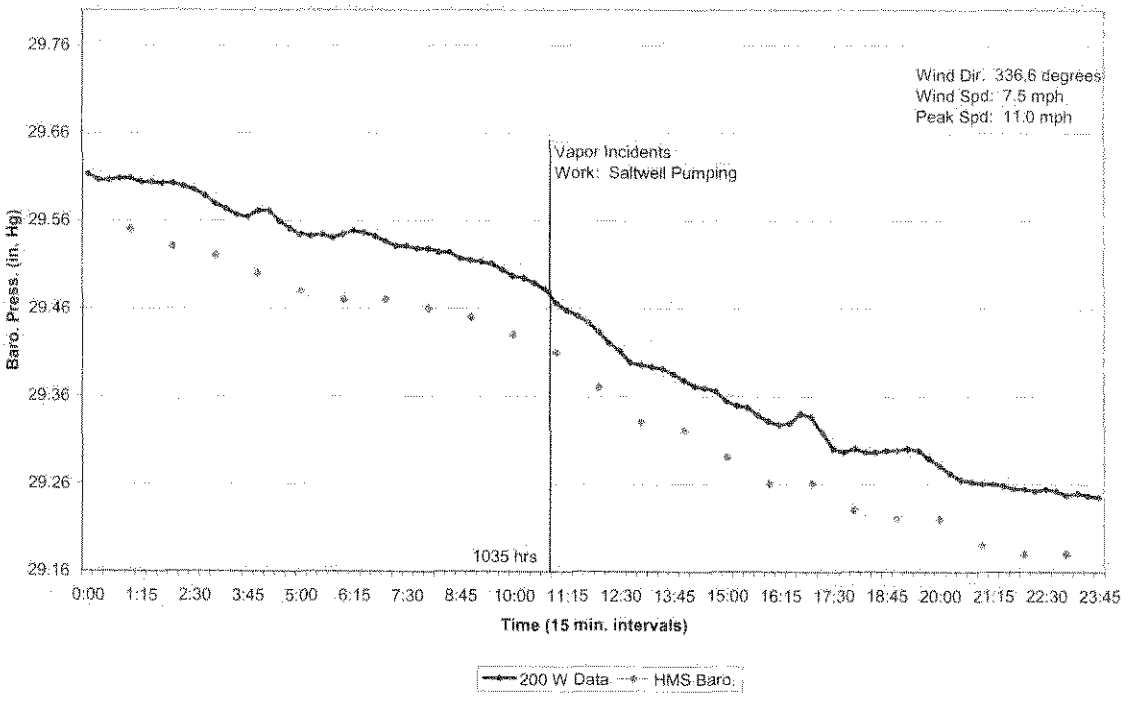

AN Farm (11/28/2001)
#2001-28
Wind Dir: 279.5 degrees
Wind Spd: 7.8 mph
Peak Spd: 9.5 mph
Vapor Incident
Work: Pulling up tent floor
1355 hrs
Baro. Press. (in. Hg)
29.3
29.2
29.1
29
28.9
28.8
28.7
28.6
28.5
0:00 1:15 2:30 3:45 5:00 6:15 7:30 8:45 10:00 11:15 12:30 13:45 15:00 16:15 17:30 18:45 20:00 21:15 22:30 23:45
Time (15 min. intervals)
200 E Data
HMS Baro.

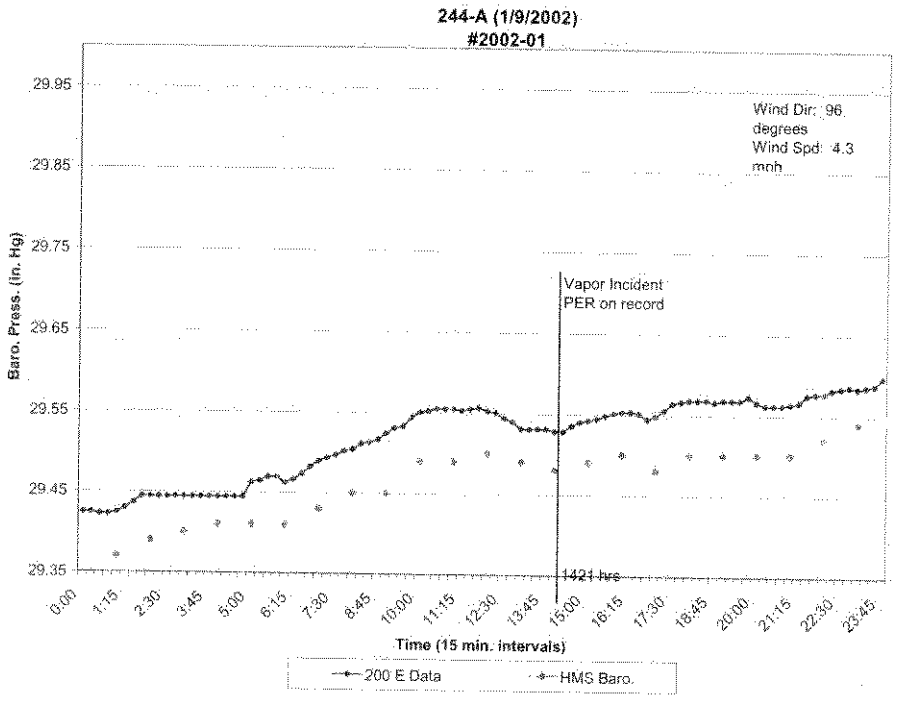

C Farm (12/10/2001)
#2001-30
Wind Dir: 156.4 degrees
Wind Spd: 0.5 mph
Vapor Incident
Work: Opening tent
1356 hrs
Baro. Press. (in. Hg)
29.62
29.52
29.42
29.32
29.22
29.12
29.02
0:00 1:15 2:30 3:45 5:00 6:15 7:30 8:45 10:00 11:15 12:30 13:45 15:00 16:15 17:30 18:45 20:00 21:15 22:30 23:45
Time (15 min. intervals)
200 E Data
HMS Baro.

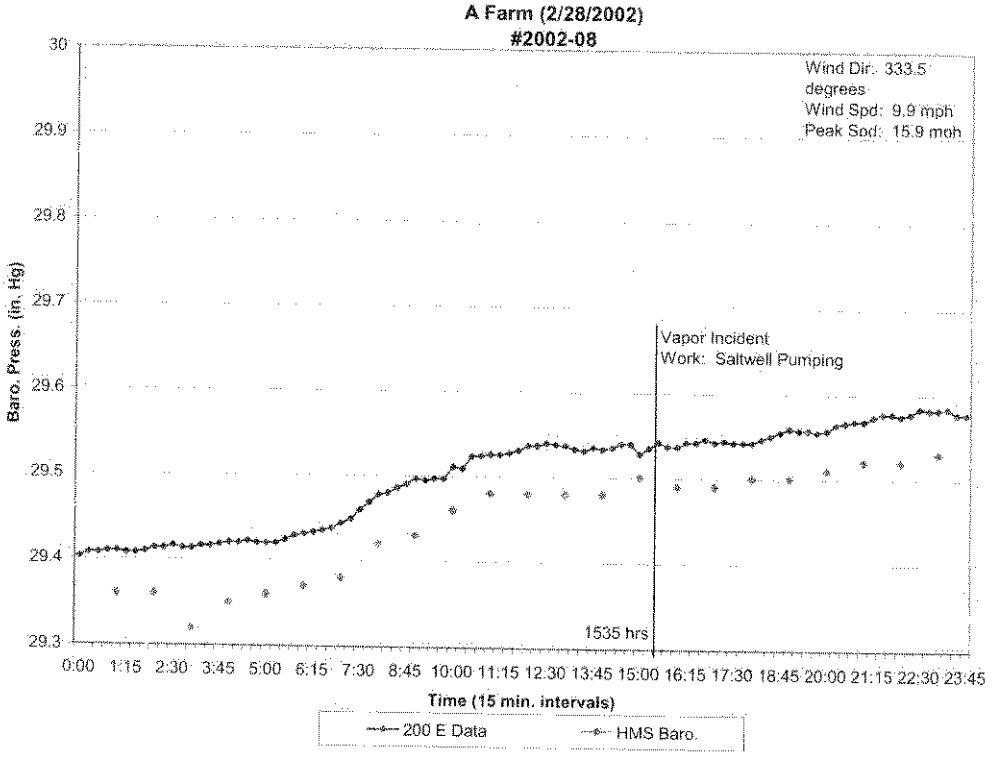
AN Farm (12/20/2001)
#2001-32

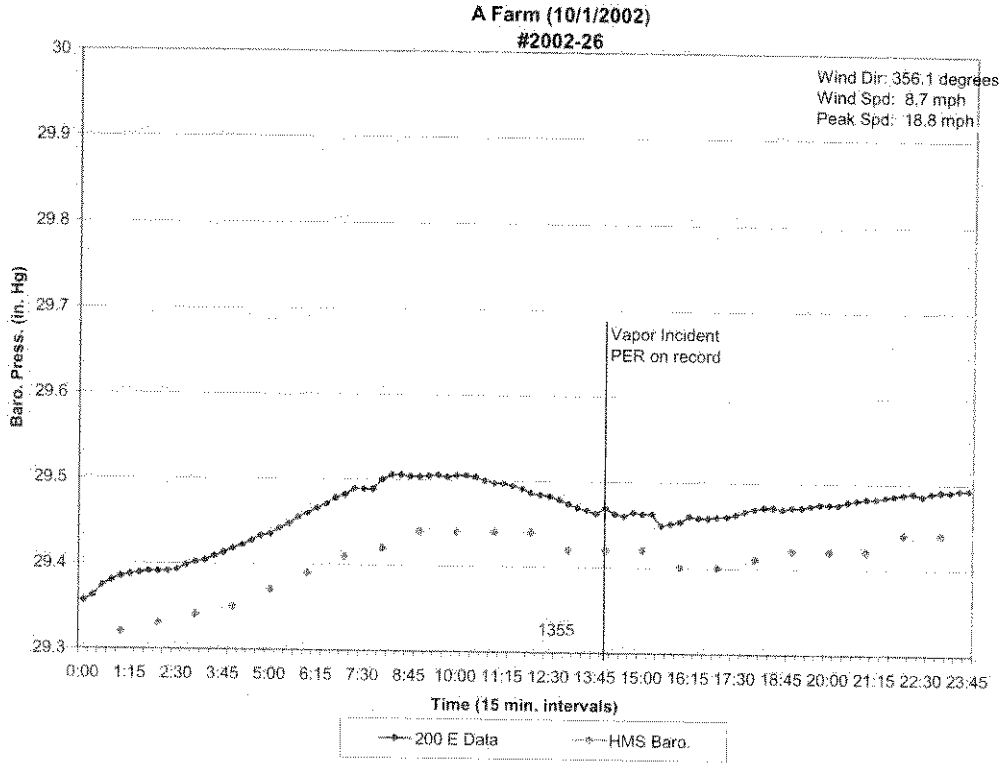


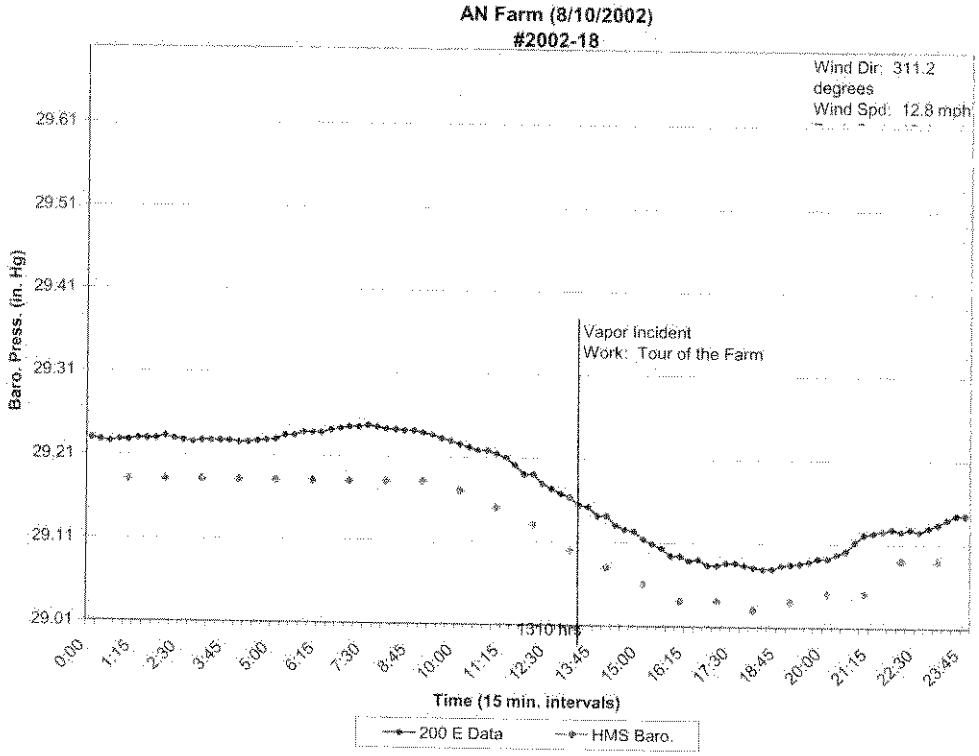
SX Farm (12/27/2001)
#2001-33

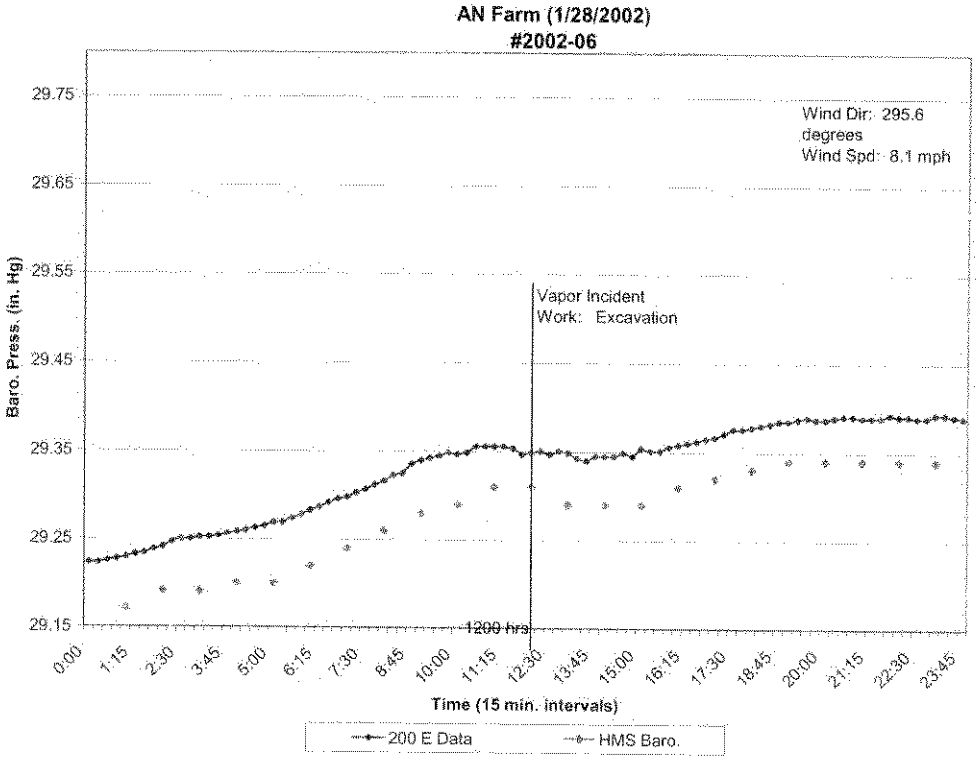


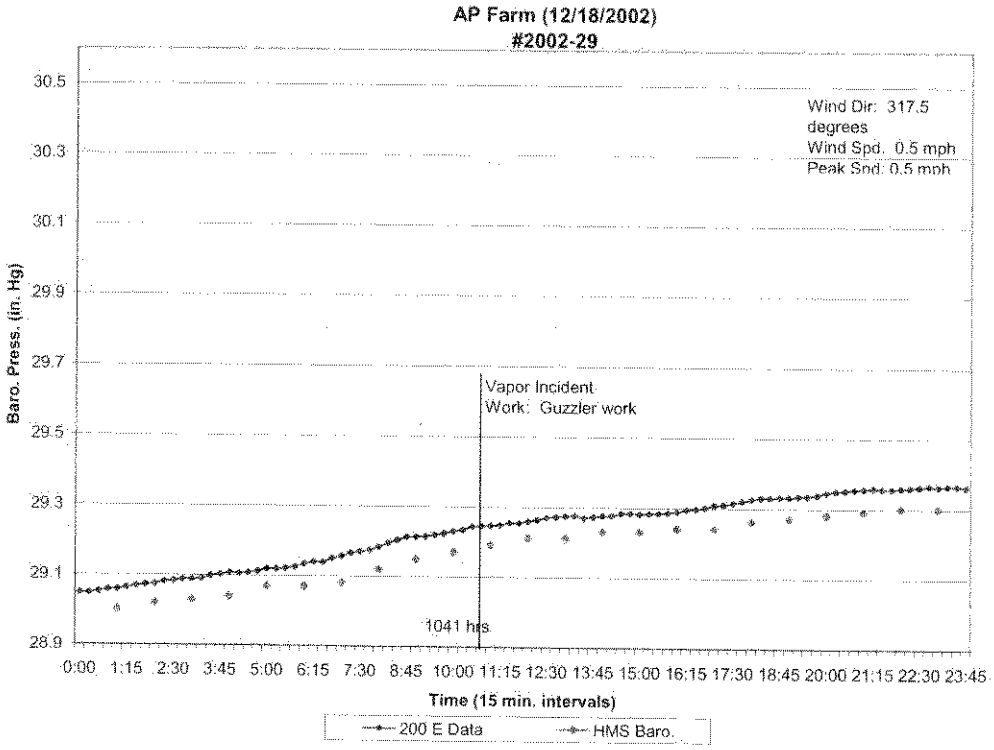

244-A (1/9/2002)
#2002-01
Wind Dir: 96 degrees
Wind Spd: 4.3 mph
Vapor Incident
PER on record
1421 hrs
Baro. Press. (in. Hg)
29.95
29.85
29.75
29.65
29.55
29.45
29.35
0:00 1:15 2:30 3:45 5:00 6:15 7:30 8:45 10:00 11:15 12:30 13:45 15:00 16:15 17:30 18:45 20:00 21:15 22:30 23:45
Time (15 min. intervals)
200 E Data
HMS Baro.

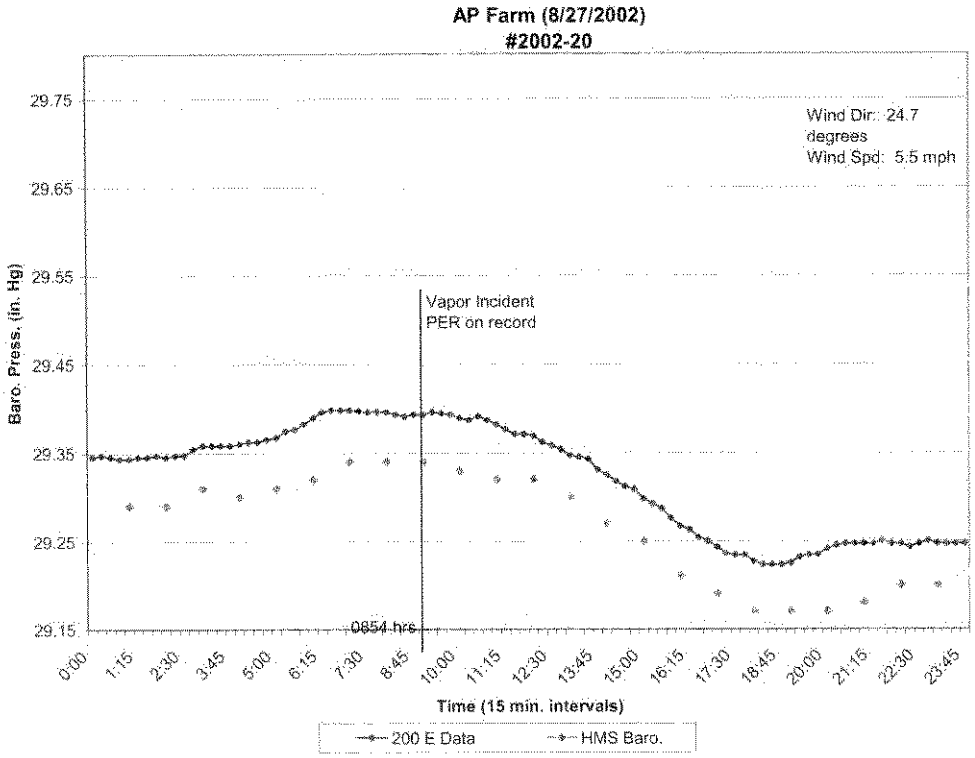

A Farm (2/28/2002)
#2002-08
Wind Dir: 333.5 degrees
Wind Spd: 9.9 mph
Peak Spd: 15.9 mph
Vapor Incident
Work: Saltwell Pumping
1535 hrs
Baro. Press. (in. Hg)
30
29.9
29.8
29.7
29.6
29.5
29.4
29.3
0:00 1:15 2:30 3:45 5:00 6:15 7:30 8:45 10:00 11:15 12:30 13:45 15:00 16:15 17:30 18:45 20:00 21:15 22:30 23:45
Time (15 min. intervals)
200 E Data
HMS Baro.

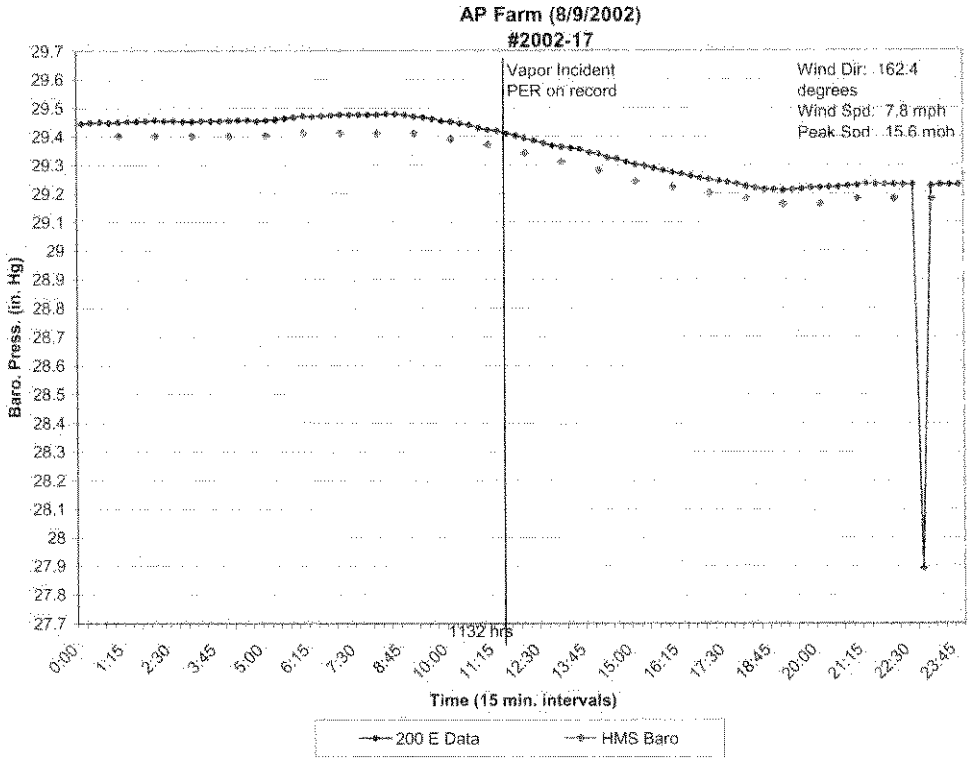

A Farm (10/1/2002)
#2002-26
Wind Dir: 356.1 degrees
Wind Spd: 8.7 mph
Peak Spd: 18.8 mph
Vapor Incident
PER on record
1355
Baro. Press. (in. Hg)
30
29.9
29.8
29.7
29.6
29.5
29.4
29.3
0:00 1:15 2:30 3:45 5:00 6:15 7:30 8:45 10:00 11:15 12:30 13:45 15:00 16:15 17:30 18:45 20:00 21:15 22:30 23:45
Time (15 min. intervals)
200 E Data
HMS Baro.

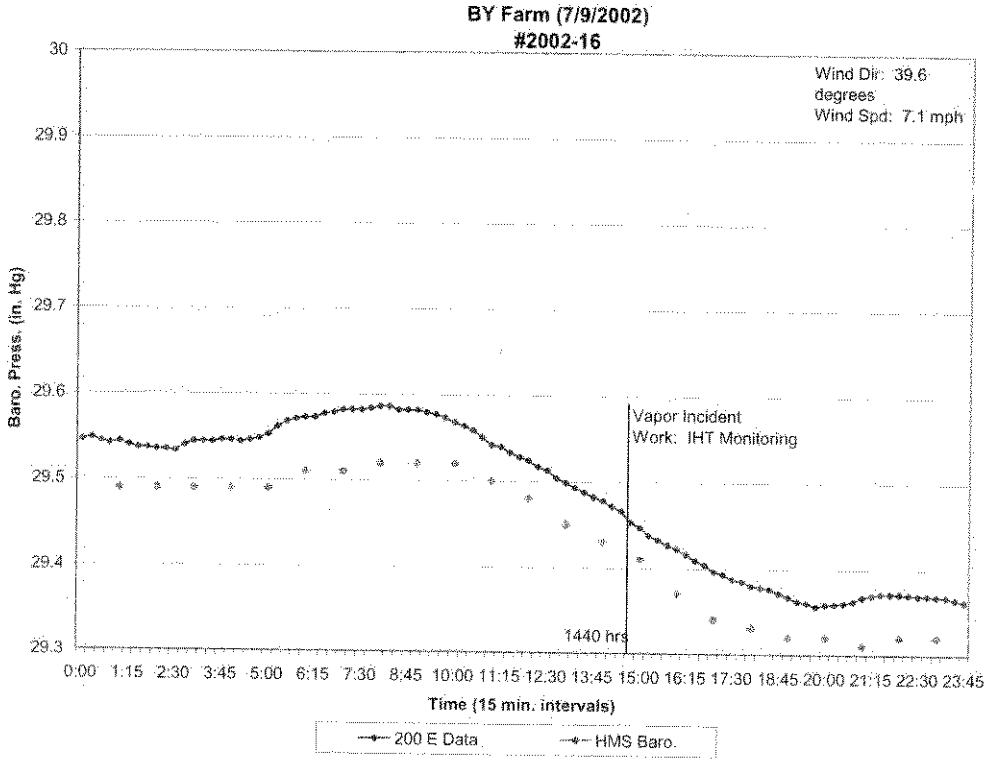

AN Farm (8/10/2002)
#2002-18
Wind Dir: 311.2 degrees
Wind Spd: 12.8 mph
Vapor Incident
Work: Tour of the Farm
1310 hrs
Baro. Press. (in. Hg)
29.61
29.51
29.41
29.31
29.21
29.11
29.01
0:00 1:15 2:30 3:45 5:00 6:15 7:30 8:45 10:00 11:15 12:30 13:45 15:00 16:15 17:30 18:45 20:00 21:15 22:30 23:45
Time (15 min. intervals)
200 E Data
HMS Baro.

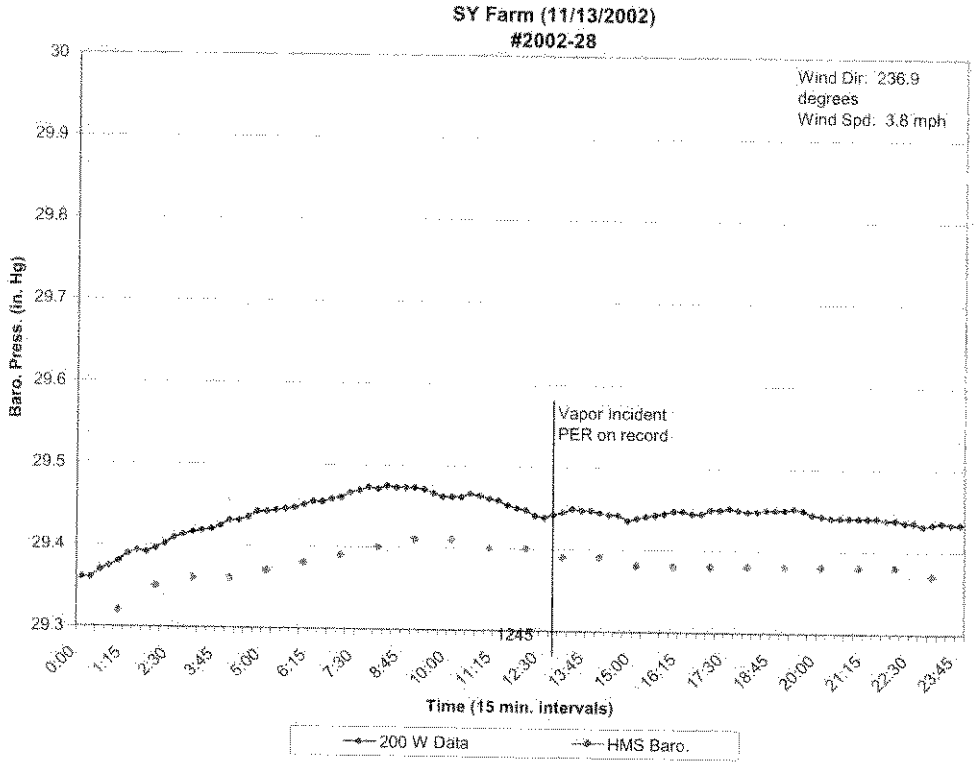

AN Farm (1/28/2002)
#2002-06
Wind Dir: 295.6 degrees
Wind Spd: 8.1 mph
Vapor Incident
Work: Excavation
1200 hrs
Baro. Press. (in. Hg)
29.75
29.65
29.55
29.45
29.35
29.25
29.15
0:00 1:15 2:30 3:45 5:00 6:15 7:30 8:45 10:00 11:15 12:30 13:45 15:00 16:15 17:30 18:45 20:00 21:15 22:30 23:45
Time (15 min. intervals)
200 E Data
HMS Baro.

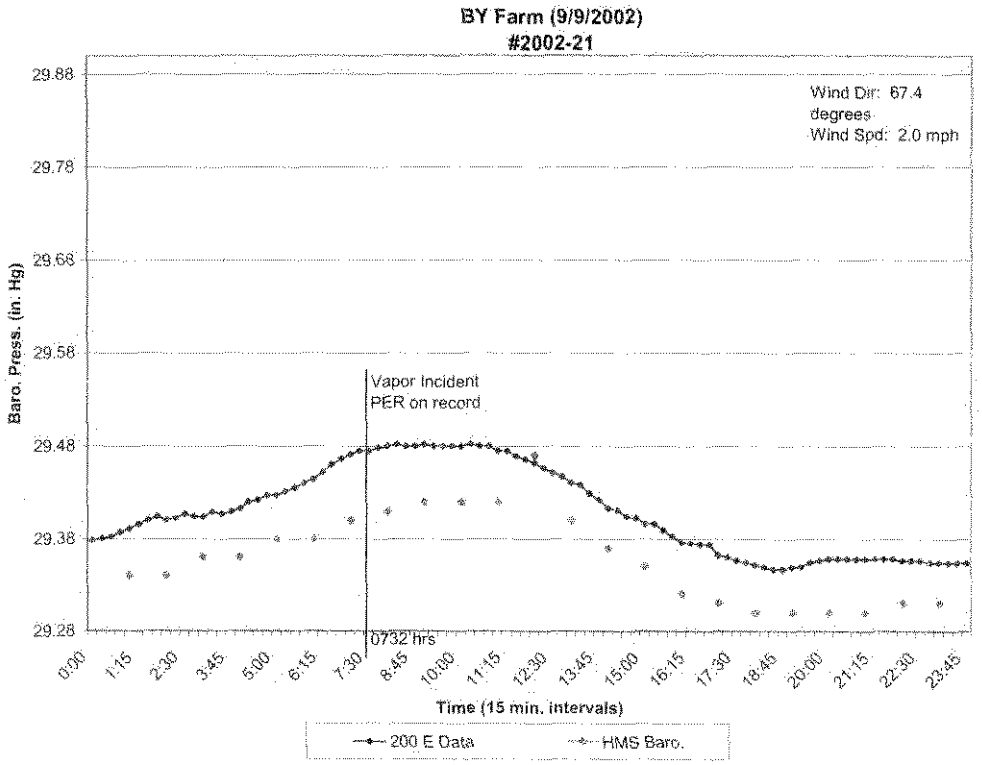

AP Farm (12/18/2002)
#2002-29
Wind Dir: 317.5 degrees
Wind Spd: 0.5 mph
Peak Snd: 0.5 mph
Vapor Incident
Work: Guzzler work
1041 hrs
Baro. Press. (in. Hg)
30.5
30.3
30.1
29.9
29.7
29.5
29.3
29.1
28.9
0:00 1:15 2:30 3:45 5:00 6:15 7:30 8:45 10:00 11:15 12:30 13:45 15:00 16:15 17:30 18:45 20:00 21:15 22:30 23:45
Time (15 min. intervals)
200 E Data
HMS Baro.

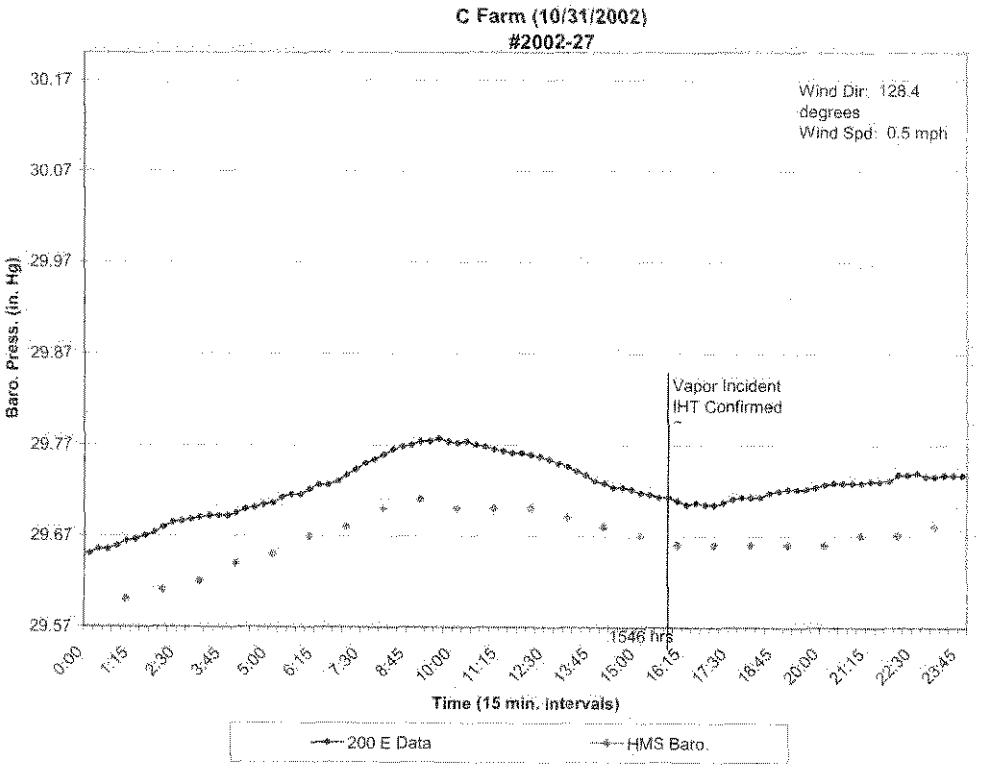

AP Farm (8/27/2002)
#2002-20
Wind Dir: 24.7 degrees
Wind Spd: 5.5 mph
Vapor Incident PER on record
0854 hrs
Baro. Press. (in. Hg)
Time (15 min. intervals)
200 E Data
HMS Baro.

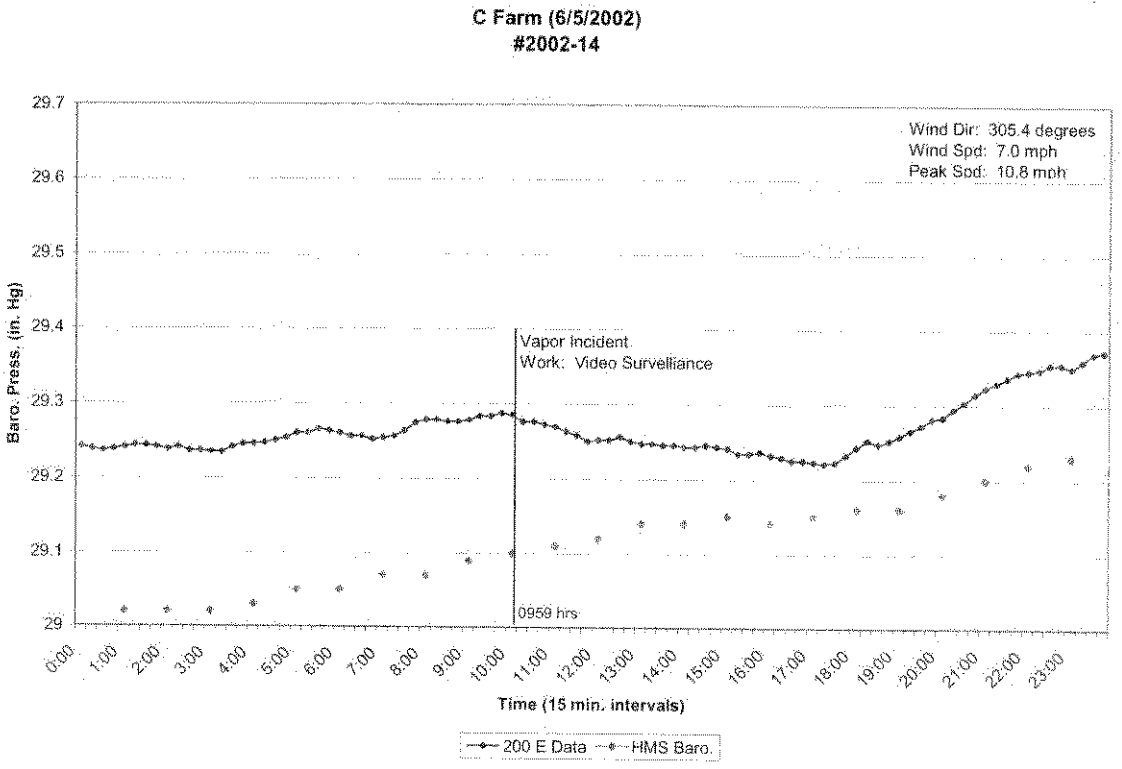

AP Farm (8/9/2002)
#2002-17
Vapor Incident PER on record
Wind Dir: 162.4 degrees
Wind Spd: 7.8 mph
Peak Spd: 15.6 mph
1132 hrs
Baro. Press. (in. Hg)
Time (15 min. intervals)
200 E Data
HMS Baro

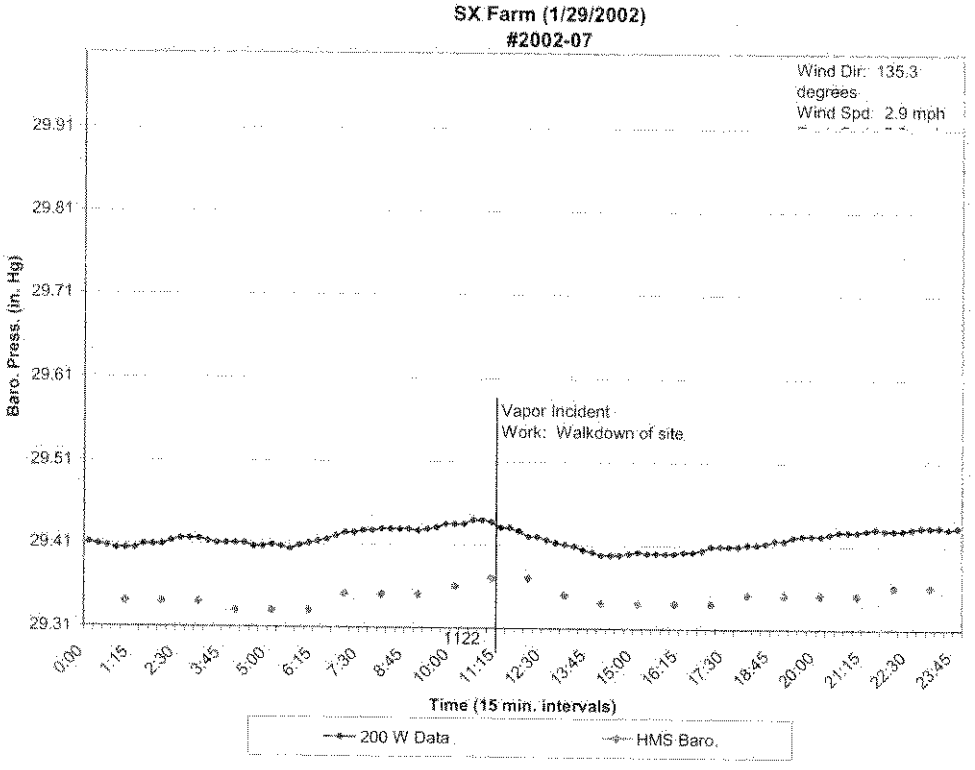

BY Farm (7/9/2002)
#2002-16
Wind Dir: 39.6 degrees
Wind Spd: 7.1 mph
Vapor Incident
Work: IHT Monitoring
1440 hrs
Baro. Press. (in. Hg)
30
29.9
29.8
29.7
29.6
29.5
29.4
29.3
0:00 1:15 2:30 3:45 5:00 6:15 7:30 8:45 10:00 11:15 12:30 13:45 15:00 16:15 17:30 18:45 20:00 21:15 22:30 23:45
Time (15 min. intervals)
200 E Data
HMS Baro.

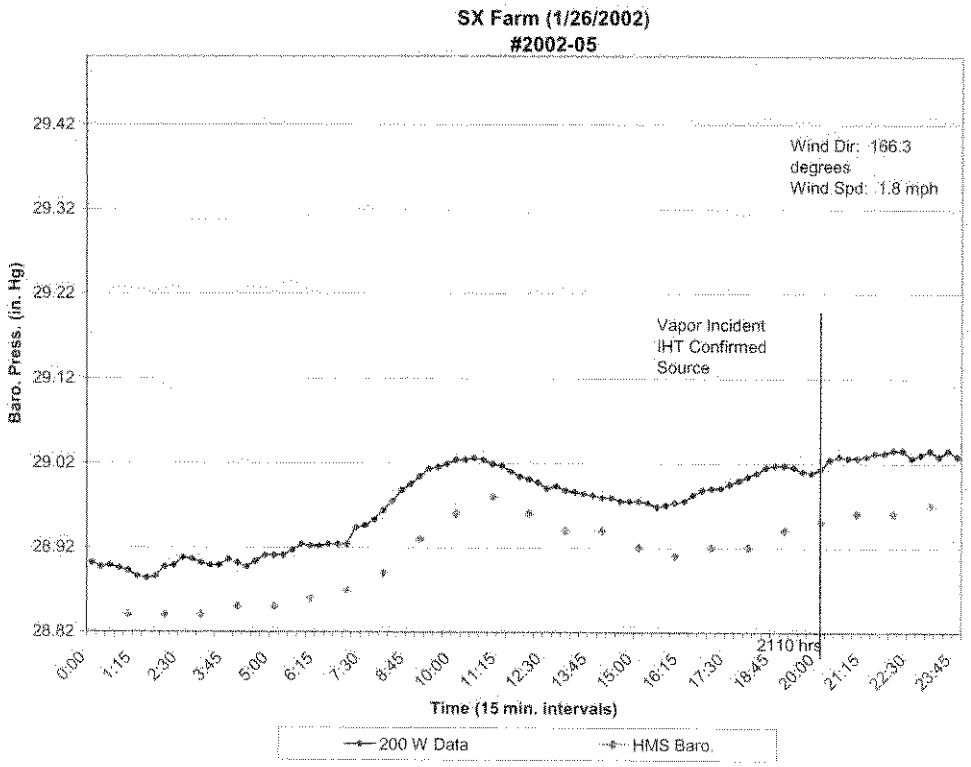

SY Farm (11/13/2002)
#2002-28
Wind Dir: 236.9 degrees
Wind Spd: 3.8 mph
Vapor Incident
PER on record
1245
Baro. Press. (in. Hg)
30
29.9
29.8
29.7
29.6
29.5
29.4
29.3
0:00 1:15 2:30 3:45 5:00 6:15 7:30 8:45 10:00 11:15 12:30 13:45 15:00 16:15 17:30 18:45 20:00 21:15 22:30 23:45
Time (15 min. intervals)
200 W Data
HMS Baro.

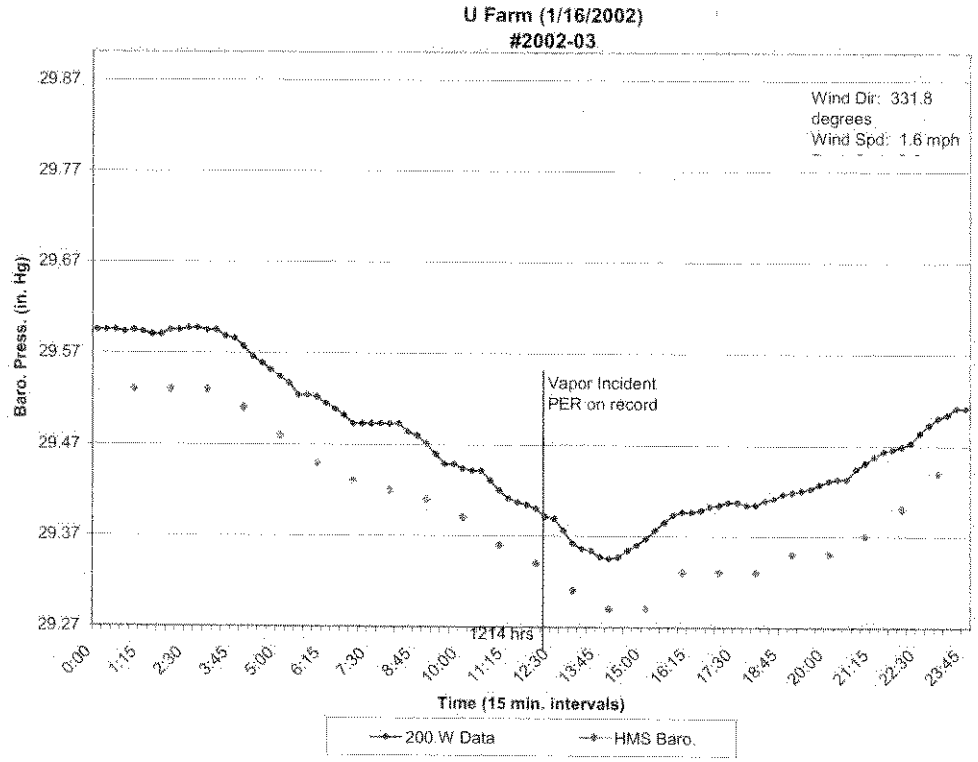

BY Farm (9/9/2002)
#2002-21
Wind Dir: 67.4 degrees
Wind Spd: 2.0 mph
Vapor Incident
PER on record
0732 hrs
Baro. Press. (in. Hg)
29.88
29.78
29.68
29.58
29.48
29.38
29.28
0:00
1:15
2:30
3:45
5:00
6:15
7:30
8:45
10:00
11:15
12:30
13:45
15:00
16:15
17:30
18:45
20:00
21:15
22:30
23:45
Time (15 min. intervals)
200 E Data
HMS Baro.

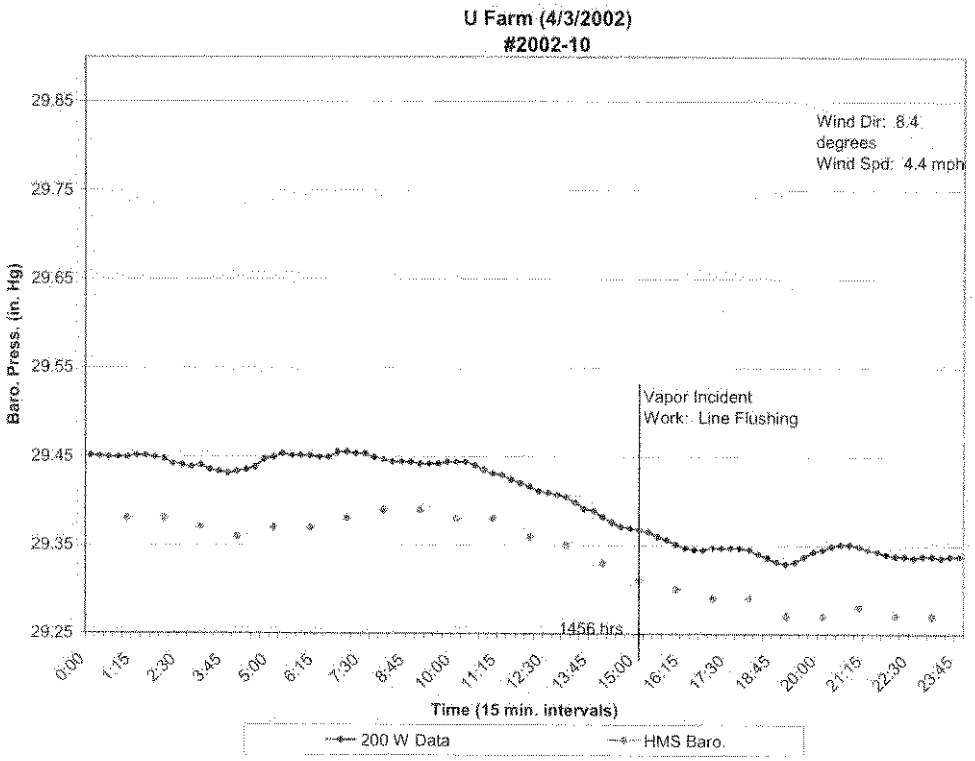

C Farm (10/31/2002)
#2002-27
Wind Dir: 128.4 degrees
Wind Spd: 0.5 mph
Vapor Incident
IHT Confirmed
1546 hrs
Baro. Press. (in. Hg)
30.17
30.07
29.97
29.87
29.77
29.67
29.57
0:00
1:15
2:30
3:45
5:00
6:15
7:30
8:45
10:00
11:15
12:30
13:45
15:00
16:15
17:30
18:45
20:00
21:15
22:30
23:45
Time (15 min. intervals)
200 E Data
HMS Baro.

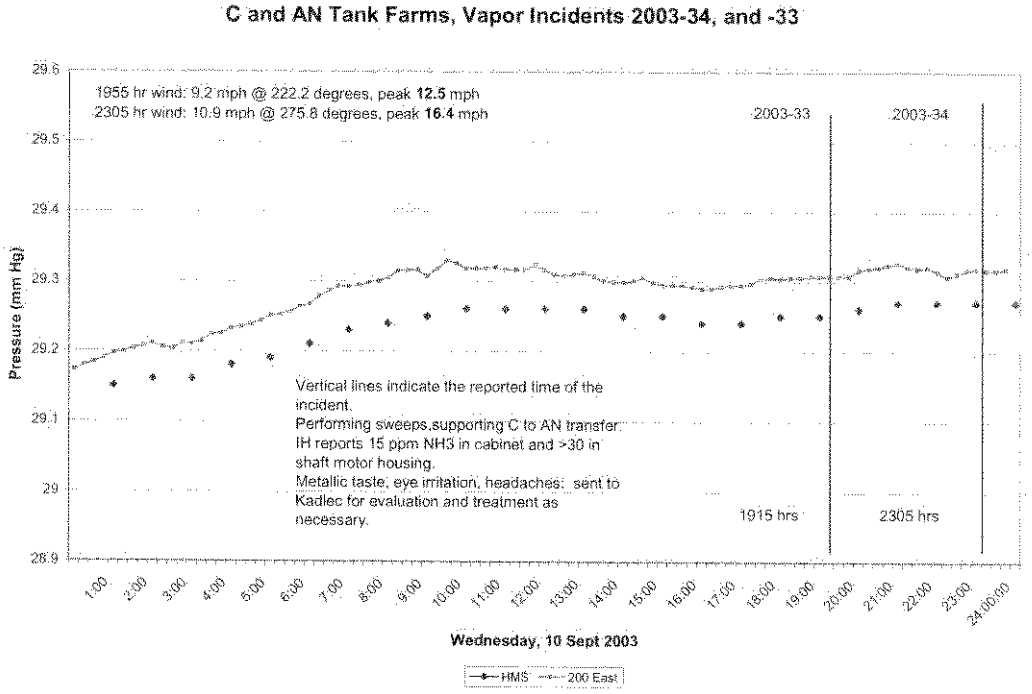

C Farm (6/5/2002)
#2002-14
Wind Dir: 305.4 degrees
Wind Spd: 7.0 mph
Peak Spd: 10.8 mph
Vapor Incident
Work: Video Survelliance
0959 hrs
Baro. Press. (in. Hg)
Time (15 min. intervals)
200 E Data
HMS Baro.


SX Farm (1/29/2002)
#2002-07
Wind Dir: 135.3 degrees
Wind Spd: 2.9 mph
Vapor Incident
Work: Walkdown of site
1122
Baro. Press. (in. Hg)
Time (15 min. intervals)
200 W Data
HMS Baro.

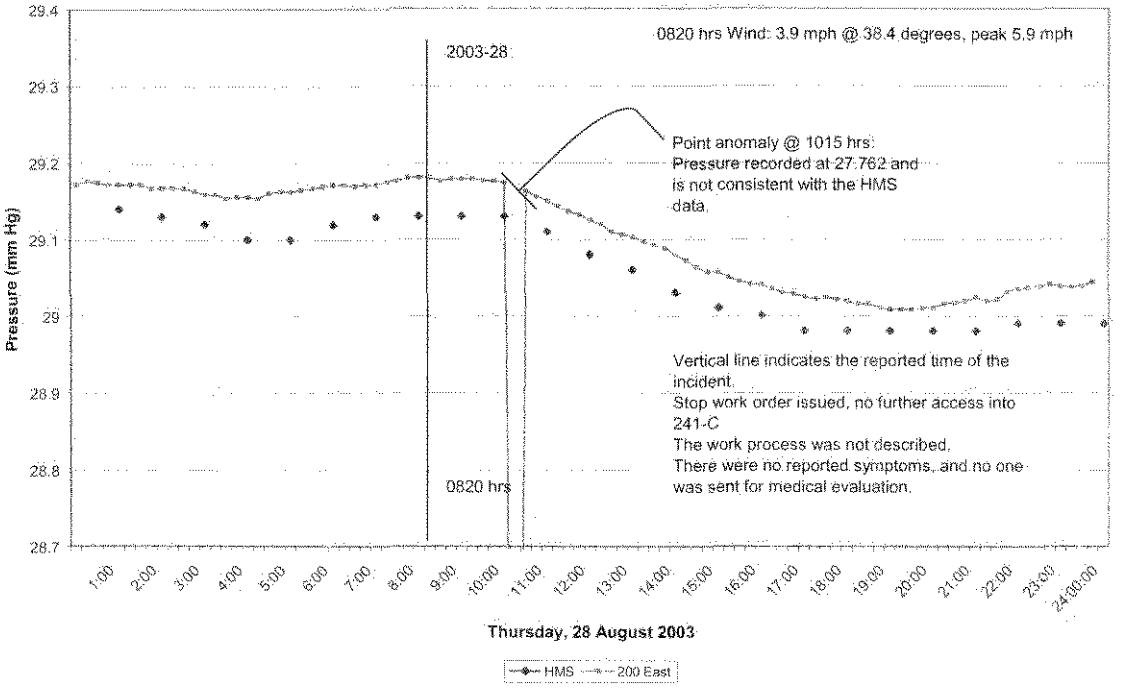

SX Farm (1/26/2002)
#2002-05
Wind Dir: 166.3 degrees
Wind Spd: 1.8 mph
Vapor Incident
IHT Confirmed
Source
2110 hrs
Baro. Press. (in. Hg)
29.42
29.32
29.22
29.12
29.02
28.92
28.82
0:00
1:15
2:30
3:45
5:00
6:15
7:30
8:45
10:00
11:15
12:30
13:45
15:00
16:15
17:30
18:45
20:00
21:15
22:30
23:45
Time (15 min. intervals)
200 W Data
HMS Baro.


U Farm (1/16/2002)
#2002-03
Wind Dir: 331.8 degrees
Wind Spd: 1.6 mph
Vapor Incident
PER on record
1214 hrs
Baro. Press. (in. Hg)
29.87
29.77
29.67
29.57
29.47
29.37
29.27
0:00
1:15
2:30
3:45
5:00
6:15
7:30
8:45
10:00
11:15
12:30
13:45
15:00
16:15
17:30
18:45
20:00
21:15
22:30
23:45
Time (15 min. intervals)
200 W Data
HMS Baro.

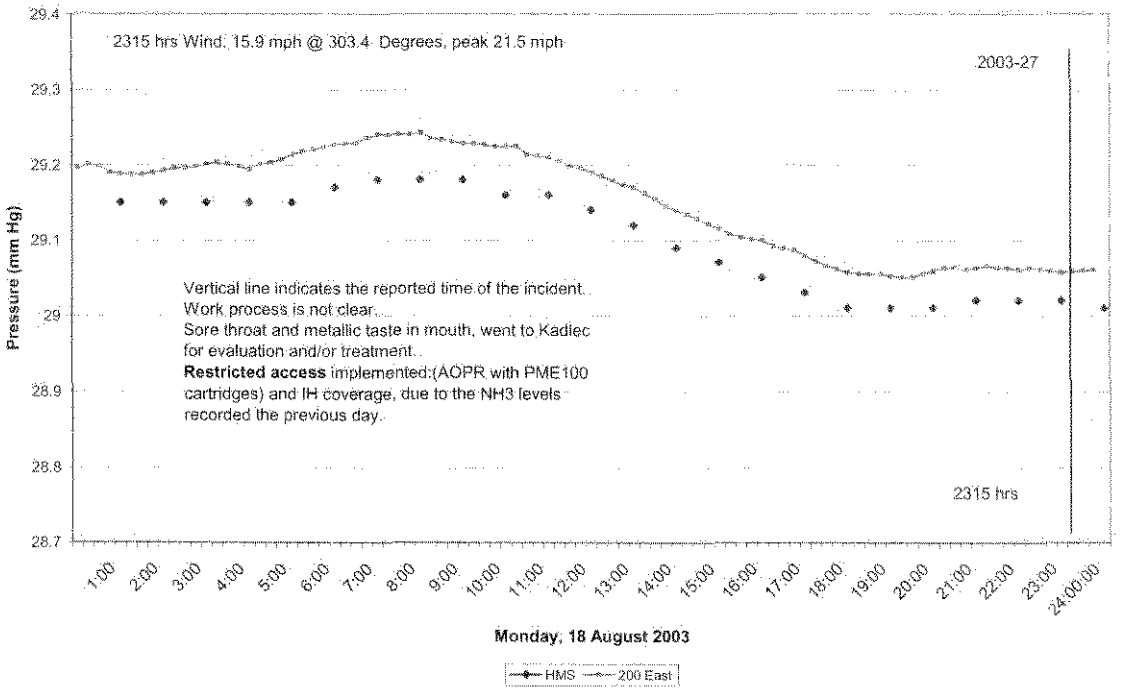

U Farm (4/3/2002)
#2002-10
Wind Dir: 8.4 degrees
Wind Spd: 4.4 mph
Vapor Incident
Work: Line Flushing
1456 hrs
Baro. Press. (in. Hg)
29.85
29.75
29.65
29.55
29.45
29.35
29.25
0:00
1:15
2:30
3:45
5:00
6:15
7:30
8:45
10:00
11:15
12:30
13:45
15:00
16:15
17:30
18:45
20:00
21:15
22:30
23:45
Time (15 min. intervals)
200 W Data
HMS Baro.


C and AN Tank Farms, Vapor Incidents 2003-34, and -33
1955 hr wind: 9.2 mph @ 222.2 degrees, peak 12.5 mph
2305 hr wind: 10.9 mph @ 275.8 degrees, peak 16.4 mph
2003-33
2003-34
Vertical lines indicate the reported time of the incident.
Performing sweeps,supporting C to AN transfer.
IH reports 15 ppm NH3 in cabinet and >30 in shaft motor housing.
Metallic taste, eye irritation, headaches: sent to Kadlec for evaluation and treatment as necessary.
1915 hrs
2305 hrs
Pressure (mm Hg)
29.6
29.5
29.4
29.3
29.2
29.1
29
28.9
1:00
2:00
3:00
4:00
5:00
6:00
7:00
8:00
9:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
24:00:00
Wednesday, 10 Sept 2003
HMS
200 East

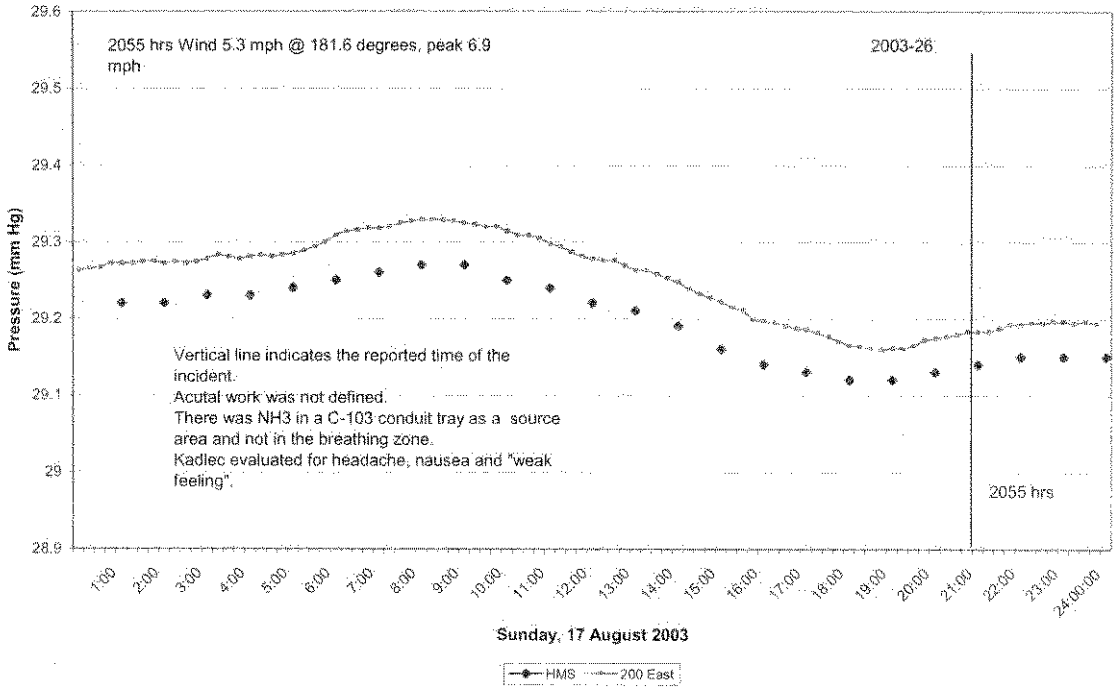
C Tank Farm, Vapor Incident 2003-28



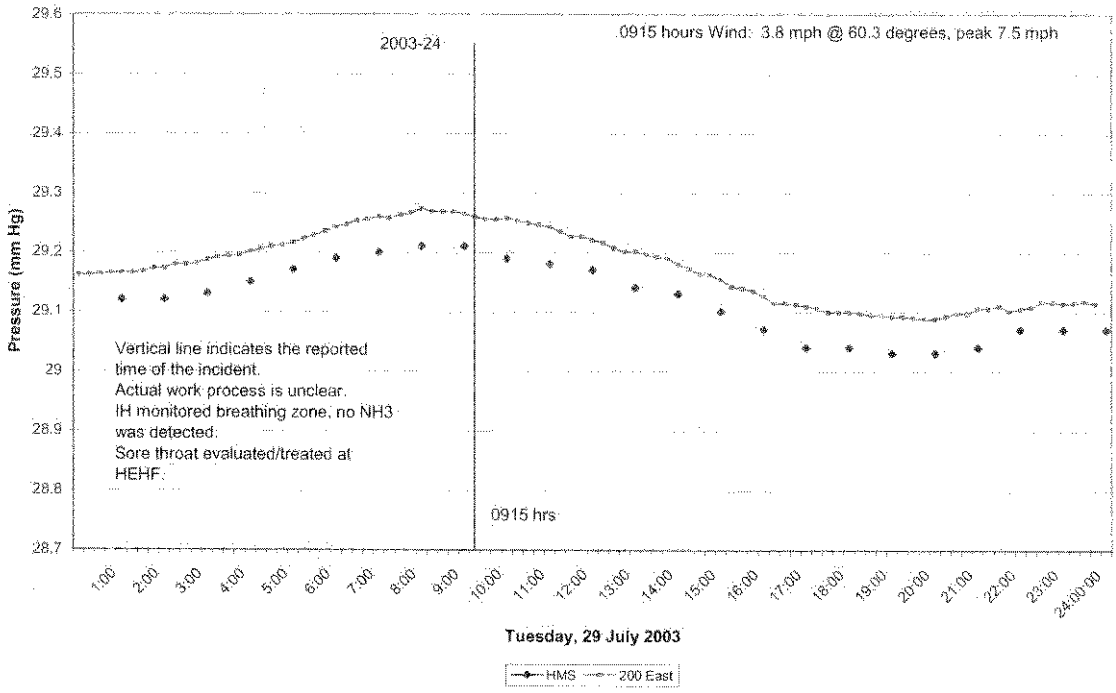
C Tank Farm, Vapor Incident 2003-27



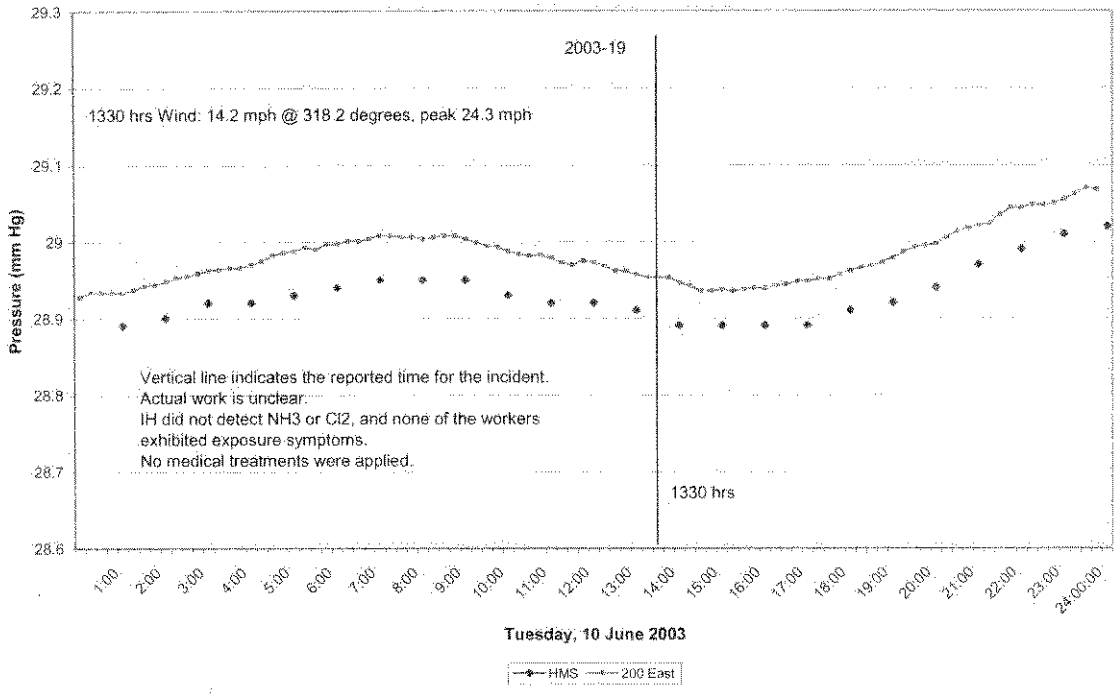
C Tank Farm, Vapor Incident 2003-26



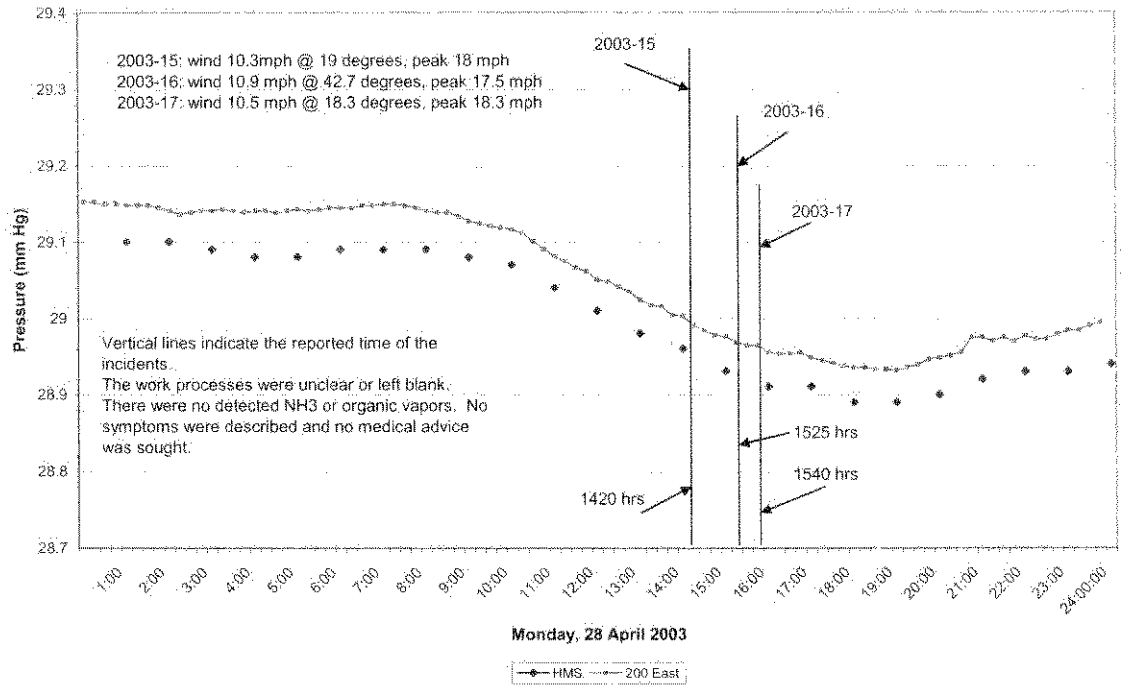
AW Tank Farm, Vapor Incident 2003-24



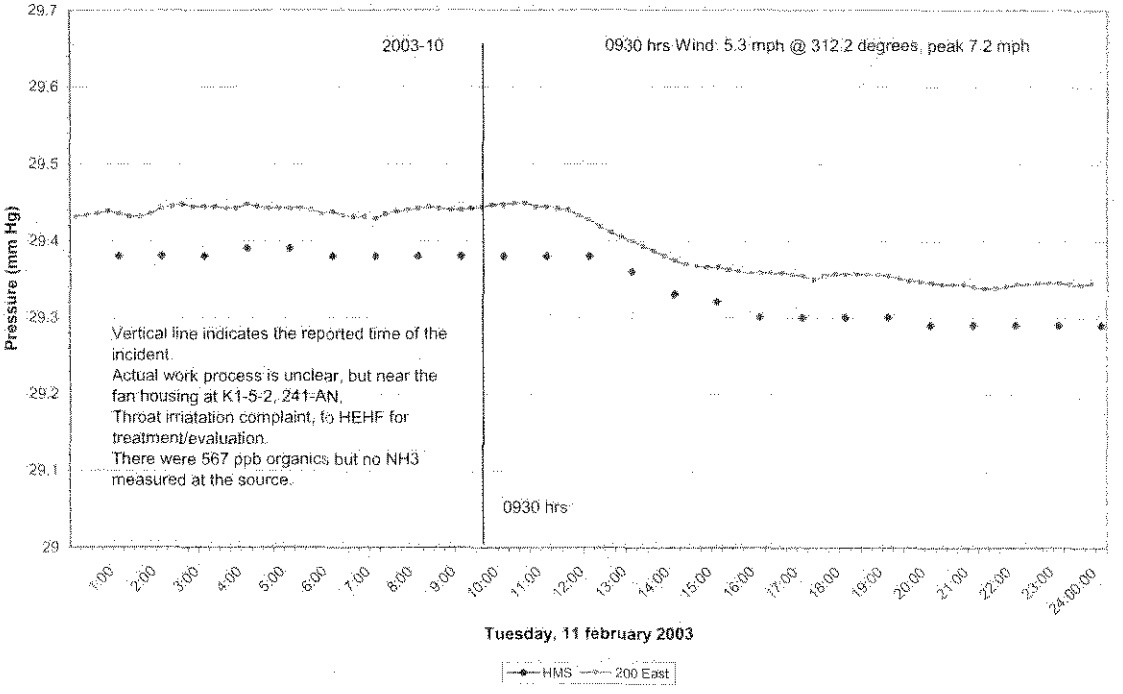
AN Tank Farm, Vapor Incident 2003-19



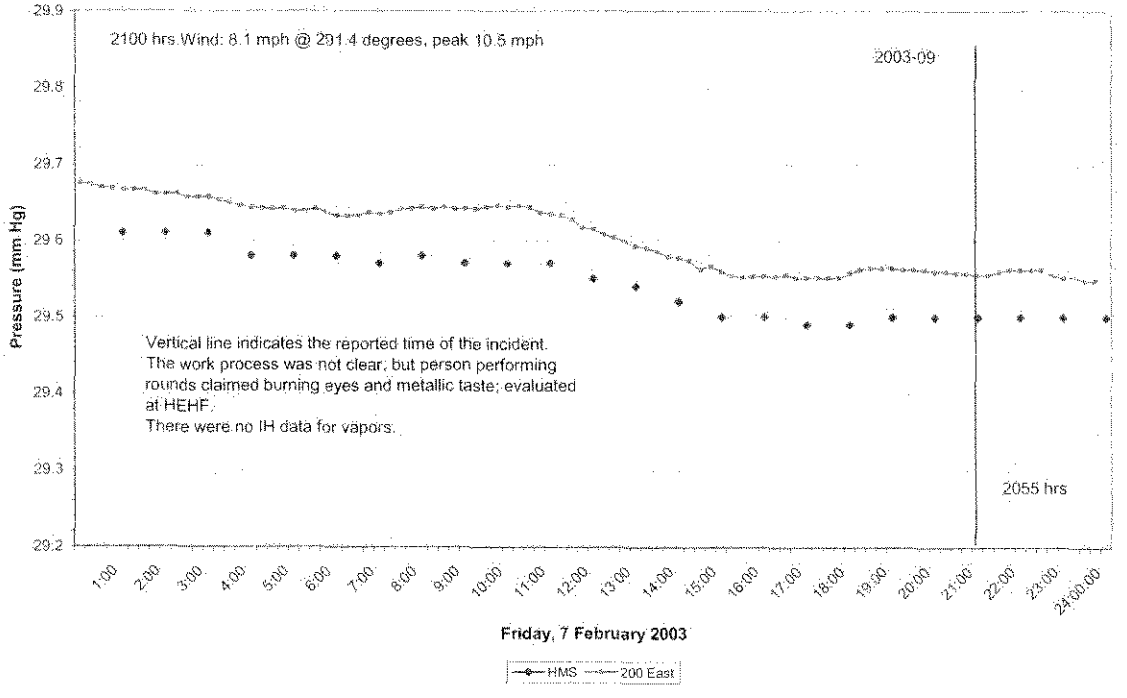
AN Tank Farm, Vapor Incident 2003-15, -16, -17



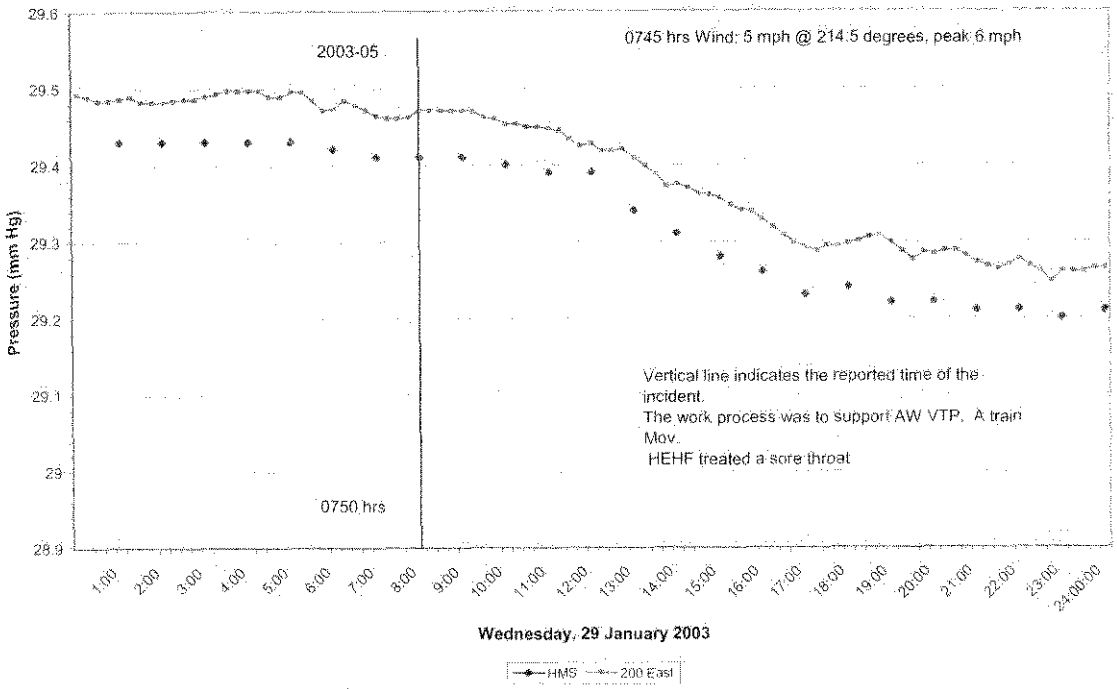
AN Tank Farm, Vapor Incident 2003-10



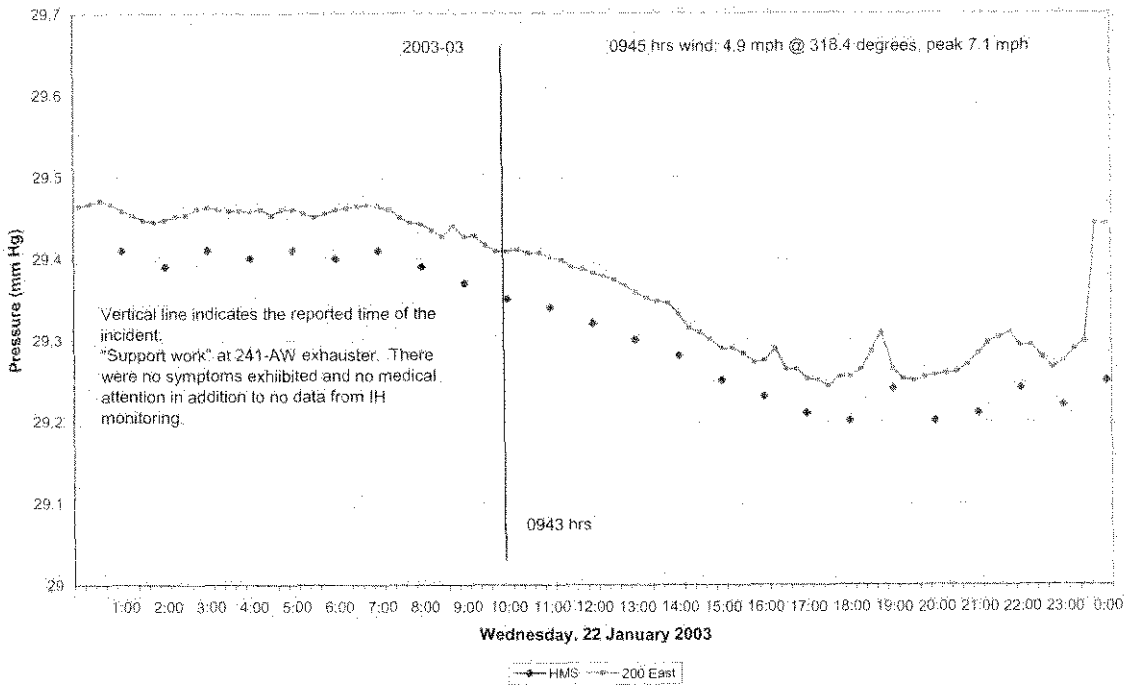
AN Tank Farm, Vapor Incident 2003-09



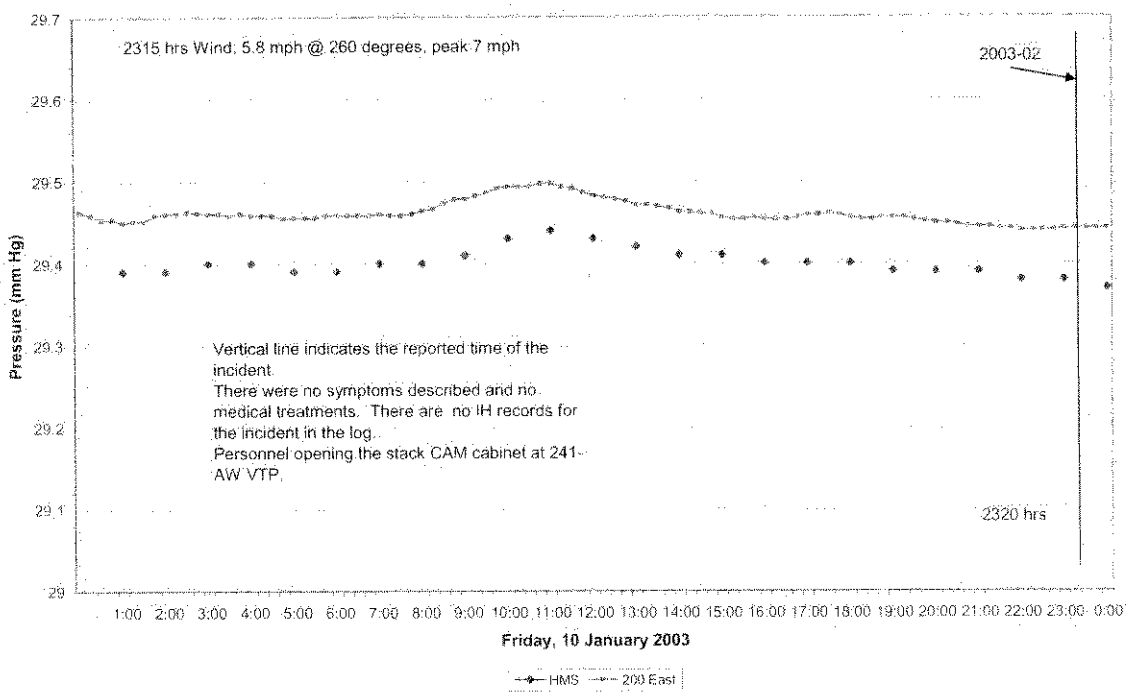
AW Tank Farm, Vapor Incident 2003-05



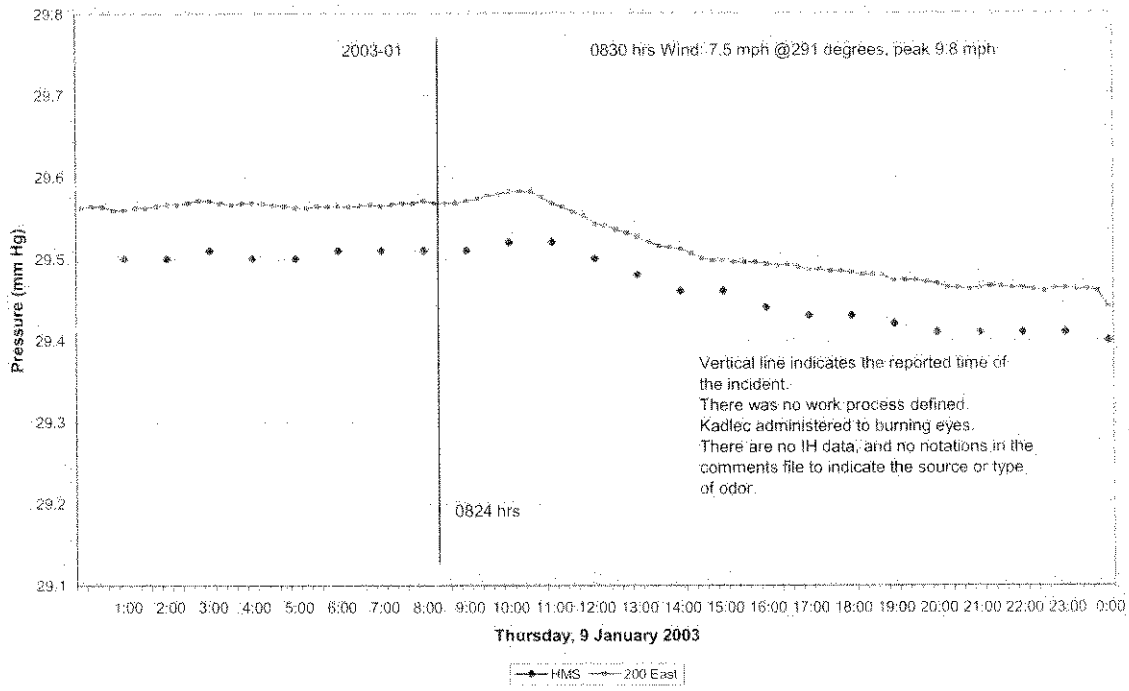
AW Tank Farm, Vapor Incident 2003-03

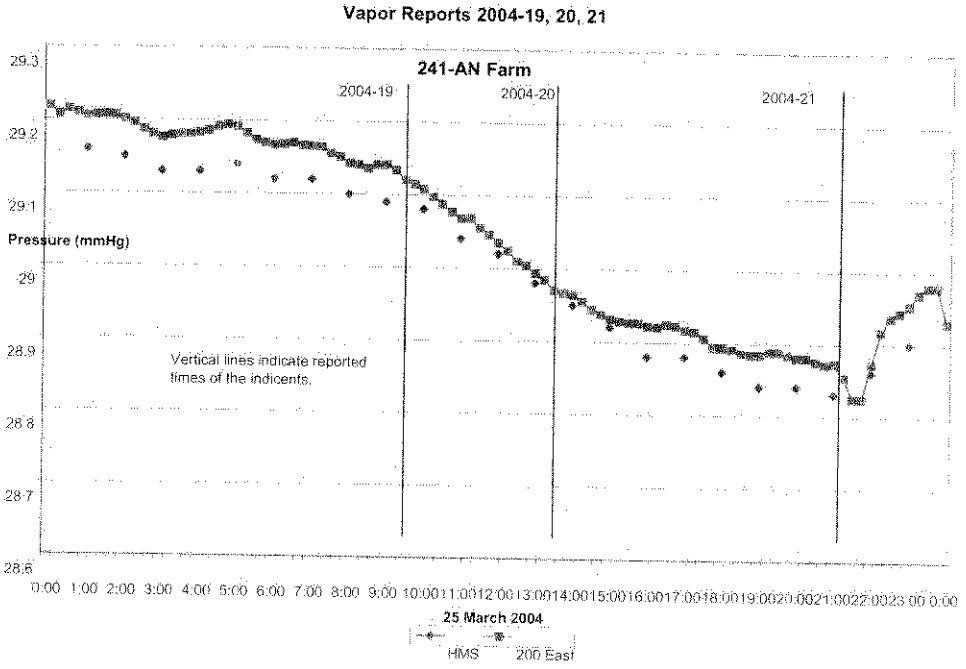


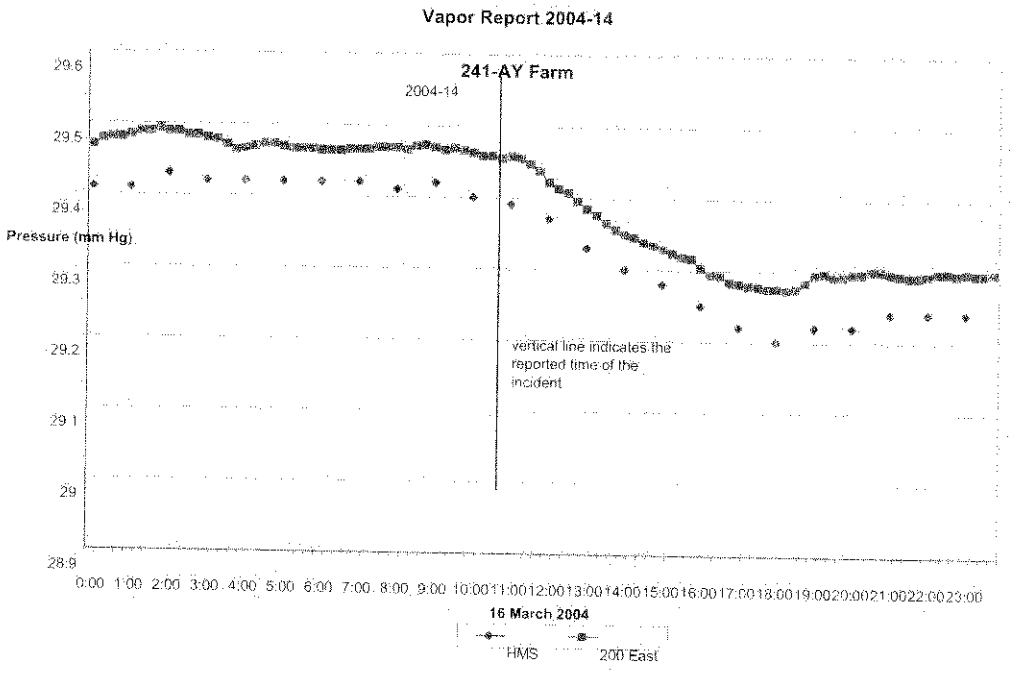
AW Tank Farm, Vapor Incident 2003-02

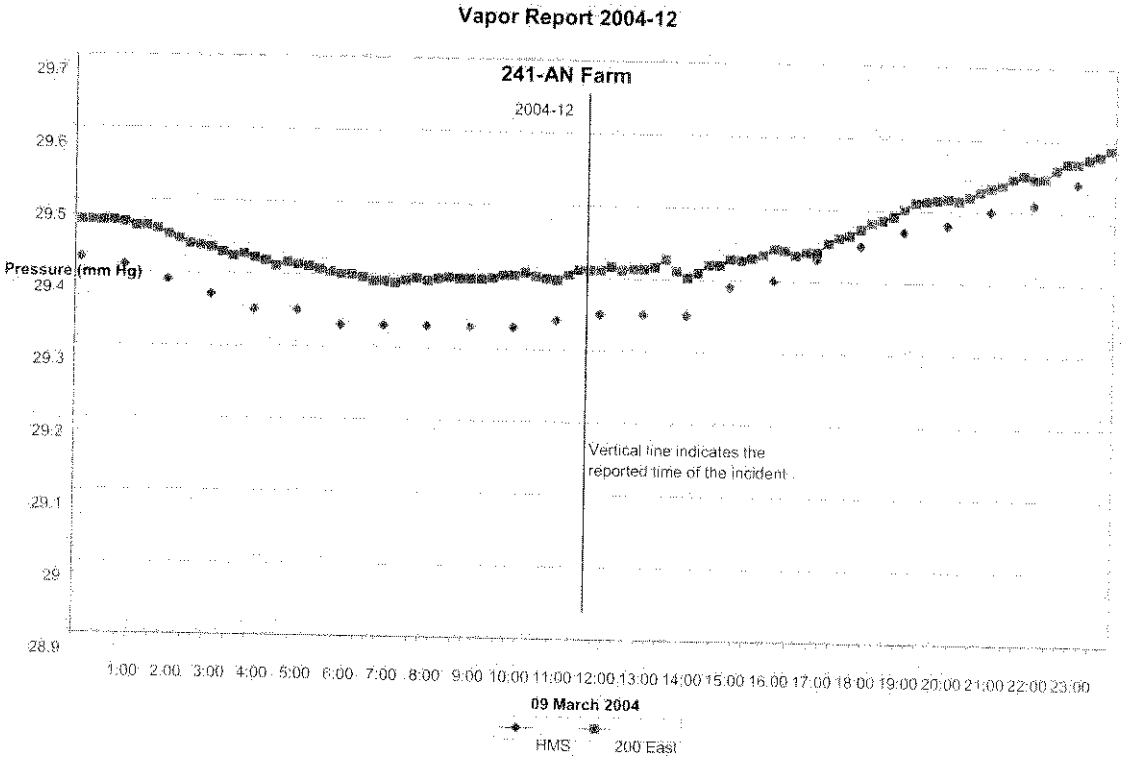


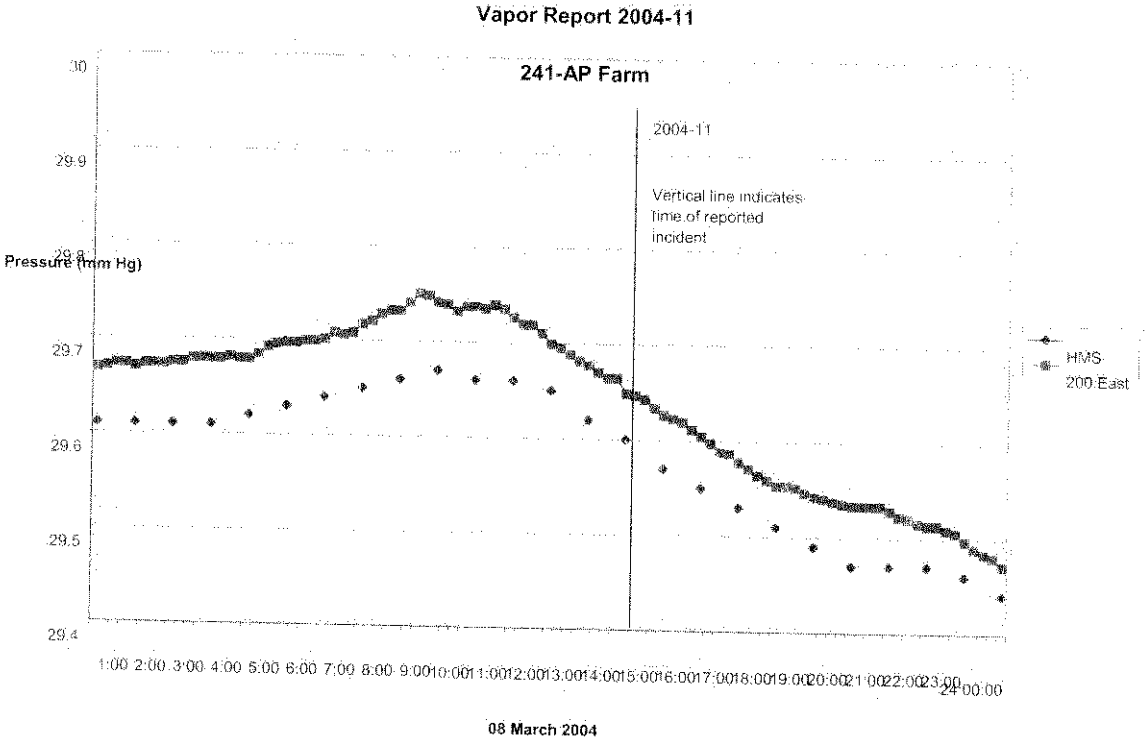
AN Tank Farm, Vapor Incident 2001-01



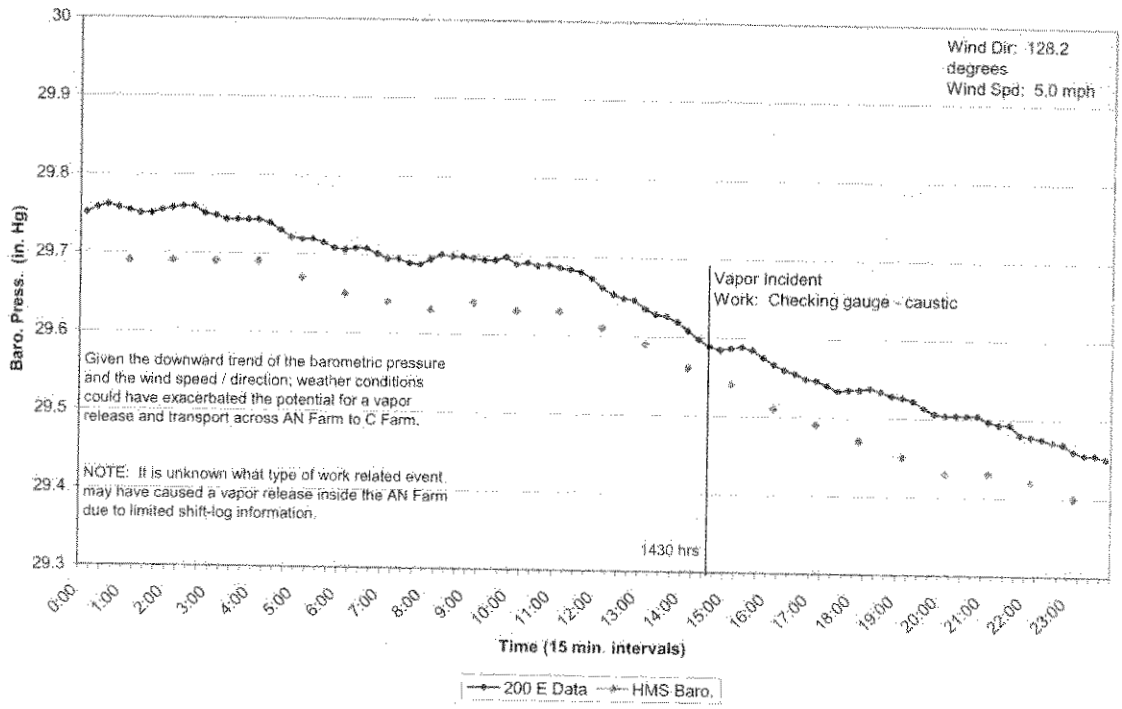

Vapor Reports 2004-19, 20, 21
241-AN Farm
2004-19
2004-20
2004-21
Pressure (mmHg)
Vertical lines indicate reported times of the indicents.
25 March 2004
HMS
200 East


Vapor Report 2004-14
241-AY Farm
2004-14
Pressure (mm Hg)
vertical line indicates the reported time of the incident
16 March 2004
HMS
200 East

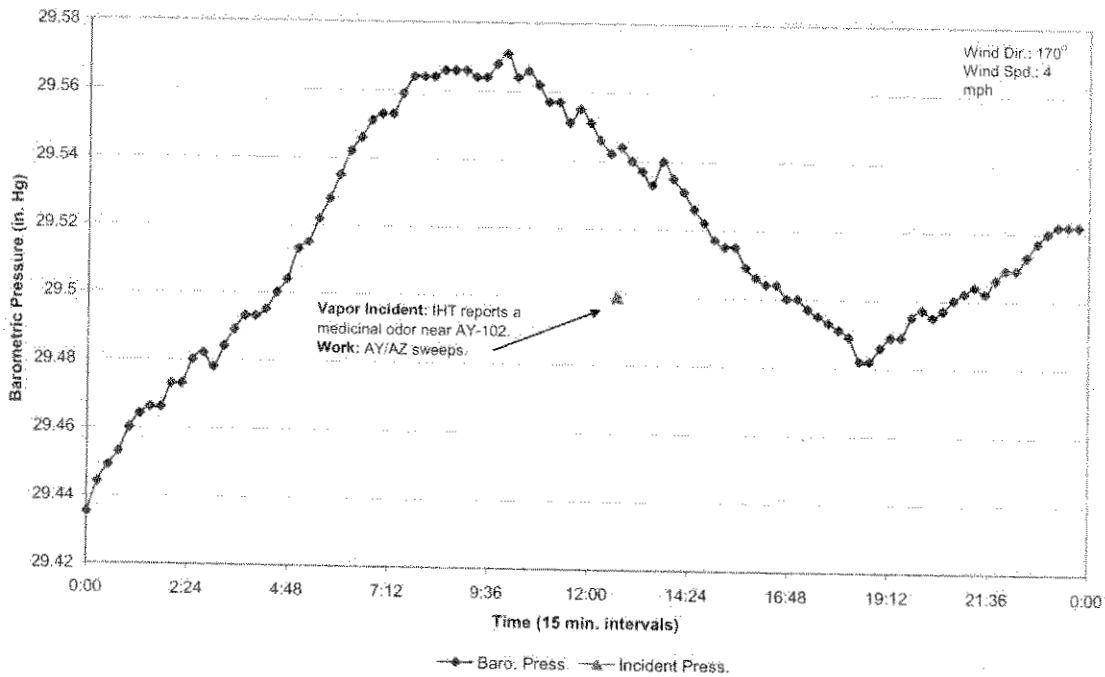

Vapor Report 2004-12
241-AN Farm
2004-12
Pressure (mm Hg)
29.7
29.6
29.5
29.4
29.3
29.2
29.1
29
28.9
Vertical line indicates the reported time of the incident
1:00 2:00 3:00 4:00 5:00 6:00 7:00 8:00 9:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
09 March 2004
HMS
200 East

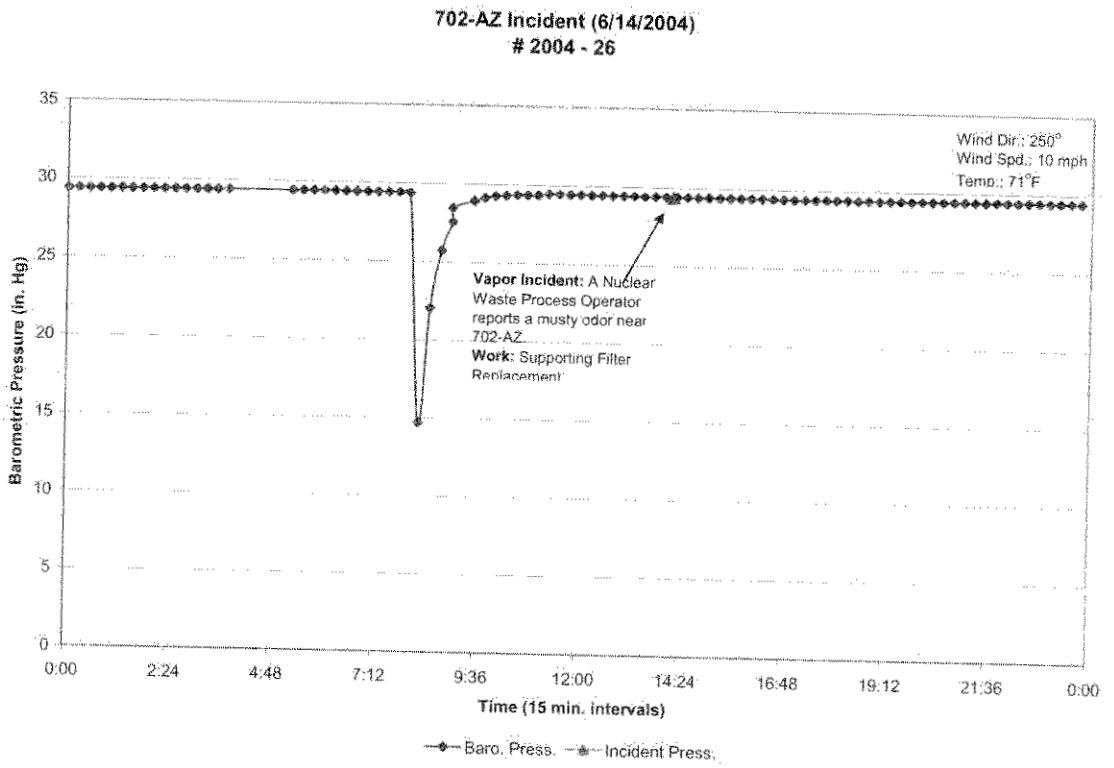

Vapor Report 2004-11
241-AP Farm
2004-11
Vertical line indicates time of reported incident
Pressure (mm Hg)
30
29.9
29.8
29.7
29.6
29.5
29.4
HMS
200 East
1:00 2:00 3:00 4:00 5:00 6:00 7:00 8:00 9:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00 24:00:00
08 March 2004

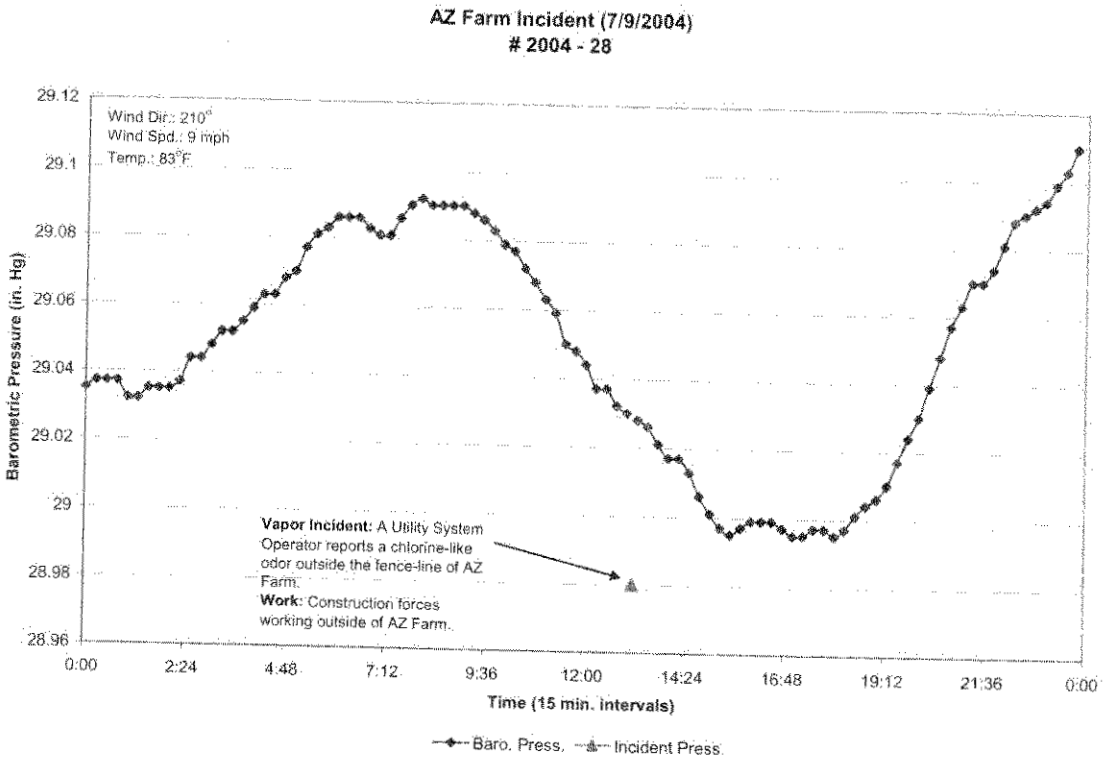
PER-2004-0333 (C-Farm)

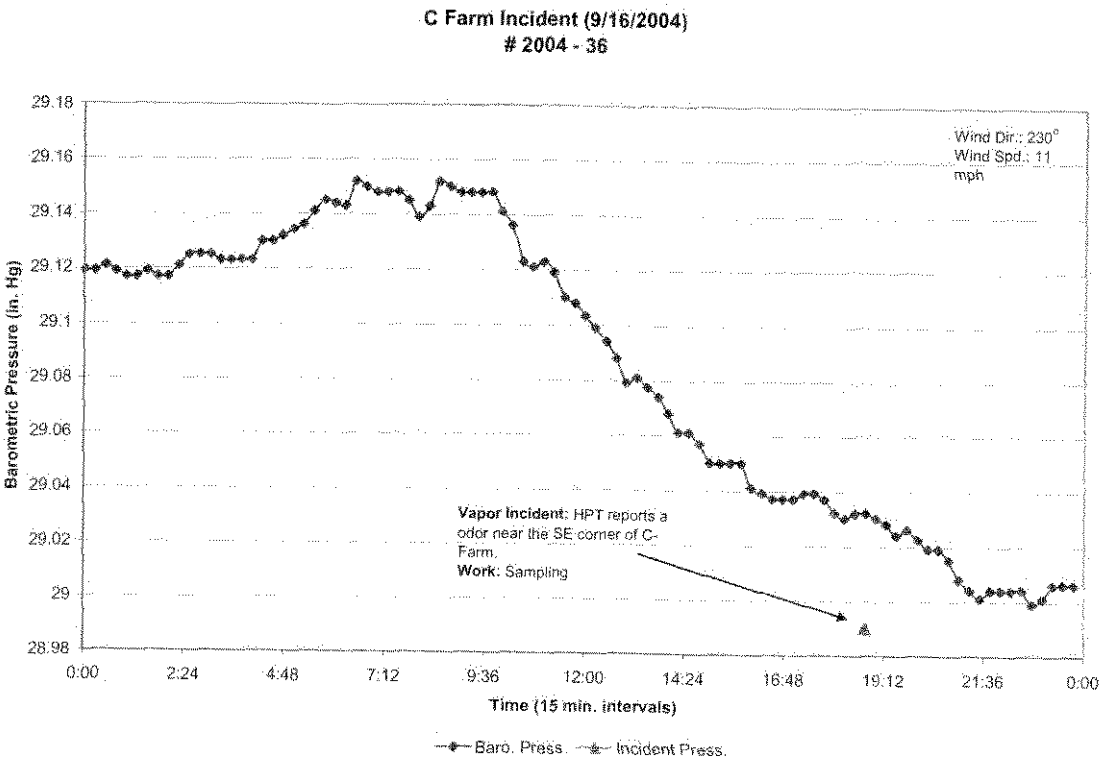


AY Farm Incident (4/9/2004)
 # 2004 - 24

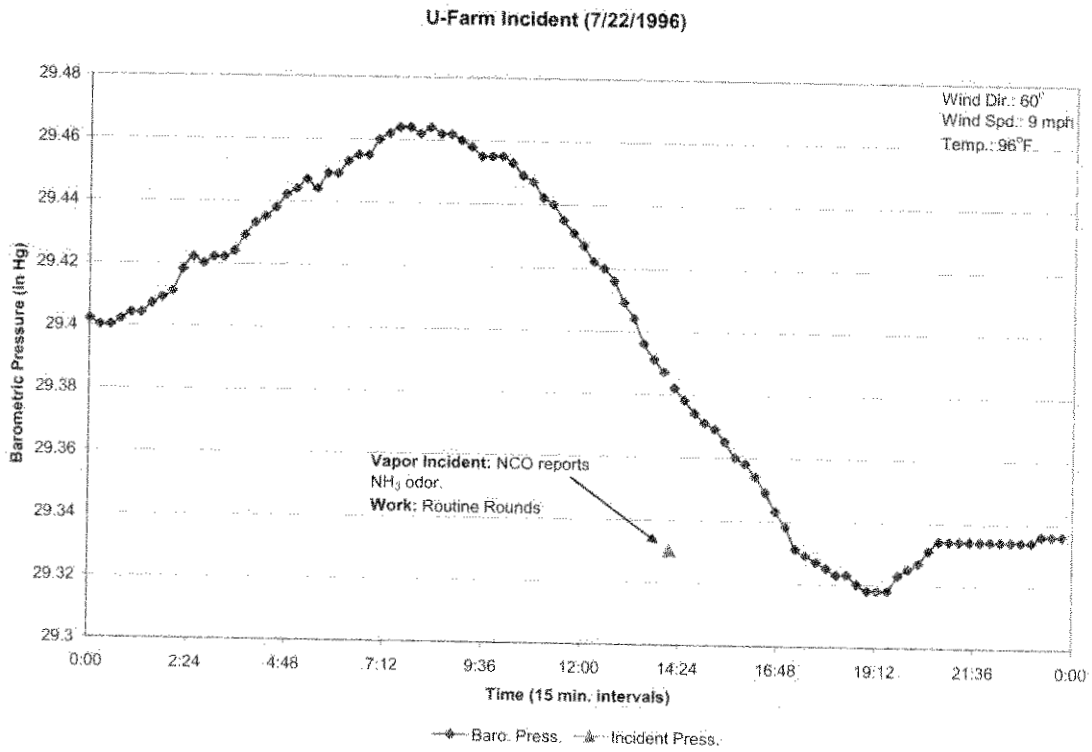


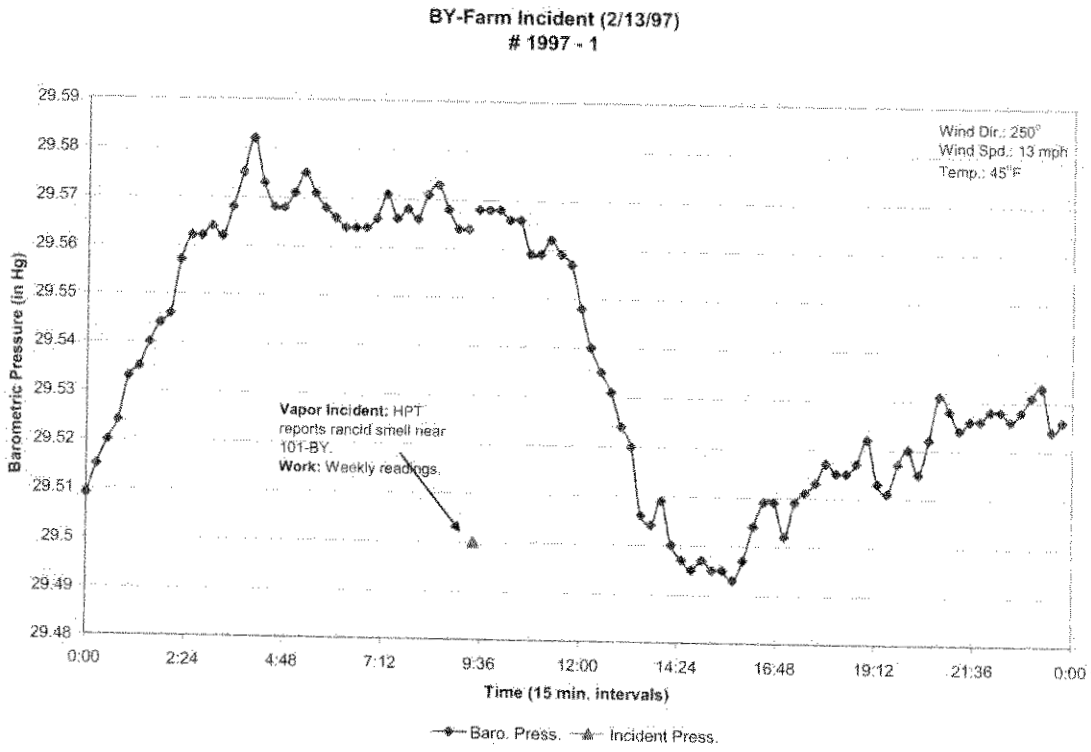

702-AZ Incident (6/14/2004)
2004 - 26
Wind Dir.: 250°
Wind Spd.: 10 mph
Temp.: 71°F
Vapor Incident: A Nuclear Waste Process Operator reports a musty odor near 702-AZ.
Work: Supporting Filter Replacement
Barometric Pressure (in. Hg)
35
30
25
20
15
10
5
0
0:00
2:24
4:48
7:12
9:36
12:00
14:24
16:48
19:12
21:36
0:00
Time (15 min. intervals)
Baro. Press.
Incident Press.


AZ Farm Incident (7/9/2004)
2004 - 28
Wind Dir.: 210°
Wind Spd.: 9 mph
Temp.: 83°F
Vapor Incident: A Utility System Operator reports a chlorine-like odor outside the fence-line of AZ Farm.
Work: Construction forces working outside of AZ Farm.
Barometric Pressure (in. Hg)
29.12
29.1
29.08
29.06
29.04
29.02
29
28.98
28.96
0:00
2:24
4:48
7:12
9:36
12:00
14:24
16:48
19:12
21:36
0:00
Time (15 min. intervals)
Baro. Press.
Incident Press.

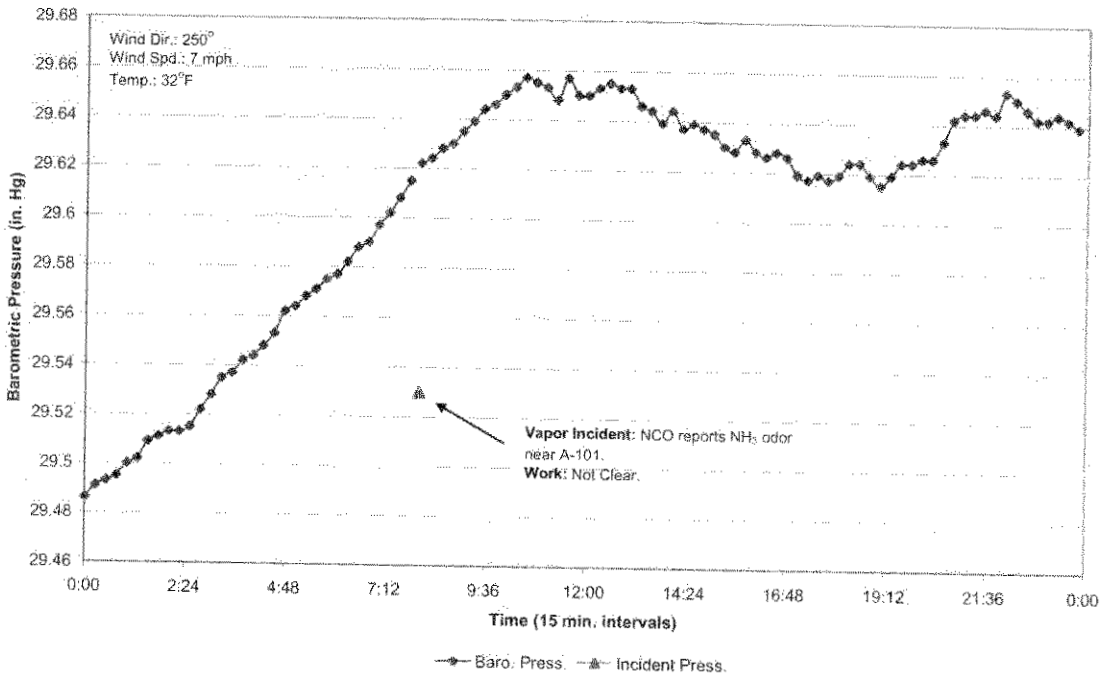

C Farm Incident (9/16/2004)
2004 - 36
Wind Dir.: 230°
Wind Spd.: 11 mph
Vapor Incident: HPT reports a odor near the SE corner of C-Farm.
Work: Sampling
Barometric Pressure (in. Hg)
29.18
29.16
29.14
29.12
29.1
29.08
29.06
29.04
29.02
29
28.98
0:00
2:24
4:48
7:12
9:36
12:00
14:24
16:48
19:12
21:36
0:00
Time (15 min. intervals)
Baro. Press.
Incident Press.

B2.0 TRANSIENT WORK VAPOR INCIDENT GRAPHICAL REPRESENTATIONS (YEARS 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, and 2004)

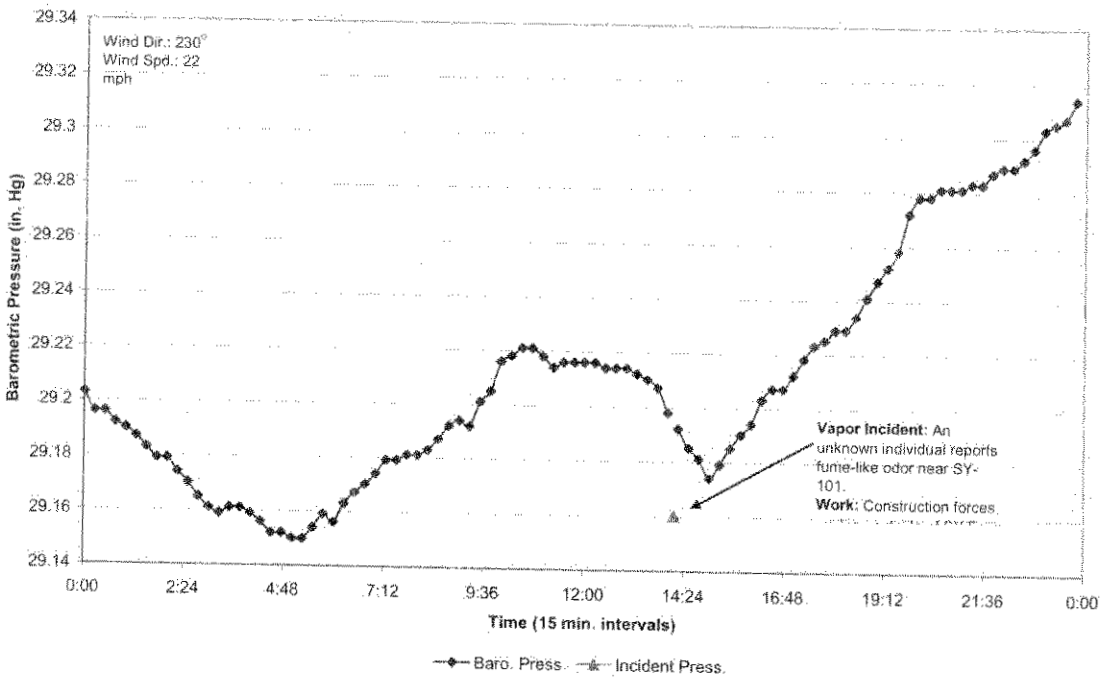




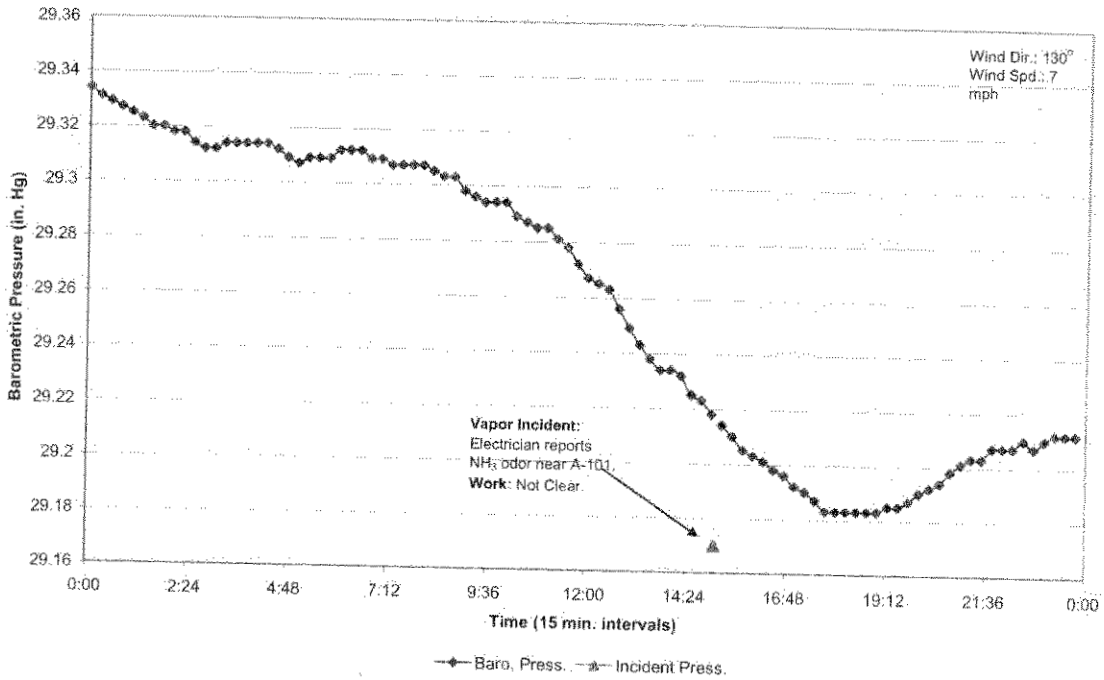
A-Farm Incident (3/13/1997)
 # 1997 - 2



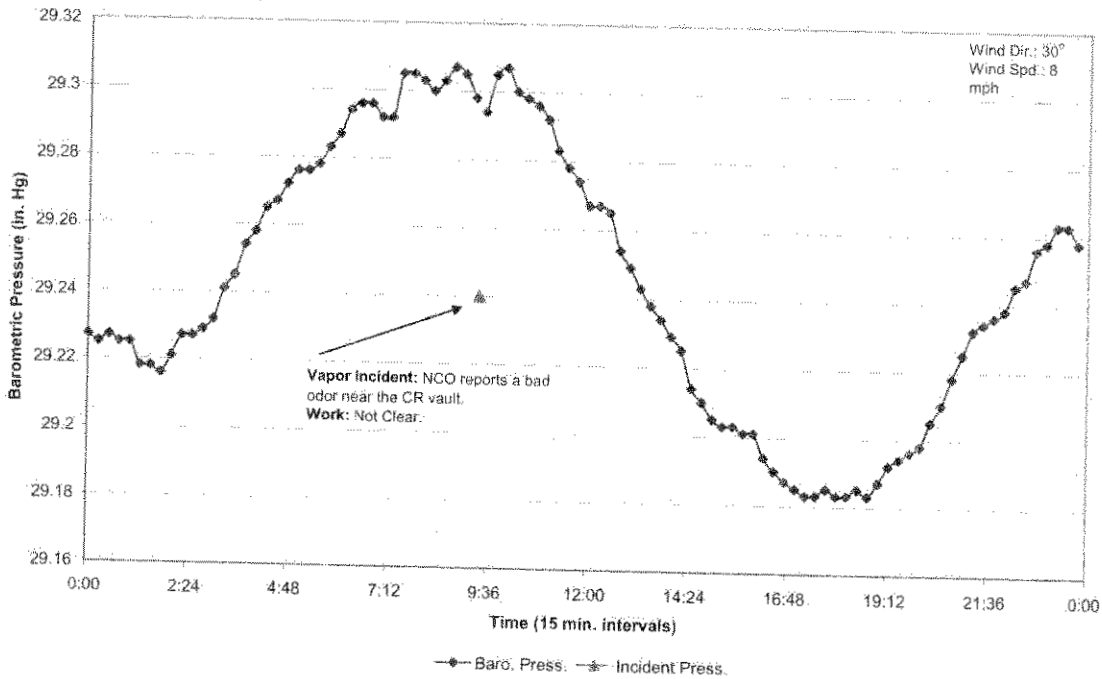
SY-Farm Incident (4/16/1997)
 # 1997 - 3



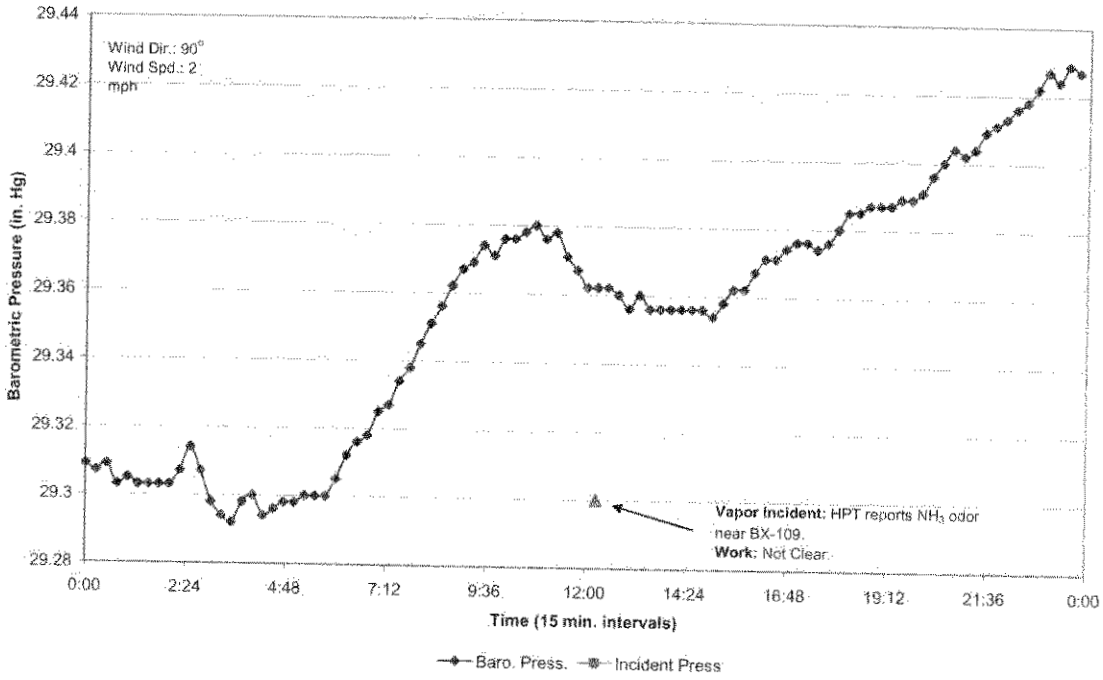
A-Farm Incident (5/28/1997)
 # 1997 - 7



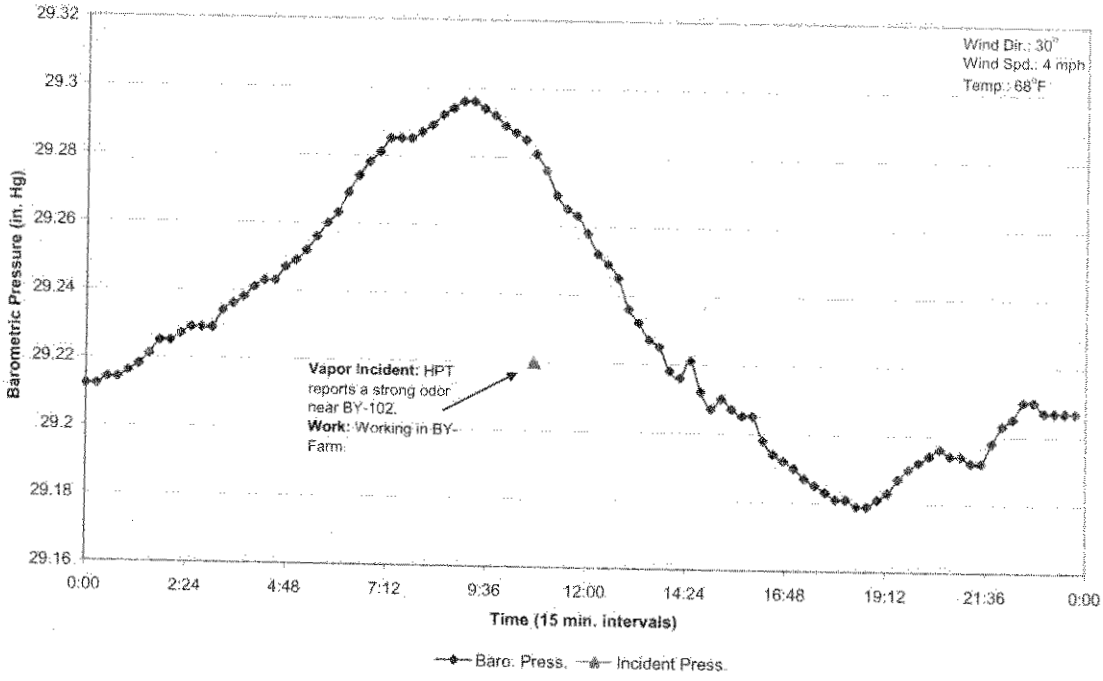
C-Farm Incident (7/31/1997)
 # 1997 - 10



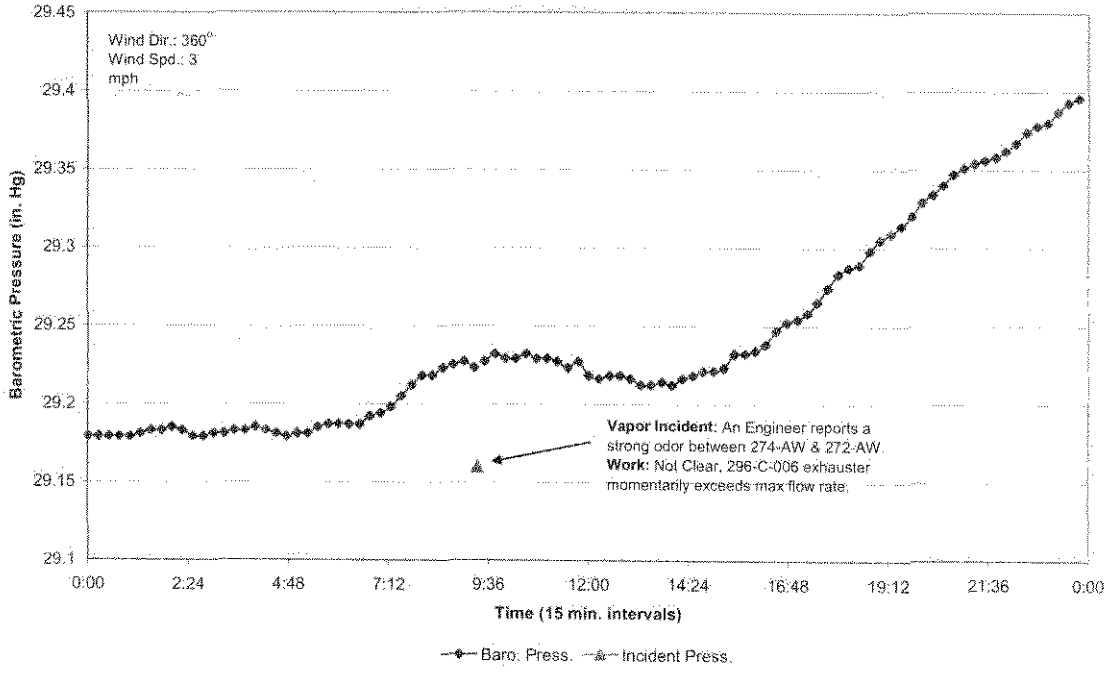
BX-Farm Incident (11/17/1997)
 # 1997 - 12



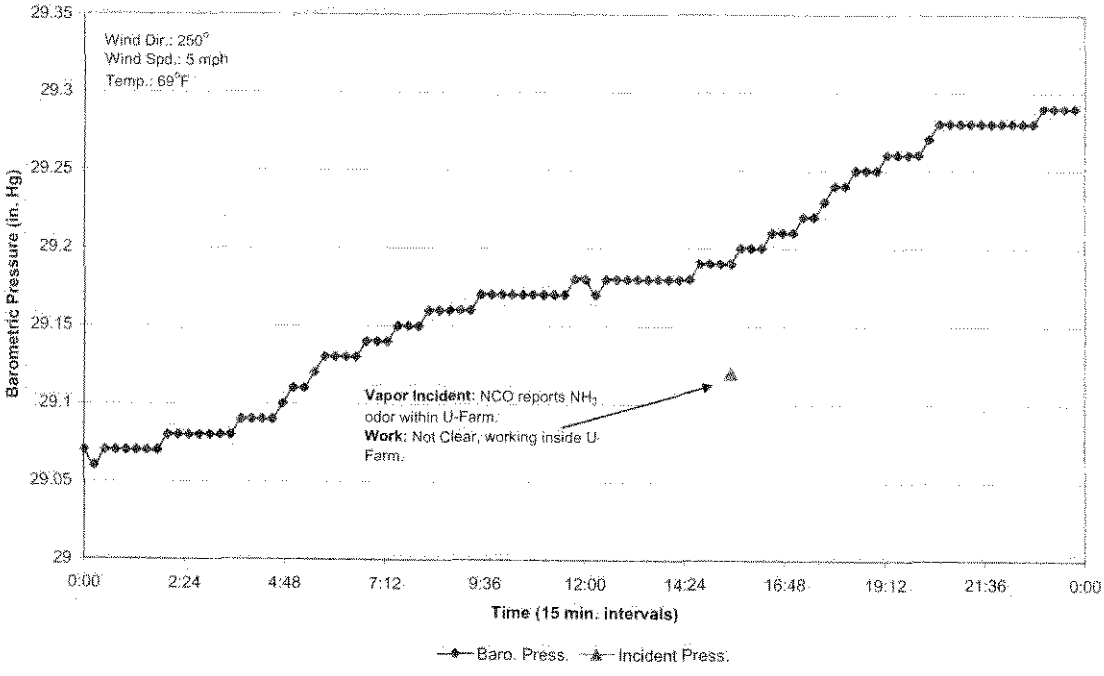
BY-Farm Incident (9/22/1998)
 # 1998 - 13



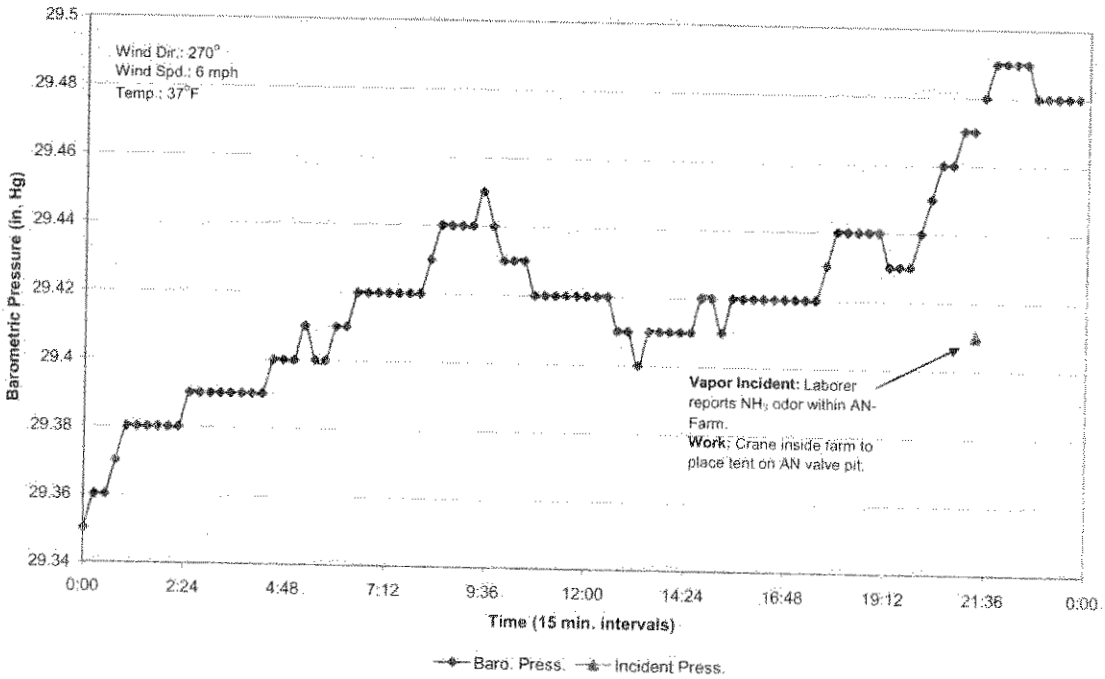
AW-Farm Incident (10/15/1998)
 # 1998 - 14



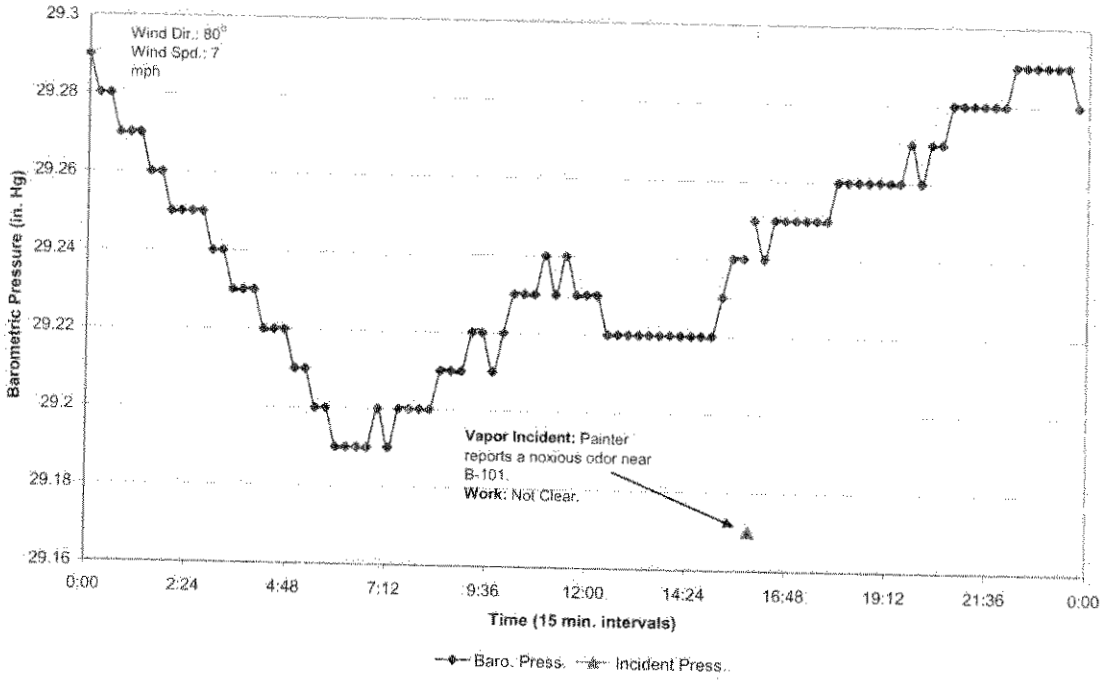
U-Farm Incident (10/6/1999)
 # 1999 - 10



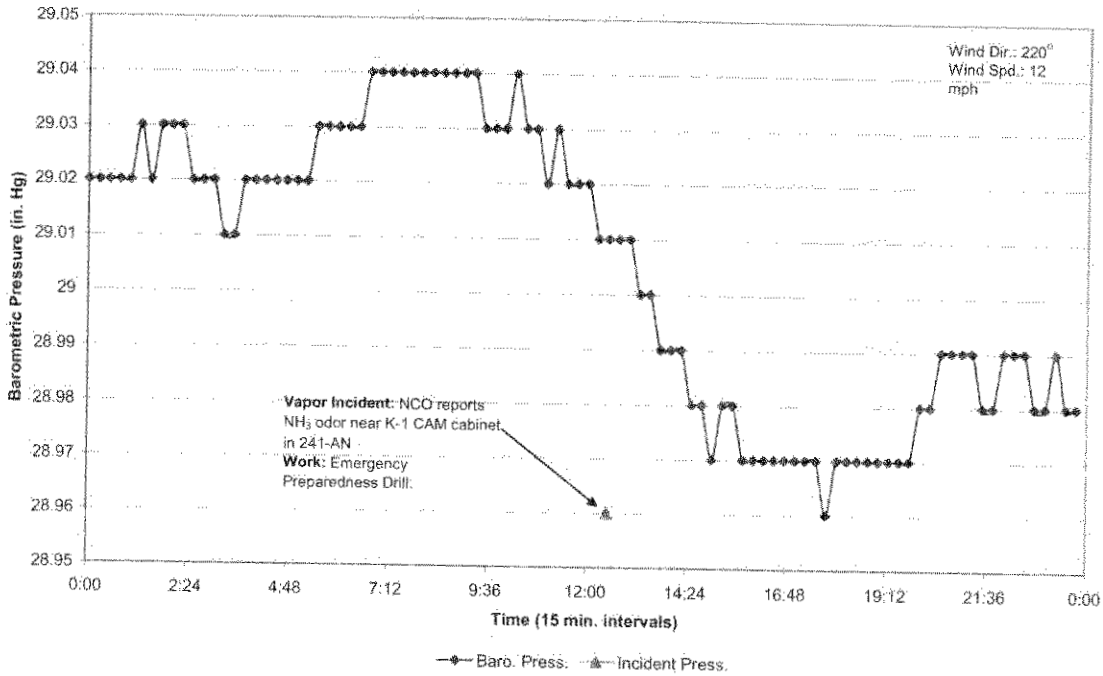
AN-Farm Incident (10/26/1999)
 # 1999 - 11



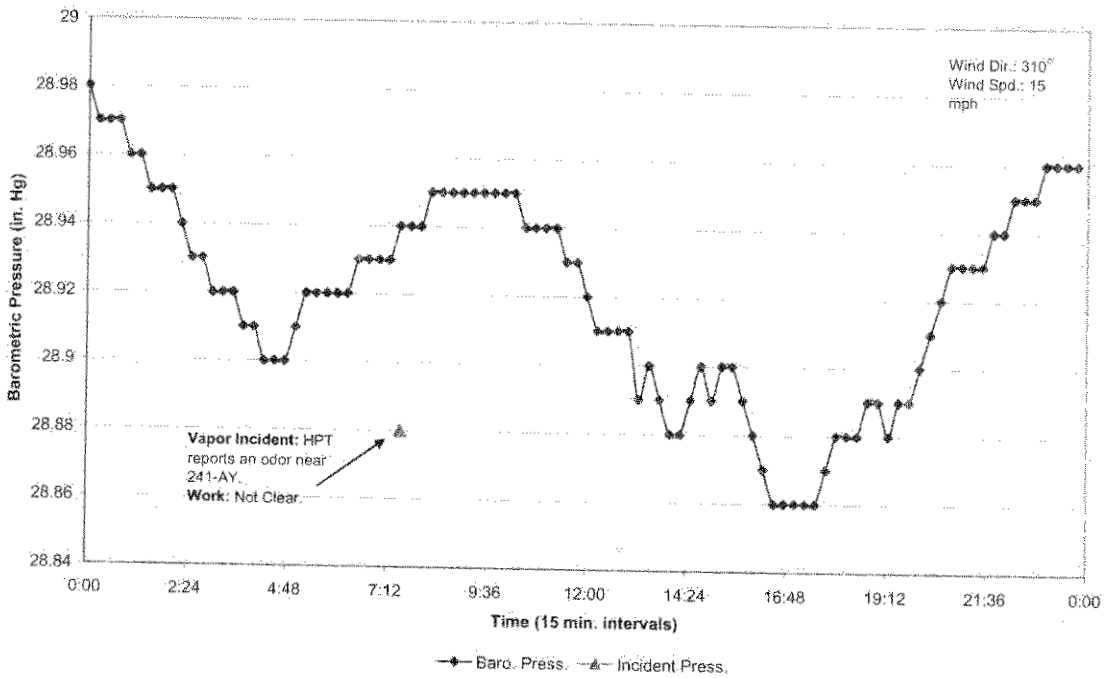
B-Farm Incident (11/15/1999)
 # 1999 - 14

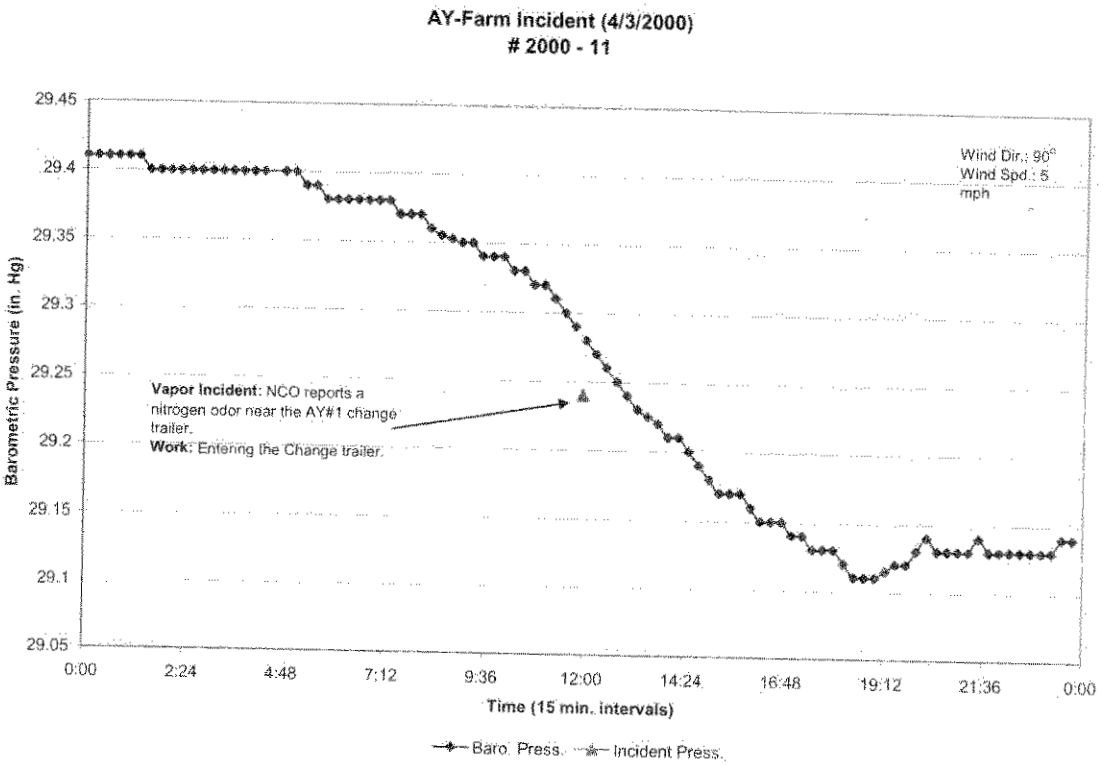


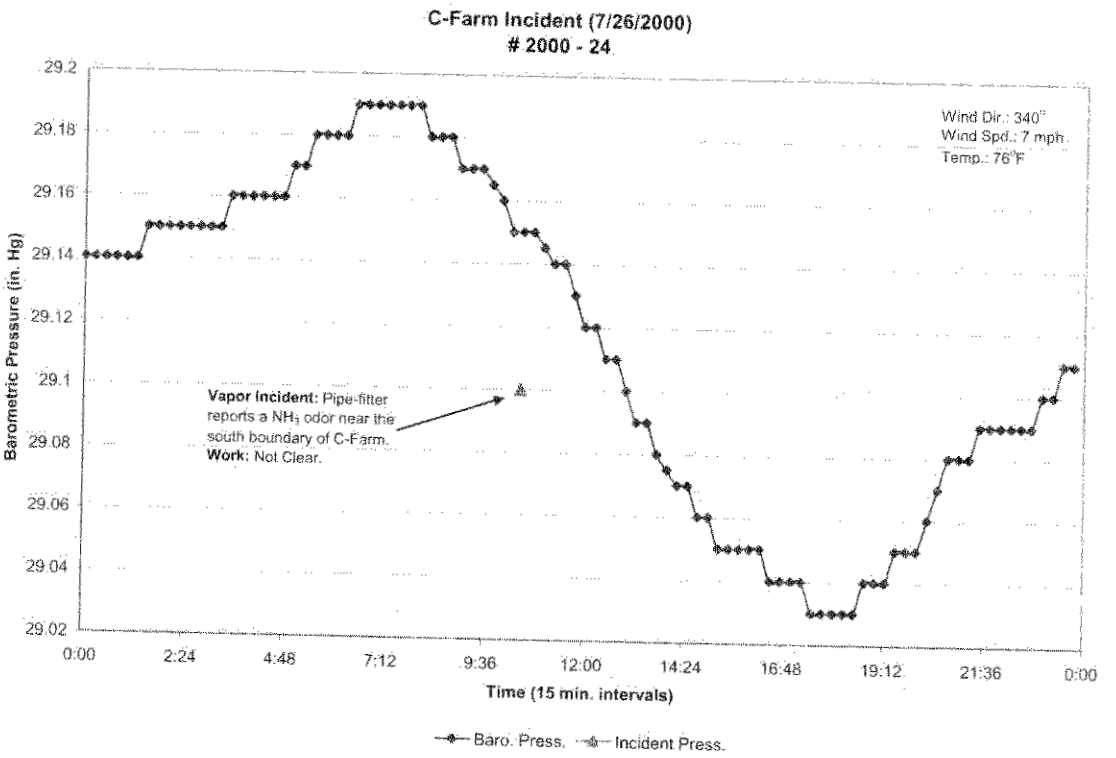
AN-Farm Incident (3/30/1999)
 # 1999 - 2



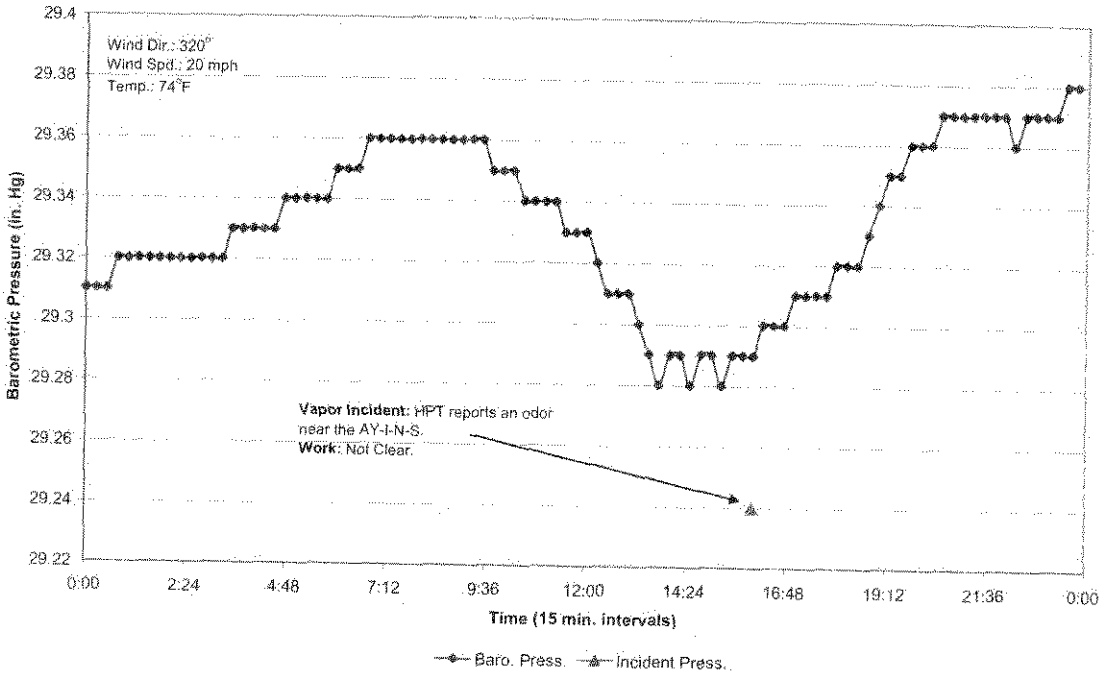
AY-Farm Incident (6/24/1999)
 # 1999 - 3



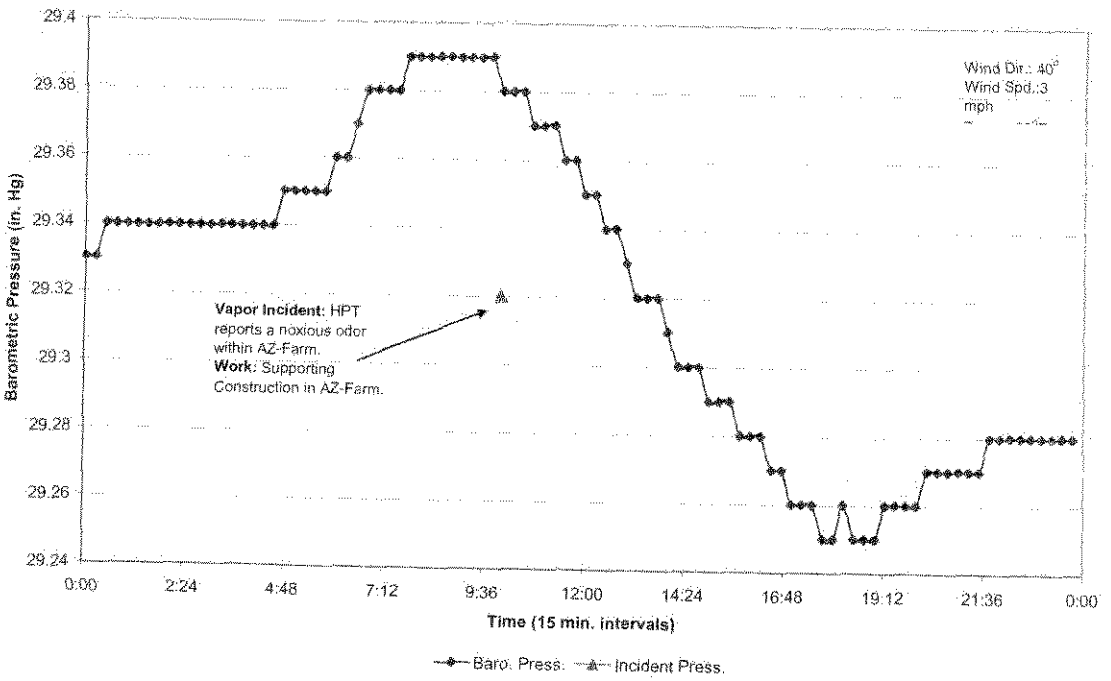

AY-Farm Incident (4/3/2000)
2000 - 11
Wind Dir.: 90°
Wind Spd.: 5 mph
Vapor Incident: NCO reports a nitrogen odor near the AY#1 change trailer.
Work: Entering the Change trailer.
Barometric Pressure (in. Hg)
29.45
29.4
29.35
29.3
29.25
29.2
29.15
29.1
29.05
0:00
2:24
4:48
7:12
9:36
12:00
14:24
16:48
19:12
21:36
0:00
Time (15 min. intervals)
Baro. Press.
Incident Press.

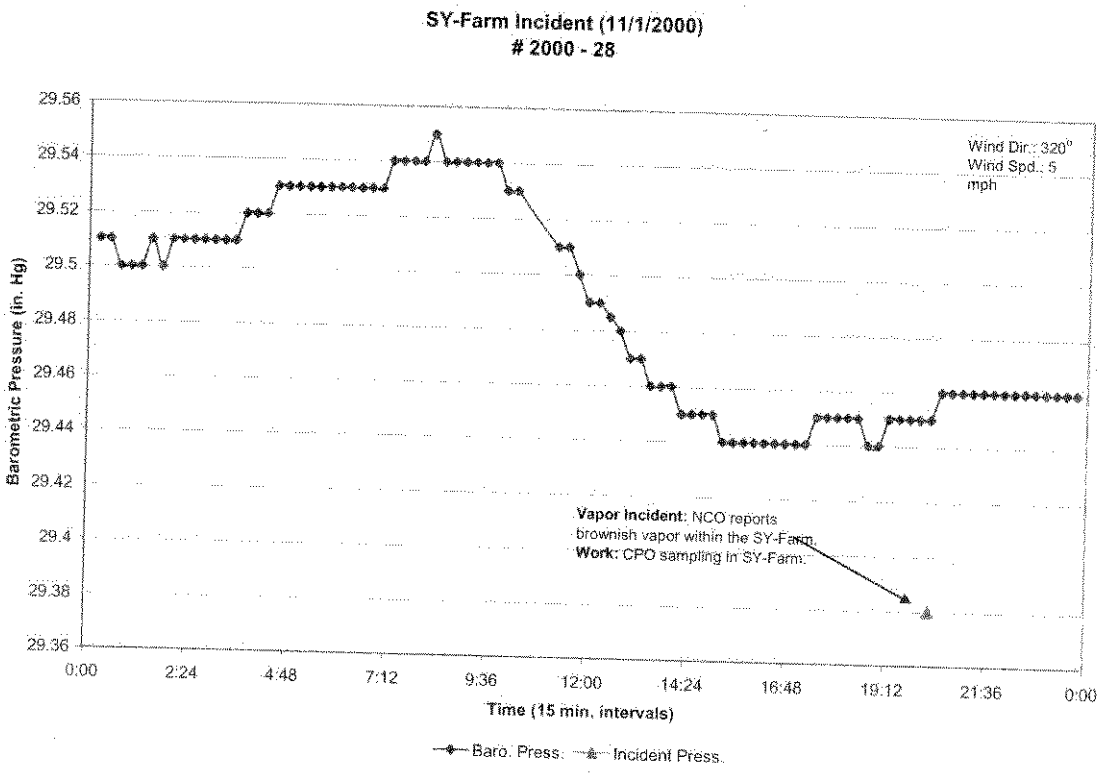

C-Farm Incident (7/26/2000)
2000 - 24
Wind Dir.: 340°
Wind Spd.: 7 mph
Temp.: 76°F
Vapor Incident: Pipe-fitter reports a NH3 odor near the south boundary of C-Farm.
Work: Not Clear.
Barometric Pressure (in. Hg)
29.2
29.18
29.16
29.14
29.12
29.1
29.08
29.06
29.04
29.02
0:00
2:24
4:48
7:12
9:36
12:00
14:24
16:48
19:12
21:36
0:00
Time (15 min. intervals)
Baro. Press.
Incident Press.

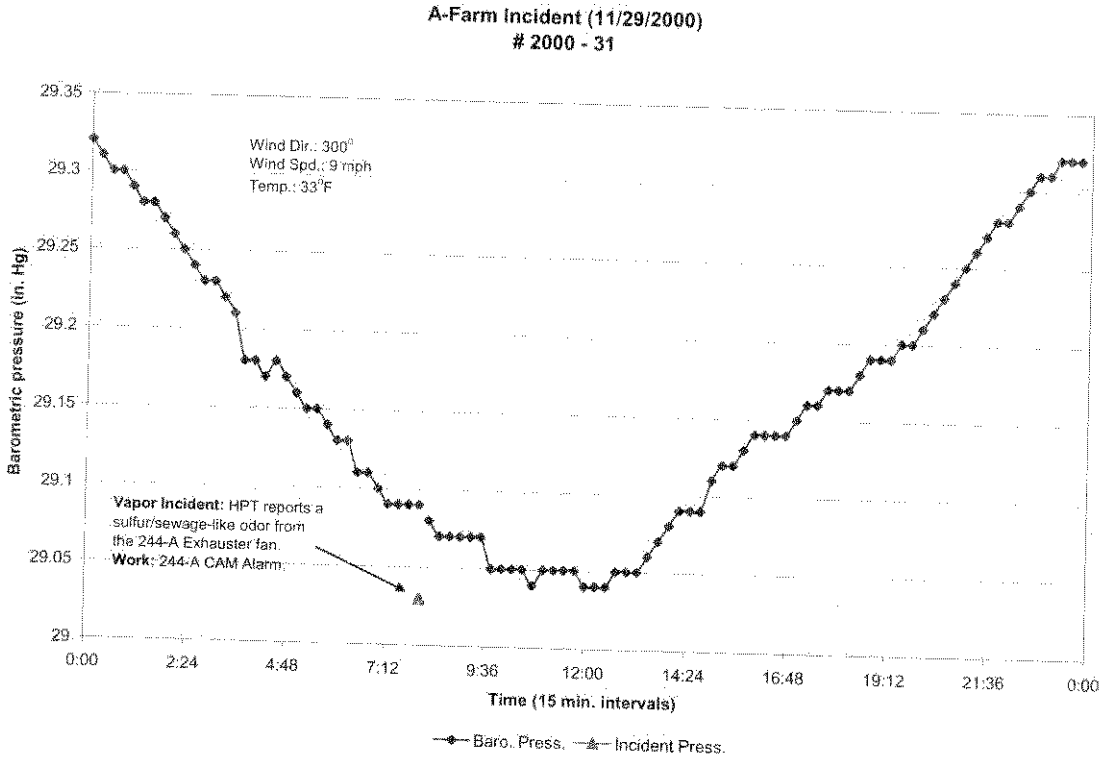
AY-Farm Incident (9/5/2000)
 # 2000 - 26

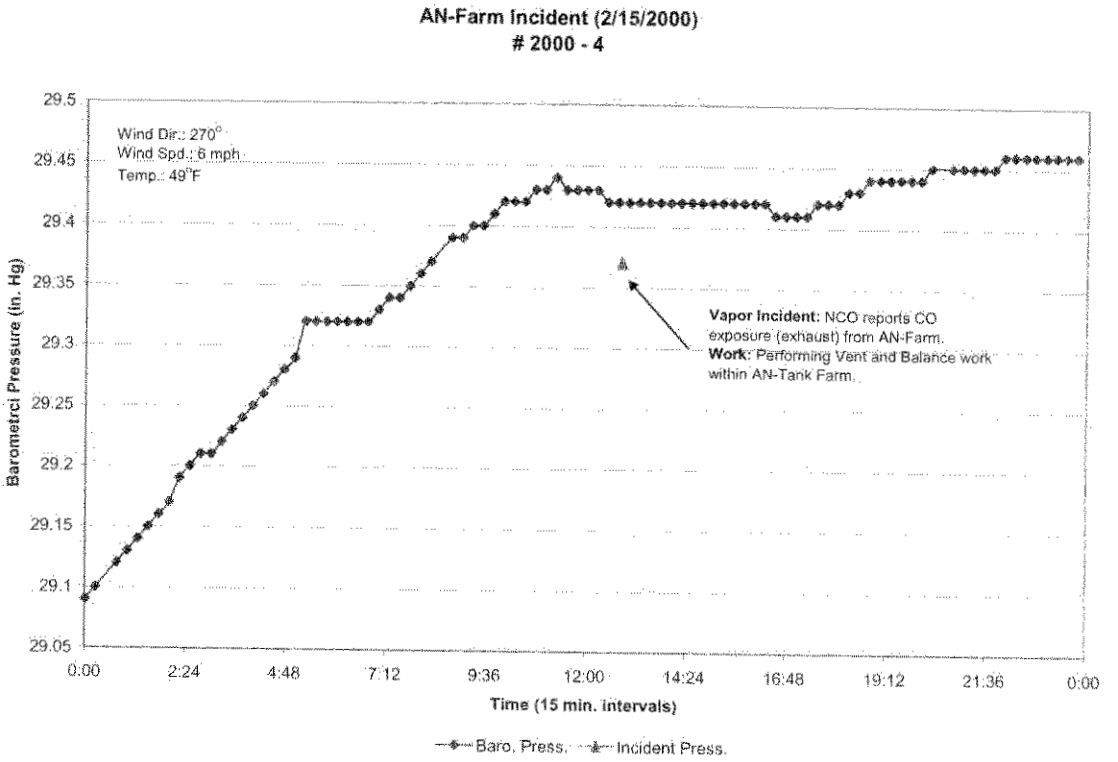


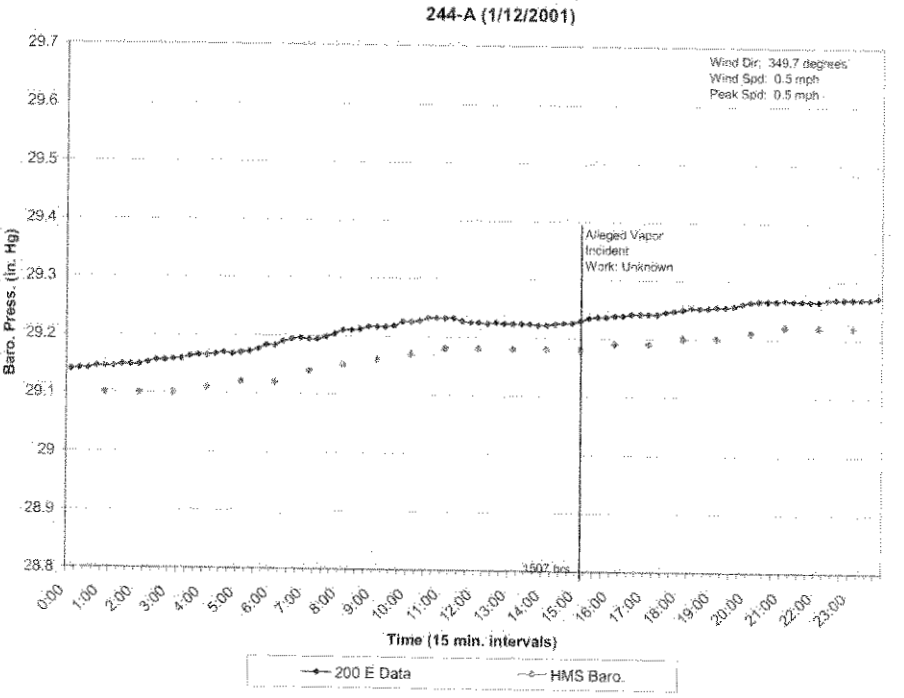
AZ-Farm Incident (9/26/2000)
 # 2000 - 27

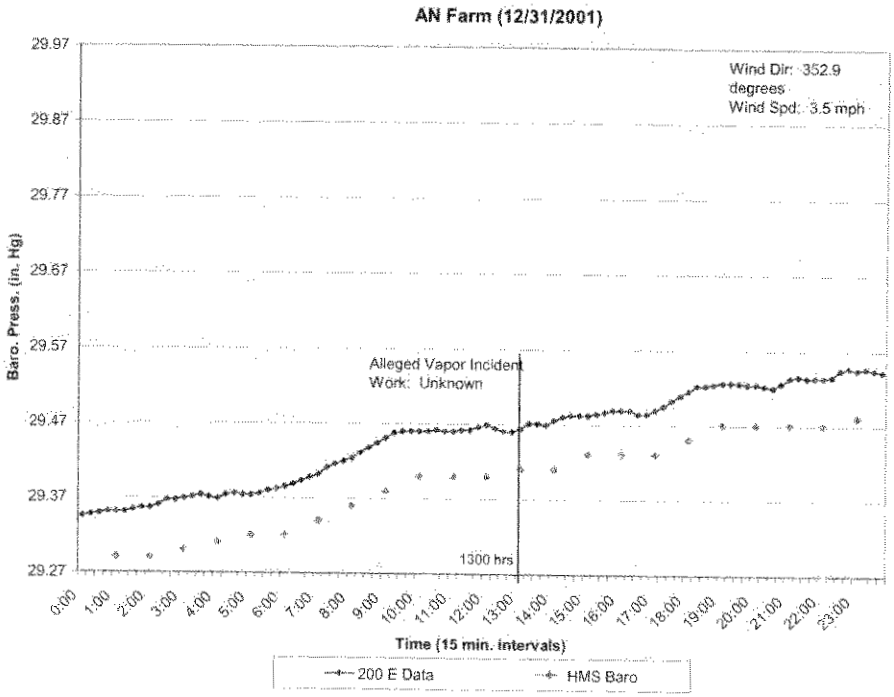


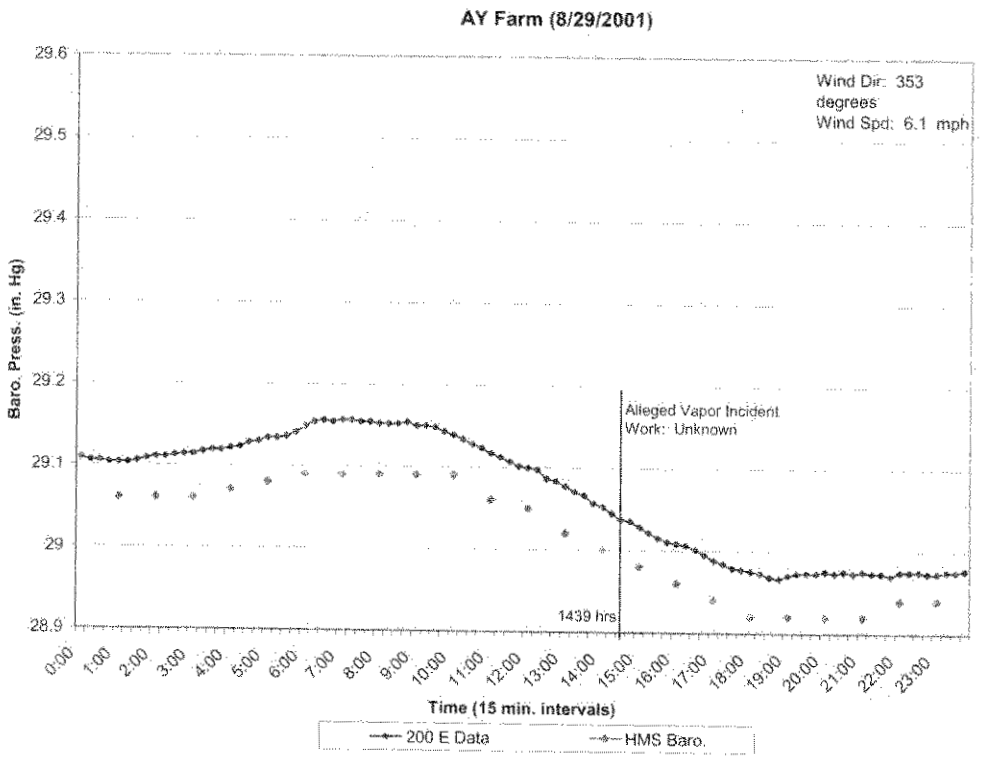

SY-Farm Incident (11/1/2000)
2000 - 28
Wind Dir.: 320°
Wind Spd.: 5 mph
Vapor Incident: NCO reports brownish vapor within the SY-Farm.
Work: CPO sampling in SY-Farm.
Barometric Pressure (in. Hg)
29.56
29.54
29.52
29.5
29.48
29.46
29.44
29.42
29.4
29.38
29.36
0:00
2:24
4:48
7:12
9:36
12:00
14:24
16:48
19:12
21:36
0:00
Time (15 min. intervals)
Baro. Press.
Incident Press.

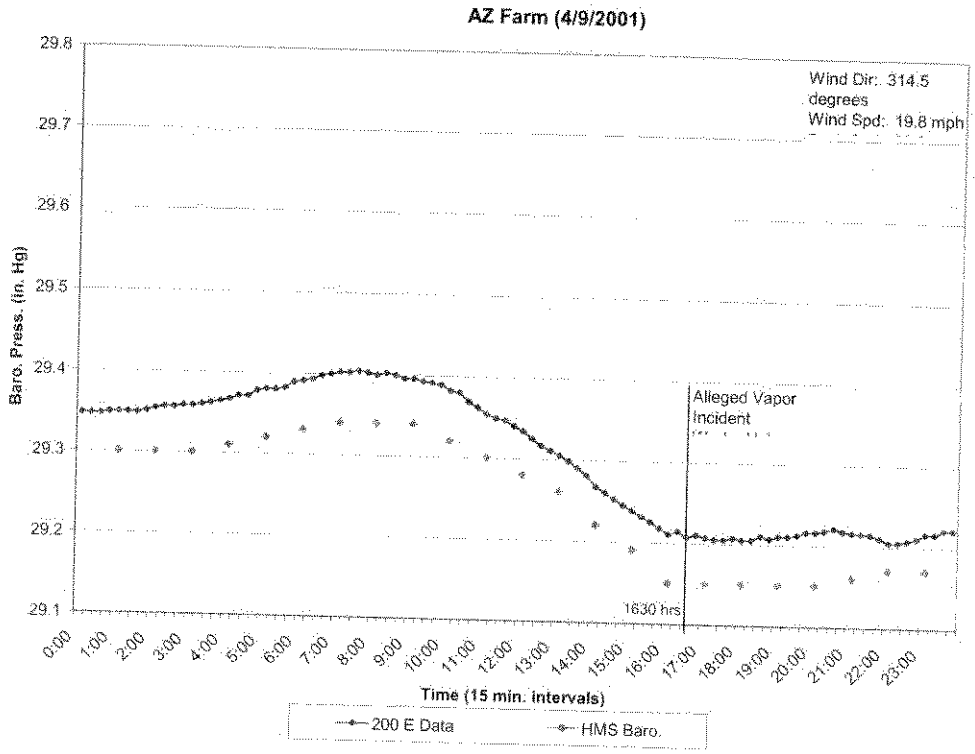

A-Farm Incident (11/29/2000)
2000 - 31
Wind Dir.: 300°
Wind Spd.: 9 mph
Temp.: 33°F
Vapor Incident: HPT reports a sulfur/sewage-like odor from the 244-A Exhauster fan.
Work: 244-A CAM Alarm.
Barometric pressure (in. Hg)
29.35
29.3
29.25
29.2
29.15
29.1
29.05
29.
0:00
2:24
4:48
7:12
9:36
12:00
14:24
16:48
19:12
21:36
0:00
Time (15 min. intervals)
Baro. Press.
Incident Press.

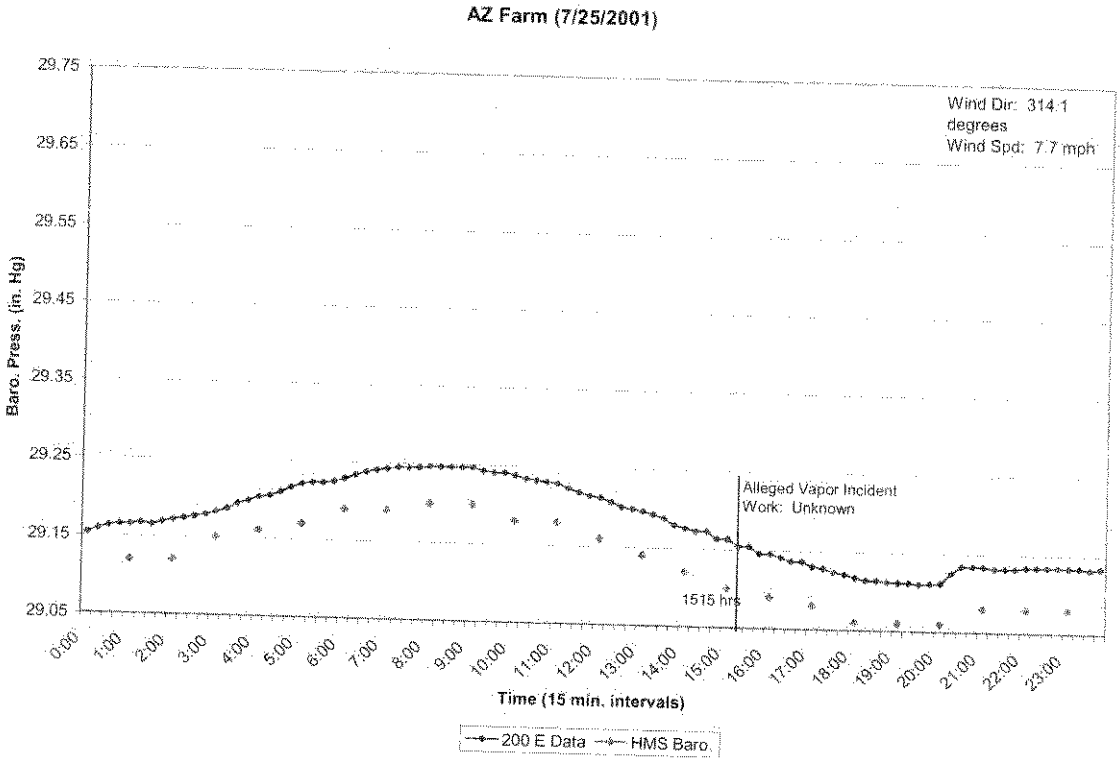

AN-Farm Incident (2/15/2000)
2000 - 4
Wind Dir.: 270°
Wind Spd.: 6 mph
Temp.: 49°F
Vapor Incident: NCO reports CO exposure (exhaust) from AN-Farm.
Work: Performing Vent and Balance work within AN-Tank Farm.
Barometrci Pressure (in. Hg)
29.5
29.45
29.4
29.35
29.3
29.25
29.2
29.15
29.1
29.05
0:00
2:24
4:48
7:12
9:36
12:00
14:24
16:48
19:12
21:36
0:00
Time (15 min. intervals)
Baro. Press.
Incident Press.

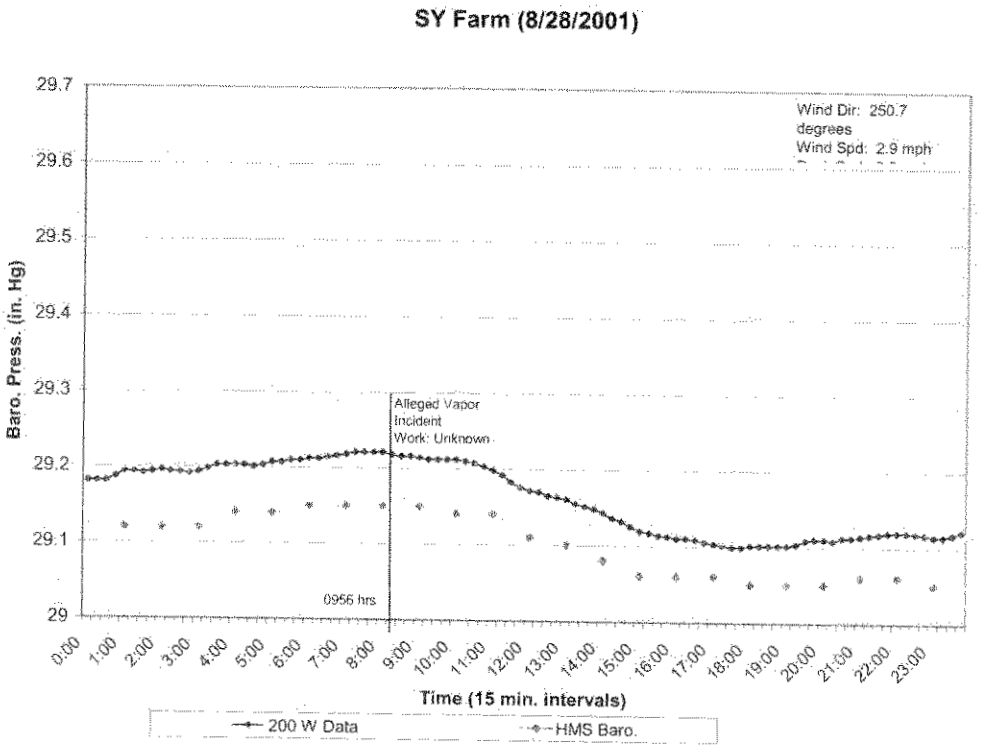

244-A (1/12/2001)
Wind Dir: 349.7 degrees
Wind Spd: 0.5 mph
Peak Spd: 0.5 mph
Alleged Vapor Incident
Work: Unknown
1507 hrs
Baro. Press. (in. Hg)
29.7
29.6
29.5
29.4
29.3
29.2
29.1
29
28.9
28.8
0:00
1:00
2:00
3:00
4:00
5:00
6:00
7:00
8:00
9:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
Time (15 min. intervals)
200 E Data
HMS Baro.

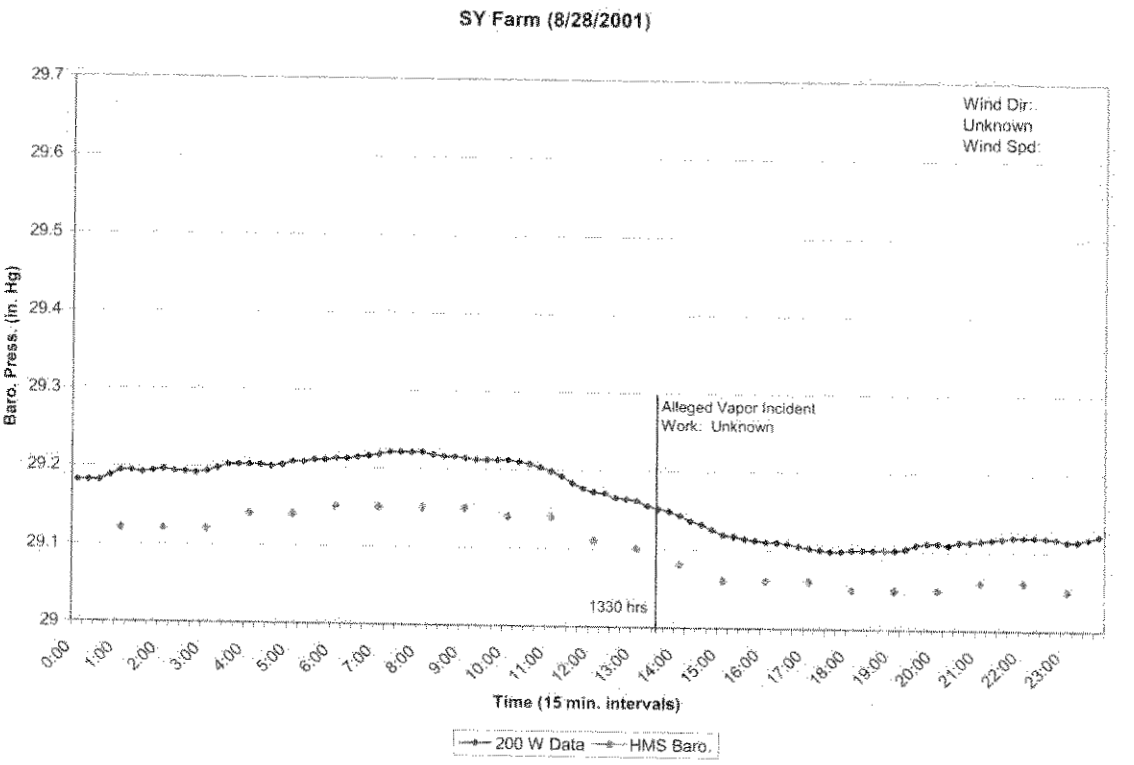

AN Farm (12/31/2001)
Wind Dir: 352.9 degrees
Wind Spd: 3.5 mph
Alleged Vapor Incident
Work: Unknown
1300 hrs
Baro. Press. (in. Hg)
29.97
29.87
29.77
29.67
29.57
29.47
29.37
29.27
0:00 1:00 2:00 3:00 4:00 5:00 6:00 7:00 8:00 9:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time (15 min. intervals)
200 E Data
HMS Baro

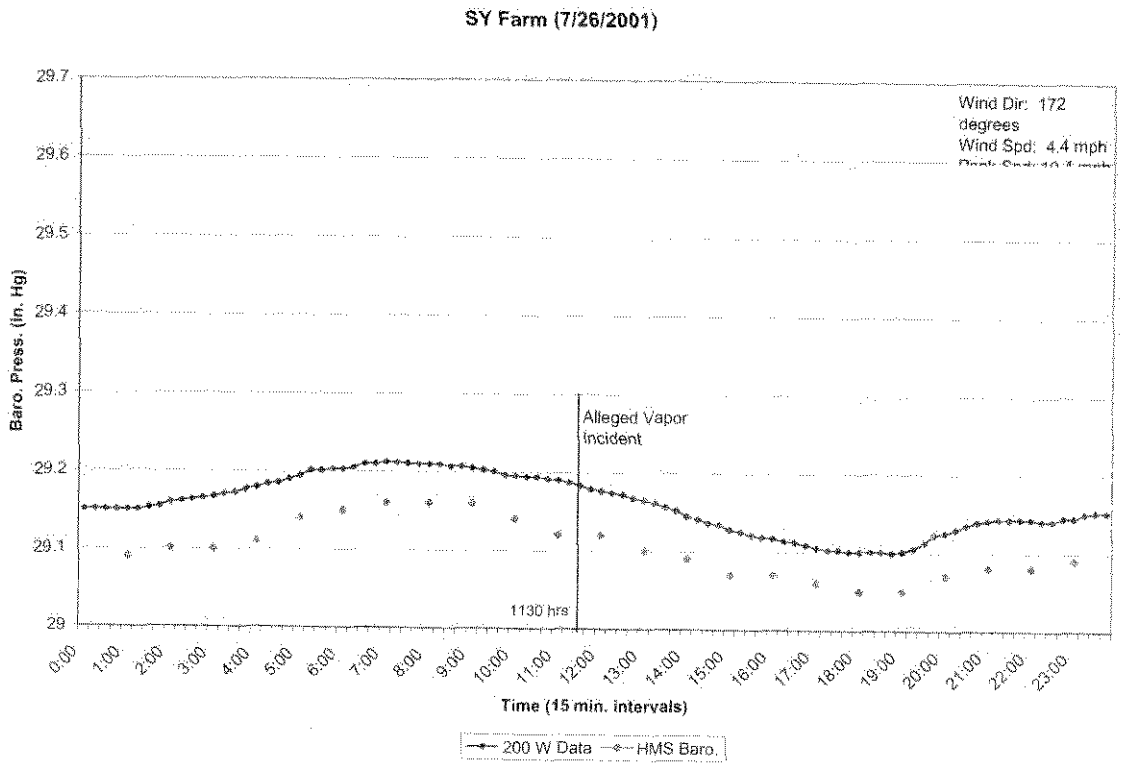

AY Farm (8/29/2001)
Wind Dir: 353 degrees
Wind Spd: 6.1 mph
Alleged Vapor Incident
Work: Unknown
1439 hrs
Baro. Press. (in. Hg)
29.6
29.5
29.4
29.3
29.2
29.1
29
28.9
0:00 1:00 2:00 3:00 4:00 5:00 6:00 7:00 8:00 9:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time (15 min. intervals)
200 E Data
HMS Baro.

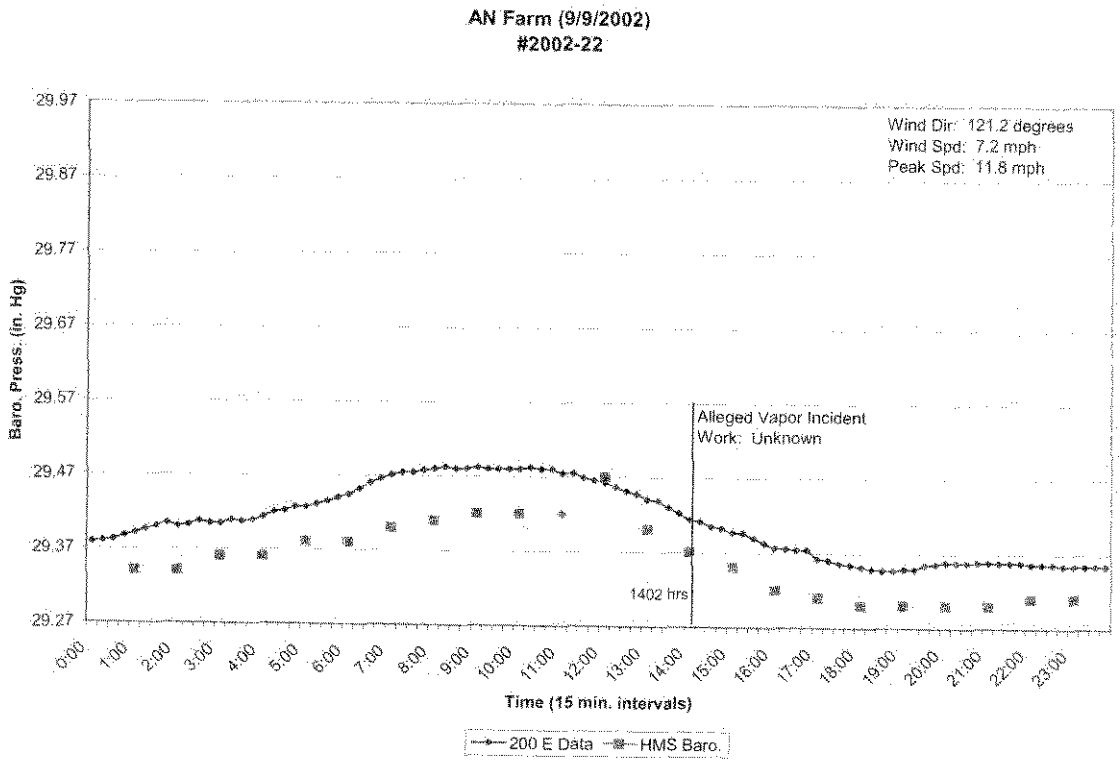

AZ Farm (4/9/2001)
Wind Dir: 314.5 degrees
Wind Spd: 19.8 mph
Alleged Vapor Incident
1630 hrs
Baro. Press. (in. Hg)
Time (15 min. intervals)
200 E Data
HMS Baro.


AZ Farm (7/25/2001)
Wind Dir: 314.1 degrees
Wind Spd: 7.7 mph
Alleged Vapor Incident
Work: Unknown
1515 hrs
Baro. Press. (in. Hg)
Time (15 min. intervals)
200 E Data
HMS Baro.

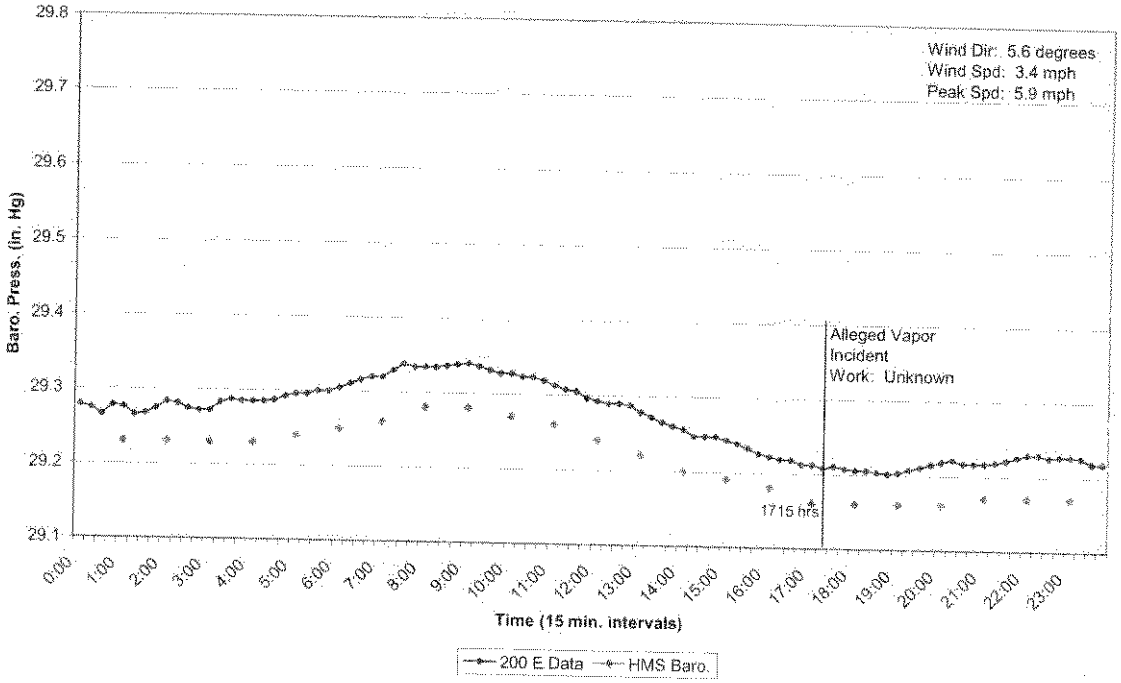

SY Farm (8/28/2001)
Wind Dir: 250.7 degrees
Wind Spd: 2.9 mph
Alleged Vapor Incident Work: Unknown
0956 hrs
Baro. Press. (in. Hg)
Time (15 min. intervals)
200 W Data
HMS Baro.


SY Farm (8/28/2001)
Wind Dir: Unknown
Wind Spd:
Alleged Vapor Incident Work: Unknown
1330 hrs
Baro. Press. (in. Hg)
Time (15 min. intervals)
200 W Data
HMS Baro.

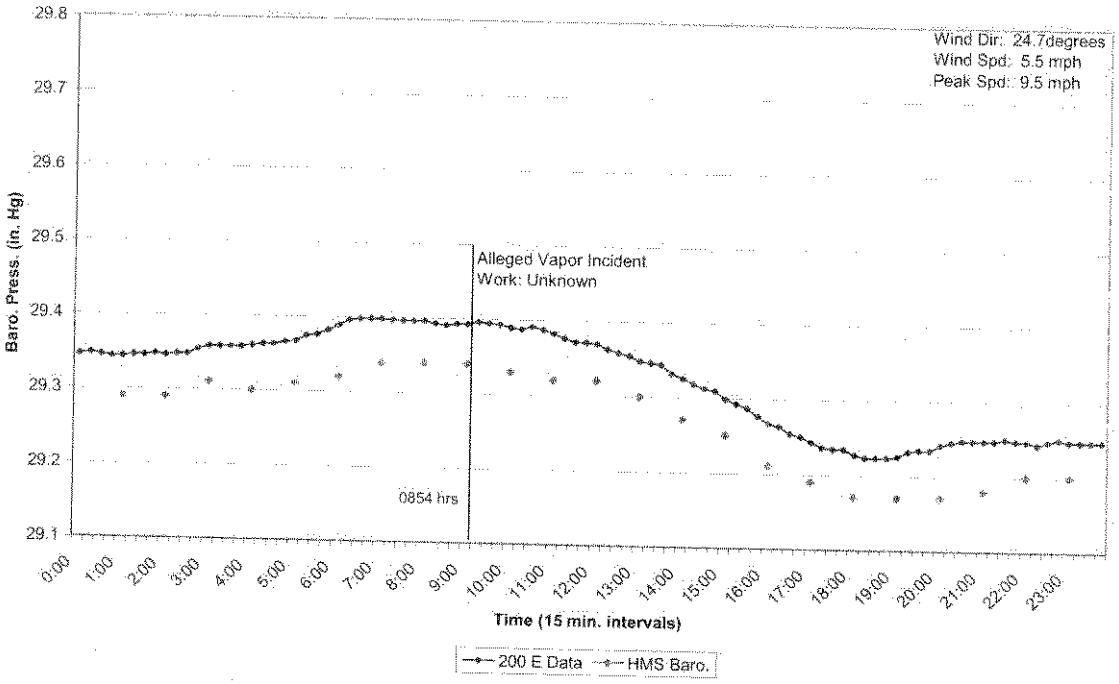

SY Farm (7/26/2001)
Wind Dir: 172 degrees
Wind Spd: 4.4 mph
Alleged Vapor Incident
1130 hrs
Baro. Press. (in. Hg)
29.7
29.6
29.5
29.4
29.3
29.2
29.1
29
0:00
1:00
2:00
3:00
4:00
5:00
6:00
7:00
8:00
9:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
Time (15 min. intervals)
200 W Data
HMS Baro.


AN Farm (9/9/2002)
#2002-22
Wind Dir: 121.2 degrees
Wind Spd: 7.2 mph
Peak Spd: 11.8 mph
Alleged Vapor Incident
Work: Unknown
1402 hrs
Baro. Press. (in. Hg)
29.97
29.87
29.77
29.67
29.57
29.47
29.37
29.27
0:00
1:00
2:00
3:00
4:00
5:00
6:00
7:00
8:00
9:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
Time (15 min. intervals)
200 E Data
HMS Baro.

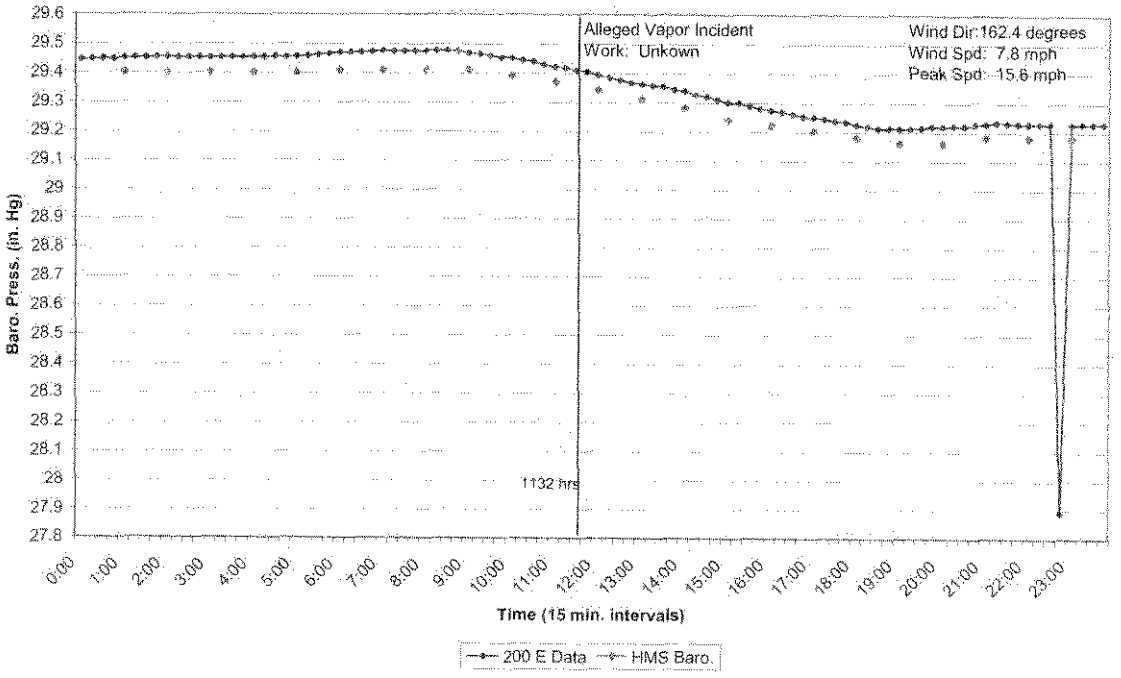
AP Farm (8/23/2002)
#2002-19



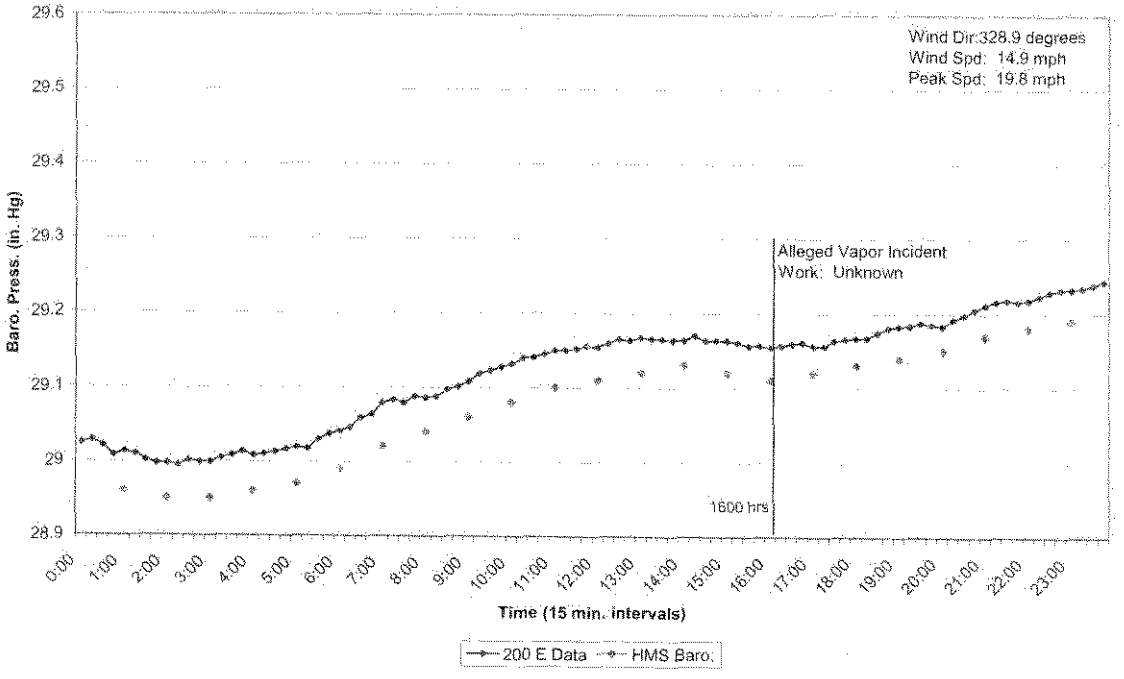
AP Farm (8/27/2002)
#2002-20



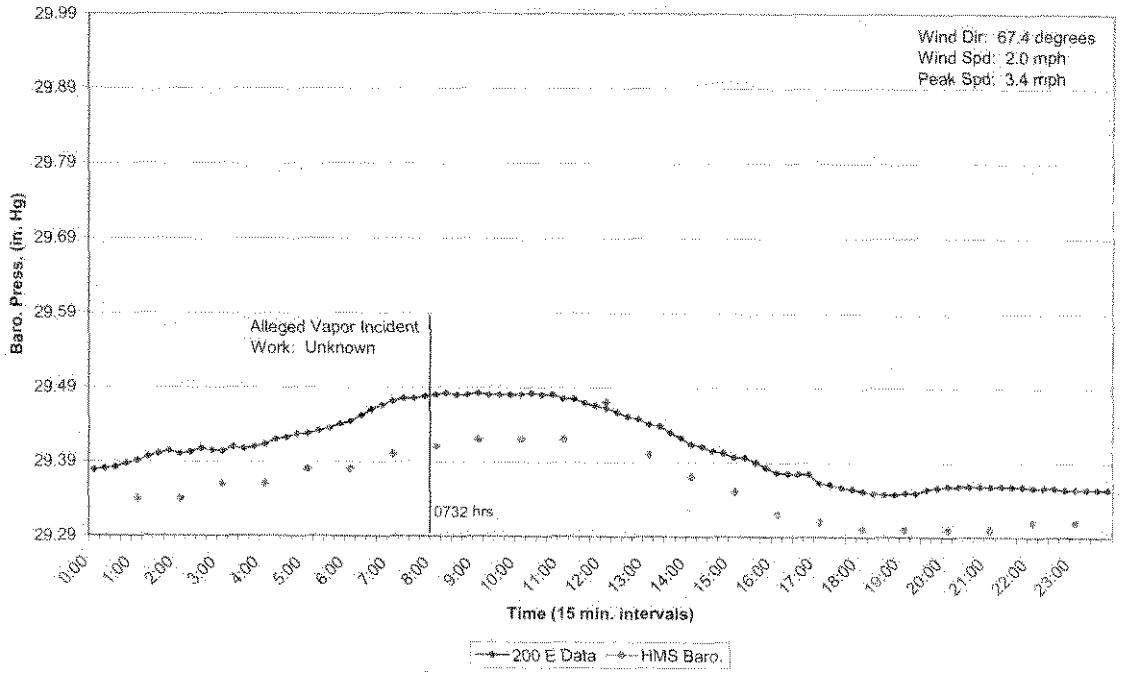
AP Farm (8/9/2002)
#2002-17



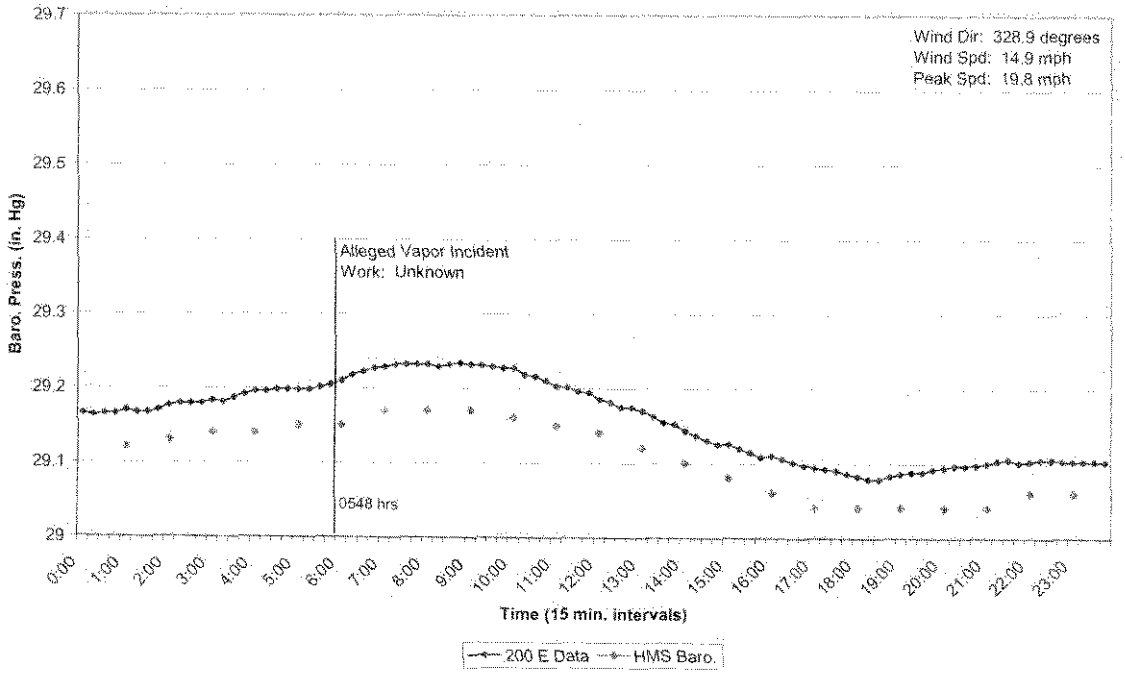
AZ Farm (6/29/2002)
#2002-15



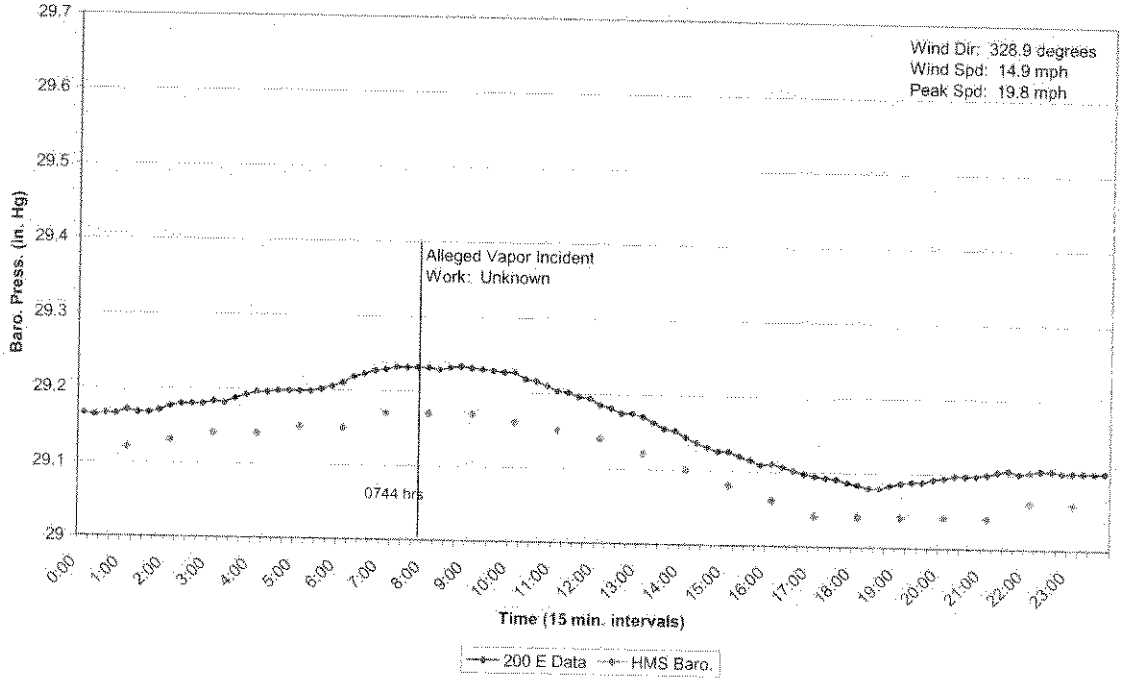
BY Farm (9/9/2002)
#2002-21



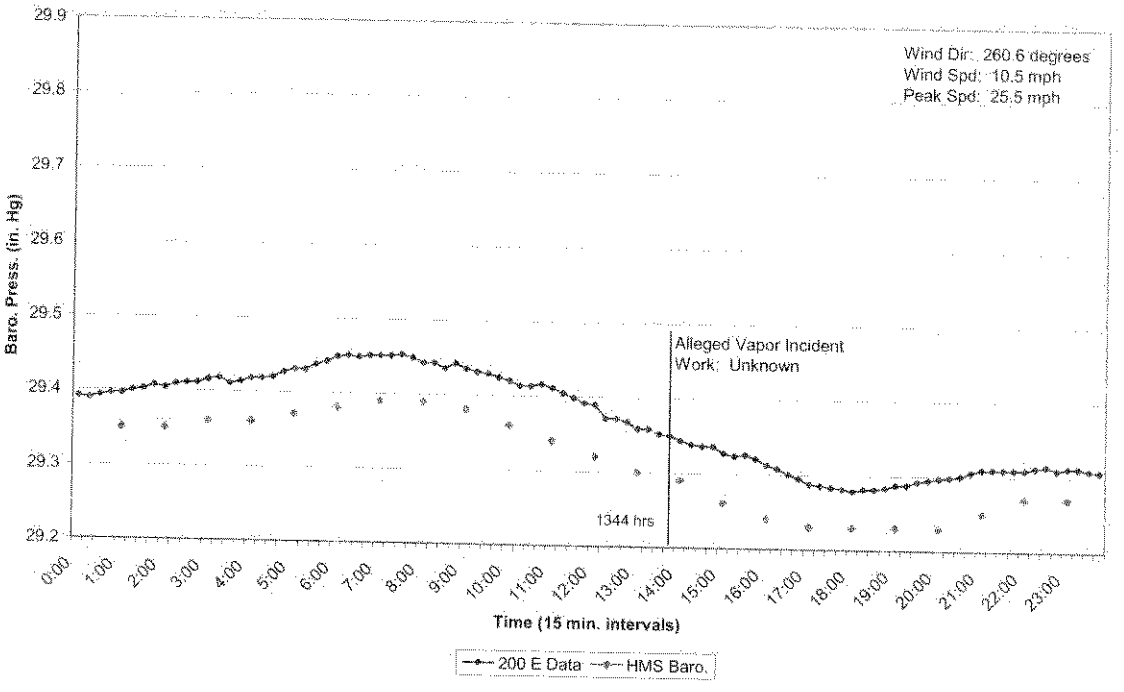
BY Farm (9/11/2002)
#2002-24



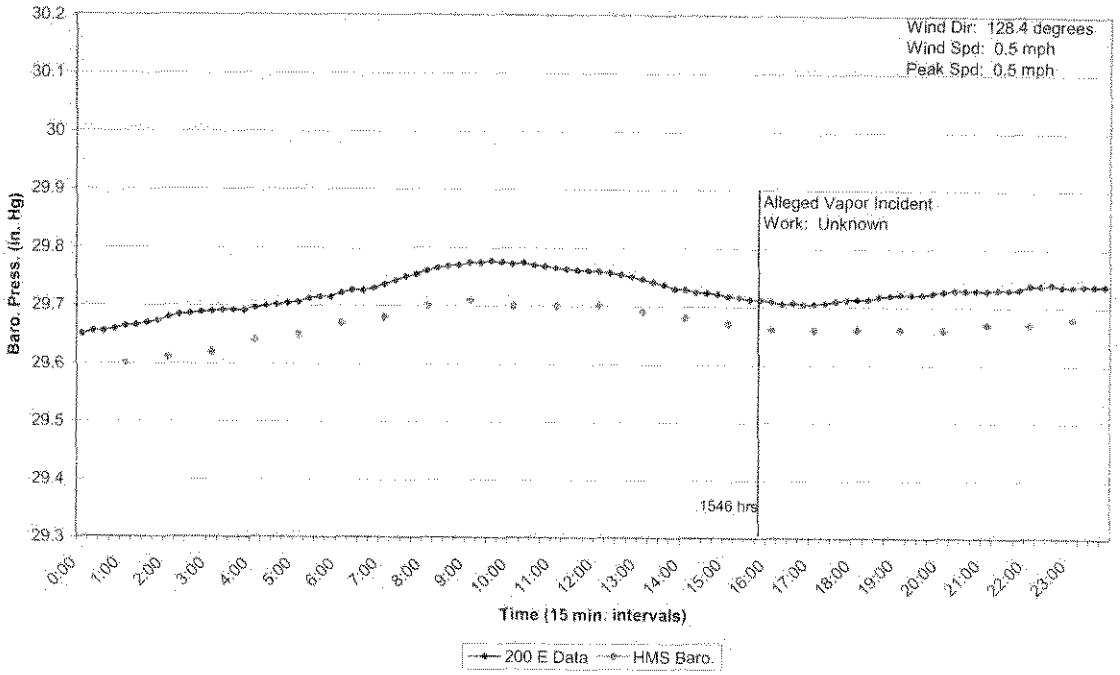
C Farm (9/11/2002)
#2002-25



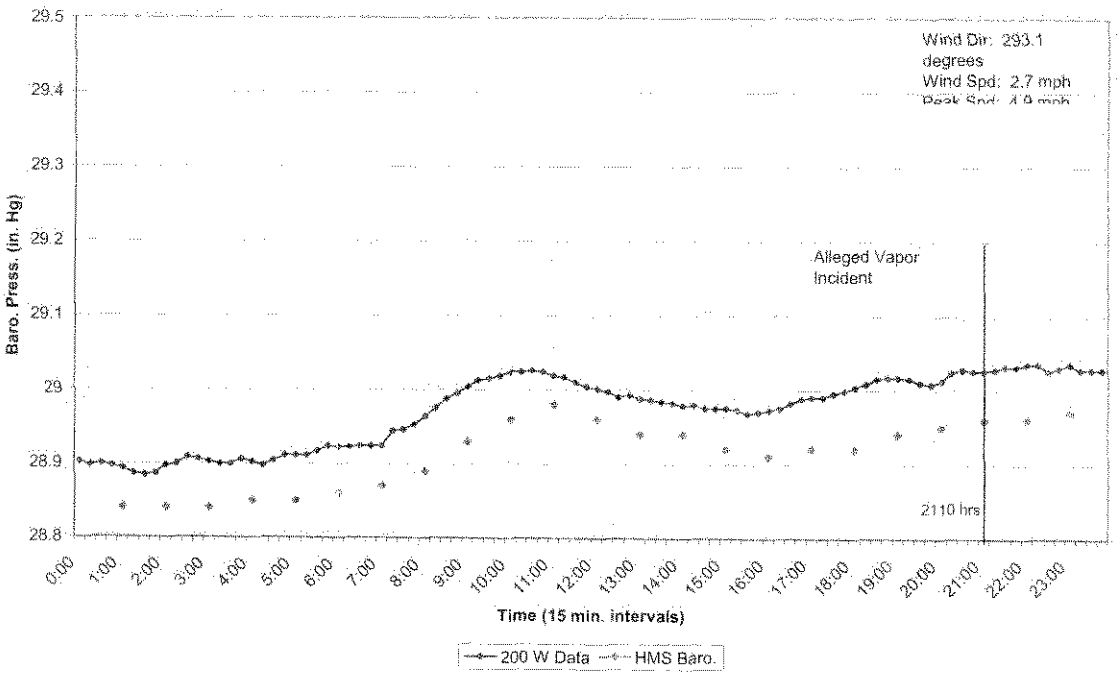
C Farm (5/14/2002)
#2002-12



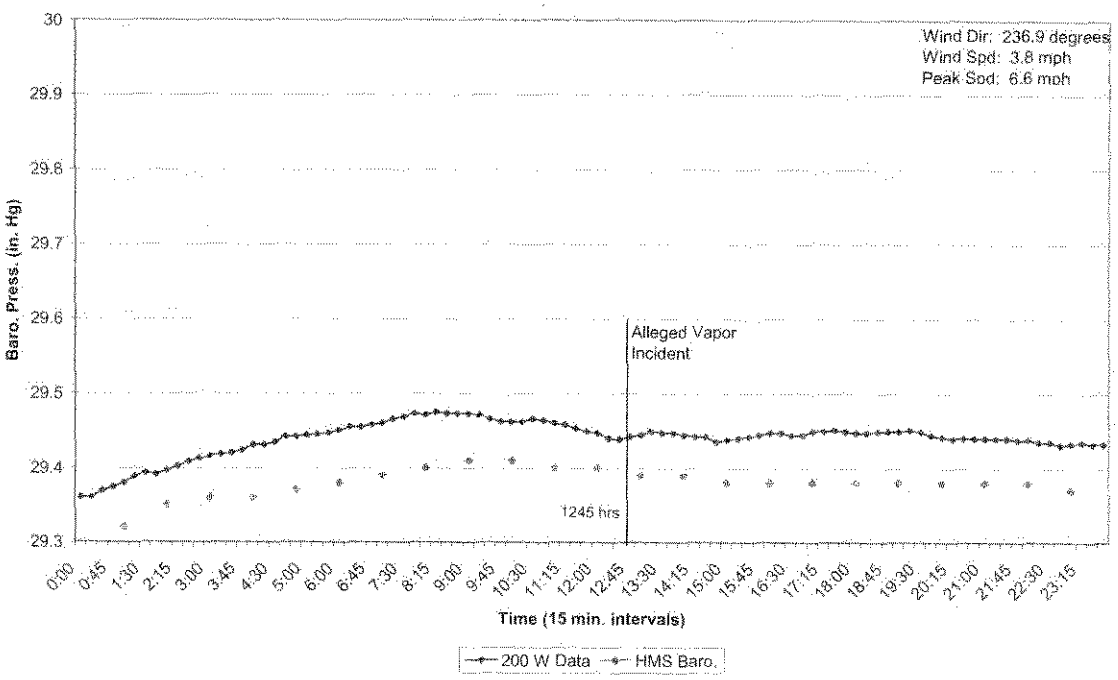
C Farm (10/31/2002)
#2002-27



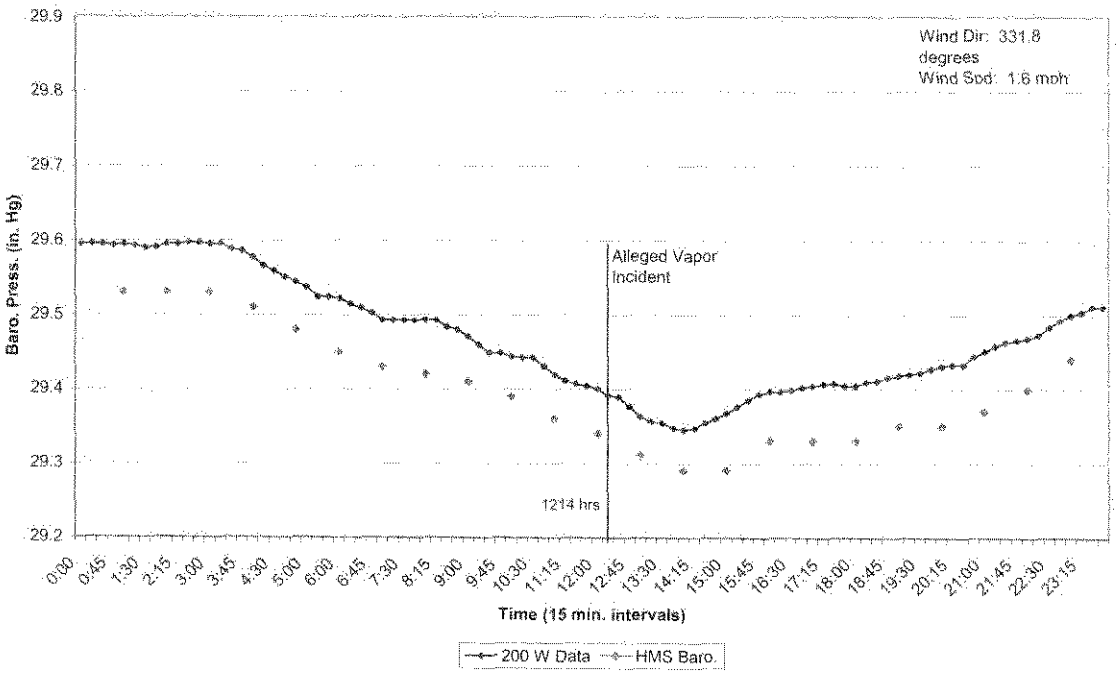
SX Farm (1/26/2002)
#2002-05



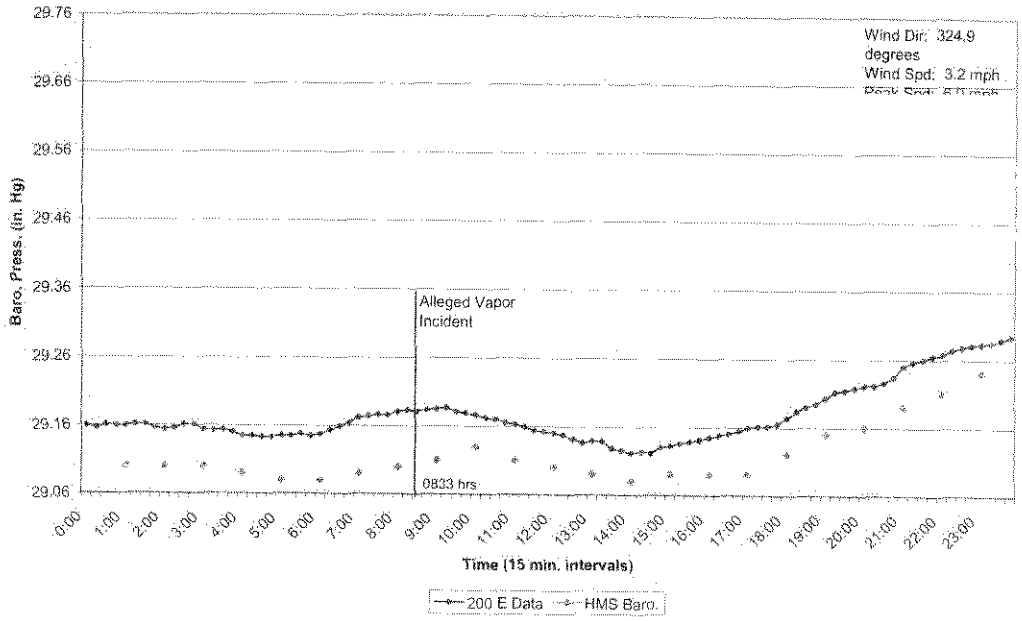
SY Farm (11/13/2002)
#2002-28



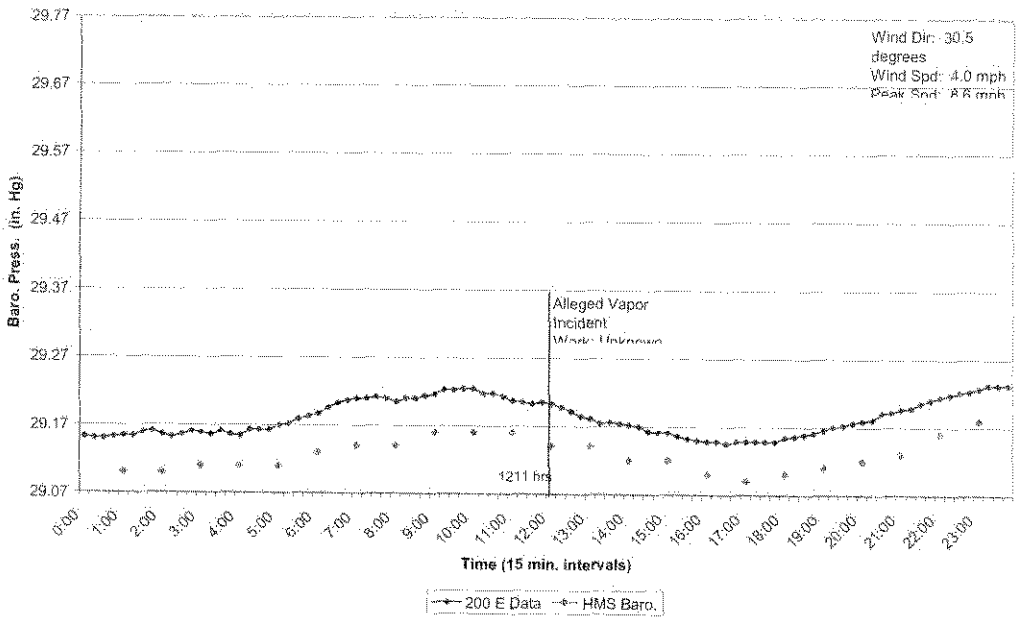
U Farm (1/16/2002)
#2002-03



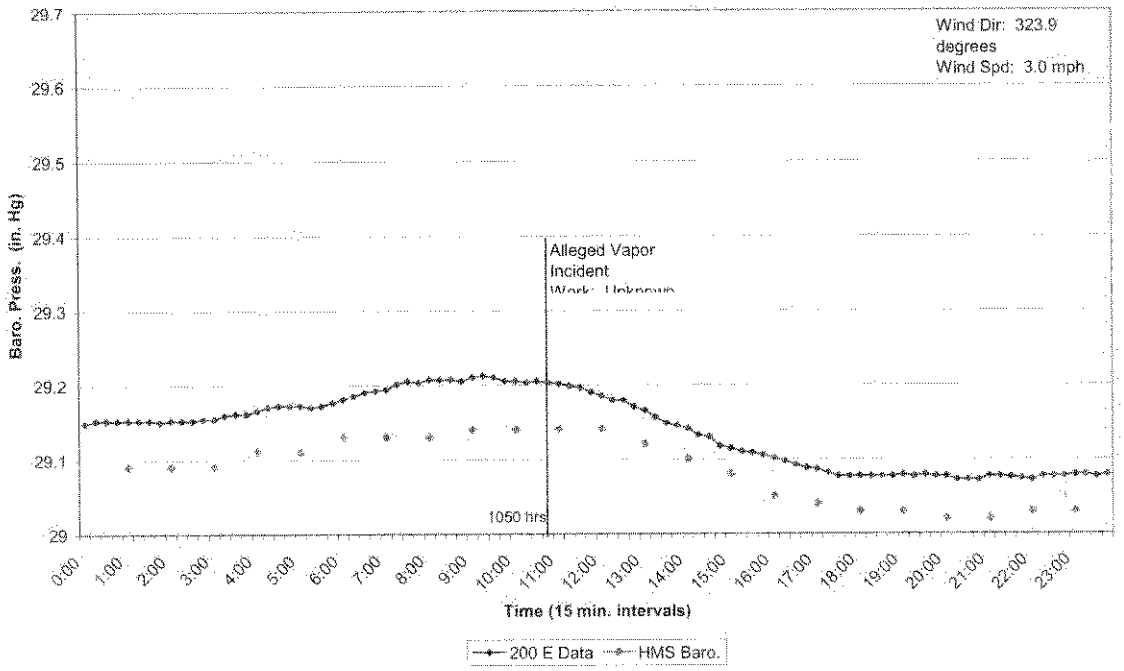
204 AR (9/19/2003)
#2003-37



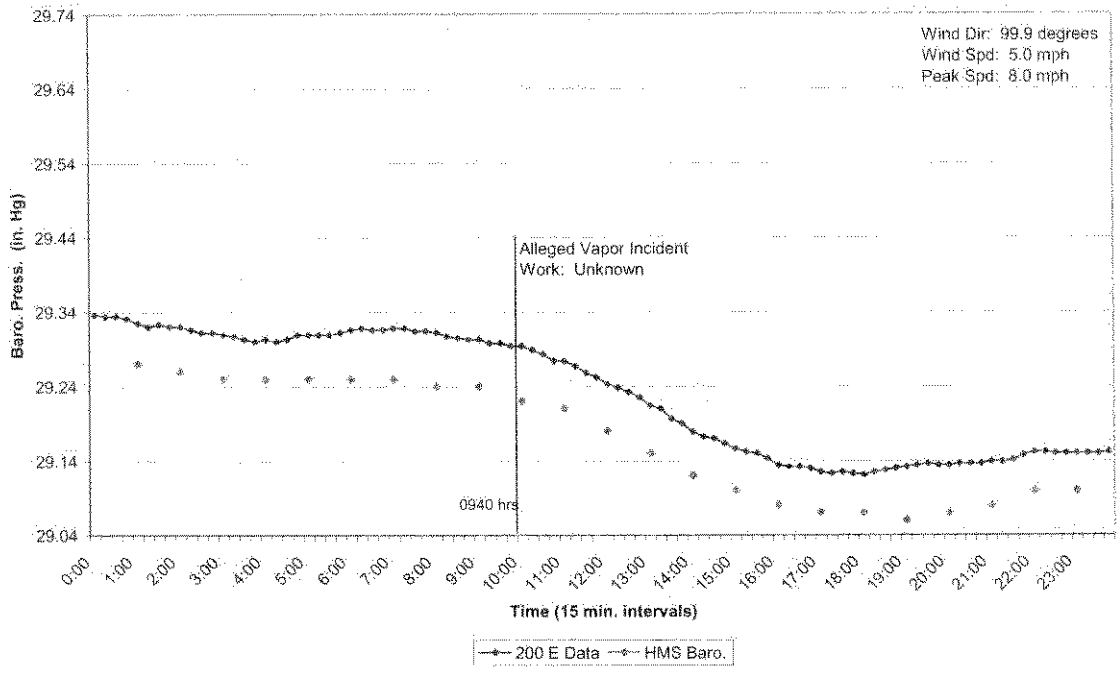
204 AR (9/23/2003)
#2003-42



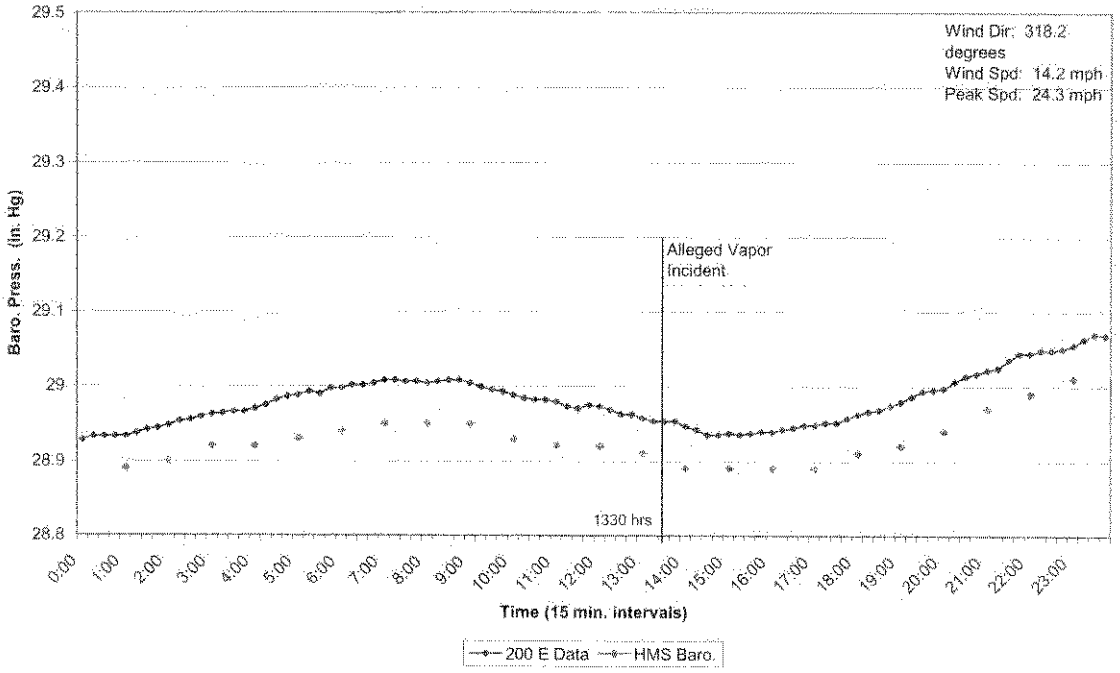
204 AR (10/3/2003)
#2003-48



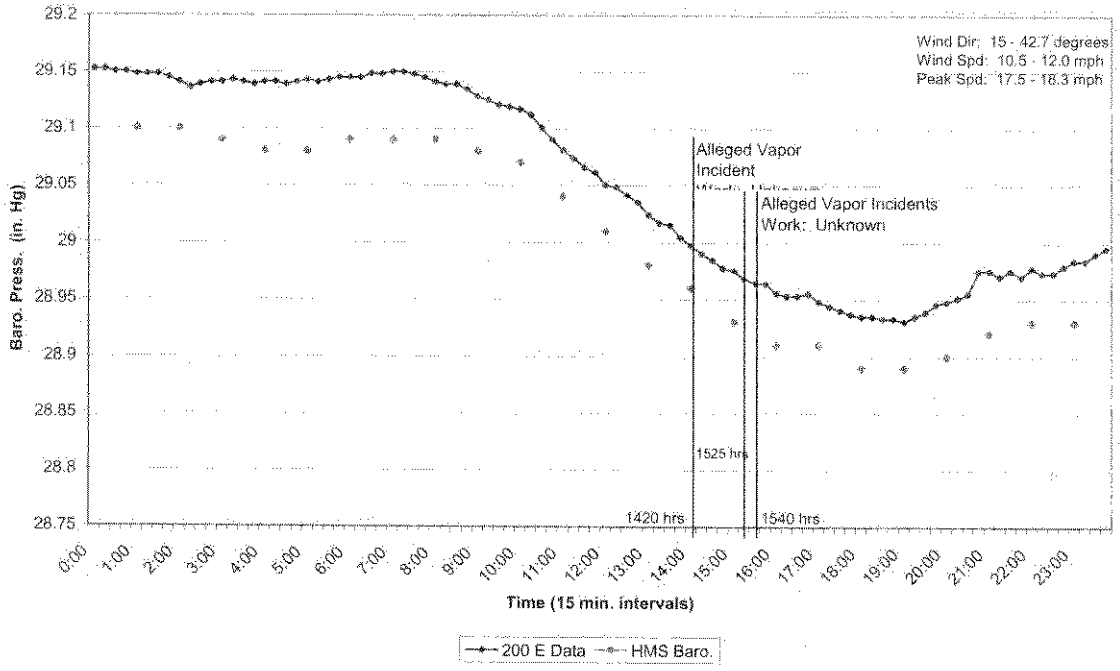
204 AR (9/22/2003)
#2003-40



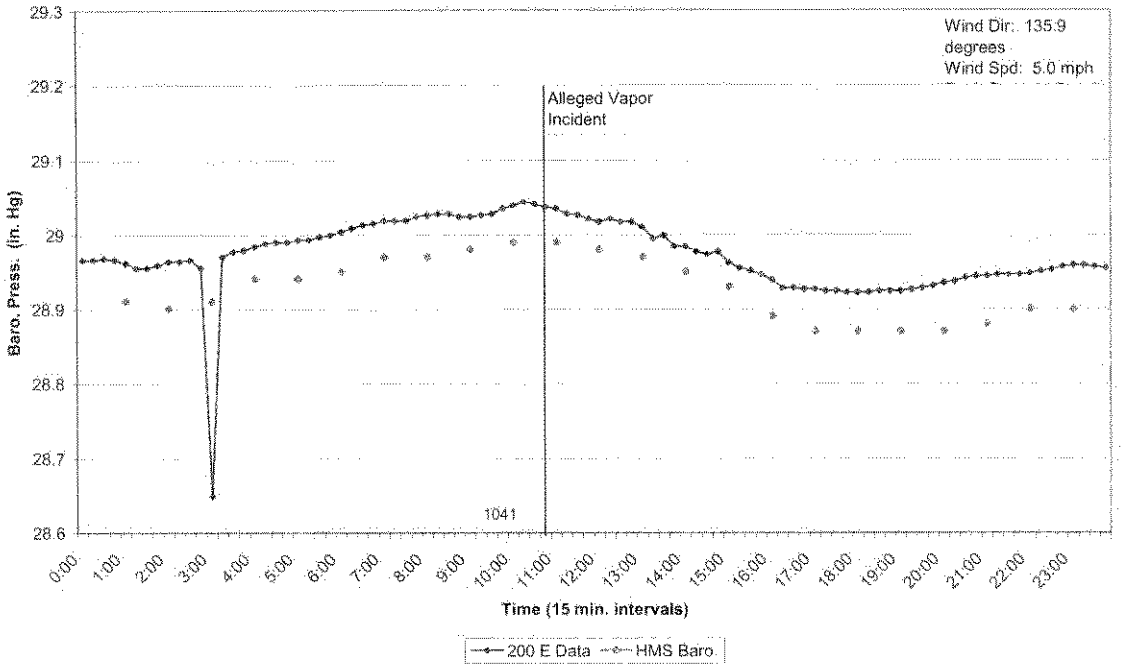
AN Farm (6/10/2003)
#2003-19



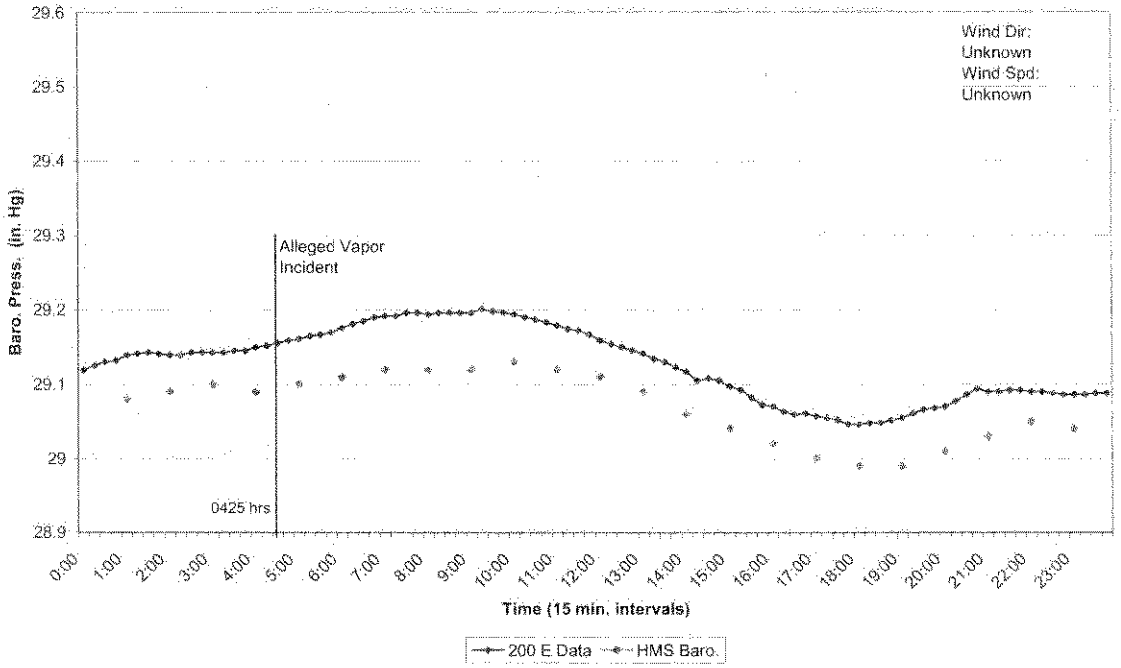
AN Farm (4/28/2003)
#2003-15, 2003-16, & 2003-17



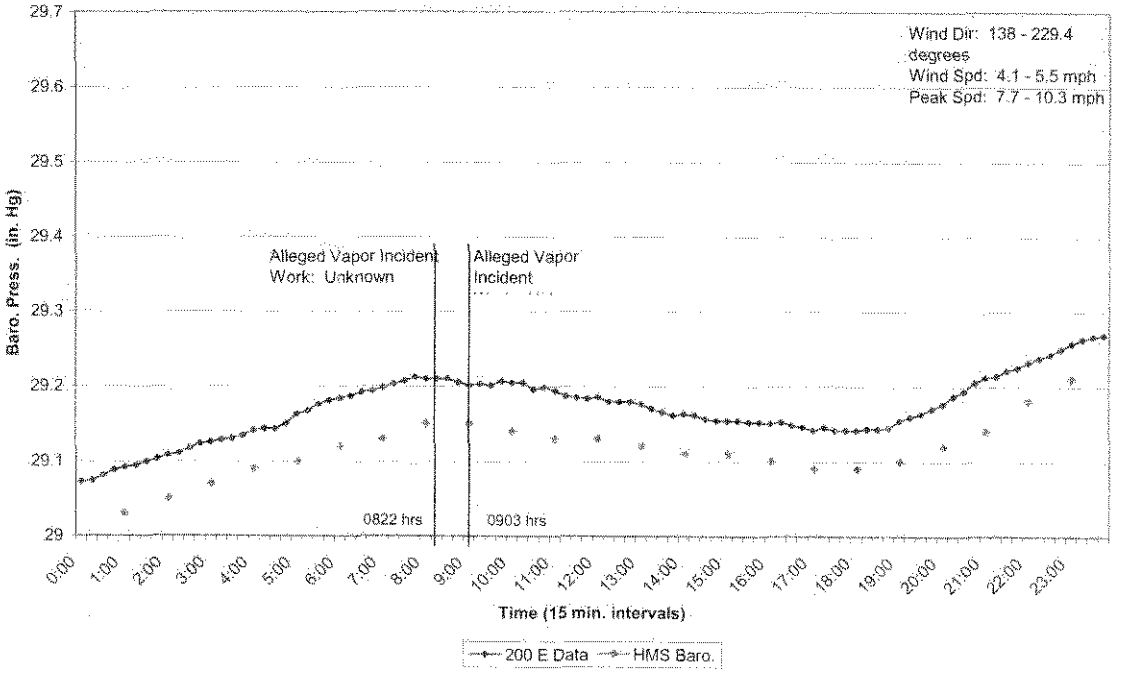
AN Farm (4/22/2003)
#2003-14



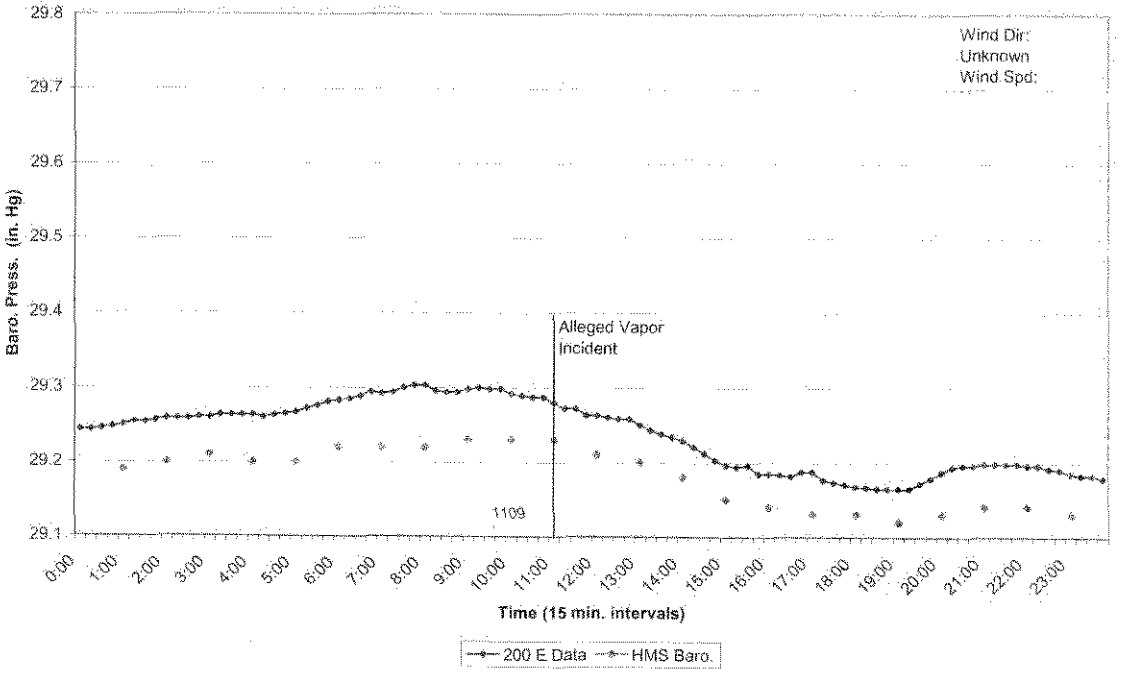
AN Farm (9/5/2003)
#2003-32



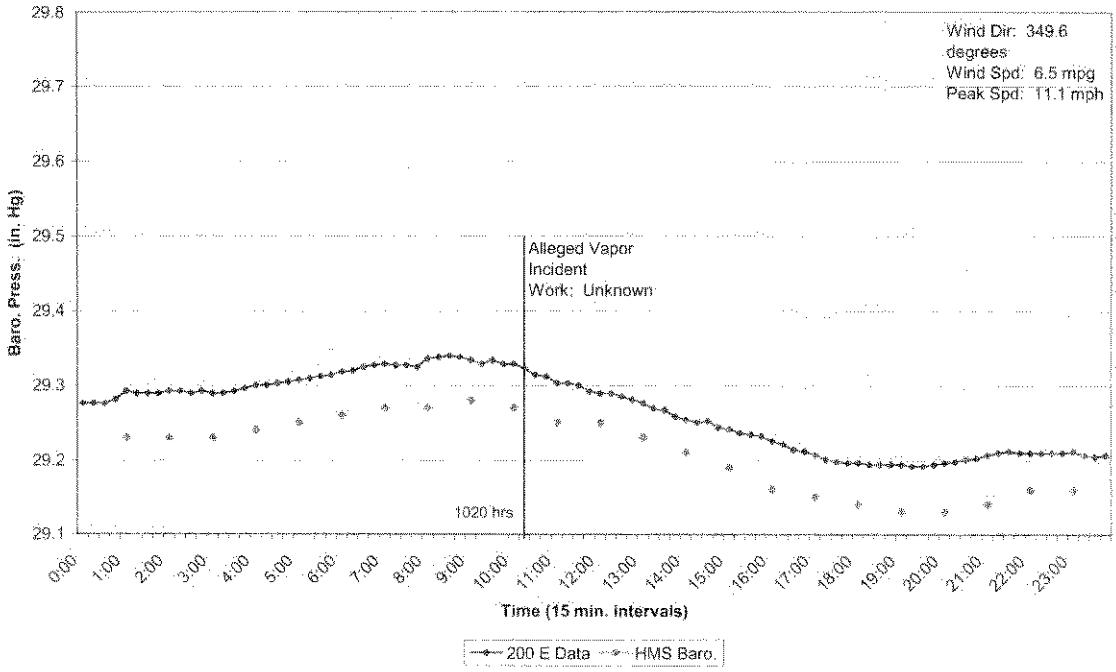
AN Farm (7/16/2003)
#2003-22 & 2003-23



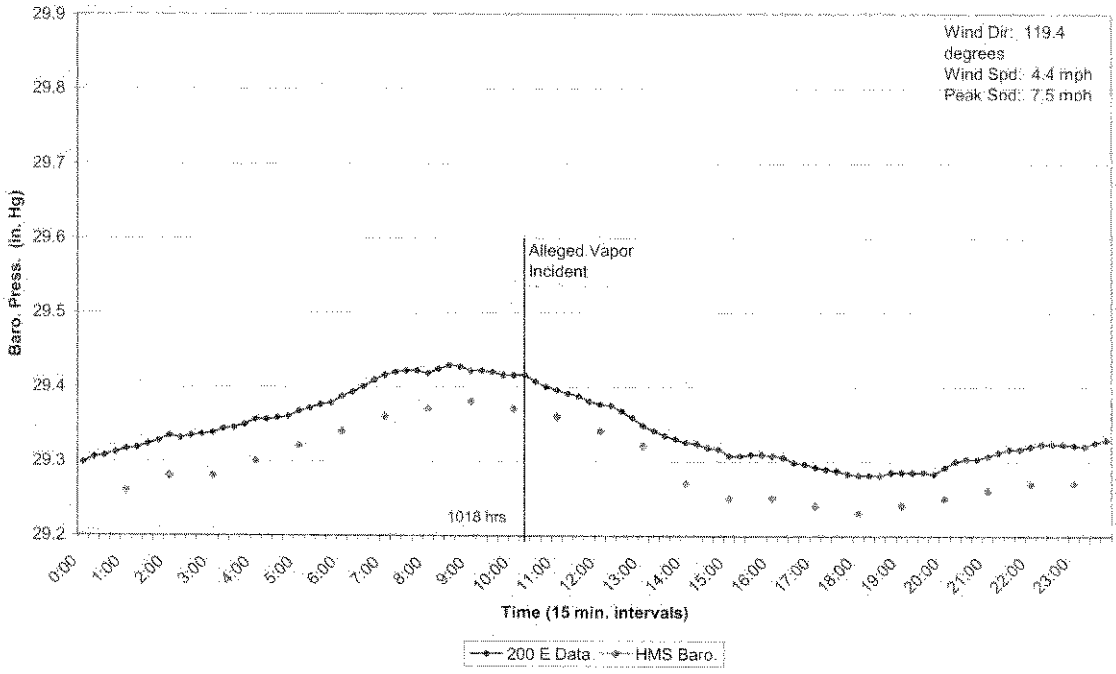
AN Farm (5/1/2003)
#2003-18



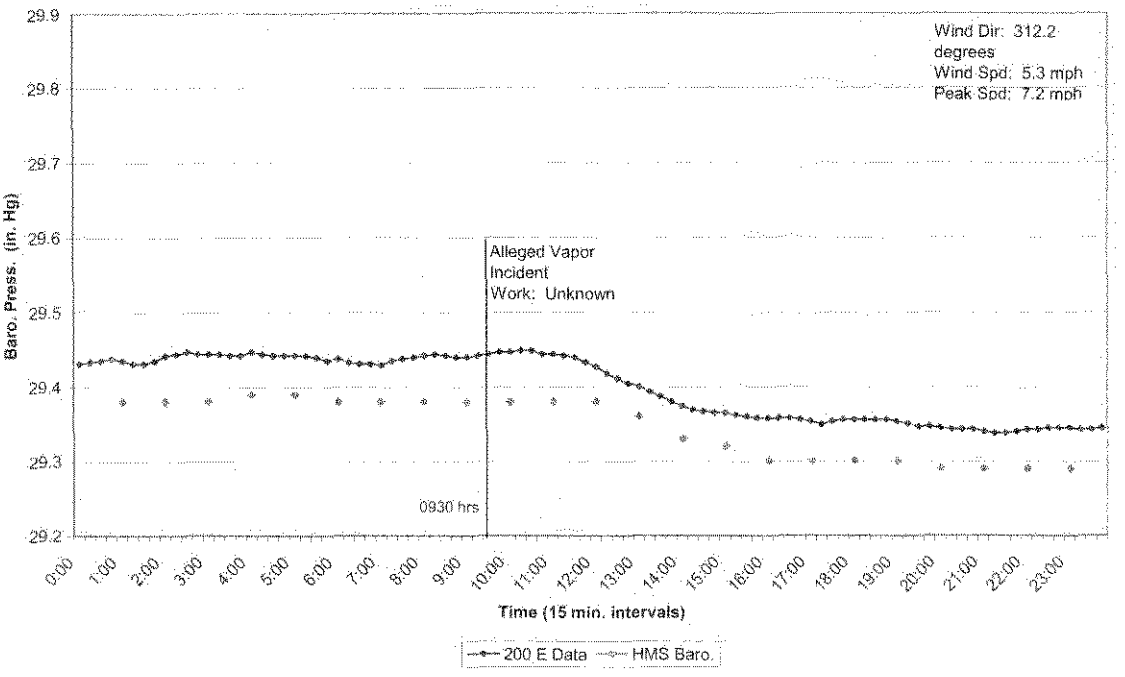
AN Farm (10/1/2003)
#2003-44



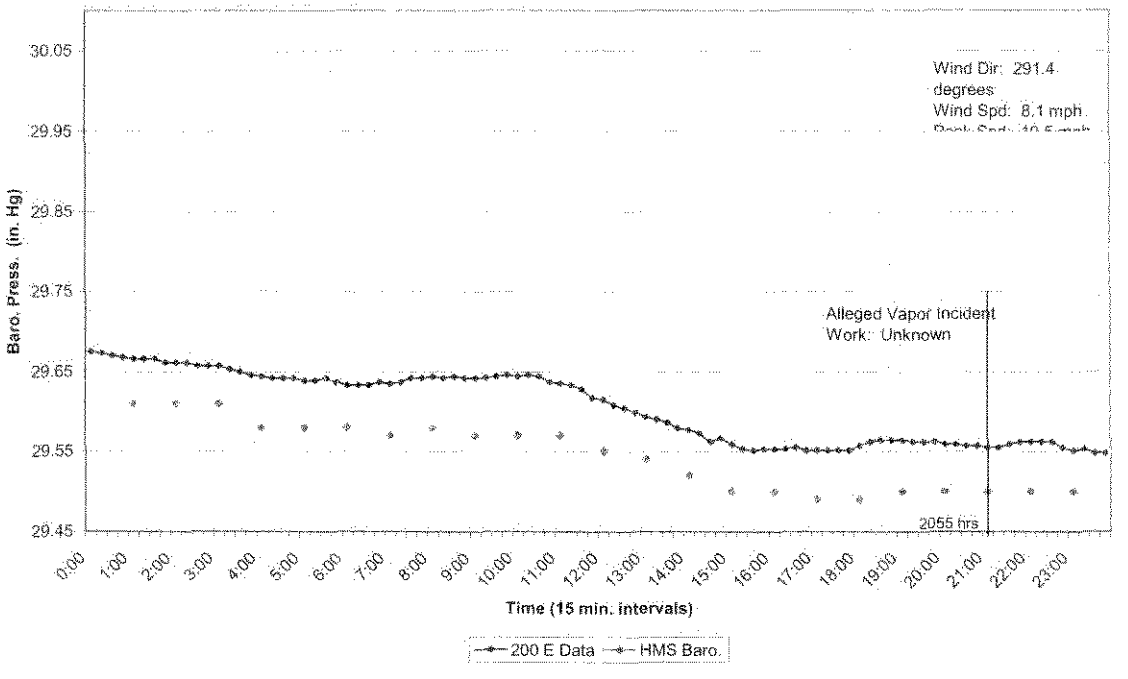
AN Farm (9/20/2003)
#2003-39



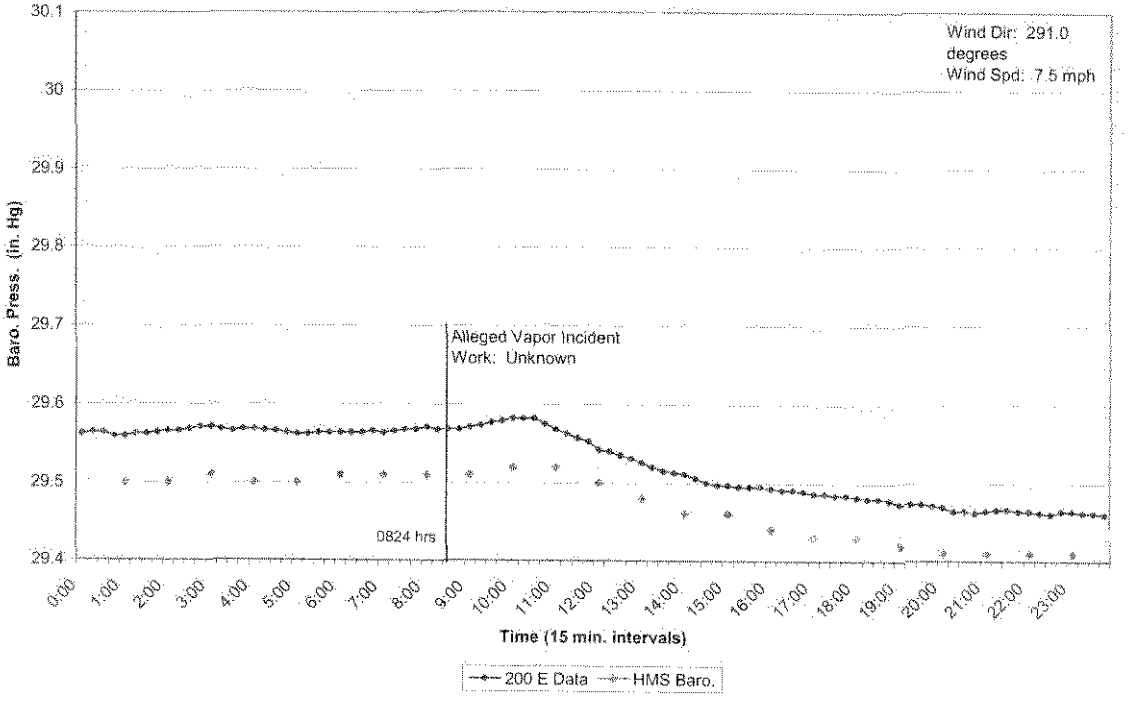
AN Farm (2/11/2003)
#2003-10



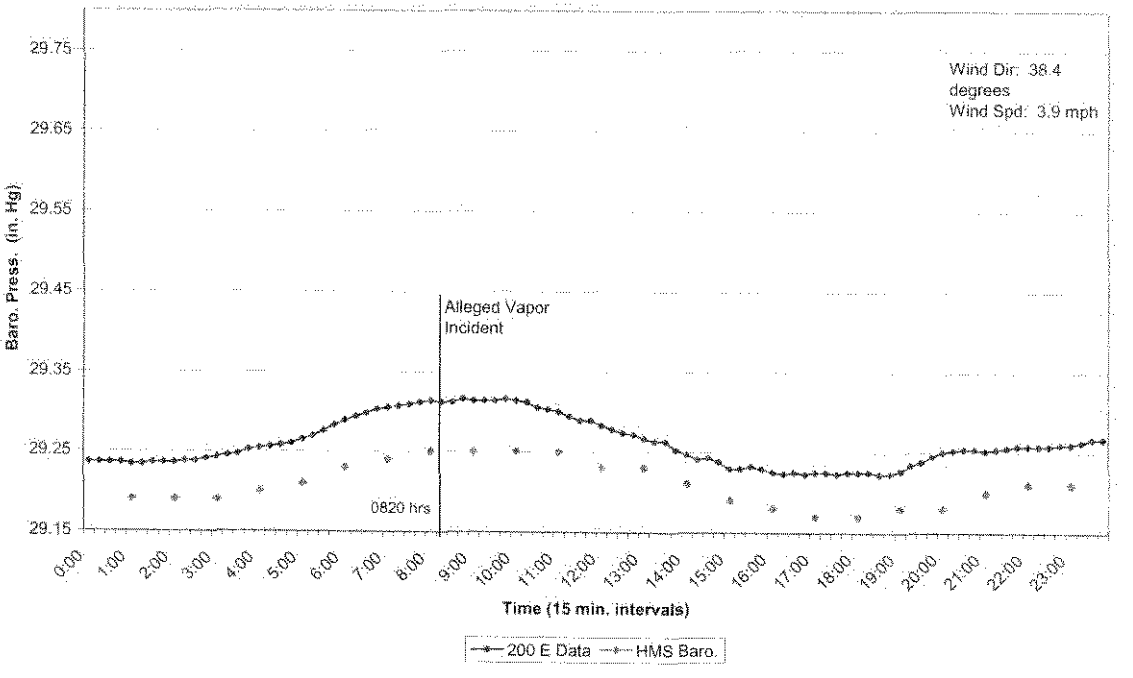
AN Farm (2/7/2003)
#2003-9



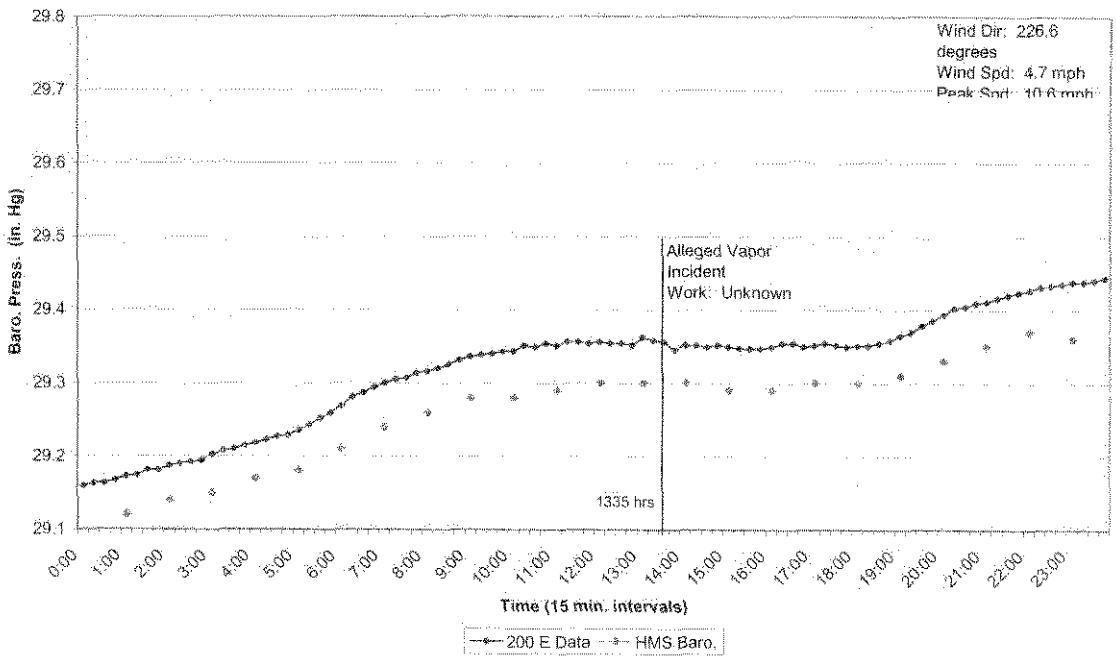
AN Farm (1/9/2003)



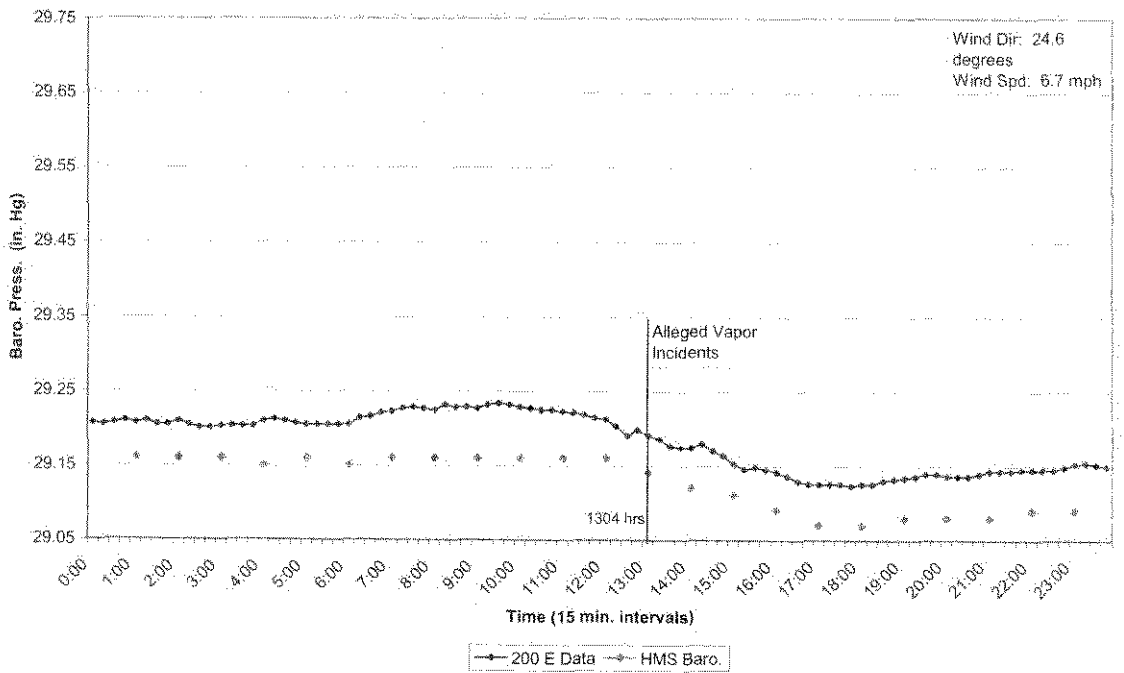
AP Farm (8/28/2003)
#2003-29



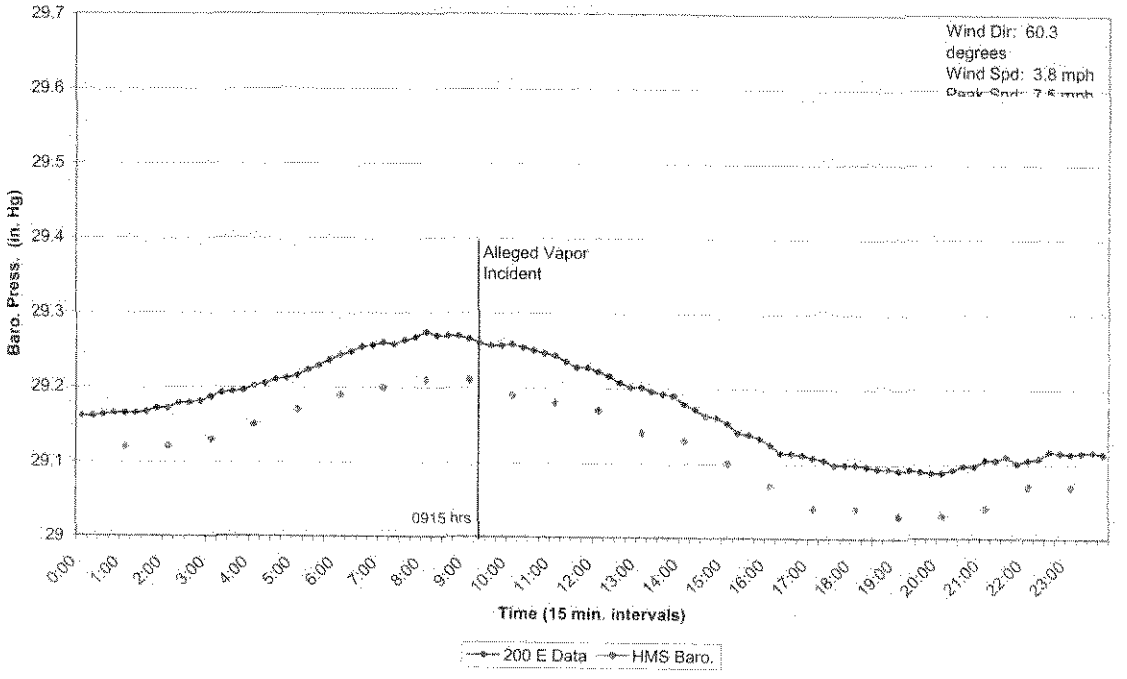
AP Farm (4/18/2003)
#2003-13



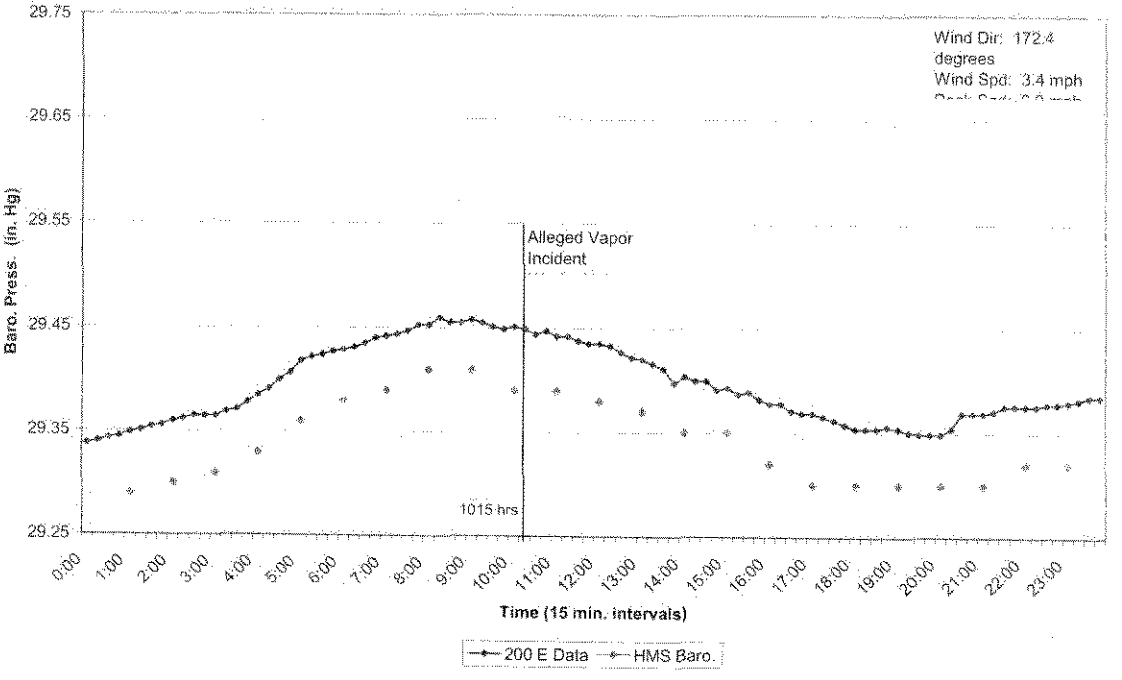
AW Farm (10/2/2003)
#2003-47



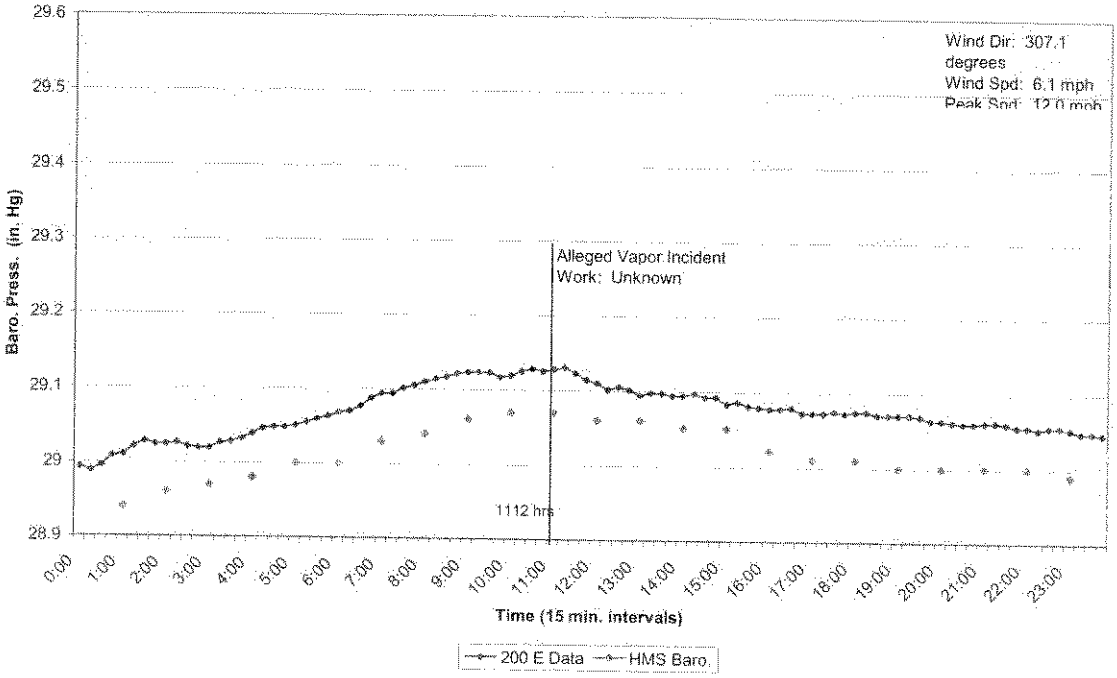
AW Farm (7/29/2003)
#2004-24



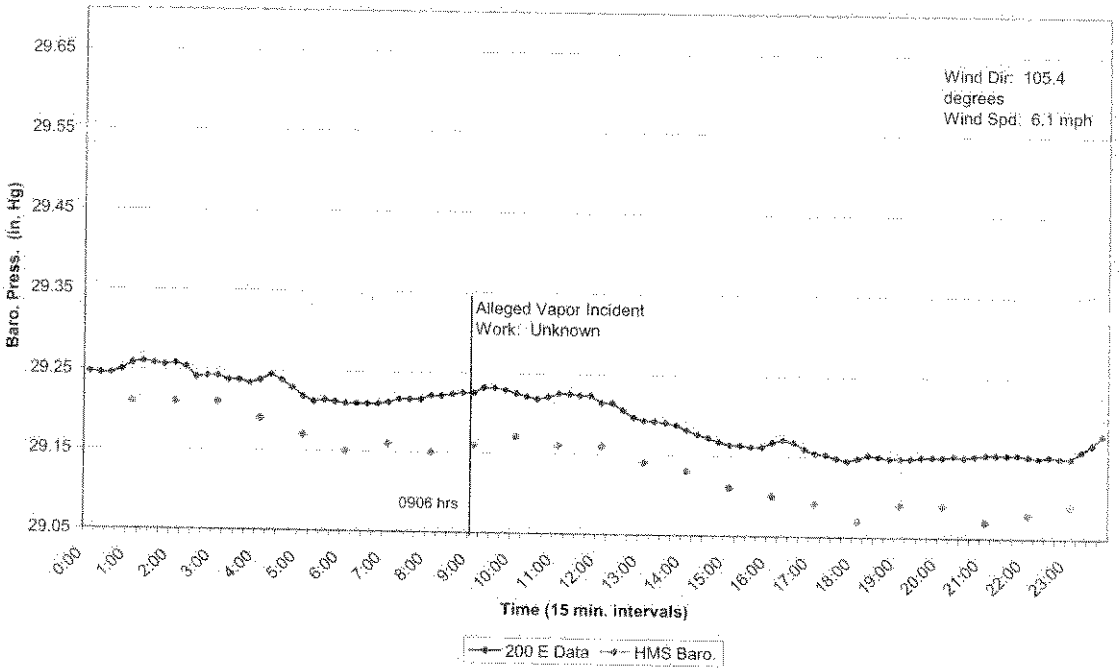
AW Farm (6/25/03)
#2003-20



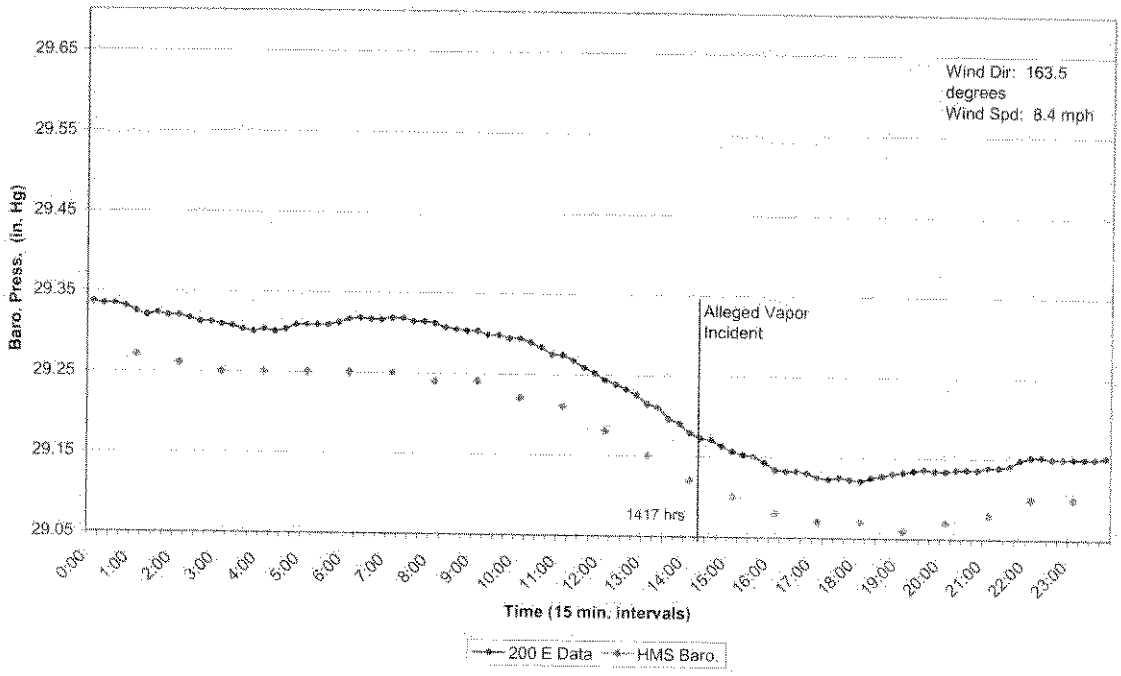
AY Farm (10/7/2003)
#2003-49



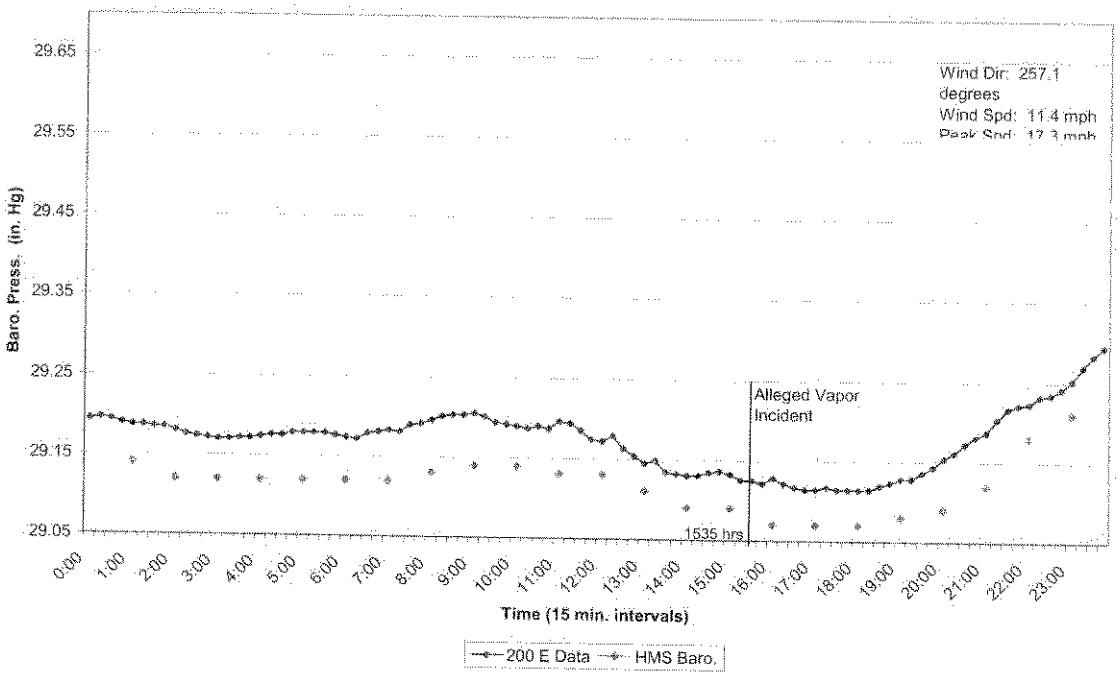
AZ Farm (10/16/2003)
#2003-50



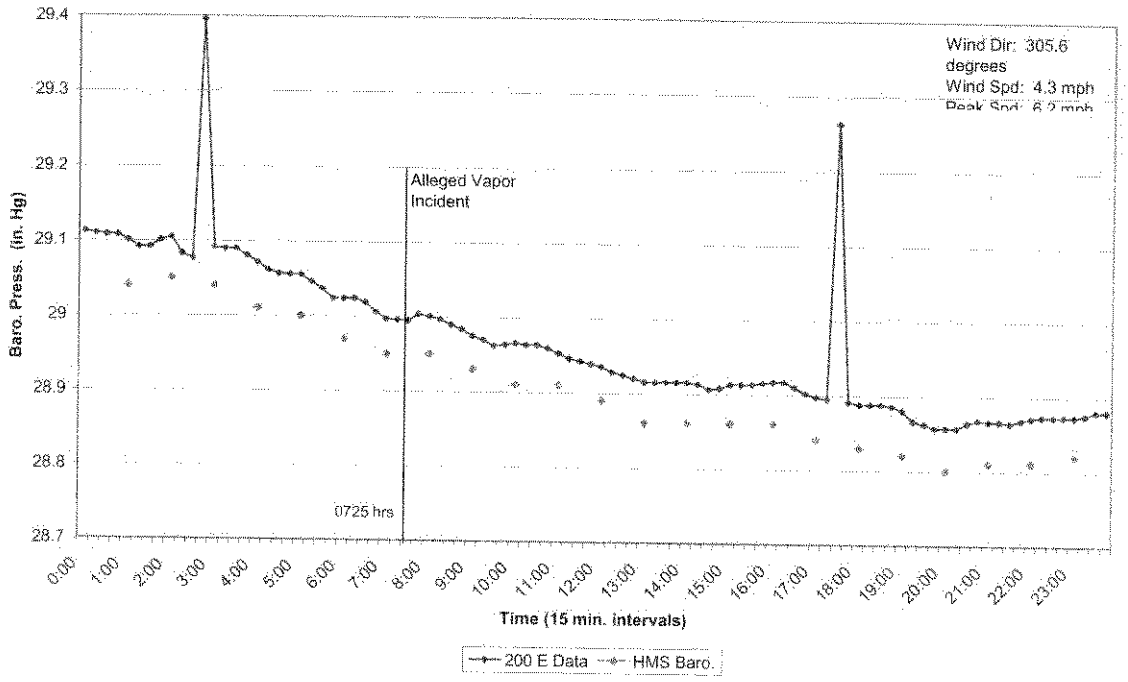
B Farm (9/22/2003)
#2003-41



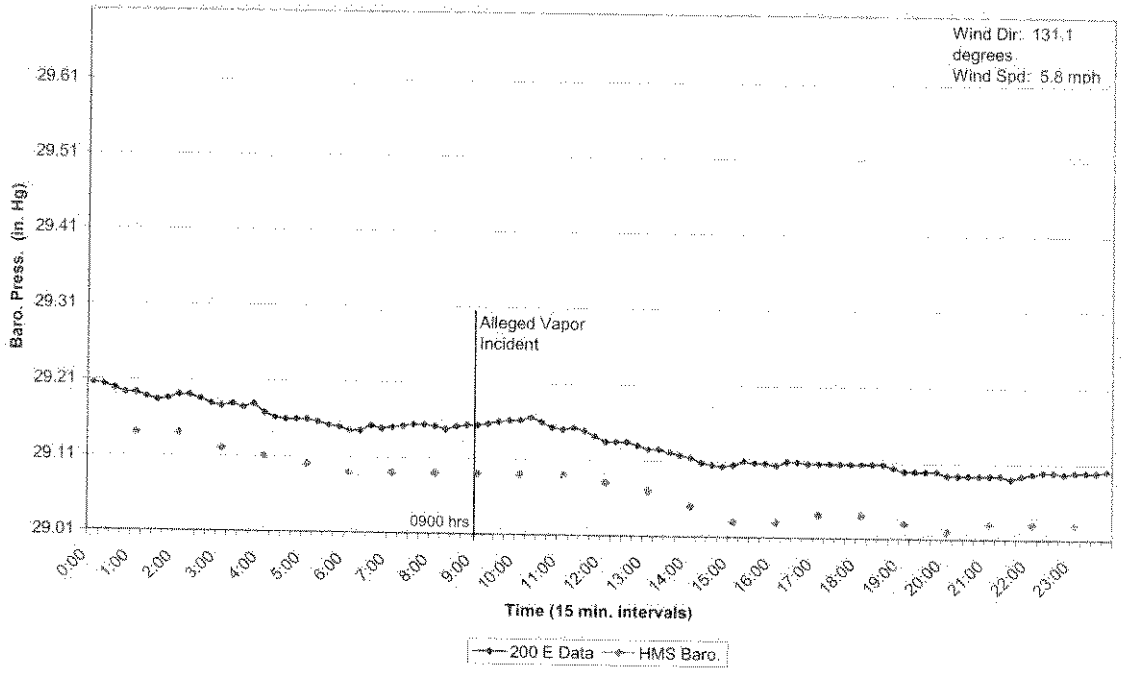
BX Farm (10/22/2003)
#2003-53



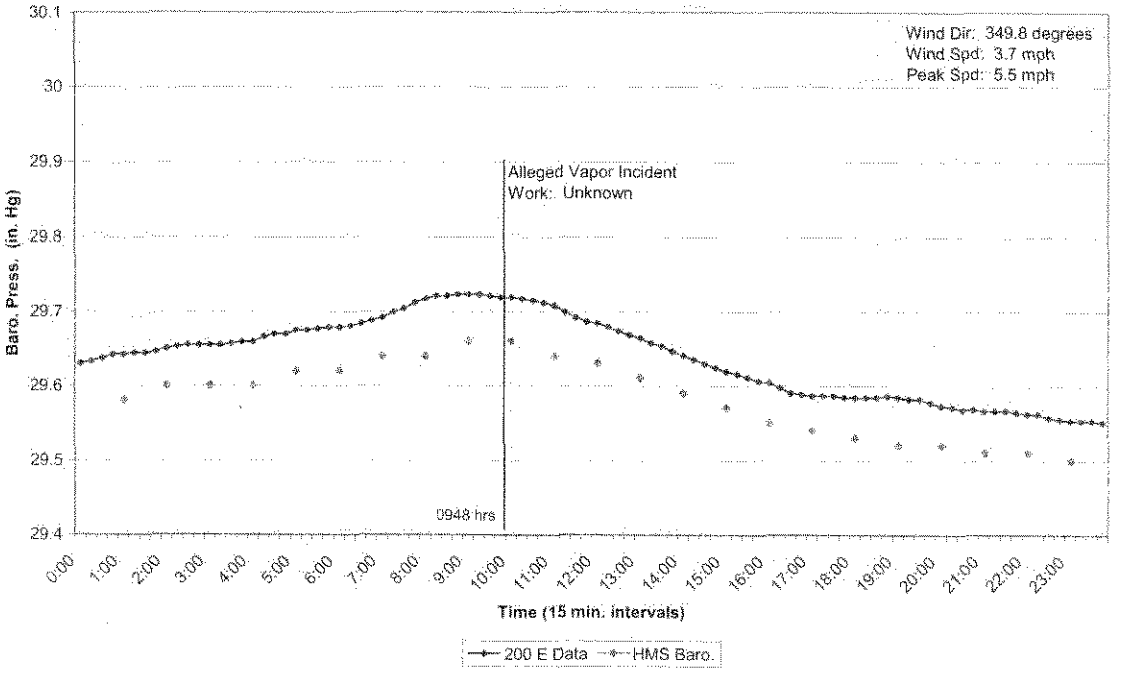
BY Farm (12/13/2003)
#2003-56



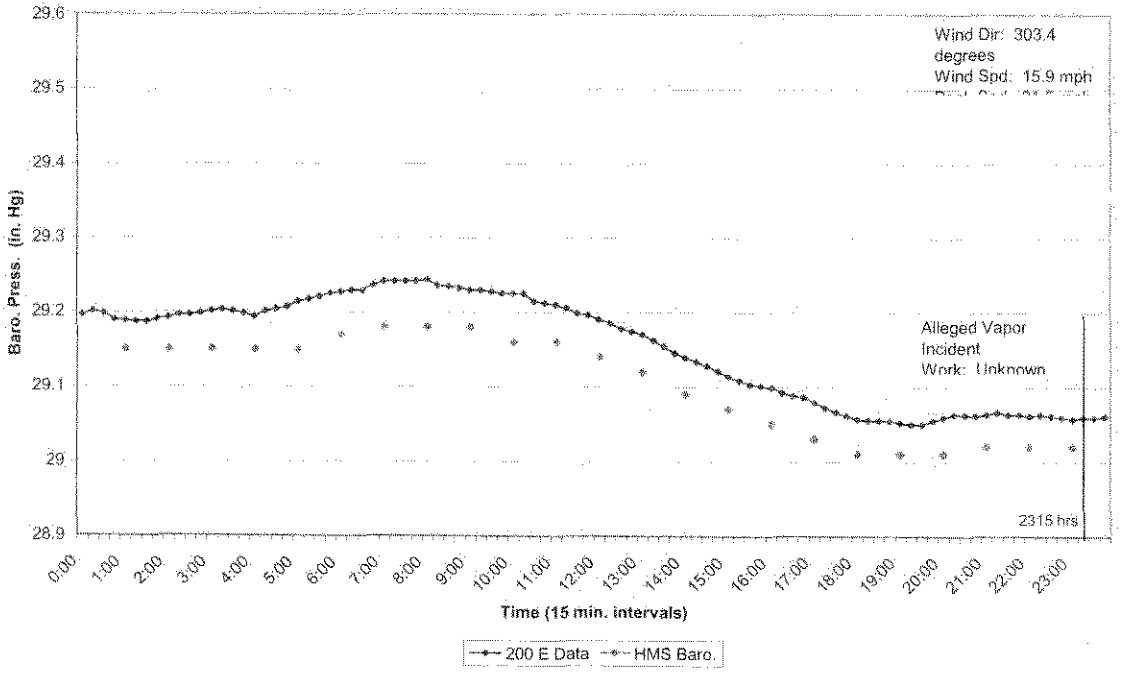
BY Farm (11/15/2003)
#2003-55



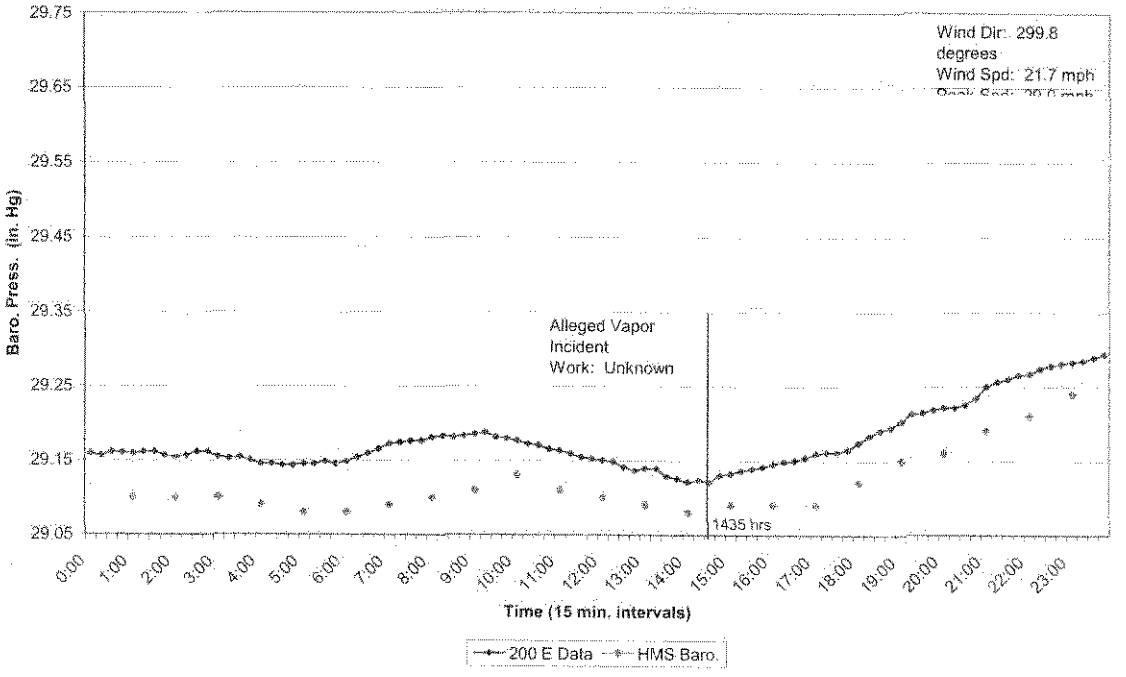
BY Farm (11/6/2003)
#2003-54



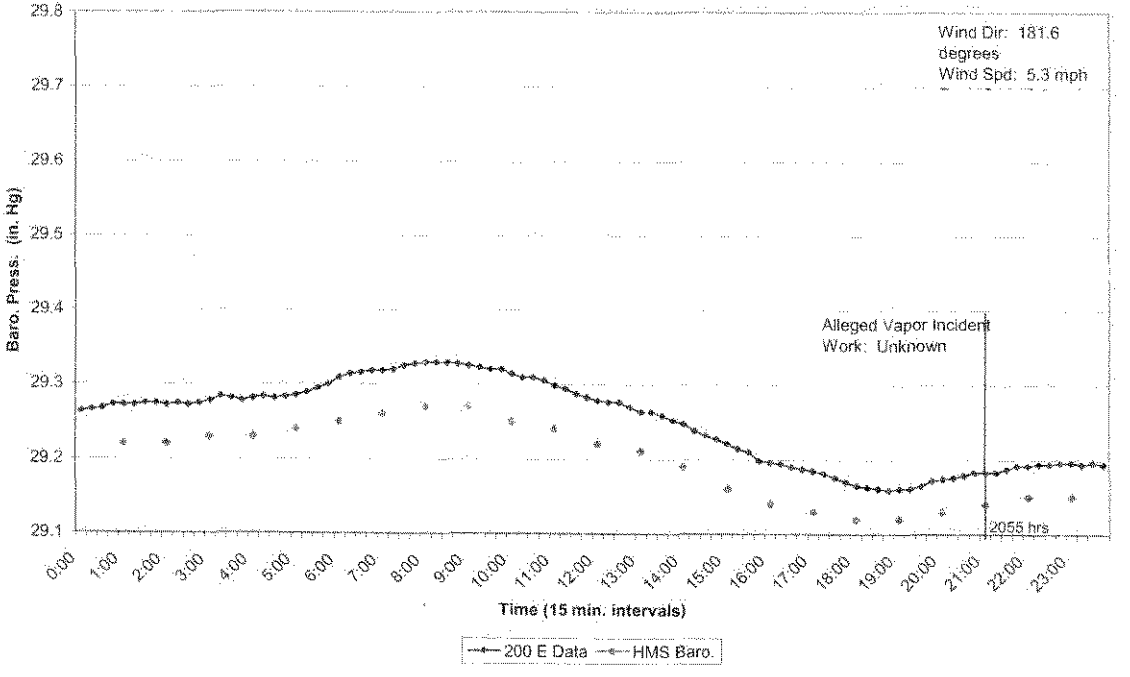
C Farm (8/18/2003)
#2003-27



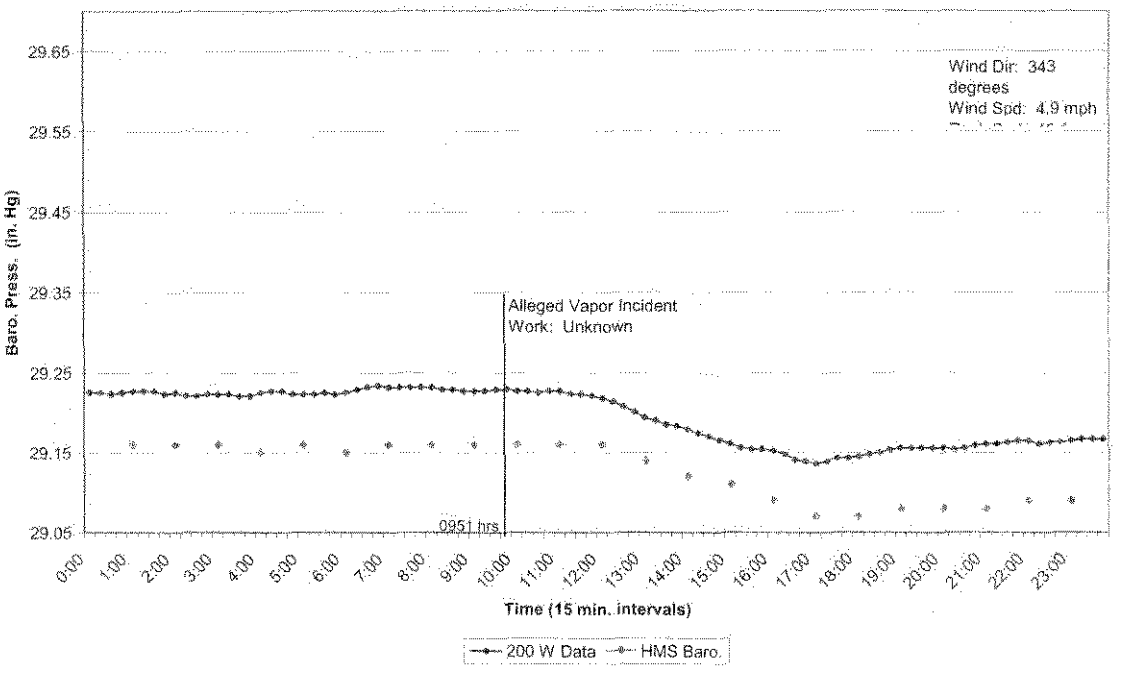
C Farm (9/19/2003)
#2003-38



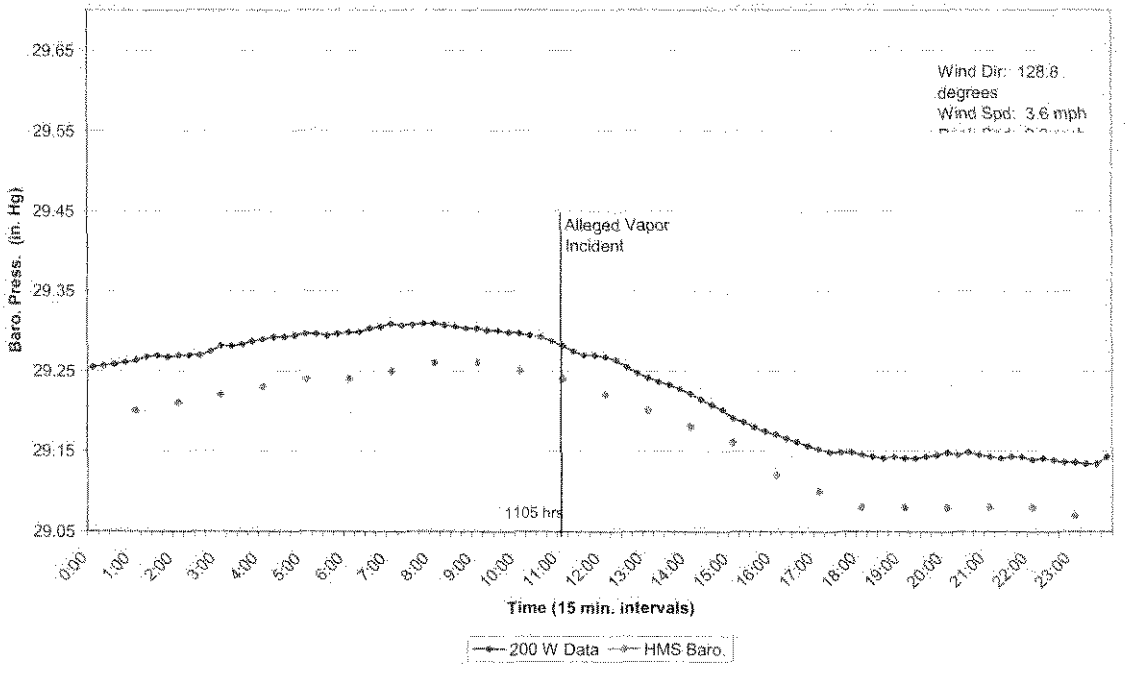
C Farm (8/17/2003)
#2003-26



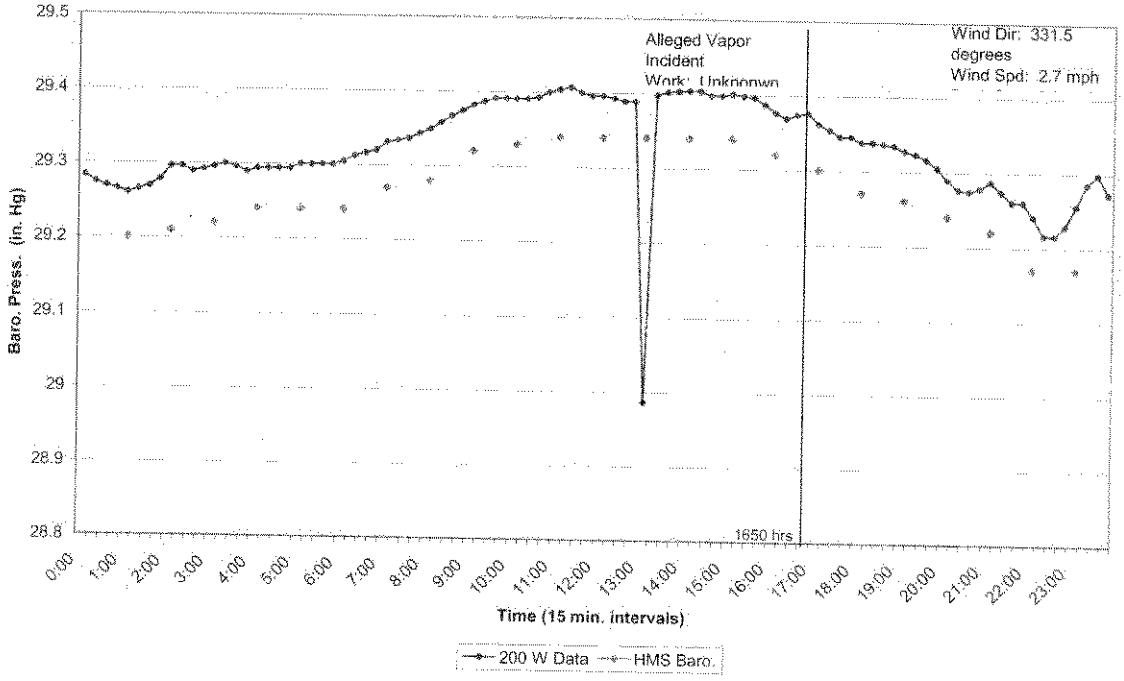
U Farm (10/2/2003)
#2003-46



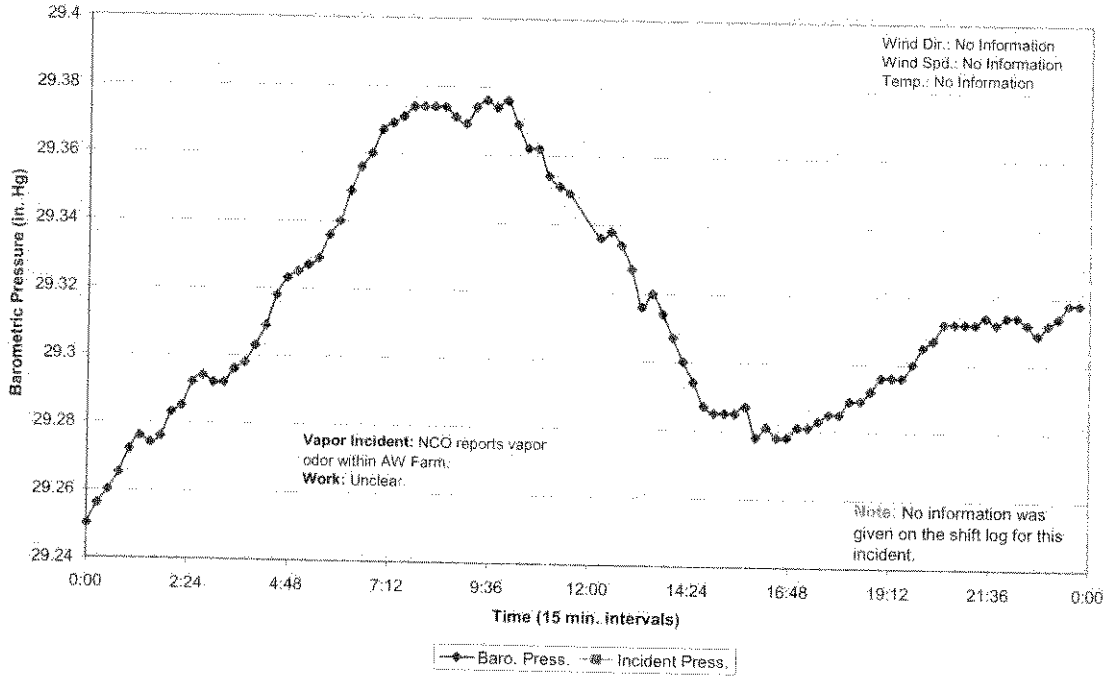
U Farm (4/16/2003)
#2003-12



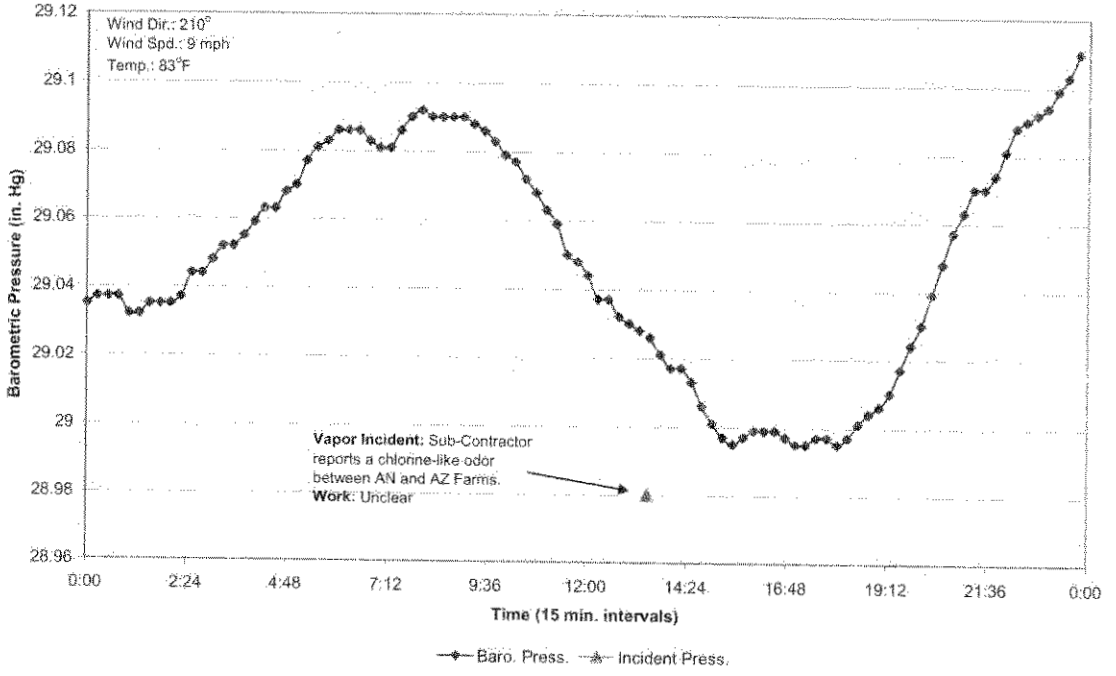
242-S (1/30/2003)
#2003-06



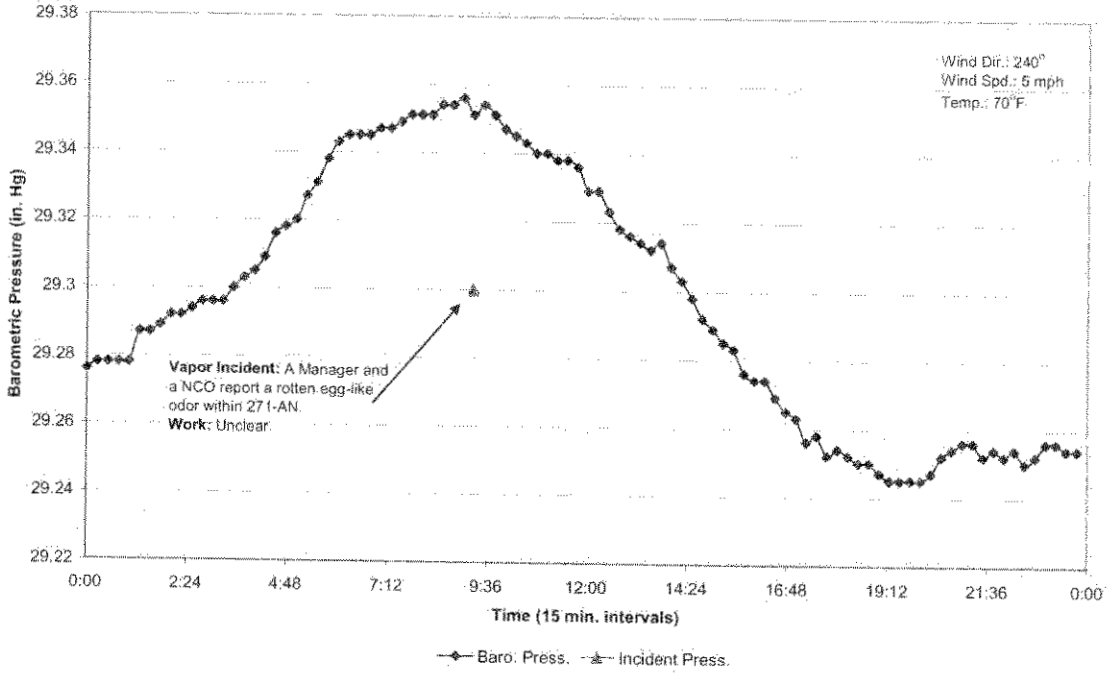
AW Farm Incident (4/7/2004)
 # 2004 - 23



AZ Farm Incident (7/9/2004)
 # 2004 - 29



271-AN Incident (7/11/2004)
 # 2004 - 30



APPENDIX C

WIND SPEED AND DIRECTION CORRELATION/ WIND SPEED AND TMPERATURE CORRELATION

C1.0 WIND SPEED AND DIRECTION CORRELATION TABLES

Tables generated for the four year period that show the wind speed and direction as well as barometric pressure and its trend during specific shift-log reported incidents, and what type of reported or non-reported work was being performed at the time.

C2.0 WIND SPEED AND TEMPERATURE CORRELATION GRAPHS

Graphs generated from randomly selected incidents throughout the four-year period to check the validity of the reported incident time given in the shift log or related PER.

C3.0 WIND SPEED AND DIRECTION TANK FARM MAPS

Generated Tank Farm maps that plot reported incidents over a four-year period (given those incidents had a defined scope of work or a general location within a specified Farm). Plotted incidents give the date the incident was reported, the shift log record number, reported wind direction and reported wind speed.

C1.0 WIND SPEED AND DIRECTION CORRELATION TABLES

Table C-1. 2004 Wind Speed and Direction Correlation (2 Sheets)

Record #	Date	Time	Wind Dir Degrees (N/E/W/S)	Wind Spd (mph)	Baro (in. Hg)	Temp (°F)	Trending Lo/Hi/Steady Press	Location	Work
2004-01	1/20/2004	10:35	220 (SW)	3	29.61	37	No Data	U Farm	Not Clear
2004-04	2/12/2004	08:03	250 (SW)	4	29.66	28	No Data	SX Farm	Working with waste bag
2004-05	2/19/2004	08:02	250 (SW)	4	29.39	34	No Data	S Farm	Not Clear
2004-06	2/19/2004	11:45	100 (SE)	3	29.43	46	No Data	U Farm	Not Clear
2004-07	3/1/2004	8:55	320 (NW)	9	29.20	40	No Data	AY Farm	Flush from AP Flush Pit to AP-108
2004-09	3/4/2004	12:54	310 (NW)	8	28.98	53	No Data	C Farm	Pit Work
2004-10	3/8/2004	13:35	290 (NW)	4	29.62	65	No Data	TY Farm	LOW Van in TX Farm
2004-11	3/8/2004	14:35	50 (NE)	5	29.60	69	Low	AP Farm	Preparing to remove covers from 241-AP
2004-12	3/9/2004	12:05	170 (SE)	4	29.34	56	High	AN Farm	Rounds in AN Farm
2004-13	3/11/2004	8:55	270 (W)	4	29.52	41	No Data	204AR	Unclear
2004-14	3/16/2004	10:03	90 (E)	3	29.40	54	Low	AY Farm	Performing Flush
2004-15	3/17/2004	10:15	180 (S)	4	29.24	58	No Data	AY Farm	CAM Filter paper exchange
2004-16	3/17/2004	11:00	330 (NW)	4	29.24	62	No Data	AY Farm	Unclear
2004-18	3/17/2004	15:00	170 (SE)	6	29.14	68	No Data	AW Farm	Unclear
2004-19	3/25/2004	9:55	30 (NE)	3	29.09	51	Low	AN Farm	Pit entry
2004-20	3/25/2004	13:55	300 (NW)	5	28.98	58	Low	AN Farm	Pit entry

Table C-1. 2004 Wind Speed and Direction Correlation (2 Sheets)

Record #	Date	Time	Wind Dir Degrees (N/E/W/S)	Wind Spd (mph)	Baro (in. Hg)	Temp (°F)	Trending Lo/Hi/Steady Press	Location	Work
2004-21	3/25/2004	21:20	70 (NE)	2	28.83	48	Low	AN Farm	AN Farm perimeter surveys
2004-22	3/30/2004	11:47	160 (SE)	5	29.04	64	No Data	204AR	Investigating odors

Table C-2. 2001 Wind Speed and Direction Correlation (2 Sheets)

Record #	Date	Time	Wind Dir Degrees (N/E/W/S)	Wind Spd (mph)	Baro (in. Hg)	Temp (°F)	Trending Lo/Hi/Steady Press	Location	Work
2001-01	1/10/2001	13:54	10 (NE)	5	29.13	32	Steady	AW Farm	UT work 101 AW
2001-02	1/11/2001	09:31	230 (SW)	7	29.01	37	High	244A	CAM Flow Calculations
2001-03	1/12/2001	15:07	250 (SW)	4	29.18	42	High	244A	Not Clear
2001-04	1/13/2001	16:00	80 (NE)	4	29.27	37	High	244A	Taking readings at 244-A
2001-05	2/6/2001	14:05	10 (NE)	18	29.27	38	Low	244A	Performing Perimeter surveys of 244-A
2001-06	2/22/2001	08:35	280 (NW)	4	29.20	37	---	Unknown	Blank
2001-07	3/17/2001	18:17	100 (SE)	7	29.20	53	Steady	244A	Monitoring 244-A Stack
2001-08	3/17/2001	20:28	120 (SE)	2	29.23	49	Steady	244A	244-A Exhauster Start-up
2001-09	3/26/2001	20:50	290 (NW)	11	29.42	44	High	244A	Fire Watch
2001-10	4/9/2001	16:30	180 (S)	6	29.15	61	Low	AZ Farm	Not Clear
2001-13	6/20/2001	09:24	150 (SE)	4	29.37	79	Low	BY Farm	LOW Van Exit of BY-Farm
2001-14	6/27/2001	11:07	100 (SE)	3	29.09	67	High	C Farm	CAM Checks
2001-15	7/25/2001	15:15	270 (W)	4	29.10	90	Low	AZ Farm	Not Clear
2001-16	7/26/2001	11:30	170 (SE)	6	29.12	85	Low	SY Farm	Not Clear

Table C-2. 2001 Wind Speed and Direction Correlation (2 Sheets)

Record #	Date	Time	Wind Dir Degrees (N/E/W/S)	Wind Spd (mph)	Baro (in. Hg)	Temp (°F)	Trending Lo/Hi/Steady Press	Location	Work
2001-17	8/28/2001	05:08	310 (NW)	8	29.14	70	Low	AZ Farm	Pit Work
2001-18	8/28/2001	09:56	330 (NW)	4	29.15	80	Low	SY Farm	Blank
2001-19	8/28/2001	13:30	350 (NW)	4	29.10	90	Low	SY Farm	Not Clear
2001-20	8/29/2001	14:39	10 (NE)	5	29.00	92	Low	AY Farm	Not Clear
2001-21	9/6/2001	10:02	180 (S)	5	29.31	68	Low	SY Farm	Drill Activities
2001-22	9/9/2001	08:00	310 (NW)	7	29.13	68	Low	SY Farm	Saltwell Pumping
2001-23	10/5/2001	10:22	340 (NW)	7	29.31	60	Low	AY Farm	Maint. 804-AY
2001-24	10/5/2001	10:27	340 (NW)	7	29.31	60	Low	AY Farm	Monitoring for vapor
2001-25	11/1/2001	11:48	190 (SW)	8	29.23	57	High	A Farm	Sampling
2001-26	11/21/2001	15:00	110 (SE)	8	28.94	53	Low	AZ Farm	W-314 Work in 241 AZ
2001-27	11/27/2001	13:37	80 (NE)	4	29.48	30	Low	AN Farm	244 BX transfer to 102-AP
2001-28	11/28/2001	13:55	310 (NW)	8	28.59	32	Low	AN Farm	Pulling up tent floor at 04A Pit in 241-AN
2001-30	12/10/2001	13:56	350 (NW)	4	29.07	33	Low	C Farm	Opening containment tent
2001-31	12/11/2001	11:02	360 (N)	4	29.10	34	---	Other	Not Clear
2001-32	12/20/2001	21:04	240 (SW)	5	29.16	35	Steady	AN Farm	Pit Work
2001-33	12/27/2001	10:35	320 (NW)	11	29.43	30	Low	SX Farm	Saltwell Pumping
2001-34	12/27/2001	15:00	300 (NW)	3	29.29	31	---	Unknown	Spread of Sika Flex
2001-35	12/31/2001	13:00	300 (NW)	7	29.41	40	High	AN Farm	Blank
2001-36	12/11/2001	13:11	310 (NW)	7	29.10	35	---	Unknown	Spread of Sika Flex

C-3. 2002 Wind Speed and Direction Correlation (2 Sheets)

Record #	Date	Time	Wind Dir Degrees (N/E/W/S)	Wind Spd (mph)	Baro (in. Hg)	Temp (°F)	Trending Lo/Hi/Steady Press	Location	Work
2002-01	1/9/2002	14:21	150 (SE)	6	29.48	50	High	244A	Working in FFS Conex
2002-03	1/16/2002	12:14	360 (N)	6	29.34	33	Low	U Farm	Blank
2002-05	1/26/2002	21:10	260 (SW)	7	28.96	36	High	SX Farm	Blank
2002-06	1/28/2002	12:00	300 (NW)	12	29.31	37	High	AN Farm	Supporting excavation outside AN-Farm
2002-07	1/29/2002	11:22	80 (NE)	2	29.37	31	Steady	SX Farm	Walkdown of SX-Farm
2002-08	2/28/2002	15:35	10 (NE)	10	29.50	47	High	A Farm	Saltwell pumping
2002-09	4/1/2002	12:48	30 (NE)	11	29.35	59	Low	AN Farm	Blank
2002-10	4/3/2002	14:56	40 (NE)	6	29.33	62	Low	U Farm	Line Flushing
2002-12	5/14/2002	13:44	260 (SW)	10	29.30	66	Low	C Farm	Blank
2002-13	6/11/2002	09:50	30 (NE)	6	29.26	68	No Data	S Farm	Not Clear
2002-14	6/25/2002	09:59	10 (NE)	4	29.27	81	High	C Farm	Video surveillance
2002-15	6/29/2002	16:00	310 (NW)	15	29.11	78	High	AZ Farm	Not Clear
2002-16	7/9/2002	14:40	260 (SW)	5	29.43	86	Low	BY Farm	Collecting MT readings
2002-17	8/9/2002	11:32	140 (SE)	6	29.37	85	Low	AP Farm	Not Clear
2002-18	8/10/2002	13:10	170 (SE)	8	29.10	89	Low	AN Farm	Tour
2002-19	8/23/2002	17:15	310 (NW)	5	29.16	88	Low	AP Farm	Not Clear
2002-20	8/27/2002	08:54	230 (SW)	4	29.34	72	Low	AP Farm	Not Clear
2002-21	9/9/2002	07:32	330 (NW)	4	29.40	60	High	BY Farm	Not Clear
2002-22	9/9/2002	14:02	250 (SW)	4	29.37	82	Low	AN Farm	Not Clear
2002-23	9/10/2002	10:27	360 (N)	9	29.25	76	---	Other	Not Clear
2002-24	9/11/2002	05:48	140 (SE)	2	29.15	58	High	BY Farm	Not Clear
2002-25	9/11/2002	07:44	310 (NW)	4	29.17	63	High	C Farm	Not Clear
2002-26	10/1/2002	13:55	360 (N)	7	29.42	64	No Data	A Farm	Not Clear

C-3. 2002 Wind Speed and Direction Correlation (2 Sheets)

Record #	Date	Time	Wind Dir Degrees (N/E/W/S)	Wind Spd (mph)	Baro (in. Hg)	Temp (°F)	Trending Lo/Hi/Steady Press	Location	Work
2002-27	10/31/2002	15:46	100 (SE)	3	29.67	40	Steady	C Farm	Not Clear
2002-28	11/13/2002	12:45	240 (SW)	10	29.40	58	Steady	SY Farm	Not Clear
2002-29	12/18/2002	10:41	70 (NE)	4	29.17	32	High	AP Farm	Guzzler work

Table C-4. 2003 Wind Speed and Direction Correlation (3 Sheets)

Record #	Date	Time	Wind Dir Degrees (N/E/W/S)	Wind Spd (mph)	Baro (in. Hg)	Temp (°F)	Trending Lo/Hi/Steady Press	Location	Work
2003-01	1/9/2003	08:24	300 (NW)	7	29.51	31	Low	AN Farm	Blank
2003-02	1/10/2003	23:20	270 (W)	6	29.38	32	Steady	AW Farm	Opening 241-AW VTP Stack CAM Cabinet
2003-03	1/22/2003	09:43	10 (NE)	4	29.37	31	Low	AW Farm	Supporting work at 241-AW exhauster
2003-04	1/24/2003	14:30	310 (NW)	4	29.33	45	---	Other	Not Clear
2003-05	1/29/2003	07:50	320 (NW)	4	29.41	36	Low	AW Farm	Supported AW VTP A Train Mov work
2003-06	1/30/2003	16:50	340 (NW)	5	29.32	40	Low	242S	Blank
2003-07	2/3/2003	20:55	310 (NW)	15	29.43	43	No Data	AW Farm	Performing rounds in AW Farm
2003-08	2/6/2003	15:53	160 (SE)	3	29.65	47	No Data	AN Farm	Performing SR 2.1.4.2 work
2003-09	2/7/2003	20:55	310 (NW)	9	29.50	33	Low	AN Farm	Not Clear
2003-10	2/11/2003	09:30	270 (W)	4	29.38	35	Low	AN Farm	Not Clear
2003-12	4/16/2003	11:05	170 (SE)	8	29.24	57	Low	U Farm	Not Clear

Table C-4. 2003 Wind Speed and Direction Correlation (3 Sheets)

Record #	Date	Time	Wind Dir Degrees (N/E/W/S)	Wind Spd (mph)	Baro (in. Hg)	Temp (°F)	Trending Lo/Hi/Steady Press	Location	Work
2003-13	4/18/2003	13:35	220 (SW)	8	29.29	57	High	AP Farm	Not Clear
2003-14	4/22/2003	10:41	100 (SE)	3	28.99	56	Steady	AN Farm	Not Clear
2003-15	4/28/2003	14:20	10 (NE)	16	28.96	71	Low	AN Farm	Not Clear
2003-16	4/28/2003	15:25	50 (NE)	12	28.93	70	Low	AN Farm	Blank
2003-17	4/28/2003	15:40	50 (NE)	12	28.93	70	Low	AN Farm	Not Clear
2003-18	5/1/2003	11:09	90 (E)	6	29.23	67	Low	AN Farm	Not Clear
2003-19	6/10/2003	13:30	320 (NW)	19	28.91	83	High	AN Farm	Not Clear
2003-20	6/25/2003	10:15	10 (NE)	5	29.39	79	Low	AW Farm	Not Clear
2003-21	7/1/2003	10:20	290 (NW)	5	29.15	71	No Data	AW Farm	Not Clear
2003-22	7/16/2003	08:22	260 (NW)	7	29.15	76	High	AN Farm	Not Clear
2003-23	7/16/2003	09:03	270 (W)	8	29.15	77	High	AN Farm	Not Clear
2003-24	7/29/2003	09:15	40 (NE)	5	29.21	90	Low	AW Farm	Not Clear
2003-26	8/17/2003	20:55	140 (SE)	4	29.13	76	Low	C Farm	Not Clear
2003-27	8/18/2003	23:15	300 (NW)	16	29.02	80	Low	C Farm	Not Clear
2003-28	8/21/2003	08:20	300 (NW)	6	29.13	70	No Data	C Farm	Not Clear
2003-29	8/28/2003	08:20	350 (NW)	8	29.25	73	Steady	AP Farm	Not Clear
2003-30	9/2/2003	15:50	350 (NW)	7	29.19	94	No Data	AW Farm	Not Clear
2003-31	9/4/2003	12:30	100 (SE)	5	29.08	97	---	Other	Not Clear
2003-32	9/5/2003	04:25	300 (NW)	11	29.09	75	High	AN Farm	Not Clear
2003-33	9/10/2003	19:15	230 (SW)	14	29.25	70	No Data	AN Farm	Performing sweeps in support of C-106 to AN-106 transfer.

Table C-4. 2003 Wind Speed and Direction Correlation (3 Sheets)

Record #	Date	Time	Wind Dir Degrees (N/E/W/S)	Wind Spd (mph)	Baro (in. Hg)	Temp (°F)	Trending Lo/Hi/Steady Press	Location	Work
2003-34	9/10/2003	23:05	250 (SW)	7	29.27	63	High	C Farm	Performing walkdown (surveys) of the HIHTL outside of C-Farm between C-Farm and AN Farm
2003-35	9/16/2003	11:30	250 (SW)	16	29.01	66	---	Unknown	Not Clear
2003-37	9/19/2003	08:33	70 (NE)	4	29.10	65	High	204AR	Not Clear
2003-38	9/19/2003	14:35	270 (W)	14	29.08	81	High	C Farm	Not Clear
2003-39	9/20/2003	10:18	180 (S)	5	29.37	67	Low	AN Farm	Not Clear
2003-40	9/22/2003	09:40	130 (SE)	5	29.24	63	Low	204AR	Not Clear
2003-41	9/22/2003	14:17	80 (NE)	5	29.12	85	Low	B Farm	Not Clear
2003-42	9/23/2003	12:11	280 (NW)	5	29.14	82	Steady	204AR	Not Clear
2003-44	10/1/2003	10:20	330 (NW)	7	29.27	72	Low	AN Farm	Not Clear
2003-46	10/2/2003	09:51	320 (NW)	7	29.16	69	Steady	U Farm	Not Clear
2003-47	10/2/2003	13:04	40 (NE)	7	29.14	80	Low	AW Farm	Not Clear
2003-48	10/3/2003	10:50	360 (N)	5	29.14	71	Low	204AR	Not Clear
2003-49	10/7/2003	11:12	310 (NW)	9	29.07	67	High	AY Farm	Not Clear
2003-50	10/16/2003	09:06	160 (SE)	8	29.16	55	Steady	AZ Farm	Not Clear
2003-51	10/16/2003	07:05	80 (NE)	8	29.16	50	---	Other	Not Clear
2003-53	10/22/2003	15:35	250 (SW)	17	29.09	80	Steady	BX Farm	Not Clear
2003-54	11/6/2003	09:48	310 (NW)	10	29.66	29	Low	BY Farm	Not Clear
2003-55	11/15/2003	09:00	170 (SE)	4	29.09	41	Low	BY Farm	Not Clear
2003-56	12/13/2003	07:25	250 (SW)	7	28.95	32	Low	BY Farm	Not Clear

Table C-5. 2004 Wind Speed and Direction Correlation (2 Sheets)

Record #	Date	Time	Wind Dir Degrees (N/E/W/S)	Wind Spd (mph)	Baro (in. Hg)	Temp (°F)	Trending Lo/Hi/Steady Press	Location	Work
2004-01	1/20/2004	10:35	220 (SW)	3	29.61	37	No Data	U Farm	Not Clear
2004-04	2/12/2004	08:03	250 (SW)	4	29.66	28	No Data	SX Farm	Working with waste bag
2004-05	2/19/2004	08:02	250 (SW)	4	29.39	34	No Data	S Farm	Not Clear
2004-06	2/19/2004	11:45	100 (SE)	3	29.43	46	No Data	U Farm	Not Clear
2004-07	3/1/2004	8:55	320 (NW)	9	29.20	40	No Data	AY Farm	Flush from AP Flush Pit to AP-108
2004-09	3/4/2004	12:54	310 (NW)	8	28.98	53	No Data	C Farm	Pit Work
2004-10	3/8/2004	13:35	290 (NW)	4	29.62	65	No Data	TY Farm	LOW Van in TX Farm
2004-11	3/8/2004	14:35	50 (NE)	5	29.60	69	Low	AP Farm	Preparing to remove covers from 241-AP
2004-12	3/9/2004	12:05	170 (SE)	4	29.34	56	High	AN Farm	Rounds in AN Farm
2004-13	3/11/2004	8:55	270 (W)	4	29.52	41	No Data	204AR	Unclear
2004-14	3/16/2004	10:03	90 (E)	3	29.40	54	Low	AY Farm	Performing Flush
2004-15	3/17/2004	10:15	180 (S)	4	29.24	58	No Data	AY Farm	CAM Filter paper exchange
2004-16	3/17/2004	11:00	330 (NW)	4	29.24	62	No Data	AY Farm	Unclear
2004-18	3/17/2004	15:00	170 (SE)	6	29.14	68	No Data	AW Farm	Unclear
2004-19	3/25/2004	9:55	30 (NE)	3	29.09	51	Low	AN Farm	Pit entry
2004-20	3/25/2004	13:55	300 (NW)	5	28.98	58	Low	AN Farm	Pit entry

Table C-5. 2004 Wind Speed and Direction Correlation (2 Sheets)

Record #	Date	Time	Wind Dir Degrees (N/E/W/S)	Wind Spd (mph)	Baro (in. Hg)	Temp (°F)	Trending Lo/Hi/Steady Press	Location	Work
2004-21	3/25/2004	21:20	70 (NE)	2	28.83	48	Low	AN Farm	AN Farm perimeter surveys
2004-22	3/30/2004	11:47	160 (SE)	5	29.04	64	No Data	204AR	Investigating odors

C2.0 WIND SPEED AND TEMPERATURE CORRELATION GRAPHS

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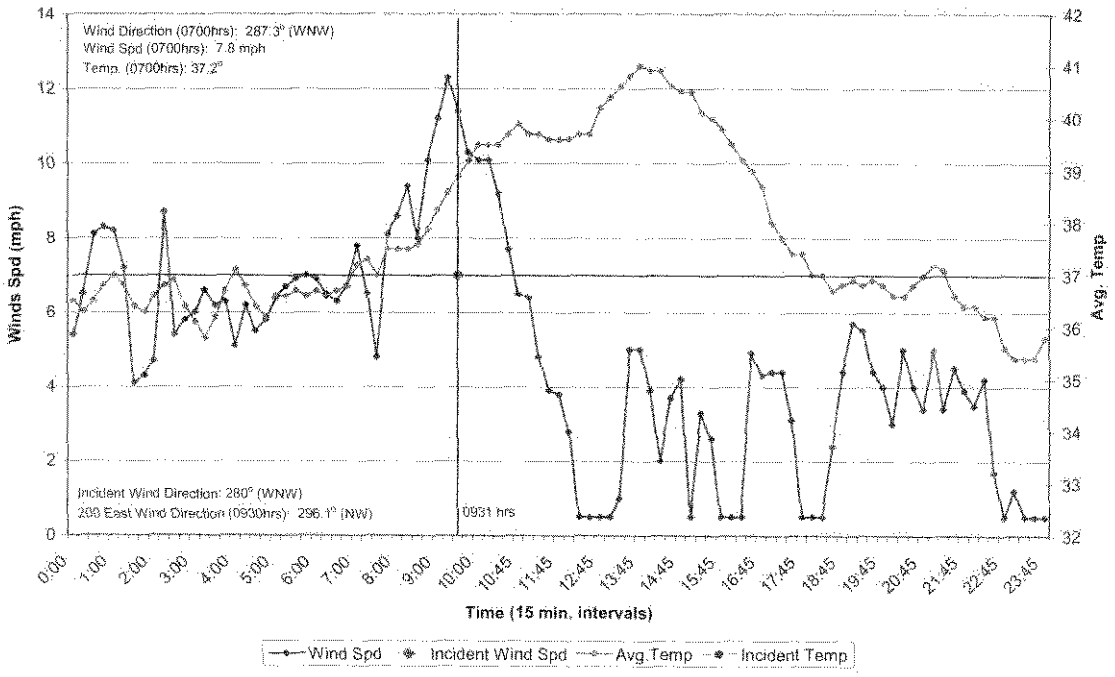
244-A Lift Station



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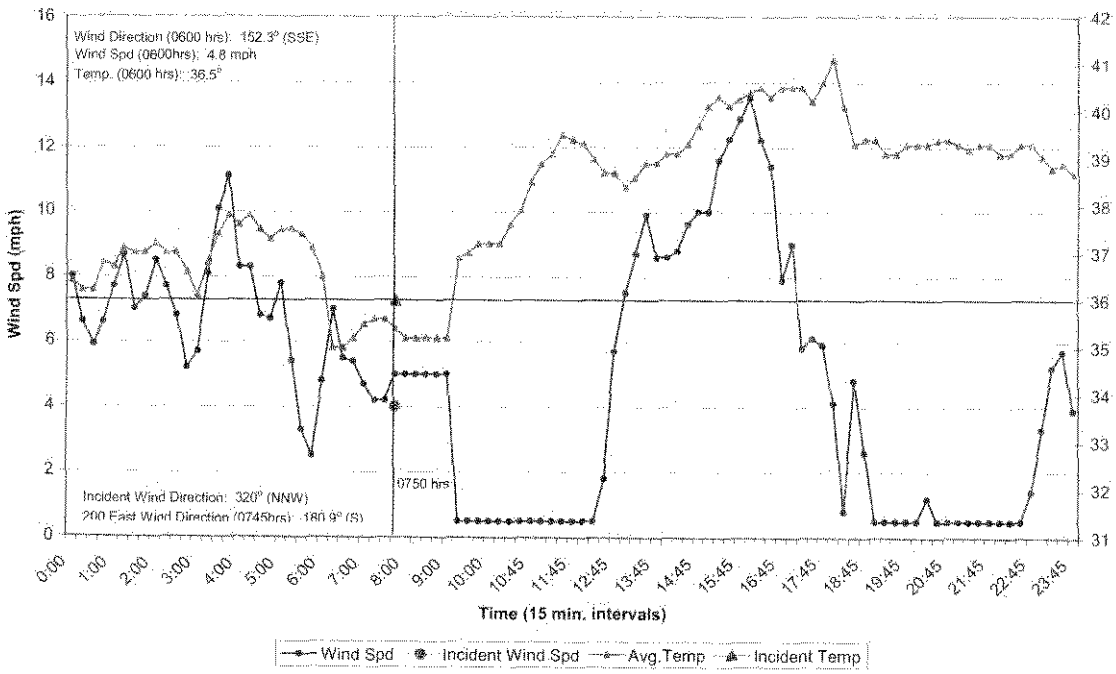
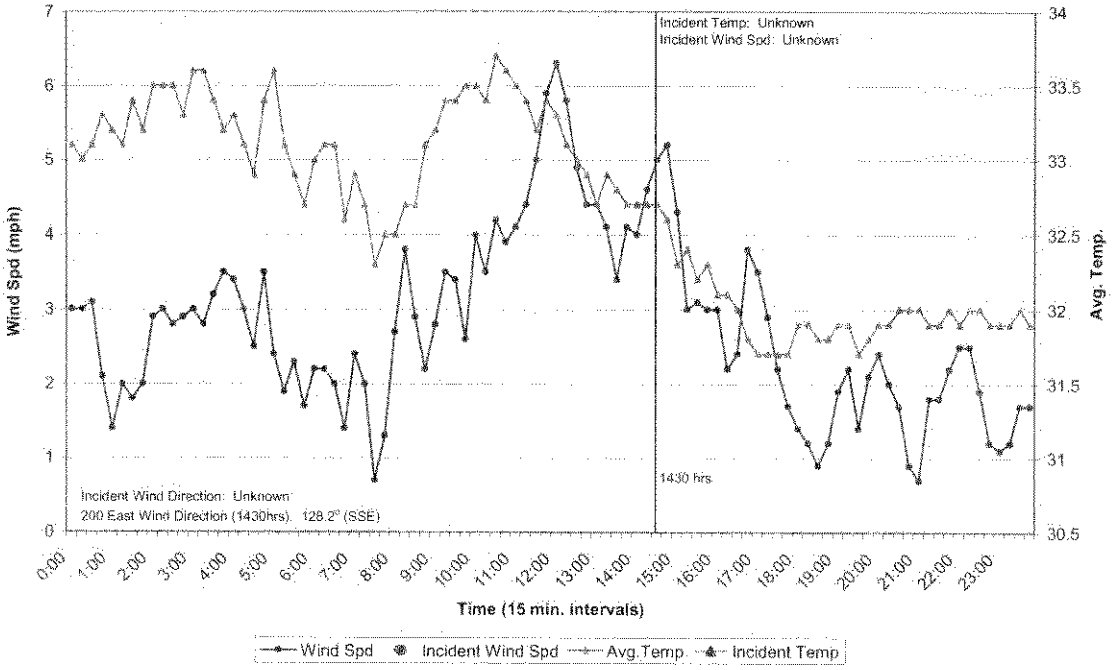
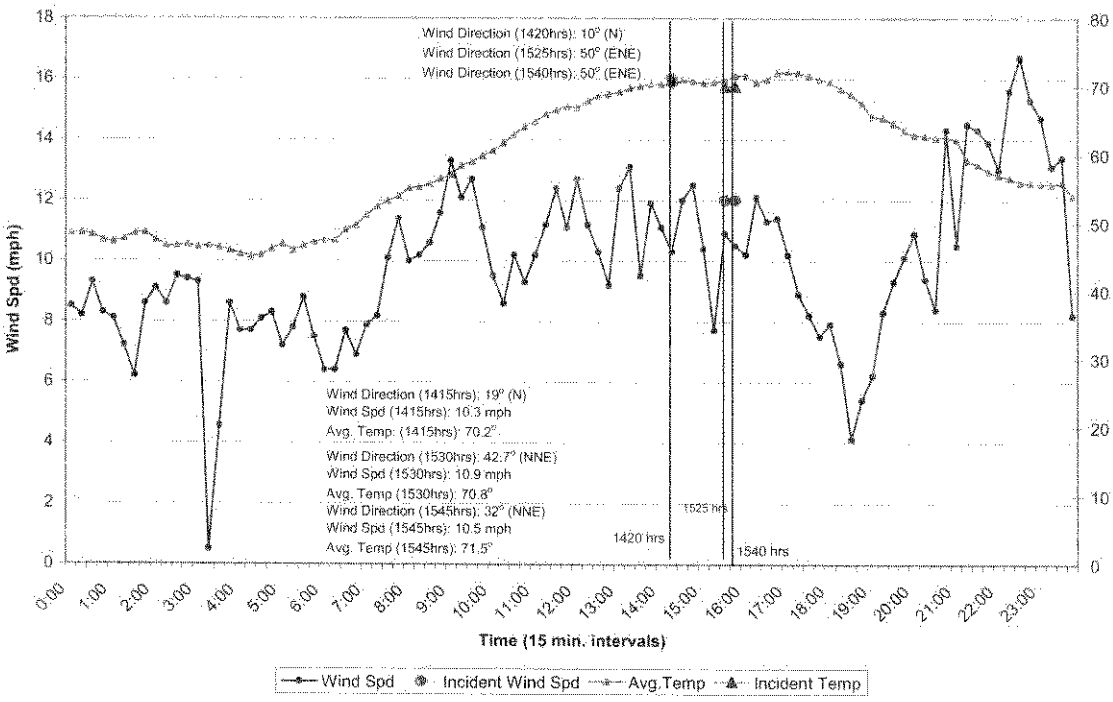
AW FARM (SUPPORT WORK)

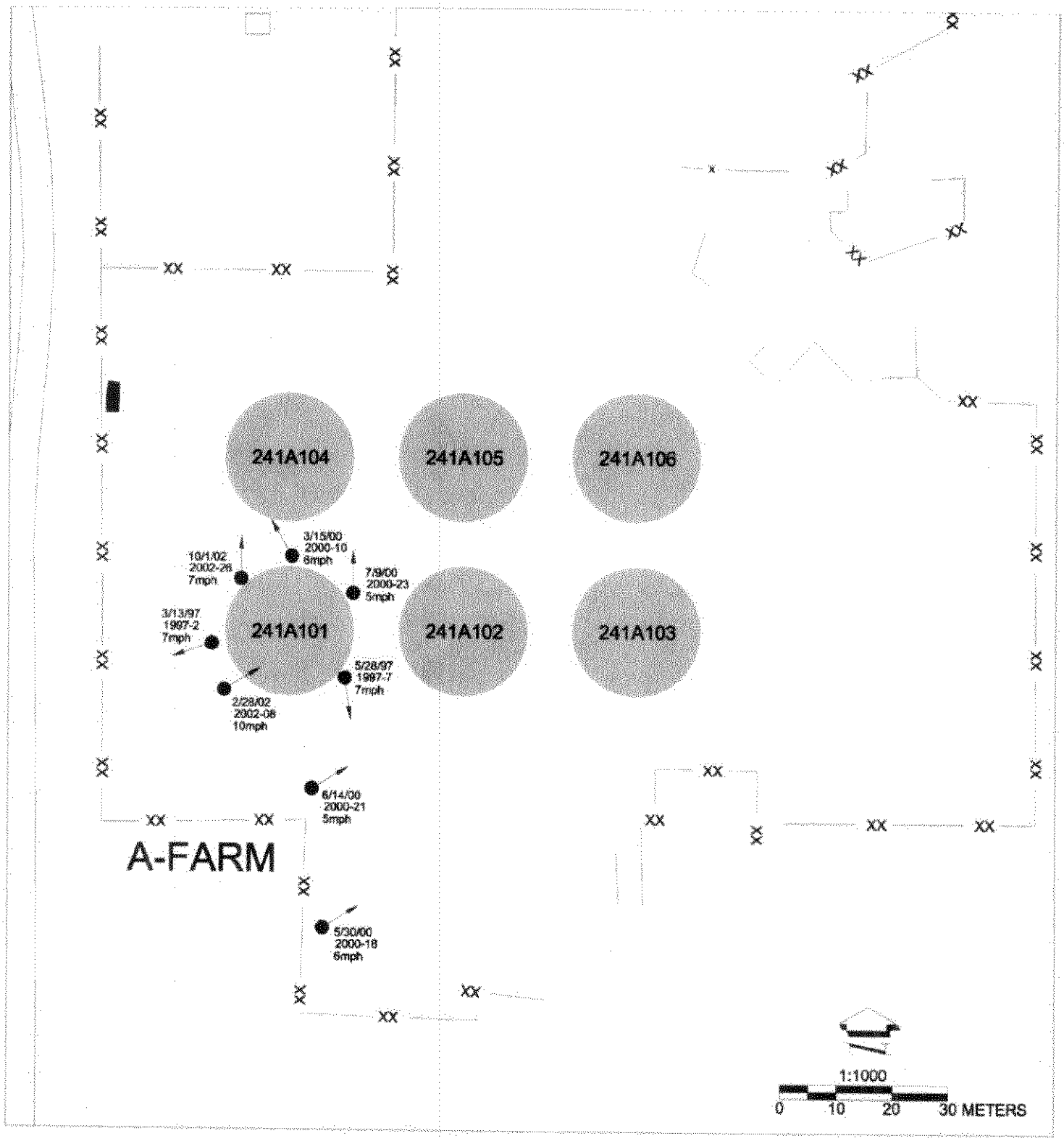


PER-2004-0333
C Farm (Checking Gauge)



#2003-15, 16, 17 (4/28/2003)

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241A105
241A106
241A101
241A102
241A103
3/15/00
2000-10
6mph
10/1/02
2002-26
7mph
7/9/00
2000-23
5mph
3/13/97
1997-2
7mph
5/28/97
1997-7
7mph
2/28/02
2002-08
10mph
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2000-21
5mph
5/30/00
2000-18
6mph
A-FARM
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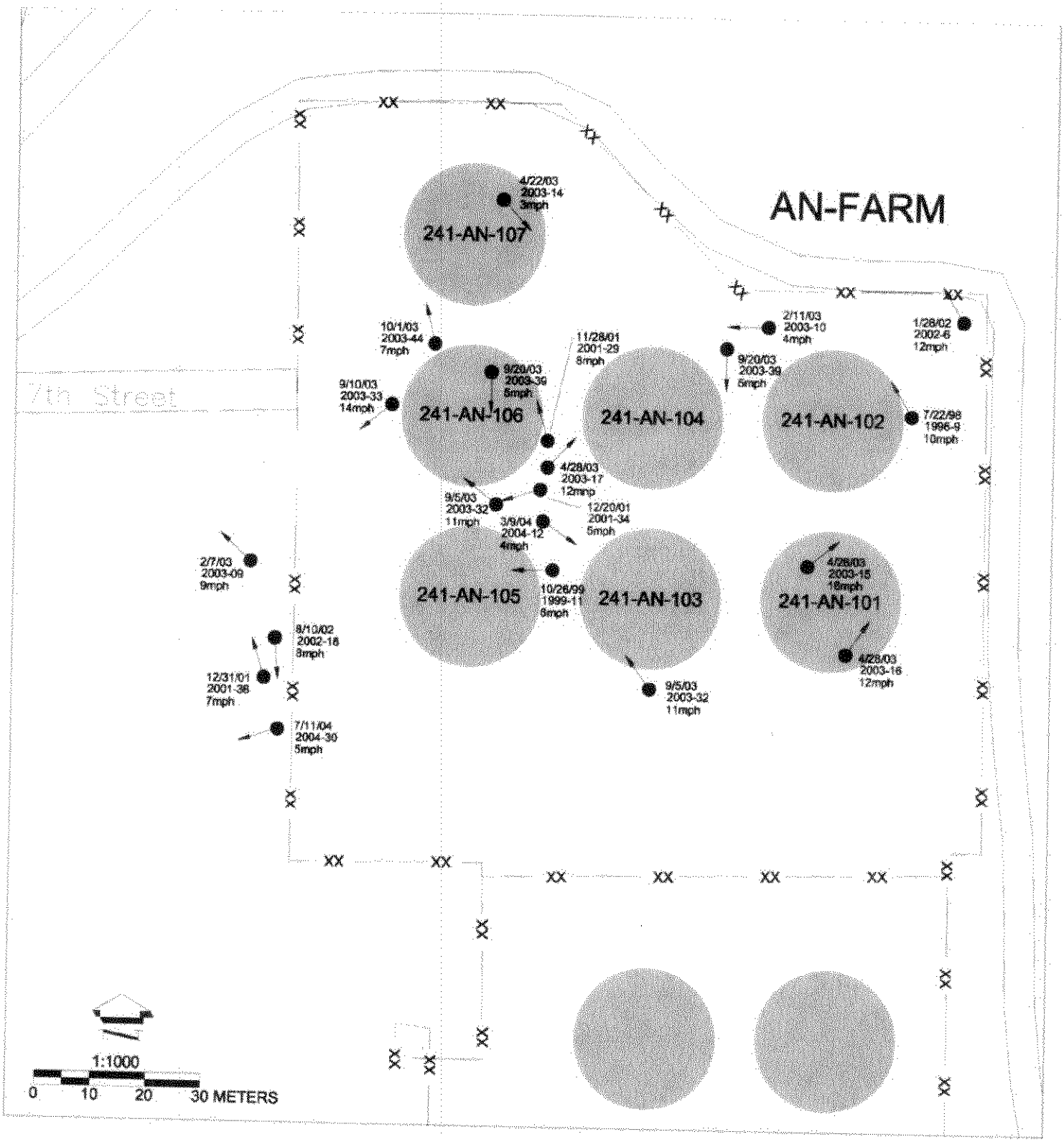
0
10
20
30 METERS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241-AN-103
241-AN-101
7th Street
4/22/03
2003-14
3mph
10/1/03
2003-44
7mph
9/10/03
2003-33
14mph
9/29/03
2003-39
5mph
11/28/01
2001-29
8mph
2/11/03
2003-10
4mph
1/28/02
2002-6
12mph
9/20/03
2003-39
5mph
7/22/98
1996-9
10mph
4/28/03
2003-17
12mph
9/5/03
2003-32
11mph
12/20/01
2001-34
5mph
3/9/04
2004-12
4mph
2/7/03
2003-09
9mph
10/26/99
1999-11
8mph
4/28/03
2003-15
18mph
8/10/02
2002-18
8mph
12/31/01
2001-38
7mph
4/28/03
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20
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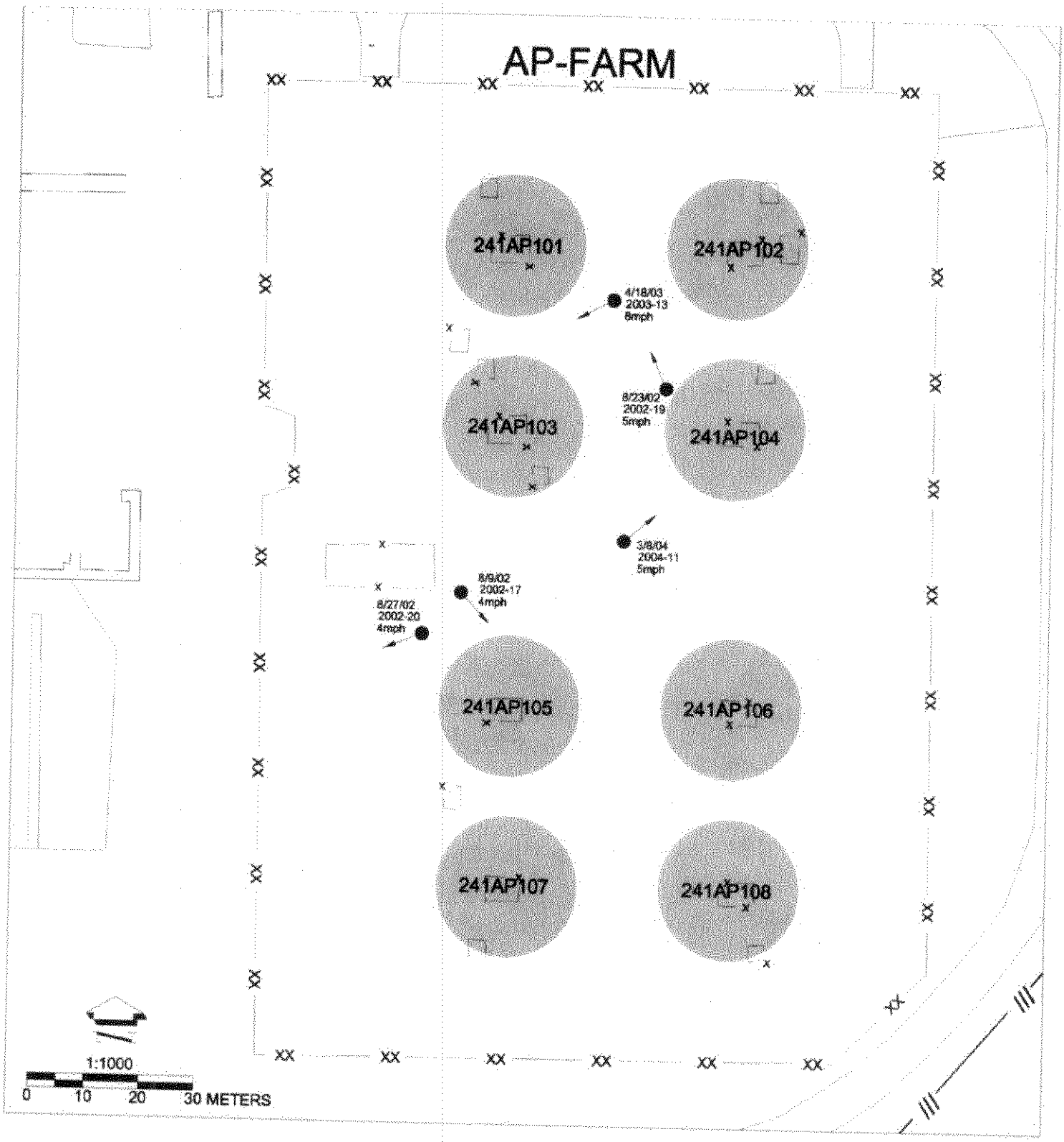
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241AP105
241AP106
241AP107
241AP108
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2003-13
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8/23/02
2002-19
5mph
3/8/04
2004-11
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8/9/02
2002-17
4mph
8/27/02
2002-20
4mph
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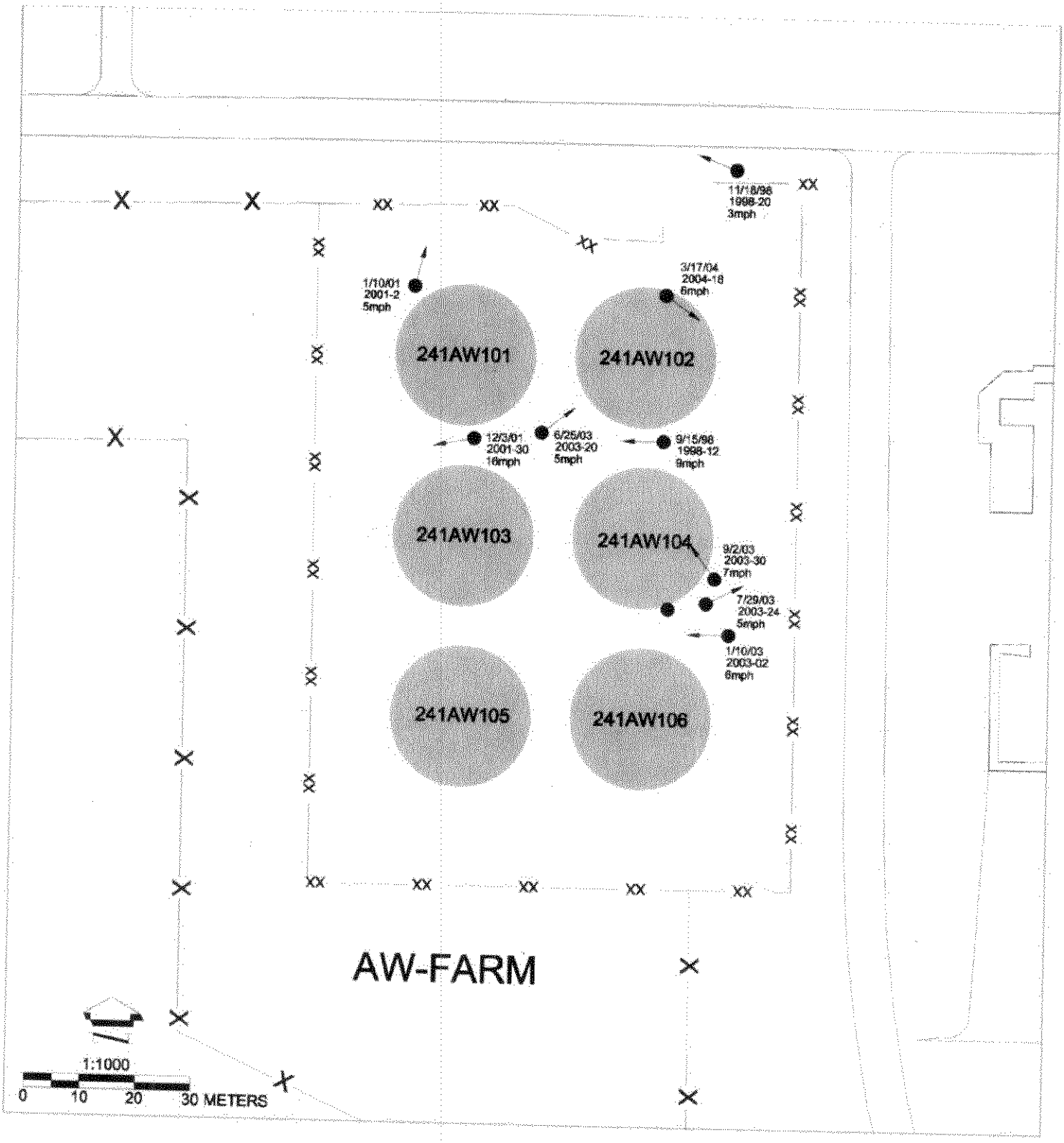
0
10
20
30 METERS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1/10/01
2001-2
5mph
3/17/04
2004-18
6mph
241AW101
241AW102
12/3/01
2001-30
16mph
6/25/03
2003-20
5mph
9/15/98
1998-12
9mph
241AW103
241AW104
9/2/03
2003-30
7mph
7/29/03
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1/10/03
2003-02
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241AW106
AW-FARM
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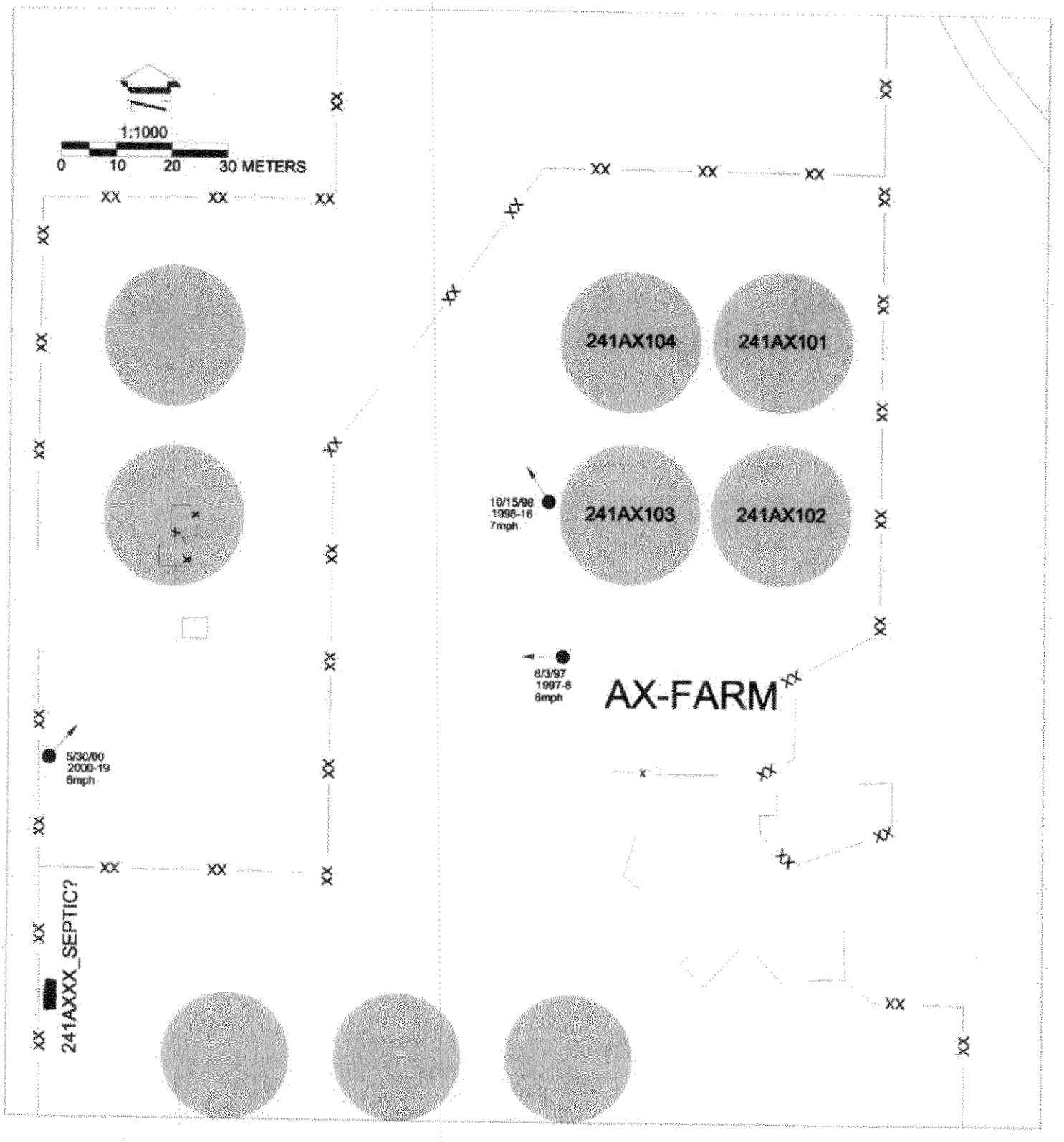
10
20
30 METERS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241AX103
241AX102
10/15/98
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8/3/97
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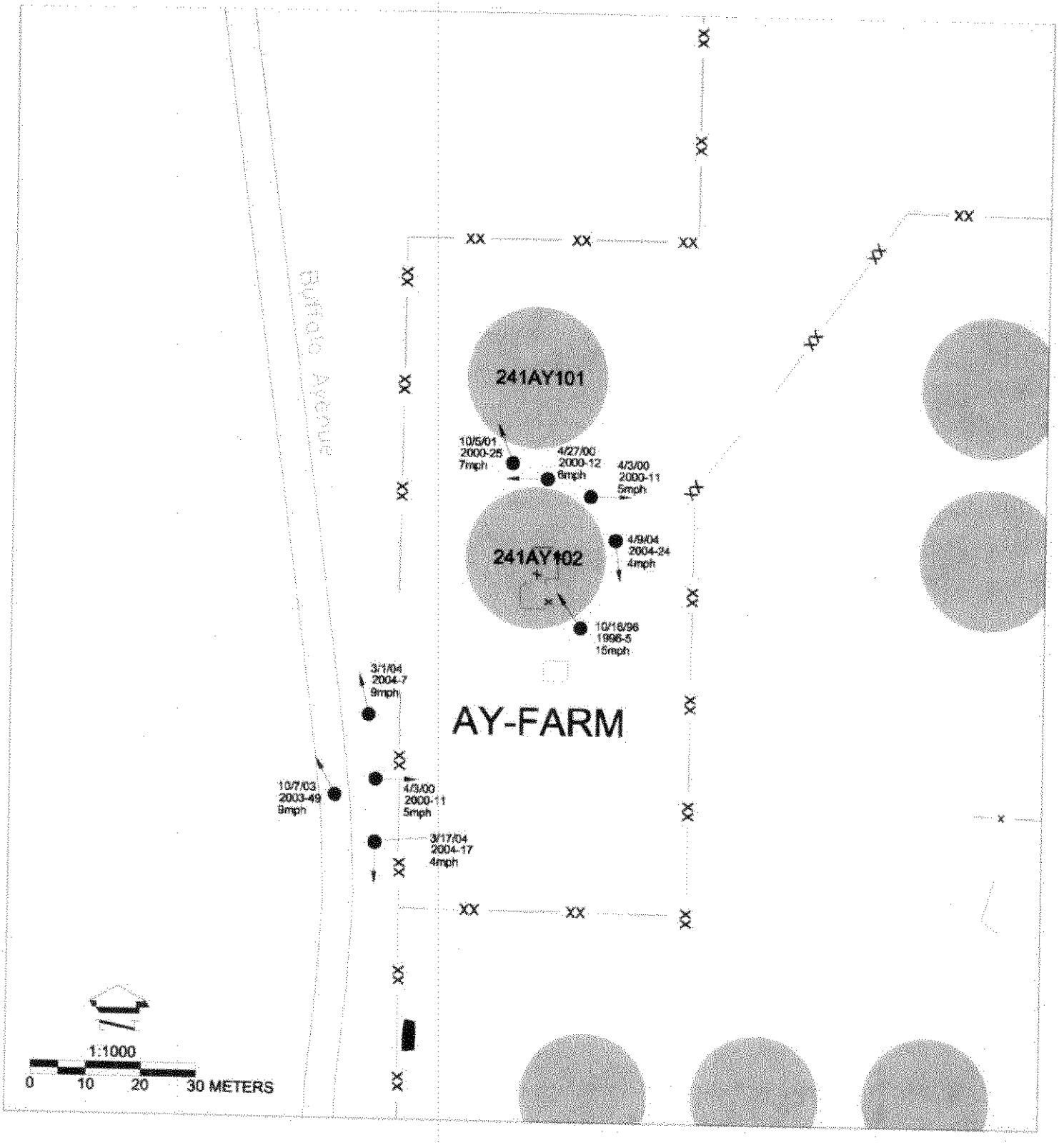
8mph
AX-FARM
5/30/00
2000-19
8mph
241AXXX_SEPTIC?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241AY102
AY-FARM
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4/27/00
2000-12
8mph
4/3/00
2000-11
5mph
4/9/04
2004-24
4mph
10/18/96
1996-5
15mph
3/1/04
2004-7
9mph
10/7/03
2003-49
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4/3/00
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4mph
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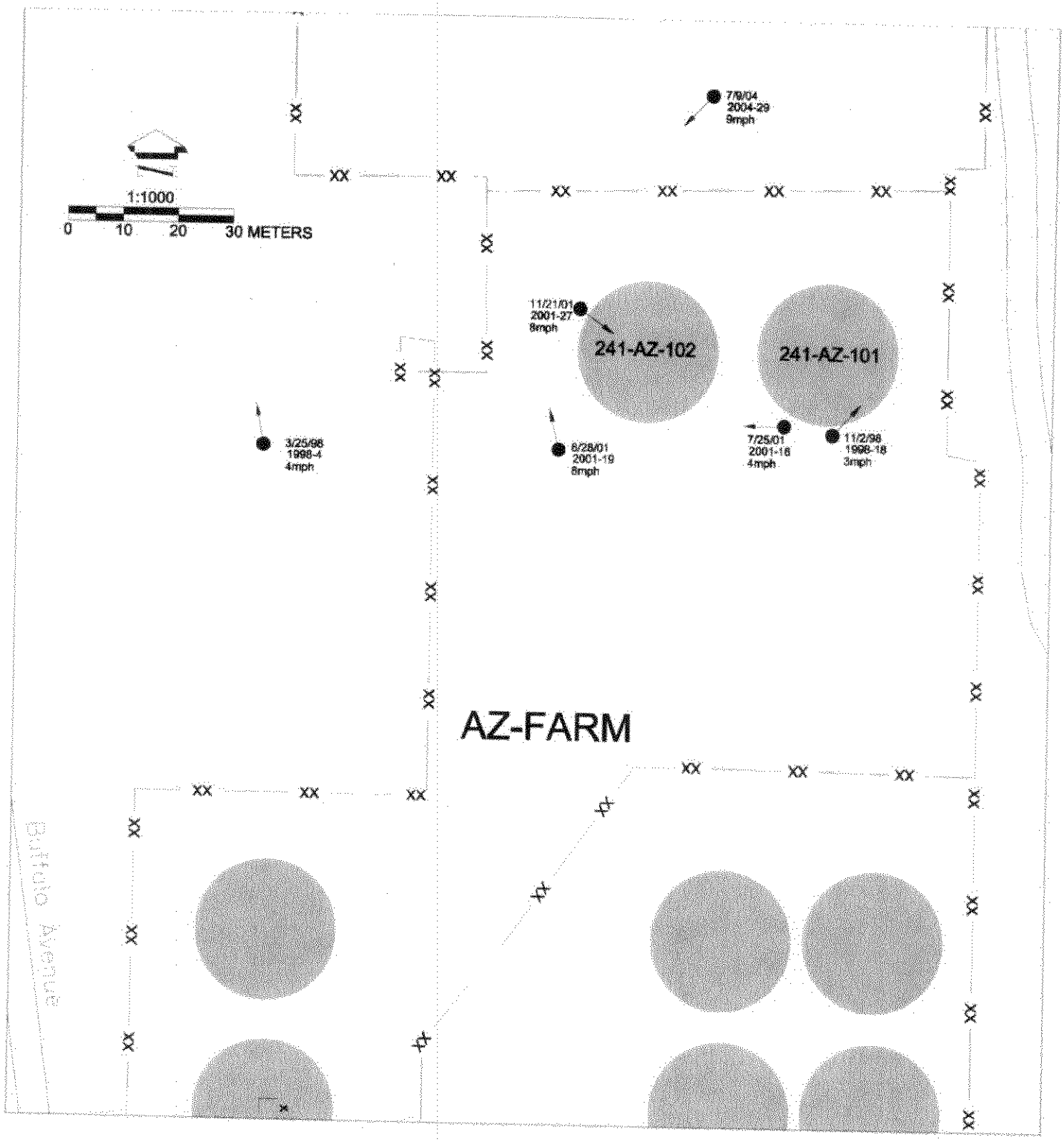
10
20
30 METERS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11/21/01
2001-27
8mph
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241-AZ-101
3/25/98
1998-4
4mph
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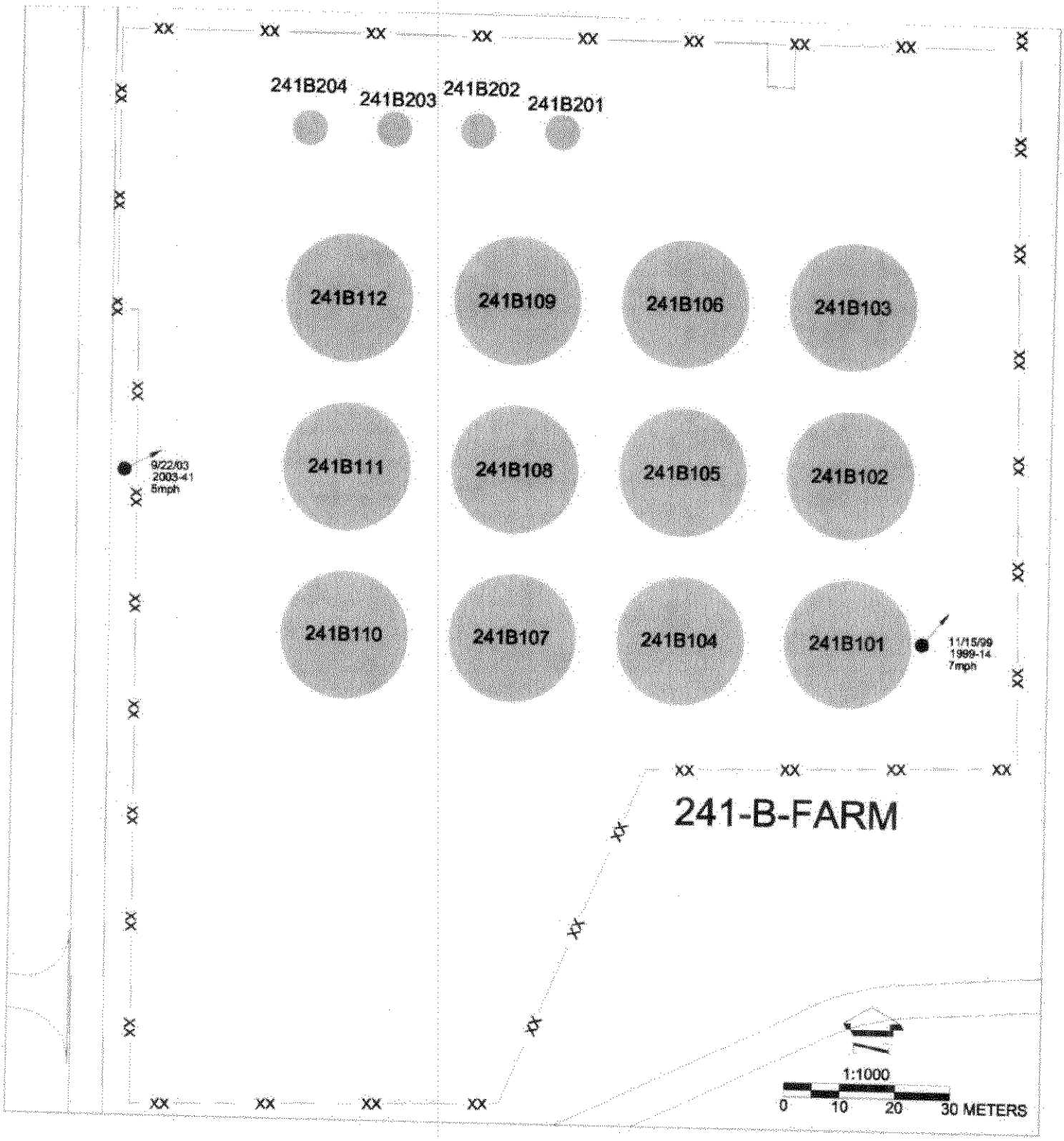
2001-19
8mph
7/25/01
2001-16
4mph
11/2/98
1998-18
3mph
AZ-FARM
Buffalo Avenue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241B202
241B201
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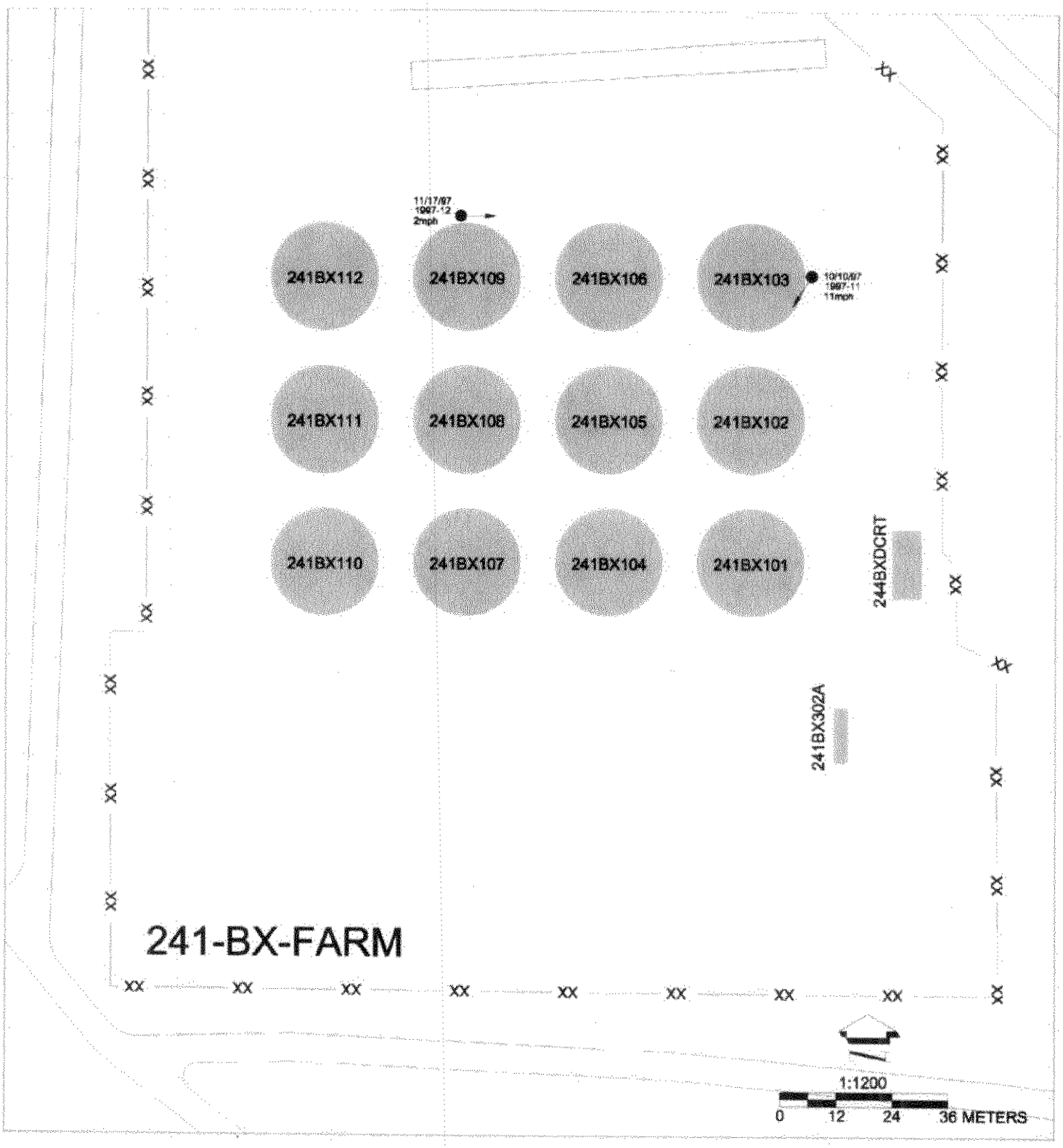
241B109
241B106
241B103
241B111
241B108
241B105
241B102
241B110
241B107
241B104
241B101
9/22/03
2003-41
5mph
11/15/99
1999-14
7mph
241-B-FARM
1:1000
0
10
20
30 METERS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2mph
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241BX109
241BX106
241BX103
10/10/97
1997-11
11mph
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241BX108
241BX105
241BX102
241BX110
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244BXDCRT
241BX302A
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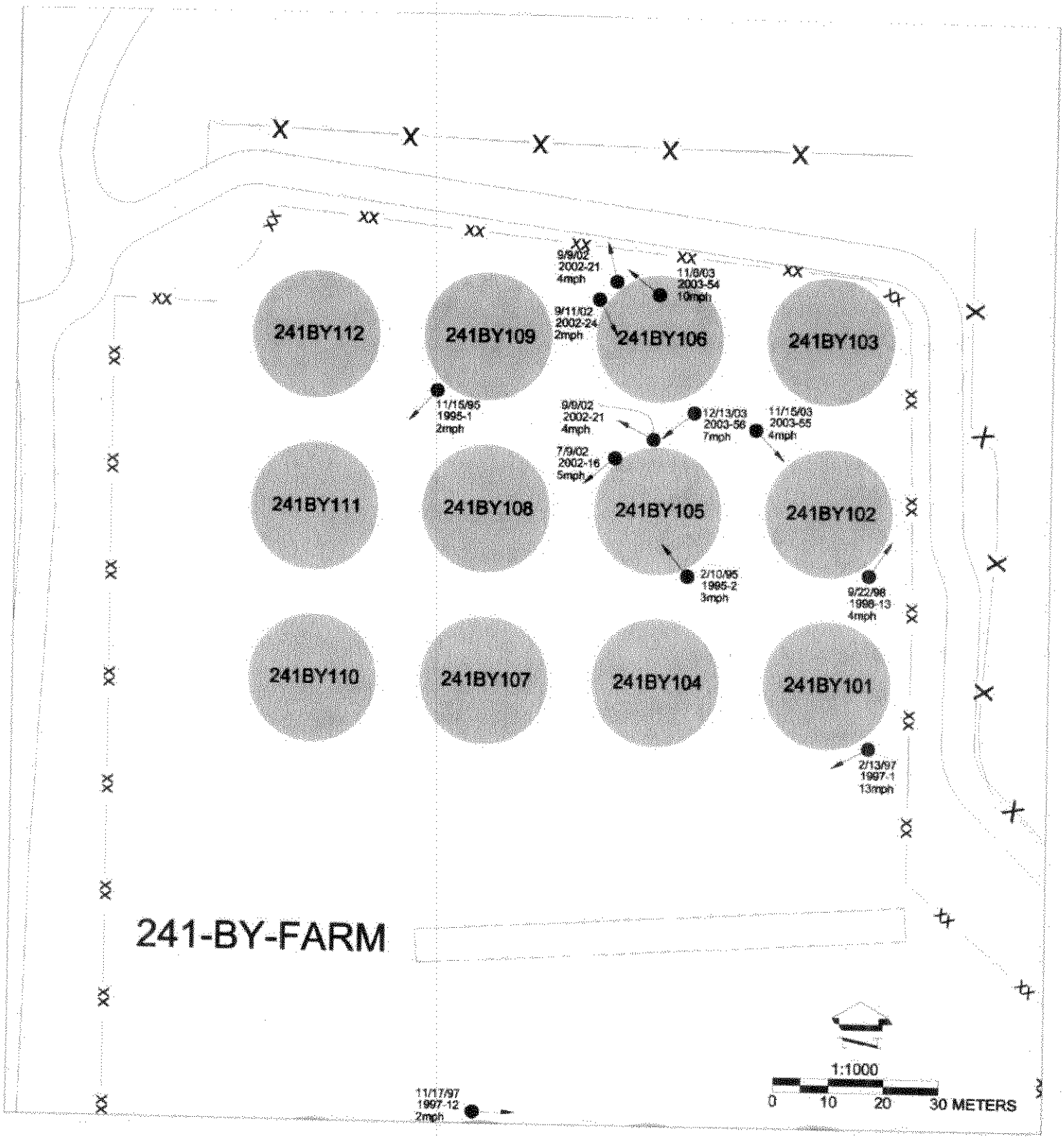
12
24
36 METERS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9/9/02
2002-21
4mph
11/8/03
2003-54
10mph
9/11/02
2002-24
2mph
11/15/95
1995-1
2mph
9/9/02
2002-21
4mph
12/13/03
2003-56
7mph
11/15/03
2003-55
4mph
7/9/02
2002-16
5mph
2/10/95
1995-2
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9/22/98
1998-13
4mph
2/13/97
1997-1
13mph
11/17/97
1997-12
2mph
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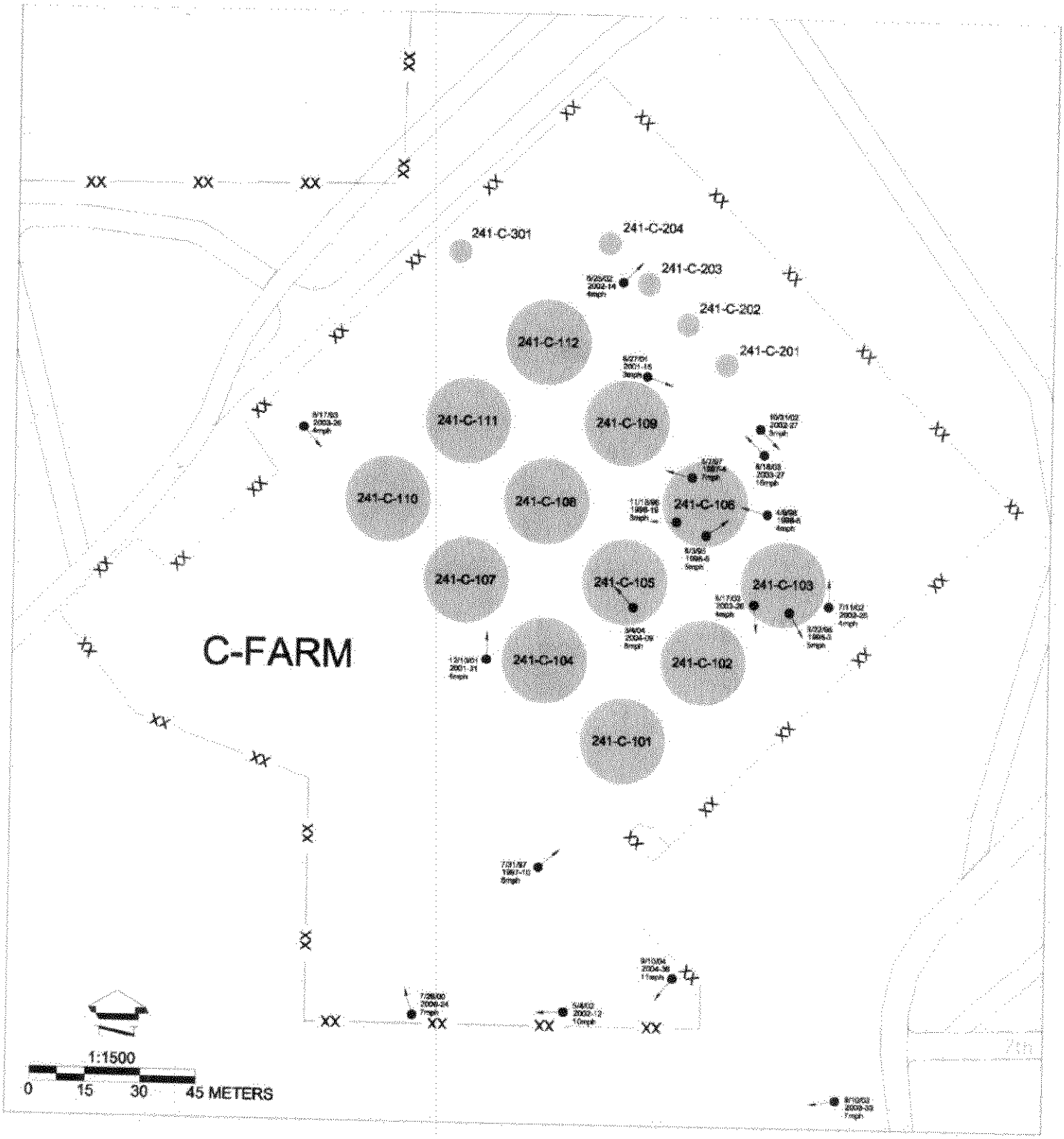
0
10
20
30 METERS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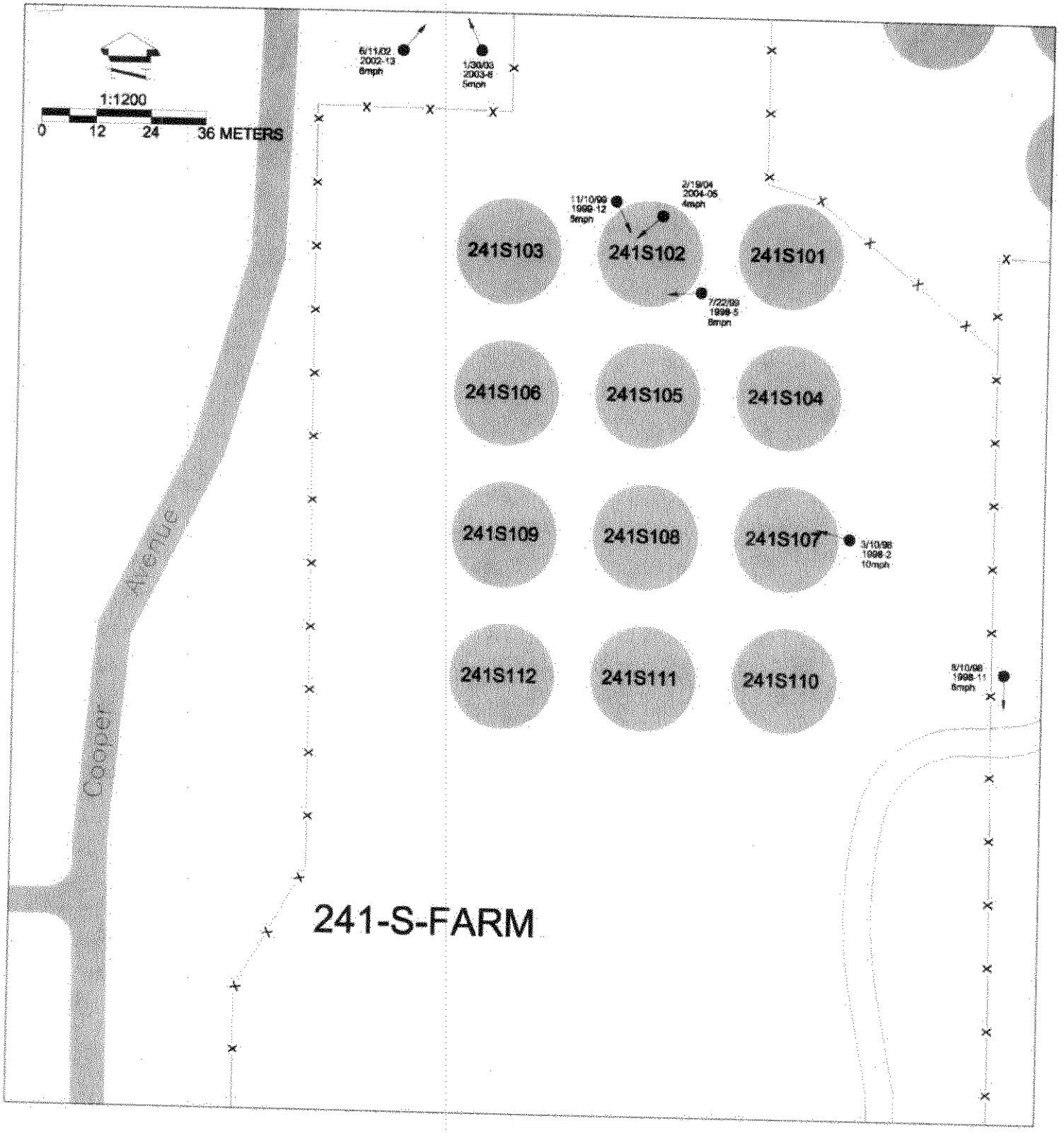
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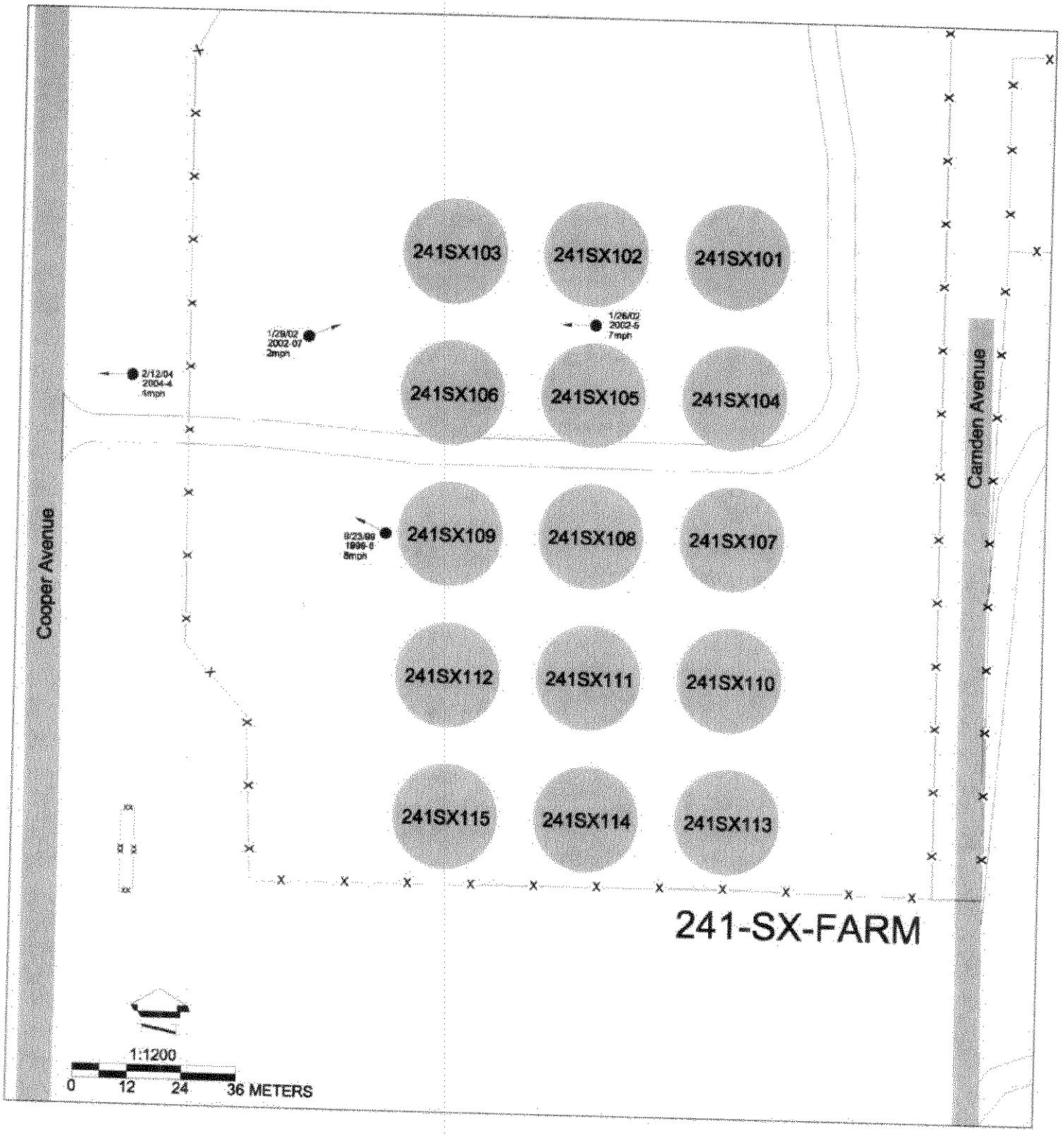
6/11/02
2002-13
8mph
1/30/03
2003-6
5mph
11/10/99
1999-12
5mph
2/19/04
2004-05
4mph
7/22/99
1999-5
8mph
241S103
241S102
241S101
241S106
241S105
241S104
241S109
241S108
241S107
3/10/96
1996-2
10mph
241S112
241S111
241S110
9/10/98
1998-11
8mph
Cooper Avenue
241-S-FARM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241SX107
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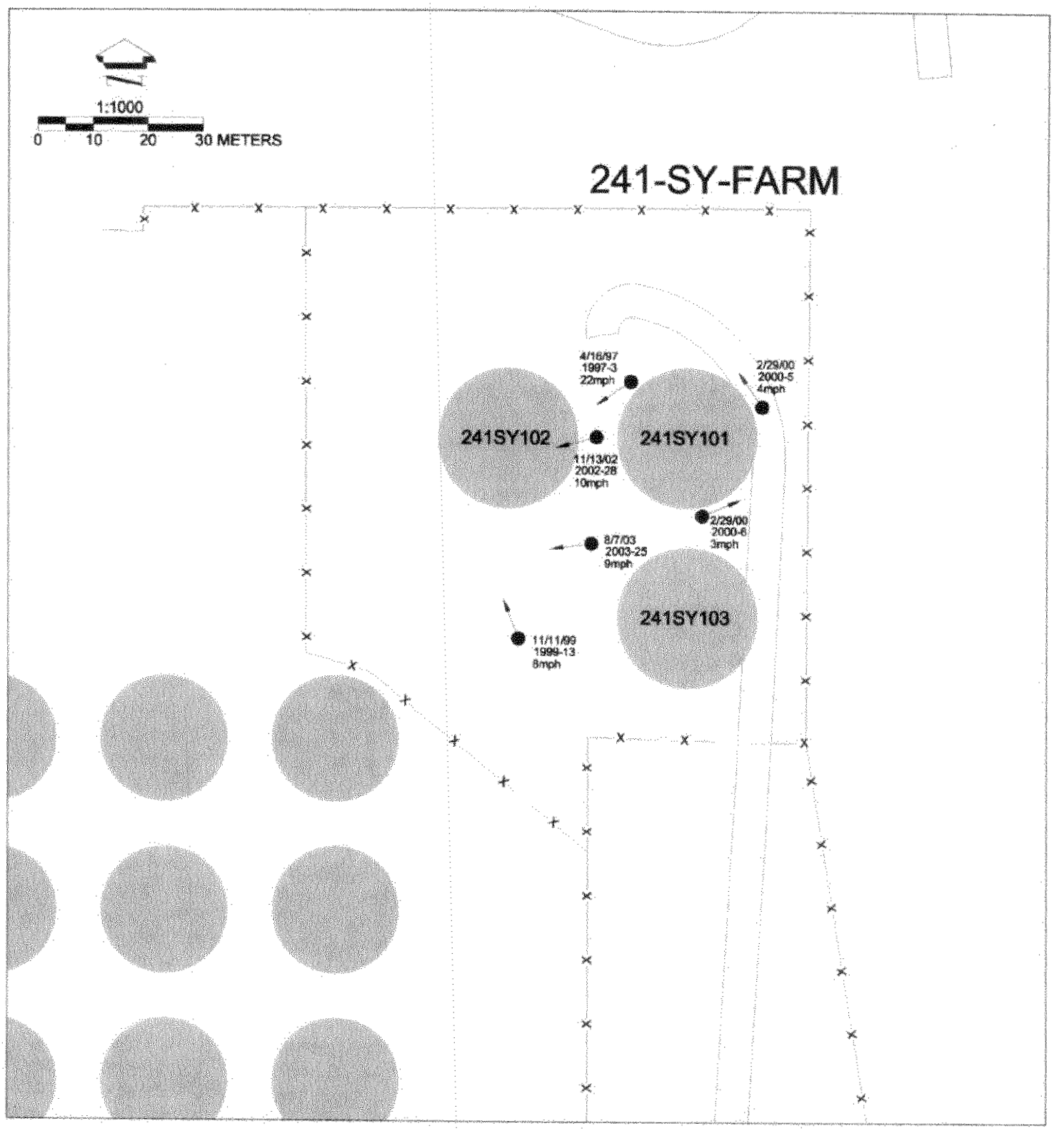
241SX111
241SX110
241SX115
241SX114
241SX113
1/29/02
2002-07
3mph
1/26/02
2002-5
7mph
2/12/04
2004-4
4mph
9/23/99
1999-8
8mph
Cooper Avenue
Camden Avenue
241-SX-FARM
1:1200
0
12
24
36 METERS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1997-3
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2/29/00
2000-5
4mph
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241SY101
11/13/02
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8/7/03
2003-25
9mph
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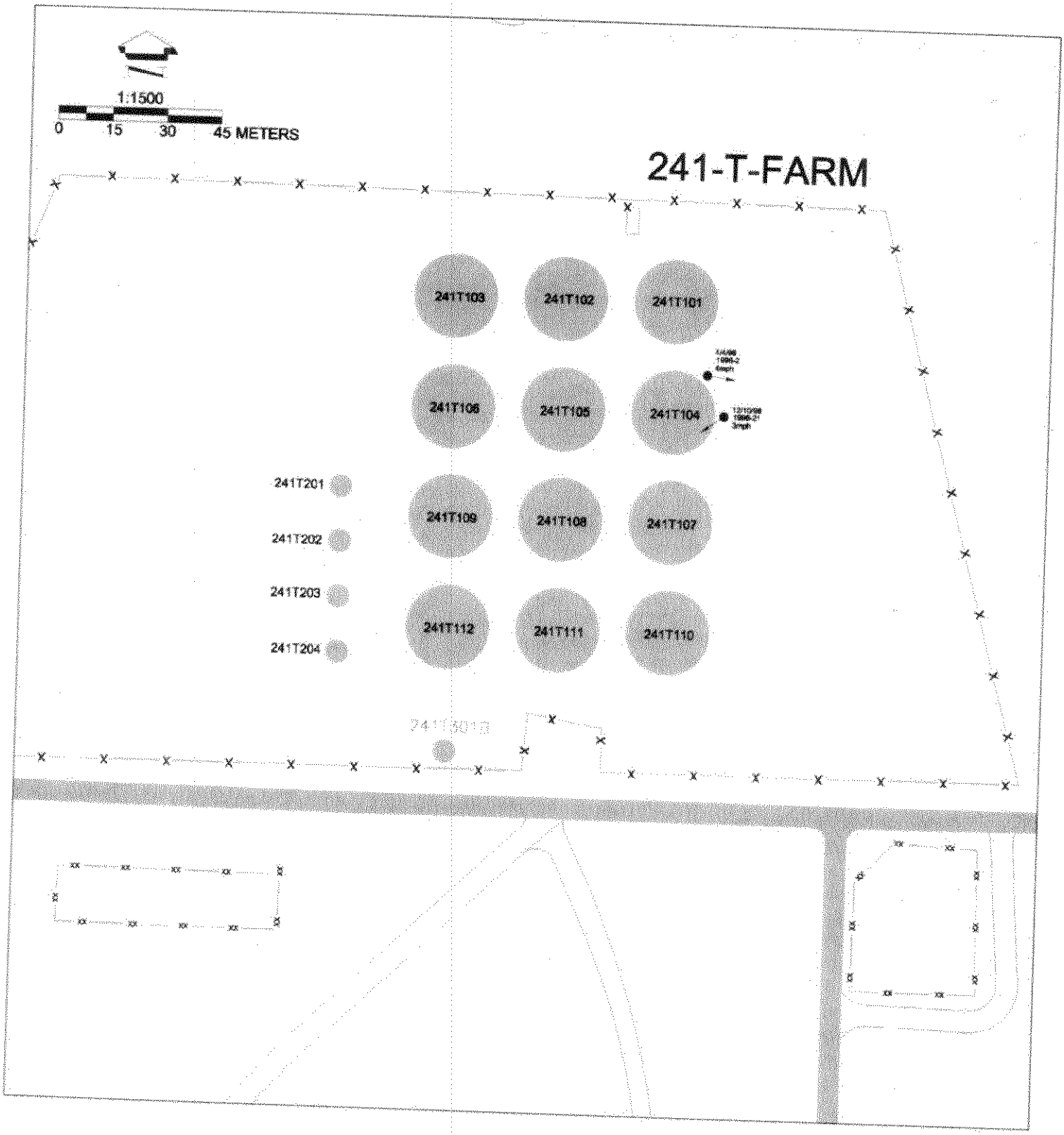
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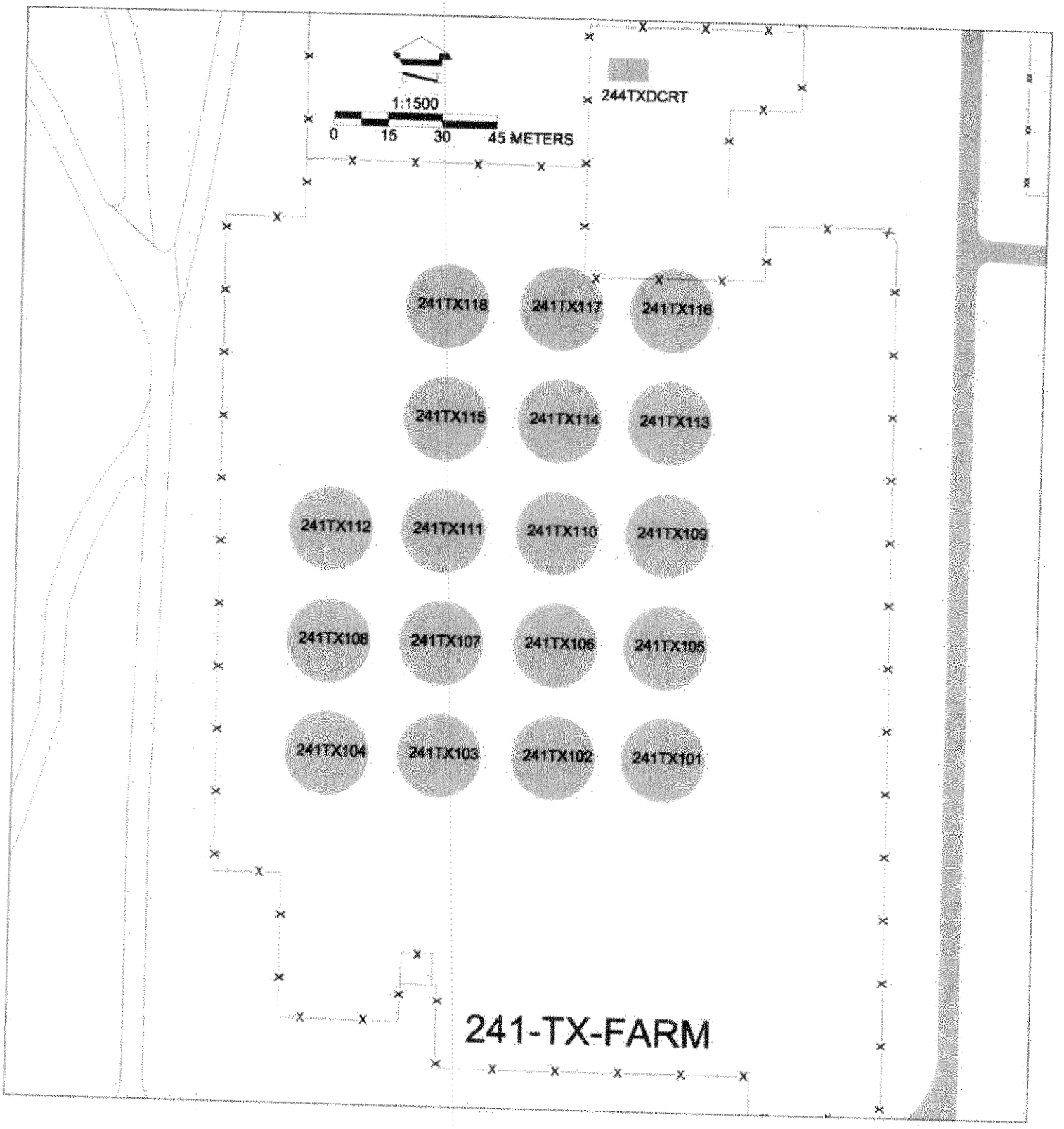
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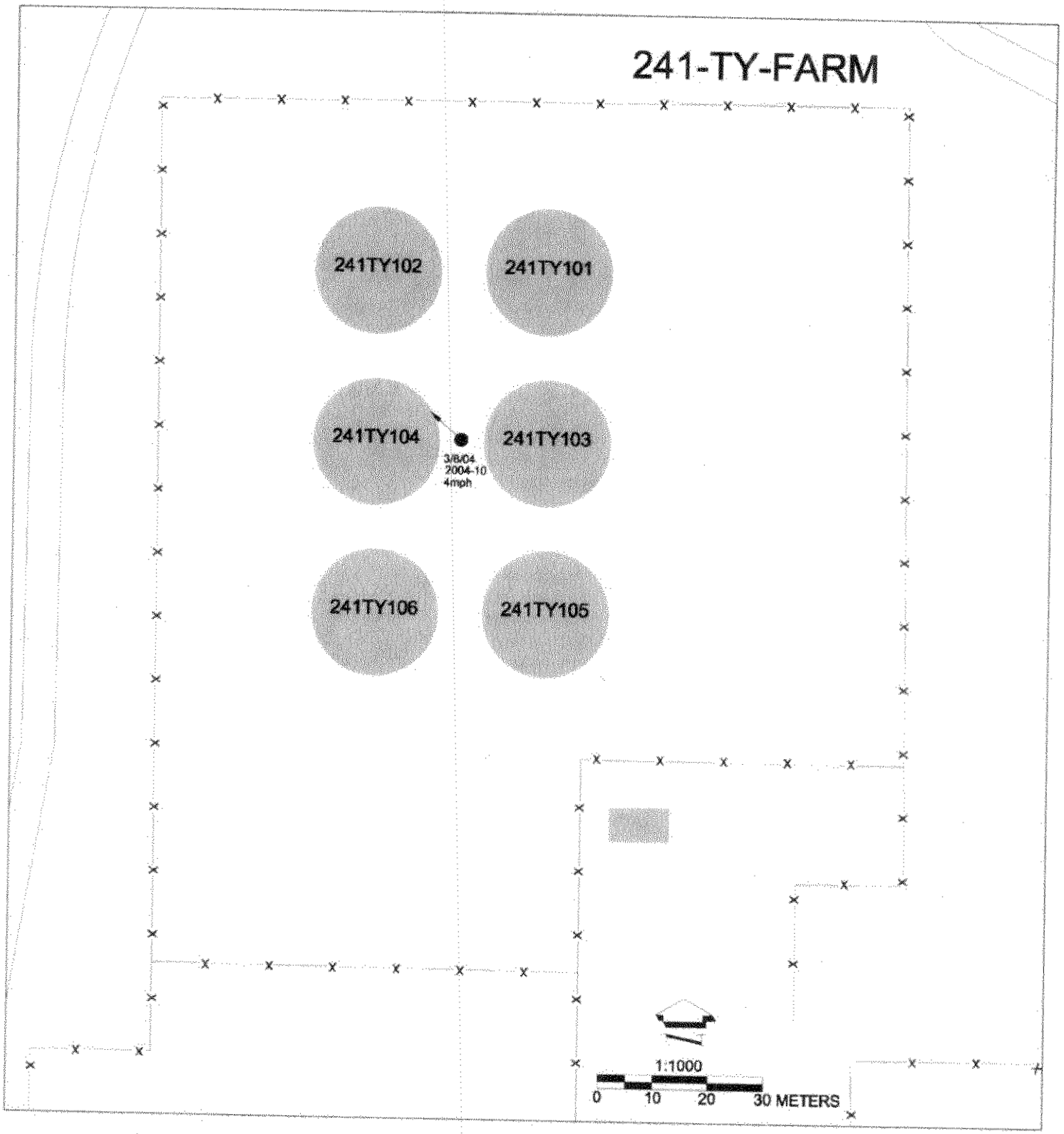
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3/8/04
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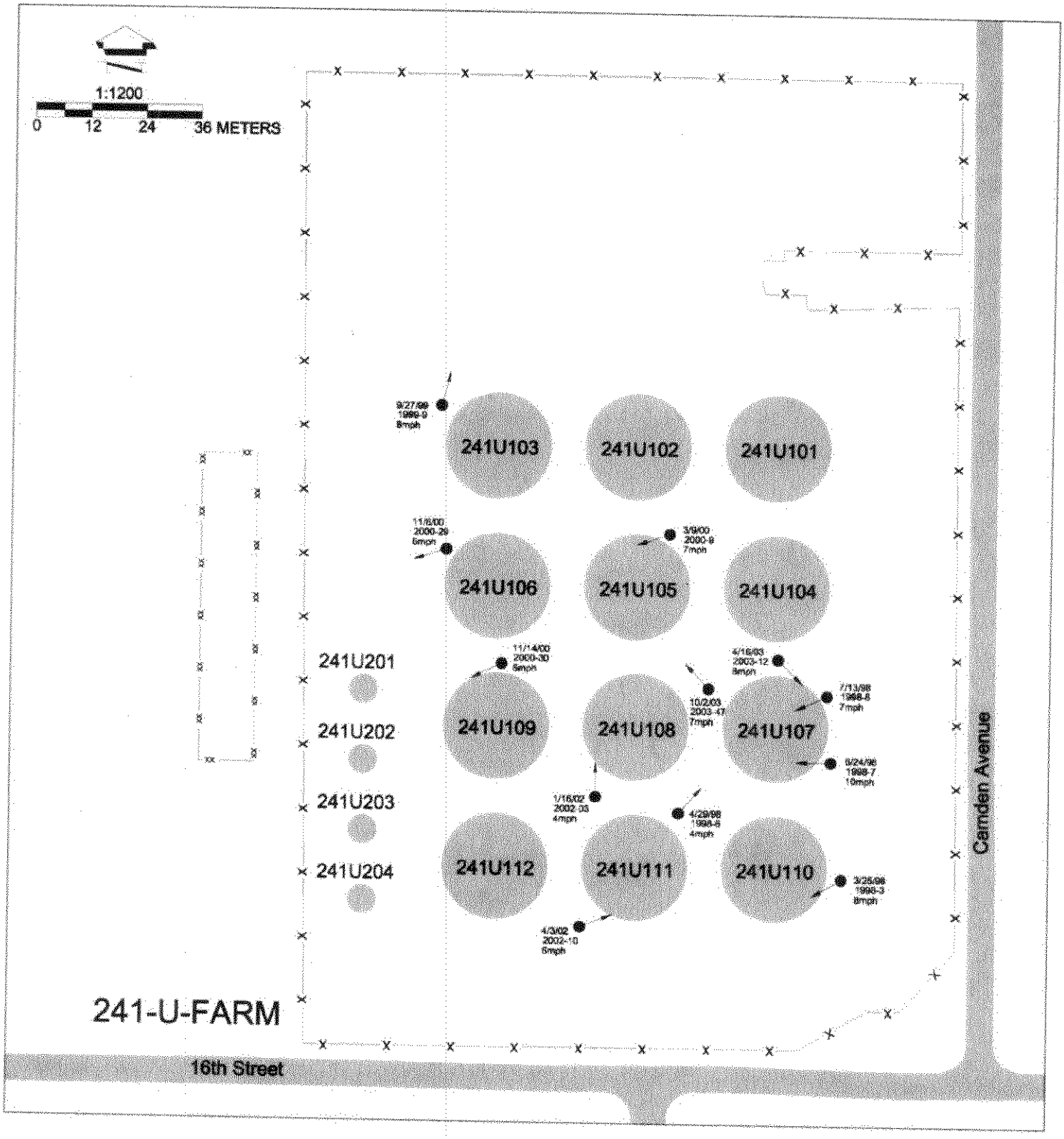
241TY105
1:1000
0
10
20
30 METERS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0
12
24
36 METERS
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241U102
241U101
241U106
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241U104
241U201
241U202
241U203
241U204
241U109
241U108
241U107
241U112
241U111
241U110
Camden Avenue
16th Street
241-U-FARM

C3.0 WIND SPEED AND DIRECTION TANK FARM MAPS

APPENDIX D

INDIVIDUAL FARM PERCENT TOTAL INCIDENTS REPORTED

D1.0 INDIVIDUAL FARM PERCENT TOTAL INCIDENTS REPORTED OVER NINE YEARS

Generated table showing the percentage of incidents reported by individual Farm system for every year over the nine year period.

D2.0 INCIDENT PERCENT BY YEAR

Generated table showing the percentage of incidents reported by year for every year in the nine-year period.

Table D-1. Individual Farm Percent Total Incidents Reported Over Nine Years (2 Sheets)

	1995		1996		1997		1998		1999		2000		2001		2002		2003		2004	
Reported Incidents	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Single Shelled Tanks																				
A Farm	---	---	---	---	2	15.4	---	---	---	---	6	19.4	1	2.6	2	6.9	---	---	---	---
AX Farm	---	---	---	---	1	7.7	1	4.8	---	---	1	3.2	---	---	---	---	---	---	---	---
B Farm	---	---	---	---	---	---	1	4.8	1	6.7	---	---	---	---	---	---	1	1.8	---	---
BX Farm	---	---	---	---	2	15.4	---	---	---	---	---	---	---	---	---	---	1	1.8	---	---
BY Farm	2	28.6	---	---	1	7.7	1	4.8	---	---	---	---	1	2.6	3	10.3	3	5.4	---	---
C Farm	4	57.1	---	---	2	15.4	4	19.0	---	---	1	3.2	2	5.3	4	13.8	5	8.9	2	5.6
S Farm	---	---	---	---	---	---	1	4.8	2	13.3	---	---	---	---	1	3.4	---	---	1	2.8
SX Farm	---	---	---	---	---	---	---	---	1	6.7	---	---	1	2.6	2	6.9	---	---	1	2.8
T Farm	---	---	1	20.0	---	---	1	4.8	---	---	---	---	---	---	---	---	---	---	---	---
TX Farm	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
TY Farm	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1	2.8
U Farm	---	---	1	20.0	---	---	4	19.0	3	20.0	4	12.9	---	---	2	6.9	2	3.6	2	5.6

Table D-1. Individual Farm Percent Total Incidents Reported Over Nine Years (2 Sheets)

	1995		1996		1997		1998		1999		2000		2001		2002		2003		2004	
Reported Incidents	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Double Shelled Tanks																				
AY Farm	---	---	1	20.0	---	---	---	---	1	6.7	4	12.9	3	7.9	---	---	1	1.8	5	13.9
AZ Farm	---	---	---	---	---	---	2	9.5	---	---	1	3.2	4	10.5	1	3.4	1	1.8	2	5.6
AN Farm	---	---	1	20.0	---	---	1	4.8	2	13.3	1	3.2	4	10.5	4	13.8	16	28.6	4	11.1
AP Farm	---	---	---	---	---	---	---	---	1	6.7	---	---	---	---	4	13.8	2	3.6	1	2.8
AW Farm	---	---	---	---	1	7.7	3	14.3	---	---	---	---	2	5.3	---	---	9	16.1	2	5.6
SY Farm	---	---	---	---	1	7.7	---	---	1	6.7	5	16.1	5	13.2	1	3.4	1	1.8	---	---
Other	1	14.3	1	20.0	3	23.1	2	9.5	3	20.0	8	25.8	15	39.5	5	17.2	14	25.0	15	41.7
	7	100.0	5	100.0	13	100.0	21	100.0	15	100.0	31	100.0	38	100.0	29	100.0	56	100.0	36	100.0

Table D-2. Incident Percent By Year

Total Incidents	251
Incident % by year	
1995	2.8%
1996	2.0%
1997	5.2%
1998	8.4%
1999	6.0%
2000	12.4%
2001	15.1%
2002	11.6%
2003	22.3%
2004	14.3%
Total	100.0%