APPENDICES

TO

NATURAL EVENTS ACTION PLAN

FOR

RAPID CITY, SOUTH DAKOTA

South Dakota
Department of Environment and Natural Resources

APPENDIX A

NATURAL EVENTS POLICY

MEMORANDUM

SUBJECT: Areas Affected by PM-10 Natural Events

FROM: Mary D. Nichols, Assistant Administrator for Air and Radiation (6101)

DATE: May 30, 1996

TO: Director, Air Division, Regions I - X

Purpose

This memorandum sets forth the Environmental Protection Agency's (EPA's) policy for protecting public health in areas where the PM-10 (particulate matter having a nominal aerodynamic diameter less than or equal to 10 microns) national ambient air quality standards (NAAQS) are violated due to natural events. This policy will be followed in implementing the PM-10 NAAQS until it is superseded.[1] The need for revisions to this policy will be considered by EPA, State agencies and the Federal Advisory Committee Act's Particulate Matter/Ozone/Regional Haze Subcommittee if the NAAQS for particulate matter are revised.

Three categories of natural events have been identified as affecting the PM-10 NAAQS: (1) volcanic and seismic activity, (2) wildland fires, and (3) high wind events. These PM-10 natural events are defined further below. If other significant categories of natural events are identified, they may be added tothis policy in the future.[2]

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[1]This document contains EPA policy and, therefore, does not establish or affect legal rights or obligations. It does not establish a binding norm and it is not finally determinative of the issues addressed. In applying this policy in any particular case, the EPA will consider its applicability to the specific facts of that case, the underlying validity of the interpretations set forth in this memorandum, and any other relevant considerations, including any that may be required under applicable law and regulations.

[2]Other types of temporary or exceptional events that can impact ambient PM-10 concentrations are structural fires, chemical spills, industrial accidents, and clean-up activities following a major disaster. The EPA's Guideline on the Identification and Use of Air Quality Data Affected by Exceptional Events, July 1986, is still applicable for treating air quality data resulting from these types of exceptional, anropogenic events.

Background

Prior to the 1990 Clean Air Act Amendments (Act), the Guideline on the Identification and Use of Air Quality Data Affected by Exceptional Events (exceptional events guideline) and Appendix K to 40 CFR, part 50, were issued by EPA to address, in part, the situation where natural sources strongly influence an area's PM-10 air quality. To avoid imposing potentially unreasonable State implementation plan (SIP) requirements on such areas, EPA provided for the exclusion of certain natural source data from nonattainment determinations. Thus, Appendix K provides, in part, that measured exceedances of the PM-10 NAAQS in an area may be discounted from decisions regarding nonattainment status if the data are shown to be influenced by uncontrollable events caused by natural sources of particulate matter. The 1986 exceptional events guideline contains EPA's guidance regarding the process States should follow when dealing with PM-10 air quality data that may be eligible for the adjustments authorized under section 2.4 of Appendix K.

Subsequently, the Act added section 188(f) which provides EPA with discretionary statutory authority to waive either a specific attainment date or certain planning requirements for serious PM-10 nonattainment areas that are impacted significantly by nonanthropogenic sources. The EPA states in current PM-10 guidance documents that it interprets the section 188(f) waiver provision to mean that the data exclusion policy contained in Appendix K and the procedures described in the exceptional events guideline no longer apply.

Under this natural events policy, those statements no longer reflect EPA's interpretation of the relationship between the section 188(f) waiver provision, Appendix K, and the exceptional events guideline and should be treated as revised to the extent described herein.

In establishing this natural events policy, EPA now believes that, under certain circumstances, it is appropriate to again exclude PM-10 air quality data that are attributable to uncontrollable natural events from the decisions regarding an area's nonattainment status. The discussion in the Appendix at the end of this memorandum briefly describes the legal rationale underlying this revised interpretation.

Description of Policy

The policy described in this document addresses PM-10 NAAQS violations caused by natural events in areas designated unclassifiable or attainment. It also addresses certain reclassification and redesignation questions for PM-10 nonattainment areas. This policy applies at the time the State determines that a PM-10 NAAQS has been violated due to natural events and addresses the question of what should be done to protect public health. The policy provides that EPA will: (1) exercise its discretion under section 107(d)(3) not to redesignate areas as nonattainment if the State develops and implements a plan to respond to the health impacts of natural events; and, (2) redesignate nonattainment areas as attainment by applying Appendix K,

on a case-by-case basis, to discount data in circumstances where an area would attain but for exceedances that result from uncontrollable natural events.

The guiding principles followed in developing this policy are:

1. Protection of public health is the highest priority of Federal, State, and local air pollution control agencies.

2. The public must be informed whenever the air quality in an area is unhealthy.[3]

3. All valid ambient air quality data should be submitted to the EPA Aerometric Information Retrieval System (AIRS) and made available for public access.

4. State and local agencies must take appropriate reasonable measures to safeguard public health regardless of the source of PM-10 emissions.

5. Emission controls should be applied to sources that contribute to exceedances of the PM-10 NAAQS when those controls will result in fewer violations of the standards.

Definition of PM-10 Natural Events

Volcanic and seismic activities: Ambient PM-10 concentrations caused by volcanic eruptions or seismic activity will be treated as due to natural events. Volcanic eruptions contribute to ambient PM-10 concentrations in two ways: (1) with emissions of primary PM-10 (e.g., ash), and (2) with emissions of precursor pollutants (e.g., sulfur dioxide) that react to form secondary particulate matter. Seismic activity (e.g., earthquakes) can also contribute to ambient PM-10 concentrations by shaking the ground, causing structures to collapse and otherwise raising dust (primary PM-10 emissions).

Also, emissions caused by anthropogenic activities that re-entrain volcanic ash during the first year (12 months) following an event will be treated as due to the natural event. One year is considered adequate time for cleaning ash deposits from areas where anthropogenic activities (e.g., vehicle traffic) would cause reentrainment. After 1 year, only emissions resulting from reentrainment of ash by high winds will be treated as due to a natural event.

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[3]The air quality is considered unhealthy whenever the 24-hour PM-10 NAAQS is exceeded. The short-term PM-10 NAAQS is exceeded when the 24-hour average PM-10 concentration is greater than 150 micrograms per cubic meter ($\mu g/m^3$). The 24-hour NAAQS is violated when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is greater than 1.0, as determined by procedures described in Appendix K.

Wildland fires: Ambient PM-10 concentrations caused by smoke from wildland fires will be treated as due to natural events if the fires are unwanted fires, not designated or managed as prescribed fires, and requiring appropriate suppression action by the wildlands manager.[4]

For the purposes of this policy, wildland fire natural events are limited to unwanted fires that do not meet a prescription (wildfires) and, therefore, require appropriate suppression actions. Wildland prescribed fires, burning of forest harvest residues, agricultural burning, and fires for land clearing are not covered by this natural events policy. The EPA will develop broader guidance in the near future to address issues raised by smoke emissions from wildland prescribed fires and other policy issues surrounding prevention of significant deterioration, conformity, visibility protection programs and regional haze.

High Winds: Ambient PM-10 concentrations due to dust raised by unusually high winds will be treated as due to uncontrollable natural events under the following conditions: (1) the dust originated from nonanthropogenic sources, or (2) the dust originated from anthropogenic sources controlled with best available control measures (BACM).[5]

The BACM must be implemented at contributing anthropogenic sources of dust in order for PM-10 NAAQS exceedances to be treated as due to uncontrollable natural events under this policy. Therefore, BACM must be implemented for anthropogenic dust sources contributing to NAAQS exceedances in attainment and unclassifiable areas and in moderate PM-10 nonattainment areas. In unclassifiable and attainment areas, BACM must be implemented for those contributing sources for which it has been defined within 3 years after the first NAAQS violation attributed to high wind events or from the date of this policy. In these same areas, implementation should be as expeditious as practicable for sources for which BACM are undefined.

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[4]The EPA recognizes and endorses the Federal Wildland Fire Policies adopted by the Departments of Interior and Agriculture in December 1995. These policies refer to all fires on sparsely populated lands managed by Federal agencies (e.g., national parks, national forests, grasslands, etc.) as wildland fires. The wildland fires term includes unwanted fires that do not meet a prescription (wildfires), management-ignited prescribed fires, and naturally-ignited fires that meet a prescription (prescribed natural fire). Only wildland fires that meet a prescription may be used to accomplish land and resource management objectives.

[5]BACM for PM-10 are techniques that achieve the maximum degree of emissions reduction from a source as determined on a case-by-case basis considering technological and economic feasibility (59 FR 42010, August 16, 1994).

The conditions that create high wind events vary from area to area with soil type, precipitation and the speed of wind gusts. Therefore, the State must determine the unusually high wind conditions that will overcome BACM in each region or subregion of the State.

Response to NAAQS Violations

If natural events cause ambient concentrations of PM-10 to violate a NAAQS, a plan should be developed to address future events.[6] A natural events action plan (NEAP) should include commitments to:

1. Establish public notification and education programs. Such programs may be designed to educate the public about the short-term and long-term harmful effects that high concentrations of PM-10 could have on their health and inform them that: (a) certain types of natural events affect the air quality of the area periodically, (b) a natural event is imminent, and (c) specific actions are being taken to minimize the health impacts of events.

2. Minimize public exposure to high concentrations of PM-10 due to future natural events. Programs to minimize public exposure should: (a) identify the people most at risk, (b) notify the at-risk population that a natural event is imminent or currently taking place, (c) suggest actions to be taken by the public to minimize their exposure to high concentrations of PM-10, and (d) suggest precautions to take if exposure cannot be avoided.

3. Abate or minimize appropriate contributing controllable sources of PM-10. Programs to minimize PM-10 emissions may include:

(a) volcanic and seismic activities - cleaning ash and dust deposits from areas where it would be re-entrained into the air by anthropogenic activities;

(b) wildland fires - prohibition of other burning activities during wildland fire events and steps to minimize fuel loadings in areas vulnerable to fire. Appropriate suppression actions, as determined by the wildlands manager, should be taken for fires that do not meet a prescription. The Federal Wildland Fire Policies require that fire management plans (FMP) be developed

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[6]The annual PM-10 NAAQS is violated if the expected average annual arithmetic mean concentration for the past 3 calendar years is greater than 50 $\mu g/m^3$. Several elevated 24-hour PM-10 concentrations caused by natural events can potentially cause the annual NAAQS (which is an annual arithmetic mean of 24-hour concentrations) to be exceeded. If natural events cause the annual NAAQS to be violated, one NEAP for the area will cover both the 24-hour and annual NAAQS.

for all Federal lands with burnable vegetation.[7] It is anticipated that a goal of FMP will be to prevent NAAQS exceedances caused by wildland fires. Therefore, EPA envisions treating future FMP as acceptable plans for mitigating the public health impacts of smoke from wildland fires on Federal lands. Similar FMP should be developed to serve the same purpose for State and private wildlands.

(c) High winds - application of BACM to any sources of soil that have been disturbed by anthropogenic activities. The BACM application criteria require analysis of the technological and economic feasibility of individual control measures on a case-by-case basis. The NEAP should include analyses of BACM for contributing sources. The BACM for windblown dust include, but are not limited to, application of chemical dust suppressants to unpaved roads, parking lots and open areas; dust suppression at construction sites; use of conservation farming practices on agricultural lands; tree rows and other physical wind breaks; restricting or prohibiting recreational off-road vehicle activities; and use of surface coverings. If BACM are not defined for the anthropogenic sources in question, step 4 below is required.

4. Identify, study and implement practical mitigating measures as necessary. The NEAP may include commitments to conduct pilot tests of new emission reduction techniques. For example, it may be desirable to test the feasibility and effectiveness of new strategies for minimizing sources of windblown dust through pilot programs. The plan must include a timely schedule for

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[7]FMP are not in place for all Federal lands at this time. These plans will be developed by Federal land managers in conjunction with all stakeholders including Federal, State and local air management agencies. The FMP will integrate fire, as a natural ecological process, into land and resource management plans and will form the basis for management actions taken on wildland fires. The FMP must include prescriptions for any use of fire to meet land and resource management objectives.

The EPA anticipates that FMP will achieve an acceptable balance between forest health and public health concerns. Public health concerns caused by the potential effects of smoke on air quality from wildland fires will be addressed in FMP through smoke management plans and other measures. Smoke management plans attempt to minimize smoke impacts by monitoring fire behavior, meteorology and air quality during the fire and by publicly announcing forecasts of likely smoke conditions in communities impacted by ongoing fires. Since FMP will treat fire as a natural ecological process, the impact of wildland fires on air quality and regional haze is expected to increase in the future. Therefore, EPA will encourage Federal land management agencies to support air quality monitoring near fires, to assess air and haze impacts, and to develop a fire information data base and regional-scale smoke management plans.

conducting such studies and implementing measures that are technologically and economically feasible.

5. Periodically reevaluate: (a) the conditions causing violations of a PM-10 NAAQS in the area, (b) the status of implementation of the NEAP, and (c) the adequacy of the actions being implemented. The State should reevaluate the NEAP for an area every 5 years at a minimum and make appropriate changes to the plan.

Form and Timing of the Response

The NEAP should be developed by the State air pollution control agency in conjunction with the stakeholders affected by the plan. Development of a NEAP for wildland fires should include input from Federal, State and private land managers in areas vulnerable to fire. Also, agencies responsible for suppressing fires and the citizens in the affected area should be involved in developing the plan. Development of a NEAP for high- wind events should include input from Federal, State and private managers of open desert lands, rangelands, agricultural lands; the construction industry; and organizations promoting the use of recreational off-road vehicles. Development of a NEAP for volcanic and seismic activities should include input from geophysicists and public works officials who will be responsible for ash removal and disposal. The plan should include documented agreements among the stakeholders as to planned actions, the implementation schedule, and the parties responsible for carrying out those actions.

At a minimum, States should develop NEAP for any areas where natural events cause or have caused a PM-10 NAAQS to be violated within 18 months of the violation or the date this policy is issued. The NEAP should be made available for public review and comment and may, but are not required to, be adopted as revisions to the SIP if current SIP rules are not revised. Final plans should be submitted to EPA for review and comment.

Documentation of Natural Events

In circumstances where a State has reason to believe that natural events have caused measured exceedances of the NAAQS, the State is responsible for establishing a clear causal relationship between the measured exceedance and the natural event. Supporting documentation concerning the natural event could include filter analysis, meteorological data (e.g., wind speed and wind direction to support a source receptor relationship), modeling and receptor analysis, videos and/or photographs of the event and the resulting emissions, maps of the area showing sources of emissions and the area affected by the event, and news accounts of the event.

In the case of high-wind events where the sources of dust are anthropogenic, the State must document that BACM were required for those sources, and the sources were in compliance at the time of the high-wind event. If BACM are not required for some dust sources, the NEAP developed must include agreements with appropriate stakeholders to minimize future emissions from such sources using BACM.

The type and amount of documentation provided for each event should be sufficient to demonstrate that the natural event occurred, and that it impacted a particular monitoring site in such a way as to cause the PM-10 concentrations measured. This documentation should also provide evidence that, absent the emissions from the natural event, concentrations of PM-10 at the monitoring site under consideration would not cause a NAAQS exceedance.

The State should also make the documentation of natural events and their impact on measured air quality available to the public for review. This may be accomplished through a number of means, such as the publishing of newspaper announcements, periodic reports on air quality in the area, and through public hearings. This would serve to allow the public an opportunity to comment on whether the causal relationship between the natural event and the air quality measurement is convincing. Also, open hearings, where State and local regulatory boards review the documentation, are useful forums in which to notify the public of potentially-important policy decisions.

When air quality data affected by a natural event are submitted to EPA for inclusion into the AIRS data base, the State should request that a flag be placed on the data to indicate that a natural event was involved. Documentation to support the flagged data should be maintained by the State. A copy of the documentation should be sent to the relevant EPA Regional Office monitoring representative no later than 180 days from the time the exceedance occurred or from the date of this policy for past events. The Regional Office will acknowledge receipt of the documentation and confirm that the natural event data were flagged within 60 days.

Current PM-10 Nonattainment Areas

States may request that a moderate nonattainment area not be reclassified as serious if it can be demonstrated that the area would attain the standards by the statutory attainment date but for emissions caused by natural events. Similarly, States may request redesignation of nonattainment areas to attainment if it can be demonstrated that the area would be meeting the NAAQS but for the emissions caused by natural events. This policy applies to emissions caused by natural events that have occurred since January 1, 1994.[8]

Approval of the above requests will be made by EPA on a case-by-case basis as determined by the sufficiency of the information submitted by the State to substantiate its claim. At a minimum, the State must have adopted a SIP for the area which demonstrates that, but for the emissions from natural events, the area would be able to attain the NAAQS. All of the requirements under section 107(d)(3)(E) of the Act must also be satisfied before an area can be

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[8]The 1990 Amendments to the Clean Air Act required that control measures for anthropogenic sources in PM-10 nonattainment areas be implemented by the end of 1993. Therefore, this policy is made retroactive to January 1, 1994 so that NAAQS exceedances that may prevent areas from having sufficient clean air quality data to meet the standards will be covered by this policy.

redesignated to attainment. Those requirements include the submittal of a maintenance plan under section 175A, among other things. The maintenance plan for areas affected by natural events must include a NEAP.

Failure to Submit a Natural Events Action Plan

If a State fails to submit an adequate NEAP within 18 months in response to violations of a PM-10 NAAQS, EPA will notify the governor of the State that the area should be redesignated as nonattainment. The EPA's action, in such instances, would be authorized under the Act based on the conclusion that the health of citizens affected by such events is not being protected by the State.

Once the area violating the NAAQS is designated nonattainment, the State will be required to adopt a federally- enforceable SIP revision and address the sources of PM-10 emissions. Most likely, the SIP revision will include many of the same mitigative measures that could have been included in a NEAP.

APPENDIX

INTERPRETATION OF THE CLEAN AIR ACT (ACT) AS AMENDED IN 1990

Section 107(d)(4)(B) of the Act, as amended in 1990, provided EPA with the authority to designate initial areas as nonattainment for PM-10. Where such determinations involved an assessment of a potential PM-10 nonattainment area's air quality data, Congress expressly required such assessments to be made in accordance with Appendix K (section 107(d)(4)(B)(ii)). Since, upon enactment, Congress did not alter or revise Appendix K in any way, all the provisions of Appendix K, including section 2.4, remained applicable under the Act. Among other things, section 2.4 authorizes EPA to discount air quality data that are attributable to "an uncontrollable event caused by natural sources" of PM-10. Consequently, if an area's nonattainment problem was attributable to uncontrollable natural sources, application of section 2.4 of Appendix K would allow the data from the uncontrollable natural event to be excluded from regulatory determinations regarding an area's nonattainment status.

The Act also added section 188(f) which specifically addresses the adverse influence of nonanthropogenic PM-10 sources. This section provides EPA with discretionary authority to waive a specific attainment date for all areas or certain planning requirements for serious PM-10 nonattainment areas that are significantly impacted by nonanthropogenic sources.

The EPA previously interpreted the inclusion of such an express waiver provision in the 1990 Amendments as implying that Congress may have intended to limit the application of section 2.4 of Appendix K. The argument in support of this interpretation was that in contrast to section 2.4 of Appendix K, which contemplates the discounting of data due to emissions from certain events, the section 188(f) waiver provisions envisioned that adjustments prompted by adverse air quality impacts that are attributable to data from natural uncontrollable sources of PM-10 should be made only after all the data have been considered and the area has been designated nonattainment.

The EPA, however, believes that this is not the only reasonable interpretation of the Act's provisions that is possible. The EPA believes that the congressional directive in section 107(d)(4)(B)(ii) to base designation decisions on Appendix K, and the differences in how section 188(f) and Appendix K address issues related to emissions from natural sources, indicate that it is not necessary to conclude that section 188(f) limits the application of section 2.4 of Appendix K. Rather, it is possible to view both section 188(f) and section 2.4 of Appendix K as being operative and dealing with related but distinct aspects of the issues connected with emissions from natural PM-10 sources.

The starting point for this analysis is section 107(d)(4)(B)(ii), which, by operation of law, designated nonattainment any area with data showing a violation of the PM-10 NAAQS before January 1, 1989 "(as determined under part 50, appendix K of title 40 of the Code of Federal Regulations)." In that section, Congress required the use of Appendix K in designating areas nonattainment without indicating that any portion of Appendix K was to be considered invalid.

Thus, that provision indicates that Congress intended designation decisions to be based on that appendix, including the procedures in section 2.4 regarding exceptional events.

Notably, section 2.4 defines an exceptional event as "an uncontrollable event caused by natural sources of particulate matter or an event that is not expected to recur at a given location." Thus, exceptional events include both uncontrollable natural sources and nonrecurring events related to any kind of source of particulate matter. Section 2.4 further provides that data from such events may be discounted (i.e., EPA may compensate for such data or exclude such data entirely from decisions regarding an area). Consequently, Appendix K contemplates that data from "exceptional events" may be discounted, including, but not limited to, data due to emissions from uncontrollable natural events.

On the other hand, section 188(f), which was enacted by Congress in the same amendments as section 107(d)(4)(B)(ii), discusses PM-10 natural sources in terms of whether they are "anthropogenic" or "nonanthropogenic." It does not discuss such sources or emissions in the terms of Appendix K (i.e., it does not discuss matters in terms of exceptional or nonexceptional events, nor does it distinguish between uncontrollable and controllable natural sources). In general, section 188(f) provides that EPA may waive certain requirements where EPA determines that anthropogenic sources do not contribute significantly to a violation of the PM-10 standard, and that EPA may waive a specific attainment date if it determines that the contribution of nonanthropogenic emissions to a violation is demonstrated to be "significant."

As Congress, without express exception, directed the use of Appendix K in determining whether areas were attaining the PM-10 standard, EPA believes it is reasonable to interpret section 188(f) as not limiting the use of that appendix, provided that such an interpretation does not render section 188(f) invalid. The EPA believes that the approach taken in this natural events policy does not do that, and that it represents a reasonable harmonization of these provisions of the Act and the language of Appendix K regarding exceptional events.

Under EPA's revised interpretation, section 188(f) continues to have force and effect. As section 188(f) addresses the issues in terms of "anthropogenic" and "nonanthropogenic" sources, not in terms of exceptional events (which are defined in Appendix K as both uncontrollable natural events and nonrecurring events from both natural and other sources), it is possible to view the waivers of section 188(f) as being potentially applicable only to areas that are designated nonattainment because the data do not qualify for adjustment under Appendix K. For such areas, it may be reasonable and appropriate to grant waivers from some requirements that simply do not make sense in light of the nature of the sources generating the PM-10 problem in the area. Thus, EPA's new interpretation does not render section 188(f) meaningless. Consequently, EPA believes that the exercise of its discretionary authority under Appendix K to discount or de-weight air quality data that are affected by uncontrollable natural sources of PM-10 is reasonable and appropriate.

APPENDIX B

NEWSPAPER ARTICLES COVERING EXCEEDANCE DAYS

Rapid City
Journal
Black Hills Information and Perspective Since 1878
January 18, 1996 50 CENTS

Inside:

- Russian a
barrages Che
rebels
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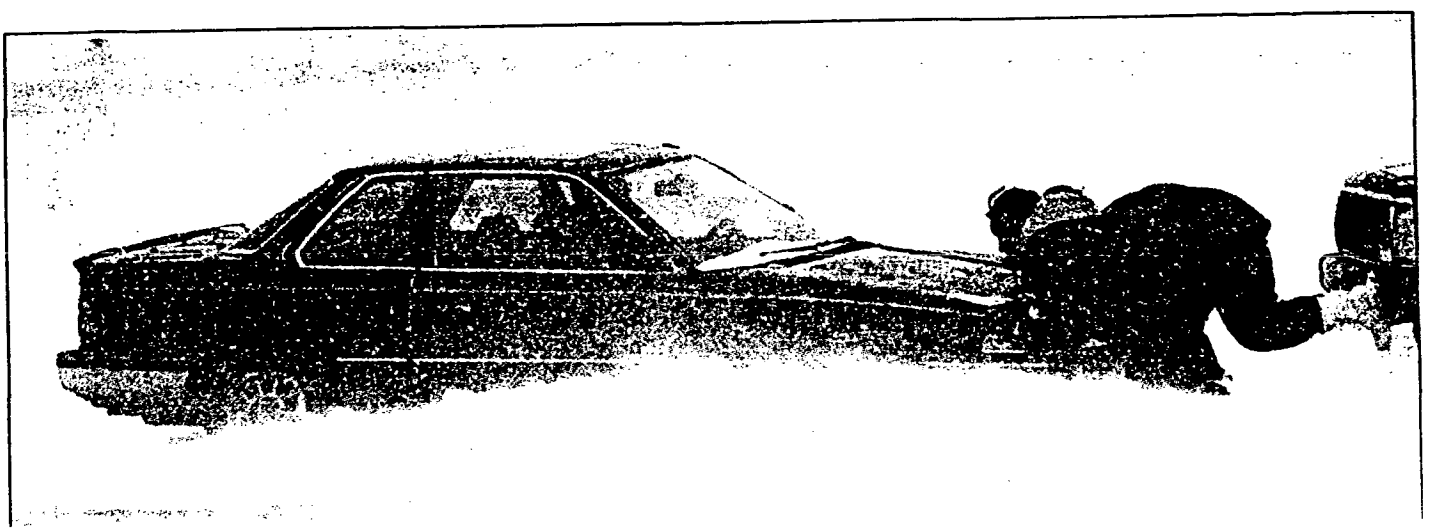
- BHSU stud
collapses, dies
in class
— Pa

Weathered

Blowin' in the wind:
Billy Pelowski's long winter cap, photo at right, blows skyward in brisk winds and blowing snow while he pumps gasoline Wednesday at the Mini-Mart on Haines Avenue. Jim Randall and his girlfriend, Tracy Block, below, passing by in their four-wheel-drive, weather the elements to help free a stranded motorist on Knollwood Drive at Haines Avenue. **See storm stories on page A1.**

Journal photos by Johnny Sundby



Storm delays auditions for All-State band

■ Now, they will be Monday at Central.

Wednesday's blizzard has postponed today's scheduled South Dakota All-State Band Auditions at Central High School.

The auditions will now be on Monday in the Central High School Music Department. Time schedules will remain unchanged.

Wednesday's snow storm prevented judges from traveling to Rapid City in time for the auditions.

All-State Band is sponsored by the South Dakota High School Activities Association and the South Dakota Bandmasters Association.

For more information on the auditions, call 394-4001 today or Friday.

Journal photo by Steve McEnr

Mitten shield: Bitterly cold winds required South Dakota School of Mines & Technology students, and anybody else venturing out in Wednesday's blizzard, to dress warmly, or at least cover an unprotected ear with a mitten.

Journal photo by Steve McEnroe

pid City public schools called off
isses Wednesday, but South Dakota
hool of Mines & Technology officials
ited until noon to cancel classes.

Students, like this one, had to brave fierce winds and blowing snow on campus. **See more storm photos on pages C1 and C5.**

throughout snowstorm

■ Highway Patrol cites early warning for lack of problems.

By Journal Staff

Blowing snow and deep cold came close but didn't completely shut down the West River region Wednesday.

Winds sparked minor power outages, and area schools closed.

Many employers sent their workers home early or told them to stay home in the first place.

But Rapid City Regional Airport stayed open, although airlines canceled a few evening flights. And although authorities advised no travel, few major highways were closed.

"Things were remarkably calm," Capt. Terry Mayes of the South Dakota Highway Patrol at Rapid City said in noting an absence of serious accidents during the day.

The reason, he suggested, was that people had so much early warning, starting Tuesday evening, that they stayed home as the storm rolled past Wednesday. Or if they did drive, they exercised extreme caution.

Mayes said roads in western South Dakota generally remained fairly clear and dry, becoming occasionally slippery in sheltered spots.

Snow to end today, wind to subside and cold to persist — ***Page C1***

The Highway Patrol advised no travel in the Black Hills.

"Our big concern was the wind, which made visibility very limited to restricted," Mayes said.

In northeast Wyoming, only Interstate 90 between Gillette and Buffalo was closed for a short time Wednesday, then reopened for one-way traffic in midafternoon.

At Spearfish, Police Chief Jim Arnold said, "It's unrealistically quiet, actually. Usually the first day of snow, we have a lot of accidents,

See **Storm** on page **A2**

ers
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Travel:

Continued from page A1

deputy counsel Vincent Foster Jr.

In handwritten notes dated May 31, 1993, Watkins wrote that on May 12 — seven days before the firings — Thomason told him "he bumped into Hillary, and she's ready to fire them all that day."

Watkins wrote that two days later, in a conversation with Foster, he "says he's getting more pressure from first lady to act. ... First lady says she thinks these people should be out."

Earlier this month the White House released a memo, dated in the fall of 1993, in which Watkins wrote "there would be hell to pay" unless the first lady's wishes were followed.

Interviewed Wednesday by CNN in Ann Arbor, Mich., Mrs. Clinton reiterated she merely had expressed concern about financial irregularities. "I did not have a hand in making the d[illegible] clearing runways at 4 a.m. Wednesday and kept the airport open through the day, said Colin MacKenzie, airport operations manager.

Airlines, however, canceled some evening Rapid City flights, and at least two canceled arrivals meant aircraft were not available for departures this morning.

Power lines took a beating from the wind, but outages were mostly minor during the height of the storm.

Southern parts of the region appeared to be hardest hit.

Black Hills Electric customers in the Hermosa area went without power about an hour and half because slick roads slowed crews headed for the problem area.

The Newcastle, Wyo., area was hardest hit on the Tri-County Electric Association system, and service was off at one of the area's oil fields.

Barbara Thirstrup of Black Hills Power & Light said: "We've basically had a pretty calm time with the storm, considering we've had 52-mph winds."

At Rapid City, the SCI Systems Inc. plant on Disk Drive lost electricity for about half an hour early Wednesday afternoon, and 10 homes in the Enchanted Hills area lost power for a time Wednesday morning.

Residents in the Northern Hills reported few problems with the snow, although some were miserable from the cold and customers stayed home.

"Things aren't moving, put it that way," said Diane Voyles at Belle Auto Parts in Belle Fourche.

"You wouldn't want to be out in this if you didn't have to be."

Customers mainly sought thermostats, starters and other replacements for disabled auto parts, she said.

"Business has been dead," said Jeff Mollman, the manager at Performance Automotive in Lead, but there [illegible] pretty nice up here, really. It's kind of cold but not snowing much."

Tim Hammack, manager at Wal-Mart in Spearfish, said some employees couldn't make it to work. But customers were also absent. "There hasn't really been hardly anyone in here this morning. I think most of them are just staying home."

By early afternoon, Sheila Kuhn and April Hafner of Langer's Black Hills Arts and Crafts in downtown Spearfish looked lonely.

They had only one walk-in customer, but thanks to the store's wholesale business, "we've had lots of phone calls (from customers)," said Hafner.

Cold also kept customers away from Ingalls Department Store in Sturgis.

"We're just kind of waiting to see if someone wants to come in," said assistant manager Donna Keszler. "It's been very slow and cold and windy outside. We may be closing early."

Most schools in the Northern Hills did not open Wednesday morning.

Spearfish, Lead-Deadwood and Black Hills State University tried. But Lead-Deadwood students were on their way back home by 10 a.m., and Black Hills and Spearfish began shutting down at 11 a.m.

"We made a valiant effort," said Superintendent Bill Nachatilo at Spearfish. "Our buses didn't have any problems getting out there this morning."

But concerns over the wind, wind chill and visibility forced early closure, after the youngsters had been fed lunch, he said.

[illegible] send their drivers out into the cold. Other restaurants closed early — or didn't open at all.

Domino's Pizza was one of the few that tried to maintain business as usual.

"We were extremely busy for lunch," said a happy Kevin Hanson, who manages the westside store. "We probably did about $400 in a two-hour period. ... That is way above normal. Usually during the lunch rush we make $150 to $200 max."

Hanson wasn't the only one smiling. Appreciative customers gave his drivers tips ranging up to $5.

Those who celebrated the most were the ski areas. While Wednesday's subzero temperatures and accompanying 50-below wind chills did not make it a good day to hit the slopes — Deer Mountain and Terry Peak ski hill managers hope to reap the benefits of the storm for weekends to come.

"We lost a little snow over the warm three-day weekend (Jan. 13-15)," said Darin Derosier, assistant manager at Deer Mountain. "This gets us back to where we were."

But Derosier and Bob Munsell, assistant manager at Terry Peak, admitted they were more than a little disappointed when the snow began tapering off after only 6 inches had fallen — one-sixth of what had been forecast initially.

"We're just hoping what they called for pans out. They were predicting 3 feet," Munsell said.

"But we're happy with any snow we get," Munsell added.

lown to watch videos

Taverns and liquor ores did brisk storm ay business, too.

Erin Andersen
urnal Staff Writer

Rain, sleet or snow won't keep leo stores from operating — unfor-nately, the same couldn't be said r the local mail delivery, which was alled by Wednesday's blizzard.

The U.S. Postal Service canceled ail delivery in Rapid City, Box Elder nd Ellsworth Air Force Base Wed-esday. Schools and businesses losed. Local governments shut down. nd traffic — what little there was — lipped, skidded and stalled on slick, snow-covered streets.

Despite the tribulations, grumbling was minimal. In fact, lots of people were rejoicing — from school kids to business folks.

"Whenever it snows and the radio says no travel is advised, that is our busiest time," said Bob Fields, manager of the West Main Street Video World store. "People want to get stuff to do while they are sitting at home. They don't want to be bored."

Video stores reported brisk business.

"We had customers waiting at the door when we opened up this morning," said Jon Brue, manager of Blockbuster Video in Rapid City.

Hot picks included new releases, from Hugh Grant's "Nine Months" to theater-flop "Showgirls" to action flicks such as "First Knight." By mid-afternoon, the selection was dwindling, but customers were not.

And there were plenty of patrons frequenting some local taverns.

"We've been swamped," said Wendy Rhodes, who works at Kelly's Sports Lounge.

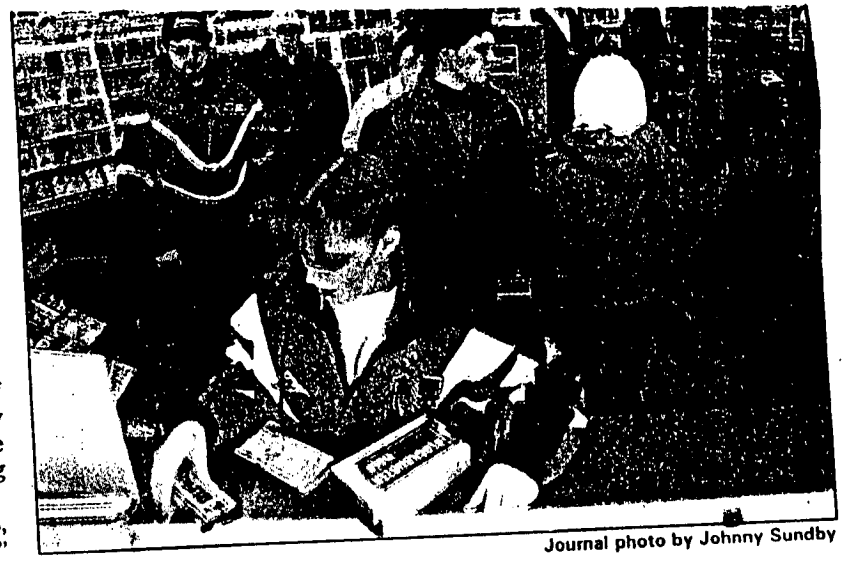
Liquor stores did well, too.

Andy Schneider, manager/owner of Canyon Lake Liquor had a busy morning and afternoon, as people stopped to stock up before heading home for the day.

"People are getting the essentials, going home and staying home," Schneider said.

At the Toddy Shoppe in Sturgis, business was brisk with people mak-

See **Happy** on page **A2**



Journal photo by Johnny Sundby

Blockbuster Video and other area video rental stores were inundated with customers Wednesday when the storm canceled many scheduled activities.

Rapid City
Journal
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Storm cancels table dedication

SPEARFISH — Wednesday's winter storm forced the cancellation of the dedication of a children's table at the Spearfish City Library in memory of a school secretary.

The table, designed to hold large picture books, was to be dedicated Wednesday evening in honor of Carlene Collins, secretary at Central Elementary School until her death in May 1995, said Principal Kay Burke.

Burke said she did not know when the ceremony for the table, bought with pennies saved by the children in a project launched by Collins before her death, would be rescheduled.

Burke said school officials were trying to come up with ways to raise money for the new library, only a block from the school, when Collins "had the idea of the penny jar. She had this big penny jar and the kids got real excited about bringing pennies for the jar."

Collins, said Burke, had been secretary at the small grade school for seven years.

"She was wonderful,"said Burke. "She put Band-Aids on the kids and gave them encouraging words and sent them back to class.

"She was loved by everybody."

Journal photo by Don Polo

Heat vapors distort the view of firefighters working behind the main control line on the eastern edge of the East Gate fire between Custer State Park and south of Highway 36 near Hermosa. The 1,500-acre fire was th largest of at least four fires battled Saturday in th Black Hills area. **See more photos on page C1.**

Flames blown hotter

■ Firefighters battle grass, timber blazes — and fierce, cold winds.

By Dan Daly
Journal Staff Writer

Saturday's blustery winds fueled at least four timber and grass fires in the Black Hills, one of them consuming about 1,500 acres of timber and grass just east of Custer State Park.

That fire, dubbed the East Gate fire, was the largest of the blazes. Crews also were fighting fires near Pactola Reservoir, Stockade Lake and inside Custer State Park.

Rich Homann, spokesman for the South Dakota Division of Forestry, estimated the size of the East Gate fire at about 1,500 acres. By evening, the blaze had essentially been contained.

That fire began on private land just east of the park entrance and south of S.D. Highway 36. The state Division of Forestry was in charge of fighting that blaze, and rural fire crews from Hermosa, Hayward, Piedmont, Rapid Valley, Sturgis, Black Hawk and Hot Springs were among those joining the battle.

By midafternoon, there were no reports of structures damaged or people injured, Homann said.

Nearby, another fire inside Custer State Park had consumed about 25 acres of forested land but was nearly contained, Homann reported.

That blaze was burning on a ridge just above the State Game Lodge in Custer State Park, but the winds were pushing the fire away from the lodge.

The East Gate fire picked up speed as it moved south-southeast from timbered land onto grassland. The cold, windy weather made conditions difficult for the fire

See **Fires** on page **A2**

Fires: Causes most likely were related to high winds

Continued from page A1

crews, Homann said.

"It is awful cold out there. Fighting fires in the cold is the toughest," Homann said. "The challenge is keeping guys warm and the equipment running."

Homann was unsure of specific causes. He suspected that either the wind caused power lines to short out and spark or the wind kicked up smoldering piles of slash and wood. Loggers and landowners often burn slash in the winter.

The U.S. Forest Service was coordinating efforts to bring two central Black Hills fires under control.

One fire, called the Perrin fire, had burned about five acres, said June Johnson of the Custer Fire Coordination Center. Crews from the Johnson Siding Volunteer Fire Department responded to that blaze, and several Forest Service units were joining them.

By evening, it was mostly contained, according to dispatchers.

The other blaze, which began as a slash fire, consumed about 40 acres south of Stockade Lake by Saturday evening. Dispatchers said it also had been mostly contained.

Both of those fires were reported around noon, Johnson said.

Fire crews in Hot Springs also responded to a handful of fires in the Southern Hills. All of them were caused by wind-blown slash piles and all were brought under control quickly.

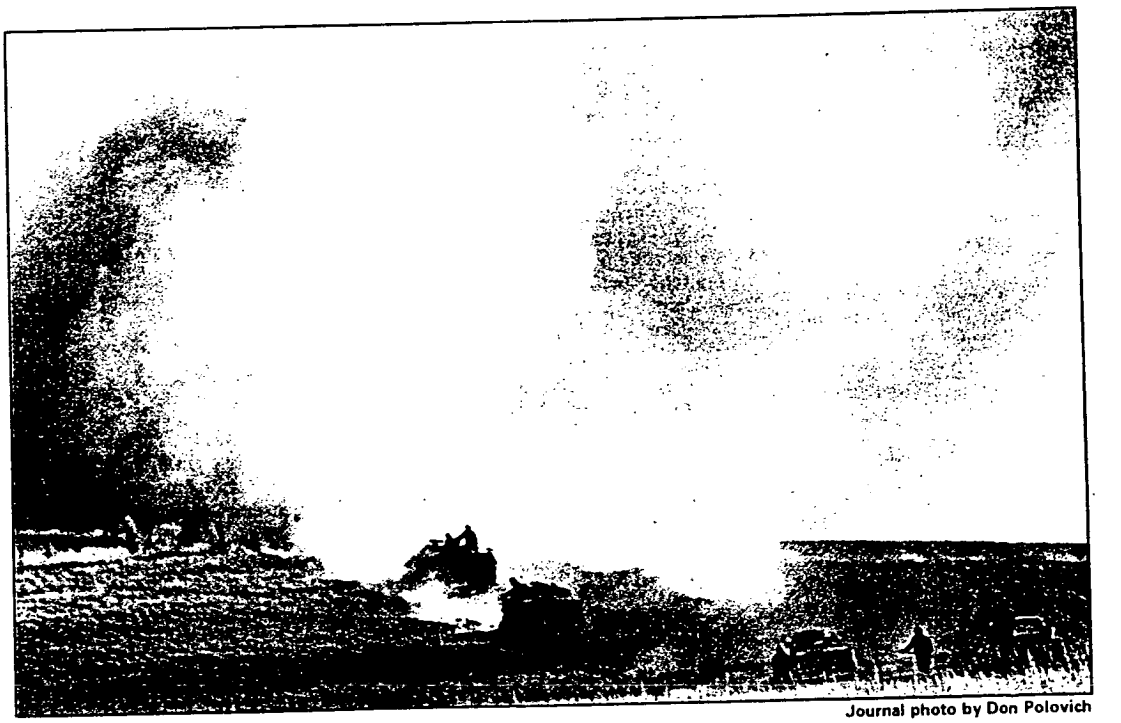
Winds whipped up Friday night and picked up strength Saturday morning. The National Weather Service reported steady winds of 40 to 50 mph in Rapid City, with a peak gust of 70 mph at Rapid City Regional Airport.

Homann was encouraged by forecasts that the wind would die down by nightfall. He expected crews would remain at the scenes all night.

Fire and smoke

Journal photo by Johnny Sundby

Battling blazes: In photo above, U.S. Forest Service firefighters, pulaskis in hand, make their way toward the fire line behind Pactola Dam (mountain on north) through thick, blue smoke Saturday. Wind gusts of up to 70 mph buffeted the fire, which was caused by a downed electrical line and burned about five acres before being contained. In photo at right, firefighters work along the line behind the main blaze Saturday on the east side of the East Gate fire between Custer State Park and south of S.D. Highway 36 near Hermosa.



Journal photo by Don Polovich

Winds create havoc

By Dan Daly
Journal Staff Writer

Rich Schmidt of Rapid City said he realized just how strong Saturday's wind was when it picked up a metal storage shed and blew it away.

He happened to be standing inside it at the time.

"It just lifted off," Schmidt said Saturday afternoon. "The whole back side raised up in the air, and it went right on over me."

■ *Blizzard East River* — ***Page C4***

The shed, measuring about 10 by 15 feet, was at a St. Francis Street apartment building. It had already lost one wall, and Schmidt was trying to stack tires against the other wall to hold it down.

"Suddenly, it just wasn't there. I felt like a fool standing there with tires and no shed," said Schmidt, who was not even touched by the shed.

Saturday's strong winds — one gust in Rapid City was clocked at 80 mph — damaged signs, sent semi-tractor trailers

See **Wind** on page **A2**

Journal photo by Johnny Sundby

Two cars lie beneath a large billboard for I-Deal Homes in Black Hawk. The sign was felled by heavy winds about 10 a.m. Saturday. The cars were not occupied. Pictured are the wife and daughter of I-Deal employee Bob Gibson.

Storm strands 250 at truck sto

I Sen. Larry Pressler so caught unawares.

/ The Associated Press

Strong winds and blowing snow anded travelers, including South kota Sen. Larry Pressler, in northst South Dakota Saturday afteron.

More than 250 people were trapped the Coffee Cup Fuel Stop at Sumt just off Interstate 29, the same ot where about 100 people were anded during a snowstorm last onth.

"It's about as tough a storm as I've en in a couple years," said Pressler, o spoke at the Watertown Farm ow Saturday morning and was ading to Milbank when the storm . "It's a South Dakota blizzard."

A high wind warning was issued for the state Saturday and for all but the Black Hills through early Saturday night.

Northwest winds gusted to 50 and 60 miles per hour across the state.

Peak wind gusts included 66 mph at Aberdeen, 68 mph at Belvidere, 70 mph at the Rapid City airport and 74 mph at Buffalo, according to the National Weather Service.

Winds were expected to diminish to 20 to 35 mph Sunday.

The surprise weather was caused by a severe change in pressure between a low pressure area over northern Minnesota and a high pressure area centered over southern Alberta, Canada, according to the weather service.

The Highway Patrol advised no travel northeast of Watertown to Webster, where new snow and the wind made a treacherous combination.

"We have zero visibility and numerous accidents," said Highway Patrol Capt. Kevin Bakke.

At the Coffee Cup in Summit, visibility was zero and the few vehicles still on the roads were creeping at about 5 mph.

"We had some snow, and then you look outside, and boom (we were) slammed with a snowstorm," said worker Dawn Wright, who also was stuck at the truck stop during the last storm. "I don't know if it caught anybody off guard, but it seems like a lot more (people) this time."

About 80 semi-trucks and hundreds of cars were in the parking lot, she said.

Wright said most people were standing because the stop has only a few booths and no restaurant.

"They're shoulder to shoulder ... doing whatever there is to do — eating and talking," Wright said.

In Webster, about 1,000 p tending a wrestling tournam gearing up to spend the wrestling mats at the Nation Armory, where the tournan held, or on padded pews churches, Day County She Nelson said.

"We're not forcing them. school-bus drivers and p hope they heed our warni don't have to come looking in the middle of the night. said.

South Dakota State U men's and women's basketb were in North Dakota sche play at Grand Forks Saturd but both games were post today.

Snow and blowing snow blizzard conditions in the R Valley of North Dakota, clos Interstate 29 from the Cana der to the South Dakota line.

Rapid City
Journal

WEDNESDAY December 18, 1996 57¢

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Cold tightens grip on re

y Journal Staff
ıd AP Reports

Chances are, students who had a y off from school were the only ople celebrating a second day of ense cold and bitter wind Tuesday.

Blowing snow and wind-chill fac-rs of minus 40 and lower caused merous school closings, delayed ıil, impaired air travel, closed ghways, stranded motorists and ought the wheels of justice to a halt

Lawrence County, where the urthouse and other county offices ere closed.

Thomas Pellegrino, convicted of cond-degree murder Friday in the ling of Gary McKee, had been heduled to be sentenced to a man-tory life term Tuesday. Lawrence ınty State's Attorney John Fitz-rald said he expected the sentenc-g to go ahead today.

Winds that gusted up to 63 miles an ur Tuesday were expected to de-ase today. But temperatures will y hunkered down in the teens and ıgle digits into Saturday, according the National Weather Service.

The lowest wind chill Tuesday was minus 54 at Buffalo.

A trace of wind-whipped snow had fallen on the area since the storm started Monday morning.

"It's extremely hard to measure when it's blowing horizontally," said Brian Kilmowski, science and operations officer for the Weather Service in Rapid City.

Blizzard conditions with light snow or flurries were expected to diminish today, but Thursday and Saturday could bring a chance of snow.

Visibility of less than one-half mile prevented planes from landing at Rapid City Regional Airport Tuesday, according to airport Operations Officer Brad Hagen.

Problems with air and land transportation kept inbound mail from reaching Rapid City, resulting in no mail delivery to homes throughout the Northern Hills, according to area postmasters.

"We didn't get any mail today," said Newell Postmaster Marjorie Adams.

The state Highway Patrol closed 170 miles of Interstate 90 between

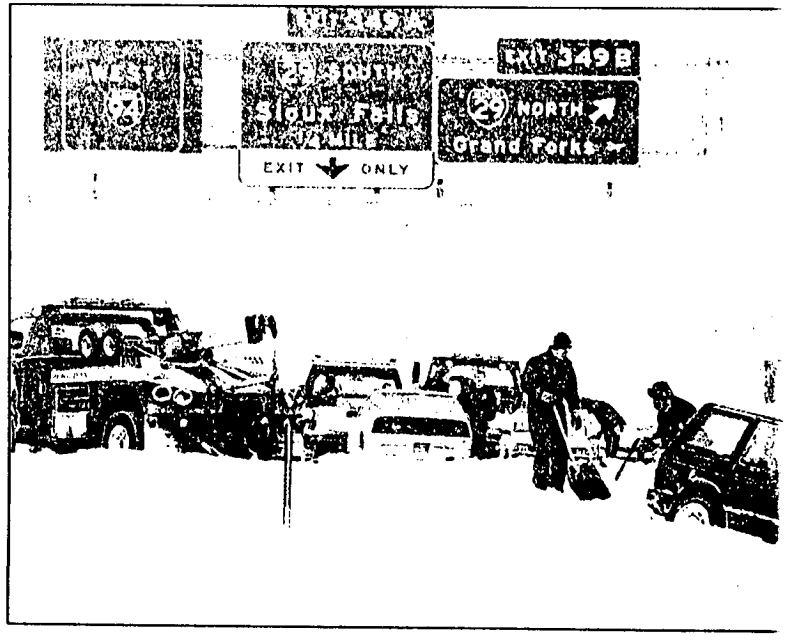
See **Cold** on page **A2**

Weather delays Journal delivery

Bad weather and closed roads have delayed or interrupted Journal delivery in many areas of West River, Wyoming and the Black Hills.

We're monitoring the weather constantly, and trucks are loaded and ready to move out as soon as roads can be safely traveled. Carriers are standing by to deliver when we can get papers to them.

We want to thank our readers for their patience and to assure our subscribers that they will receive all missed papers as soon as we are able to deliver.



Blowing snow created hazardous driving conditions Monday, resulting in this seven-vehicle pileup near the intersection of Interstates 29 and 94 near Fargo, N.D. The Nort said no one w of the crash.

Cold: Many highways closed

Continued from page A1

Chamberlain and the Wyoming line early Tuesday afternoon but reopened it between Rapid City and Wyoming by 7 p.m. U.S. Highway 83 and state Highway 14 were blocked by drifts, and all highways in and out of Pierre were closed.

State Highway 79 from Newell north to Reva also was closed, as was U.S. Highway 85 from Newell to the North Dakota border and from Cheyenne Crossing west to the Wyoming state line.

Most secondary roads in the Lemmon, Faith and Buffalo areas "closed themselves," said the Highway Patrol's Lt. Don Bender in Rapid City.

The Highway Patrol advised no travel statewide on Tuesday.

"We don't want anybody out there — we can't emphasize that enough," said Bender.

Highway patrolmen spent Tuesday rescuing motorists stuck in snowbanks — some of whom had skirted barriers on closed roads — and in at least one case, got stuck themselves. Two officers were stuck in drifts on I-90 east of New Underwood from early morning until nearly 3 p.m., according to Bender's office.

"We still have a string of vehicles and cattle trucks that are stranded east of Wall," Bender said.

The blizzard conditions prompted Gov. Bill Janklow to pull state snowplows off the highways, saying visibility was too poor for them to operate safely.

Road plowing in eastern and northern Pennington County proved to be an exercise in futility due to low visibility, according to county Highway Superintendent Hiene Jung.

"It's blowing in just as fast," Jung said.

In the Northern Hills, truck stops were jammed with travelers, and city offices were set to close early so employees could go home. Besides, there was little business to be done.

"We might have had one (tough) customer right at 8 a.m.," said Dawn Burns in Deadwood City Hall. "He came in to pay his water bill."

The scene at Mid-America Travel Plaza in Belle Fourche was quite different.

"We have a full house," said Cathy Schnaible.

Many without motel rooms or not willing to pay the price were crowded into her truckers' lounge, which has couches, a pool table, TV and video lottery.

Butte County authorities rescued three people and responded to a call that turned out to be a false alarm, according to Sheriff Dick Davis.

Two people whose car stalled northeast of Newell Monday were found Tuesday morning with a couple of stranded truckers. And members of a Fruitdale family ended up — safely — in two different places for the night.

Storm days cause problem for parents

By Erin Andersen
Journal Staff Writer

The closing of school may be music to a child's ears, but for working parents, it elicits a nervous groan as they scramble to find alternative child care for the day.

Those lucky enough to have little ones in day care frequently turn to their child-care providers for help.

At South Canyon Pooh Corner, about 20 extra children ranging in age from 5 to 10 spent Monday and Tuesday at the center while their parents worked. At the Rapid City Children's Center, about 60 extra school-age children have stayed at the day care during the past two days — all are enrolled on a part-time or seasonal basis.

But working moms and dads who do not have day care as an option frequently turn to grandparents, area teen-agers, neighbors and their own children for assistance.

And a few, such as Jennifer Lewis, take their child to work.

Seven-year-old Richelle, a first-grader at Meadowbrook Elementary, colored pictures, played in workbooks and completed small projects while her mother went about her business as a bill collector. A single parent, Lewis said she had few options. Her regular after-school baby sitter was stranded at home in Keystone both Monday and Tuesday.

"I lucked out; I have a boss who is willing to work with me," Lewis said.

Journal photo/Steve McEnroe

Legos and Gameboys are popular items as school-age youngsters join their preschool siblings Tuesday at the South Canyon Pooh Corner Preschool and Daycare.

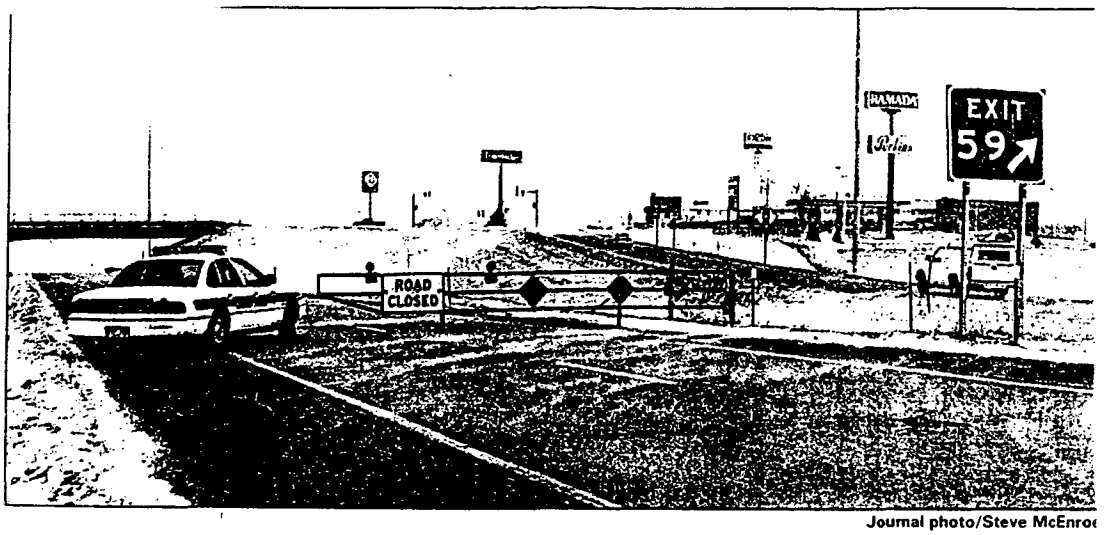
"And I would rather come to work and bring Richelle, rather than stay at home and miss work."

But Lewis could sympathize with other parents who didn't have that option.

"When you're in that situation, you grasp at anything you can figure out as an alternative," she said.

When there is no other alternative, parents — most often mothers — stay home from work, losing pay and time on the job.

See **Day care** on page **A2**



Journal photo/Steve McEnroe

A South Dakota Highway Patrol officer closes Interstate 90 at exit 59 in Rapid City Tuesday afternoon. Gov. Bill Janklow ordered I-90 closed between Rapid City and Chamberlain early Tuesday afternoon. I-90 between Rapid City and the Wyoming border was closed for awhile but was reopened Tuesday evening.

Weather throws a lock on crime

■ Law enforcement busy with motorists.

By Hugh O'Gara
Journal Staff Writer

The storm that has brought much of the West River area to a virtual standstill also has halted most crime.

However, it has been anything but a holiday for area law enforcement officers who have been rescuing motorists from dangerous predicaments.

Since the first in a continuing series of storms hit Rapid City Saturday, "It was the quietest weekend for criminal activity I've seen in two years," Capt. Craig Tieszen of the Rapid City Police Department said Tuesday. "The same continues today."

Two 18-year-old Rapid City men were arrested taking beer off a delivery truck Monday afternoon, and that is about as wild as it got.

But the highways were a different story.

Despite being closed since 10 p.m.

See **Crime** on page **A2**

Inside

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■ *Storm's impact on ranchers* — **Page C1**

■ *Northeastern Wyoming isolated by winter storm* — **Page C1**

■ *What to do when the power goes out* — **Page C6**

■ *Sports postponements* — **Page D1**

■ *Blizzard pounds South Dakota* — **Page D11**

The night the lights went out

3,500 Pierre homes lost ower in Monday night lizzard.

/ Joe Kafka
ssociated Press Writer

PIERRE – Keeping warm in the capital city ring Monday night's blizzard was not easy in out 3,500 homes that lost electricity for much the evening.

Some sought shelter at the city auditorium, ich was in an area of town that did not lose wer, but most roughed it by bundling up the st they could. Those fortunate enough to have od stoves stoked them up, warding off the stiest cold weather here in a long time.

'I've been here over 25 years, and this is as d as I can remember – to have this much nter by mid-December," said Police Chief Bill ernathy. He and a son were shopping when electricity went off.

"We had to fight our way to the pickup in the parking lot," he said. "It was that rugged out there."

Three teen-agers took advantage of the blackout to burglarize a laundromat, but police quickly caught them, Abernathy said.

Bobbi Bonnett said it was a cold night at her home when the electric furnace shut down.

"My two kids and I huddled together in sleeping bags and blankets," she said.

Bonnett's Christmas shopping was cut short at Wal-Mart when the power outage occurred about 7:20 p.m.

"We were in the middle of the store when the lights went out, and it was black," she said. "There was a little girl who started screaming, ' Mommy, mommy.'

"She wasn't far from me, but I couldn't see her. Boy did she cling onto me when I finally found her."

Bruce Pier, city public works director, said the power went off when a lightning rod snapped on a large steel electrical tower and caused a short circuit. At least 60 percent of the homes in Pierre were without power for several hours, he said.

Finding the problem during the storm was very difficult, Pier said.

"The crews couldn't see because of the drifting and blowing snow, and the wind chill was 50 below," he said.

Power crews used a hydraulic bucket lift to fix the problem at the top of a 55-foot power pole, braving wind gusts near 50 miles per hour, as well as blinding snow and freezing cold.

"It was pretty miserable," said Todd Chambers, a city electrical engineer. "We couldn't find the problem for a long time because of poor visibility."

Power was back on in most homes by about 4 a.m.

The fire department set up cots at the city auditorium, and about 25 people spent the night there, said Fire Chief Darrell Hartman. "I was surprised we didn't have more people come down, as cold as it was."

Winter storm blasts S.D.

By The Associated Press

Winds gusting up to 60 mph kicked up snow across South Dakota on Tuesday, blocking hundreds of miles of highways and pushing wind chill temperatures to well below zero.

"We really mean it — absolutely no travel," said Lt. Don Bender of the Rapid City office of the South Dakota Highway Patrol. "Visibility is just nothing."

"You're taking a chance when you travel anywhere," said Maj. Tom Dravland. "You might make it or you might not. Our caution is that we're just asking people not to go out unless it is an absolute emergency. You're just better off staying at home."

Much of the western half of the state remained under a blizzard warning Tuesday afternoon while a winter weather advisory was in effect East River.

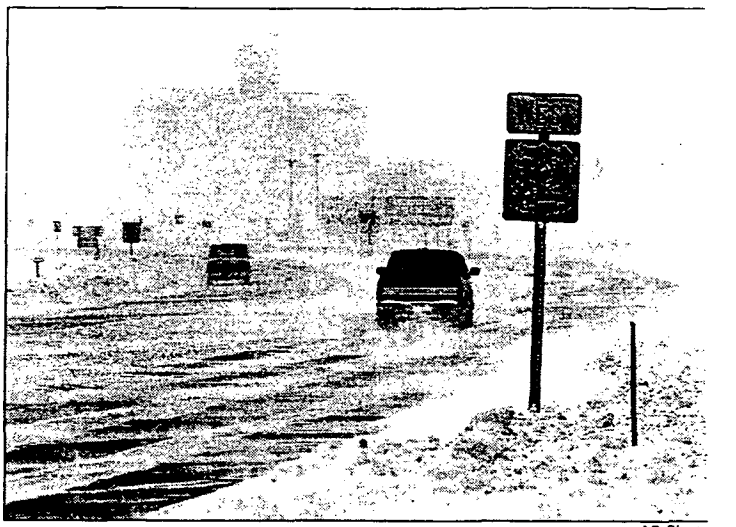
In Brown County, conditions were so bad that officials decided against digging out county roads until early this morning.

Snowdrifts are "as hard as cement," said Richard Burns, the county's highway foreman. Plow operators were unable to see the road or any motorist who might be stranded. The earliest plows would go out would be 4 a.m. today and then only if the wind subsides, he said.

Bender said the worst areas West River were near Newell, Faith and Buffalo. Crews were trying to reach people stranded at several spots along the interstate Tuesday afternoon, he said.

Crews also responded to medical emergencies, he said. Plows and four-wheel-drive vehicles were enlisted to get medicine to some people, according to Bender.

"We have rescued quite a few people," Bender said.



AP Photo

Motorists make their way along U.S. Highway 12 in Aberdeen Monday. Strong winds caused blizzard conditions in many areas of South Dakota Monday and Tuesday.

He warned would-be travelers not to avoid the gates that block access to the interstate highway. "Anyone trying to go around the gates will be in trouble," Bender said.

People now stranded on the interstate in the western part of the state were among those who went around the gates, he said. About eight people were plucked off the route last night, Bender said.

Near Lemmon, a state plow pounded through drifts several feet high Tuesday morning to reach an Aberdeen woman who had been stranded in her vehicle overnight.

Mary Coleman, 41, had been hunting with her brother in Montana and was returning to Aberdeen late Monday afternoon when she got stranded just six miles west of Lemmon on U.S. Highway 12.

Coleman had plenty of food, water and other survival gear and was in good condition when a search party found her, said Mike Schmeltzer, a game warden from Lemmon.

Ron Halvorson, of Binford, N.D., postponed checking out of his Rapid City motel for the second time Tuesday after winds whipped snow into a sea of white.

"We just pushed snow with our bumper until we couldn't go any further." Halvorson said. "Then we stopped for about four hours and waited for a plow to come through."

Forecasters said the dangerous wind chills would continue into Wednesday.

"We're not going to warm up anytime soon," said Todd Heitkamp of the National Weather Service office in Sioux Falls.

RCJ 7/16/97

City air quality under EPA scrutiny

By Heidi Bell
Journal Staff Writer

Government and industry will have to work together to improve Rapid City's air quality, or federal officials will take matters into their own hands.

An air quality monitoring site at the westside Prairie Market (formerly Family Thrift Center) recorded dust levels exceeding national air quality standards in January, February and December 1996, and on May 14 of this year.

Tim Rogers of the state Department of Environment and Natural Resources told the Rapid City Council's Public Works Committee on Tuesday that excessive levels on May 14 triggered an air quality violation, which triggers an Environmental Protection Agency review of the city's status.

Currently, Rapid City is unclassified. According to a summary Rogers provided to the council, two samples were collected in 1992 that violated federal standards. At that time, EPA planned to designate Rapid City a nonattainment area.

But both air samples — like all four Prairie Market samples that exceeded standards — were taken on days when there were high winds and abnormally dry conditions, according to the information from DENR.

Because of that, the document states, the EPA agreed to suspend the nonattainment designation if four conditions were met: There must be no more violations; additional measures must be taken to control dust from street sanding and industry; air quality must be monitored, and an analysis of monitoring data must be submitted to the EPA.

The only condition that was not met was the one requiring additional controls for industry.

See Air on page A2

Continued from page A1

Now, local industry might find it wise to take action. If Rapid City is designated a nonattainment area, industry will be required to add costly air quality controls.

The designation could also put a crimp in economic development, since new industry could not produce more pollution than existing industry cut.

If problems aren't fixed in four years, industry would have to cut pollution by two tons before it could produce one ton. The EPA could also withhold federal highway funds and could develop a federal plan to improve local air quality.

There is hope, though. Rogers said the Pennington County Air Quality Board will apply for a natural-events exception from the EPA. That requires submitting a Natural Events Action Plan of what the city, county and industry will do to avoid future high-wind problems.

The plan must include industry efforts to cut dust and pollution. Getting the EPA and the industries to agree on what's reasonable will be the tricky part, Rogers said.

"They may or may not approve it."

Also on Tuesday, the public works committee agreed to consider providing directional signs for quasi-public facilities such as The Journey museum and the Dahl Fine Arts Center on a case-by-case basis.

And they voted to install larger directional signs for The Journey, saying the city needed to support its $10 million investment in the museum.

"If we don't, they're going to look for more money, and it's not going to be for signs," Alderman Steve Rolinger said.

"This is the heart of our tourist season, and we're finding ... it's difficult to direct tourists to that location," said Bill Wyatt, The Journey's interim director. He said additional signs should help boost attendance for the museum's first summer.

The matter goes to the full council Monday night.

Air quality alerts are a sound idea

■ It's better for our physical and economic health if citizens heed air quality alerts voluntarily. RCJ 11/23/97

To keep the wolf from the door, Rapid Citians are being asked to heed air quality alerts for high winds and temperature inversions. The wolf in this instance is the Environmental Protection Agency, which if it isn't satisfied with Rapid City's voluntary efforts to ease its air pollution problems, it will come in and require solutions. Those solutions might include bans on wood burning, including wood stoves and fireplaces, requiring new and expanding industries to install costly air quality controls and paving dirt parking lots and alleys.

Rapid City has been a part of South Dakota's air monitoring network for over 20 years. The city failed its first particulate matter standard in 1979, the solution for which was to change its street sanding techniques. The current standard is for PM10 particles measured by monitors at six locations in Rapid City. The city exceeded the PM10 standard three times in 1992, each during days of winds of over 50 mph. But this was enough to put Rapid City into a sort of air quality limbo. All it takes to catch the EPA's attention is to exceed ambient air quality standards more than four times in four years. Thus, high wind and inversion alerts will be issued in order to avoid non-attainment status.

The Journal's view

An air pollution alert for dust includes Rapid City west of the Gap and will be issued by the National Weather Service when the following three conditions are in effect: five consecutive days of 0.02 inches or less of precipitation each day; peak wind gusts greater than 40 mph are forecast; and forecasted average wind speeds will exceed 20 mph.

An air quality advisory for inversions includes Rapid City and three miles surrounding the city and will be issued by the NWS when the following conditions are in effect: low temperature is less than 20 degrees; average wind speed is below 8 mph; the inversion layer is below 4,500 feet; and no precipitation or fog is forecast.

When either of these alerts are issued, the elderly, young children and individuals with respiratory conditions will be advised to avoid physical exertion. In addition, residents in the affected areas will be asked to stop burning wood or coal in fireplaces and furnaces, unless it's their sole source of heat, and industries that contribute to air pollution will be asked to cease operation or minimize activities, according to the Pennington County Air Quality Board (PCAQ).

Paying heed to the air quality alerts on a voluntary basis is especially important because otherwise the EPA may force more drastic measures under authority of the Clean Air Act. Ann Rinke, PCAQ director, said non-attainment would bring in the EPA with its attitude of, "You didn't use your freedom intelligently, so now we're going to come in and tell you what to do."

When the EPA's new PM2.5 standards are in effect — sometime after the year 2000 — it is expected that Rapid City will go into non-attainment status, said Rinke. She said the alerts and voluntary response efforts are to "get people accustomed to the idea."

The decision to begin issuing air quality alerts when specific weather conditions occur is a sound one. It will be better for Rapid City's economic health — as well as physical health — if individuals and businesses voluntarily take steps to reduce air pollution on the rare days when a problem exists than if the EPA were to dictate solutions.

APPENDIX C

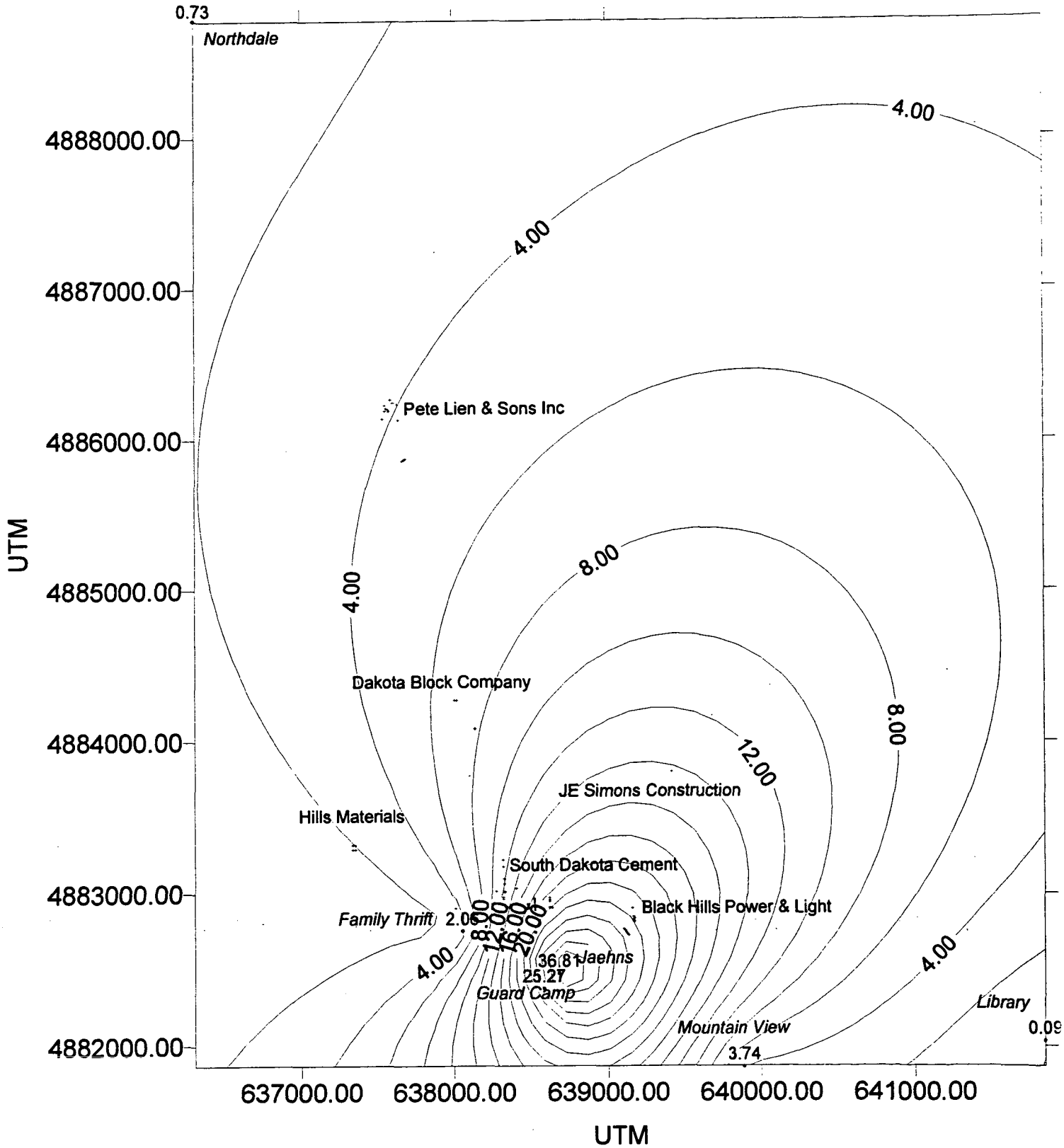
POINT SOURCE AIR DISPERION MODEL (ISCIII)

ISOPLITH

AND

MODEL OUTPUT RESULTS

Point Source Receptor Model (ISC III)
High Wind Day
(20 mph daily average, 40 mph peak, N/NW direction)



*** ISCST3 - VERSION 96113 *** *** Rapid City Point Source Model BEESTMASTER ***

BEE-Line ISCST3 "BEEST" Version 5.00

Input File - C:\BEEWORK\RCPRAC01.DTA
Output File - C:\BEEWORK\RCPRAC01.LST
Met File - F:\MODEL_AQ\MET\RAP86N.BIN

Number of sources - 74
Number of source groups - 1
Number of receptors - 6

*** POINT SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	STACK HEIGHT (METERS)	STACK TEMP. (DEG.K)	STACK EXIT VEL. (M/SEC)	STACK DIAMETER (METERS)	BUILDING EXISTS	EMISSION RATE SCALAR VARY BY
SIASPH	0	0.15120E-01	639418.4	4883805.0	1022.0	12.19	324.82	2.44	0.97	NO	
BHBOILCO	0	0.27506E+01	639160.0	4882910.5	1019.0	60.96	388.71	5.98	3.66	NO	
BHTURB1D	0	0.15511E+01	639166.2	4882855.0	1018.0	10.77	759.82	11.85	4.02	NO	
BHTURB2D	0	0.15511E+01	639174.4	4882844.0	1017.0	10.77	759.82	11.85	4.02	NO	
BHTURB3D	0	0.15511E+01	639166.7	4882833.0	1017.0	10.77	759.82	11.85	4.02	NO	
BHTURB4D	0	0.15511E+01	639174.9	4882822.0	1017.0	10.77	759.82	11.85	4.02	NO	
BHGEN1D	0	0.27340E+00	639103.8	4882776.0	1013.0	4.88	672.04	19.62	0.70	NO	
BHGEN2D	0	0.27340E+00	639112.0	4882765.0	1013.0	4.88	672.04	19.62	0.70	NO	
BHGEN3D	0	0.27340E+00	639120.3	4882754.0	1013.0	4.88	672.04	19.62	0.70	NO	
BHGEN4D	0	0.27340E+00	639128.4	4882743.0	1013.0	4.88	672.04	19.62	0.70	NO	
BHGEN5D	0	0.27340E+00	639136.7	4882732.5	1013.0	4.88	672.04	19.62	0.70	NO	
PLCRSH1	0	0.40194E+00	637669.8	4885860.0	1051.0	3.05	324.82	3.05	1.83	NO	
PLCRSH2	0	0.21546E+00	637679.8	4885867.0	1051.0	3.05	324.82	3.05	1.83	NO	
PLKILNRO	0	0.92610E+00	637539.0	4886139.0	1054.0	22.86	547.04	20.79	1.47	NO	
PLCRUSH3	0	0.18522E+00	637689.8	4885874.0	1051.0	3.05	324.82	3.05	1.83	NO	
PLKILNVR	0	0.48006E-01	637644.0	4886132.0	1049.0	7.32	422.04	18.81	0.91	NO	
PLCRSHS	0	0.12600E-02	637581.0	4886189.0	1048.0	3.05	324.82	3.05	1.83	NO	
PLHYDBIG	0	0.15750E-01	637578.1	4886199.0	1048.0	18.29	372.04	7.49	0.98	NO	
PLHYDLIT	0	0.75600E-02	637563.0	4886208.0	1049.0	15.24	372.04	4.95	0.76	NO	
PLRAYMIL	0	0.12600E-02	637554.0	4886192.0	1052.0	6.10	266.48	3.05	1.83	NO	
PLBAGLIM	0	0.68040E-01	637554.0	4886228.0	1049.0	10.67	288.71	17.67	0.37	NO	
PLOFRLD	0	0.11340E+00	637607.0	4886244.0	1048.0	15.24	288.71	18.58	0.18	NO	
PLNFRTLD	0	0.28350E+00	637637.0	4886235.0	1047.0	10.67	338.71	23.47	0.25	NO	
PLBACKLD	0	0.23940E+00	637592.0	4886266.0	1053.0	9.14	288.71	18.58	0.18	NO	
HLBAGH1	0	0.21670E+00	637338.9	4883294.5	1055.0	15.24	294.26	8.04	1.22	NO	
HLCRCONE	0	0.19660E+00	637338.9	4883325.0	1055.0	15.24	294.26	7.28	1.22	NO	
HLBAGH3	0	0.55940E+00	637354.1	4883294.5	1055.0	15.24	294.26	14.58	1.22	NO	
HLBAGH4	0	0.49770E+00	637354.1	4883325.0	1055.0	15.24	294.26	14.19	1.22	NO	
HLASPHPL	0	0.10210E+00	638011.7	4882908.5	1039.0	10.52	383.15	24.29	1.07	NO	
DBKILNRO	0	0.16380E+00	638023.1	4884275.5	1039.0	7.32	366.48	3.05	0.97	NO	
DBCRUSHS	0	0.75600E-02	638007.1	4884275.5	1039.0	3.05	324.82	3.05	1.83	NO	
DBSILOCE	0	0.12600E-02	638139.1	4884089.0	1031.0	15.24	297.04	0.65	0.91	NO	
DBMASONS	0	0.22680E-01	638136.6	4884089.0	1031.0	6.10	366.48	3.05	1.83	NO	
SDCRUSH	0	0.12348E+01	638317.4	4883226.0	1029.0	15.24	297.04	32.80	0.96	NO	
SDSCRN	0	0.12348E+01	638319.3	4883182.5	1029.0	15.24	297.04	32.59	0.96	NO	
SDKILNR4	0	0.13860E+01	638322.8	4882970.5	1027.0	60.96	458.15	6.48	3.51	NO	

SDKILNR5	0	0.27720E+01	638322.5	4882982.0	1027.0	60.96	452.59	7.07	3.51	NO
SDSILOBL	0	0.27216E+00	638322.9	4883103.0	1031.0	53.34	366.48	1.21	1.22	NO
SDCLINK4	0	0.34020E-01	638410.6	4882941.5	1030.0	18.29	294.26	2.91	0.61	NO
SDCLINK5	0	0.68040E-01	638410.6	4882941.5	1030.0	18.29	294.26	2.91	0.61	NO

*** POINT SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	STACK HEIGHT (METERS)	STACK TEMP. (DEG.K)	STACK EXIT VEL. (M/SEC)	STACK DIAMETER (METERS)	BUILDING EXISTS	EMISSION RATE SCALAR VARY BY
SDKL6ON	0	0.42840E+00	638273.9	4883022.0	1030.0	73.15	394.26	15.17	2.74	NO	
SDCLINK6	0	0.23940E+00	638403.4	4883039.5	1037.0	15.24	348.15	9.50	2.74	NO	
SDALKBYP	0	0.18900E+00	638325.7	4883070.5	1034.0	21.64	459.82	14.23	1.52	NO	
SDMILL3	0	0.63000E-02	638339.9	4882915.5	1024.0	66.75	344.26	10.78	0.91	NO	
SDMILL4	0	0.75600E-02	638347.9	4882915.5	1024.0	66.75	344.26	10.78	0.91	NO	
SDMILL5	0	0.88200E-02	638355.9	4882916.0	1025.0	66.75	344.26	10.78	0.91	NO	
SDMILL6	0	0.88200E-02	638363.9	4882916.0	1025.0	66.75	344.26	10.78	0.91	NO	
SDMILL7	0	0.16380E-01	638371.9	4882916.0	1025.0	66.75	344.26	32.34	0.91	NO	
SDSILOC1	0	0.85050E+00	638476.0	4882938.5	1025.0	60.96	294.26	19.40	0.30	NO	
SDSILOC2	0	0.22050E+00	638476.5	4882927.0	1023.0	60.96	294.26	19.40	0.30	NO	
SDSILOC3	0	0.22050E+00	638476.9	4882916.0	1023.0	60.96	294.26	19.40	0.30	NO	
SDSILOC4	0	0.85050E-01	638477.4	4882906.0	1023.0	60.96	294.26	20.21	0.30	NO	
SDSILOC5	0	0.17010E+00	638484.0	4882938.5	1025.0	60.96	294.26	19.40	0.30	NO	
SDSILOC6	0	0.17010E+00	638484.5	4882927.5	1023.0	60.96	294.26	19.40	0.30	NO	
SDSILOC7	0	0.17010E+00	638484.9	4882916.0	1023.0	60.96	294.26	19.40	0.30	NO	
SDSILOC8	0	0.25830E+00	638485.4	4882906.0	1023.0	60.96	294.26	19.40	0.30	NO	
SDRRLD1	0	0.75600E+00	638522.7	4882974.0	1029.0	22.86	294.26	0.72	0.91	NO	
SDRRLD2	0	0.75600E+00	638522.9	4882967.0	1029.0	22.86	294.26	0.72	0.91	NO	
SDRRLD3	0	0.75600E+00	638523.4	4882958.5	1026.0	22.86	294.26	0.72	0.91	NO	
SDRRLD4	0	0.75600E+00	638523.6	4882950.5	1026.0	22.86	294.26	0.72	0.91	NO	
SDRRLD5	0	0.75600E+00	638523.8	4882942.5	1026.0	22.86	294.26	0.72	0.91	NO	
SDRRLD6	0	0.75600E+00	638524.8	4882927.0	1026.0	22.86	294.26	0.72	0.91	NO	
SDRRLD7	0	0.75600E+00	638525.0	4882919.0	1026.0	22.86	294.26	0.72	0.91	NO	
SDRRLD8	0	0.75600E+00	638525.2	4882912.0	1026.0	22.86	294.26	0.72	0.91	NO	
SDRRLD9	0	0.75600E+00	638525.7	4882903.5	1023.0	22.86	294.26	0.72	0.91	NO	
SDRRLD10	0	0.75600E+00	638525.9	4882895.5	1023.0	22.86	294.26	0.72	0.91	NO	
SDTRLDW	0	0.75600E+00	638621.3	4882916.0	1022.0	22.86	294.26	8.51	0.46	NO	
SDTRLDE	0	0.75600E+00	638637.3	4882912.0	1022.0	22.86	294.26	7.09	0.46	NO	
SDREGCB1	0	0.14364E-01	638621.9	4882977.5	1020.0	22.86	294.26	19.40	0.30	NO	
SDREGCB2	0	0.14364E-01	638621.2	4882966.0	1020.0	22.86	294.26	19.40	0.30	NO	
SDREGCB3	0	0.14364E-01	638621.4	4882955.0	1021.0	22.86	294.26	19.40	0.30	NO	
SDLIKILN	0	0.37800E-01	638325.8	4883015.0	1031.0	21.64	324.82	48.51	0.61	NO	
SDLOALKW	0	0.37800E-01	638330.0	4883020.0	1031.0	21.64	324.82	10.75	1.52	NO	
BIRSALL	0	0.15120E+00	638481.0	4882858.0	1021.0	9.14	294.26	14.37	0.91	NO	

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	SIASPH , BHBOILCO, BHTURB1D, BHTURB2D, BHTURB3D, BHTURB4D, BHGEN1D , BHGEN2D , BHGEN3D , BHGEN4D , BHGEN5D , PLCRSH1 , PLCRSH2 , PLKILNRO, PLCRUSH3, PLKILNVR, PLCRSHS , PLHYDBIG, PLHYDLIT, PLRAYMIL, PLBAGLIM, PLOFRLD , PLNFRTLD, PLBACKLD,

HLBAGH1 , HLCRCONE, HLBAGH3 , HLBAGH4 , HLASPHPL, DBKILNRO, DBCRUSHS, DBSILOCE, DBMASONS, SDCRUSH , SDSCRN , SDKILNR4, SDKILNR5, SDSILOBL, SDCLINK4, SDCLINK5, SDKL6ON , SDCLINK6, SDALKBYP, SDMILL3 , SDMILL4 , SDMILL5 , SDMILL6 , SDMILL7 , SDSILOC1, SDSILOC2, SDSILOC3, SDSILOC4, SDSILOC5, SDSILOC6, SDSILOC7, SDSILOC8, SDRRLD1 , SDRRLD2 , SDRRLD3 , SDRRLD4 , SDRRLD5 , SDRRLD6 , SDRRLD7 , SDRRLD8 , SDRRLD9 , SDRRLD10, SDTRLDW , SDTRLDE , SDREGCB1, SDREGCB2, SDREGCB3, SDLIKILN, SDLOALKW, BIRSALL ,

*** THE SUMMARY OF MAXIMUM PERIOD (24 HRS) RESULTS ***

** CONC OF PM10 IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	1ST HIGHEST VALUE IS	36.80580 AT (	638679.69, 4882482.50, 1024.00, 0.00)	DC	NA
	2ND HIGHEST VALUE IS	25.26501 AT (	638580.50, 4882383.00, 1025.00, 0.00)	DC	NA
	3RD HIGHEST VALUE IS	3.74292 AT (	639889.38, 4881867.50, 1002.00, 0.00)	DC	NA
	4TH HIGHEST VALUE IS	2.05658 AT (	638054.94, 4882760.00, 1043.00, 0.00)	DC	NA
	5TH HIGHEST VALUE IS	0.72901 AT (	636309.88, 4888772.50, 1060.00, 0.00)	DC	NA
	6TH HIGHEST VALUE IS	0.08600 AT (	641847.75, 4882041.00, 991.00, 0.00)	DC	NA

APENDIX D

CMB ANALYSIS
X-RAY DEFRACTION ANALYSIS OF FILTERS
FIT ANALYSIS AND SOURCE APPORTIONMENT OF FILTERS

FINAL WEIGHT FRACTIONS AND VARIANCE ERRORS

'cearns 1-17-9

QUARTZ				
W(I)- 1	=	.055	+-	.0116
CALCITE				
W(I)- 2	=	.5358	+-	.0646
DOLOMITE				
W(I)- 3	=	.0075	+-	.002
OLIGOCLASE				
W(I)- 4	=	.0095	+-	.0022
ILLITE				
W(I)- 5	=	.0201	+-	.0099
KAOLINITE				
W(I)- 6	=	.0127	+-	.0046
ORTHOCLASE				
W(I)- 7	=	.0261	+-	.0101
GYPSUM				
W(I)- 8	=	.0304	+-	.0064
CEMENT-C3S				
W(I)- 9	=	.1345	+-	.0354
HEMATITE				
W(I)- 10	=	.0021	+-	.0005
CEMENT-C4AF				
W(I)- 11	=	.0447	+-	.0141
CARBONACEOUS MATTER				
Woi - 1	=	.121	+-	.086

CALCULATED SAMPLE DENSITY = 2.61 GM/CM3
SAMPLE CRYSTALLINE FRACTION = 1 +- 0

COMPOUND REDUCTION

		OXIDE	ELEMENT
SiO2	=	.1286	(.0601)
Al2O3	=	.0272	(.0143)
Na2O	=	.0016	(.0012)
K2O	=	.0049	(.004)
CaO	=	.4196	(.2999)
FeO	=	.0059	(.0046)
Fe2O3	=	.0177	(.0124)
MgO	=	.0033	(.002)
H2O	=	.0202	(.0022)
C	=	----	(.1088)
CO2	=	.2392	(.0652)
SO3	=	.0151	(.006)
MnO	=	.0057	(.0044)
TiO2	=	.0001	(0)
NiO	=	.0006	(.0005)

ADDITIONAL ELEMENTAL COMPONENTS

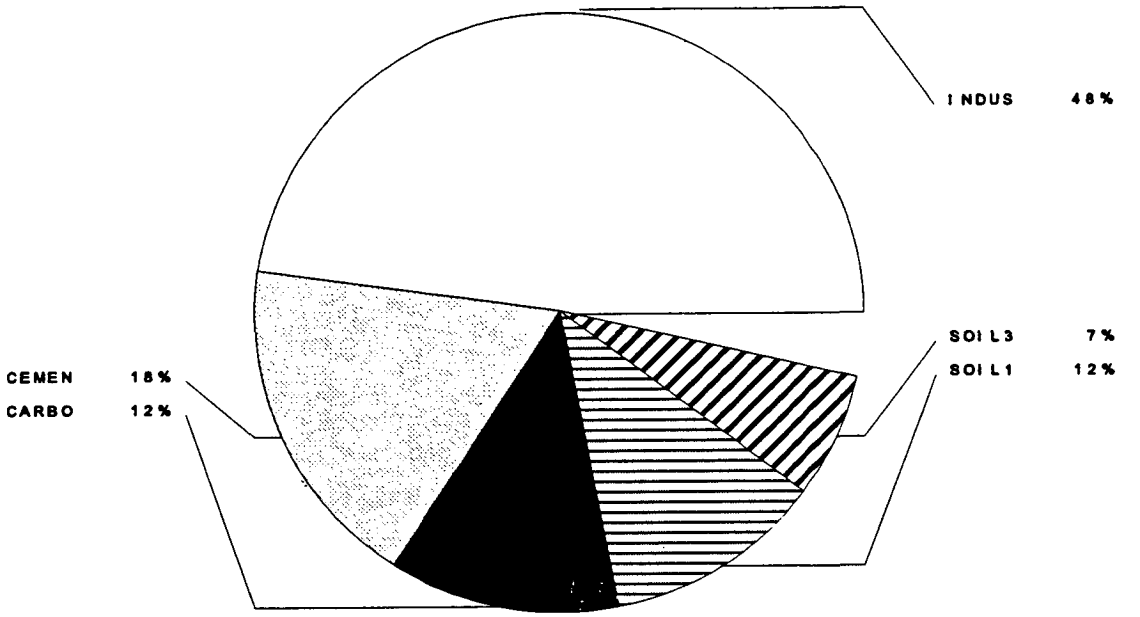
Comp-1	NONE	= (0)*
Comp-2	NONE	= (0)*
Comp-3	NONE	= (0)*

OXIDE TOTAL = .8897 ELEMENT TOTAL = .5865701
* Add these plus any C,F,Cl in ELEMENT TABLE to OXIDE TOTAL
to obtain total weight fraction
RUN COMPLETE FOR SAMPLE EMES0564

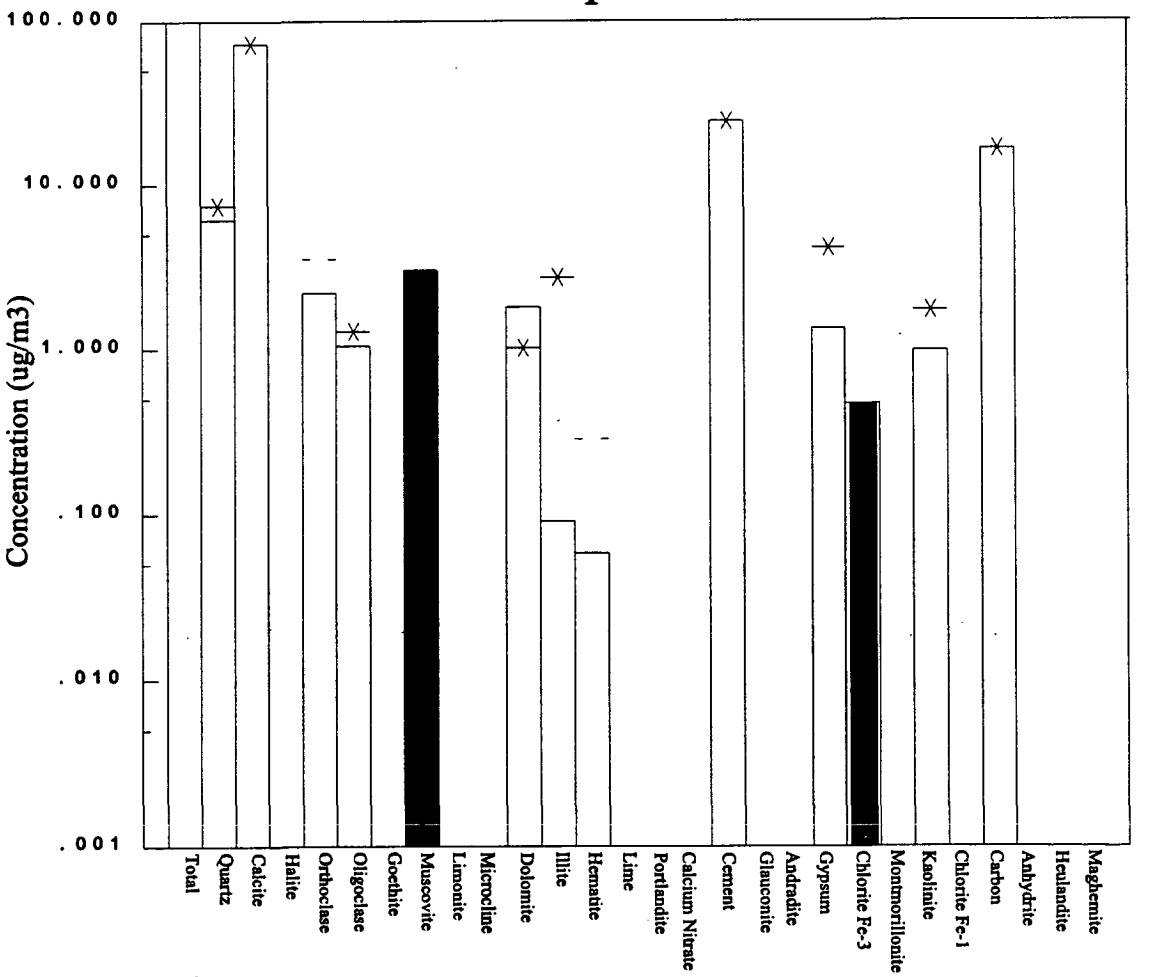
Jaehns Monitoring Site - 1-17-96

Source Apportionment

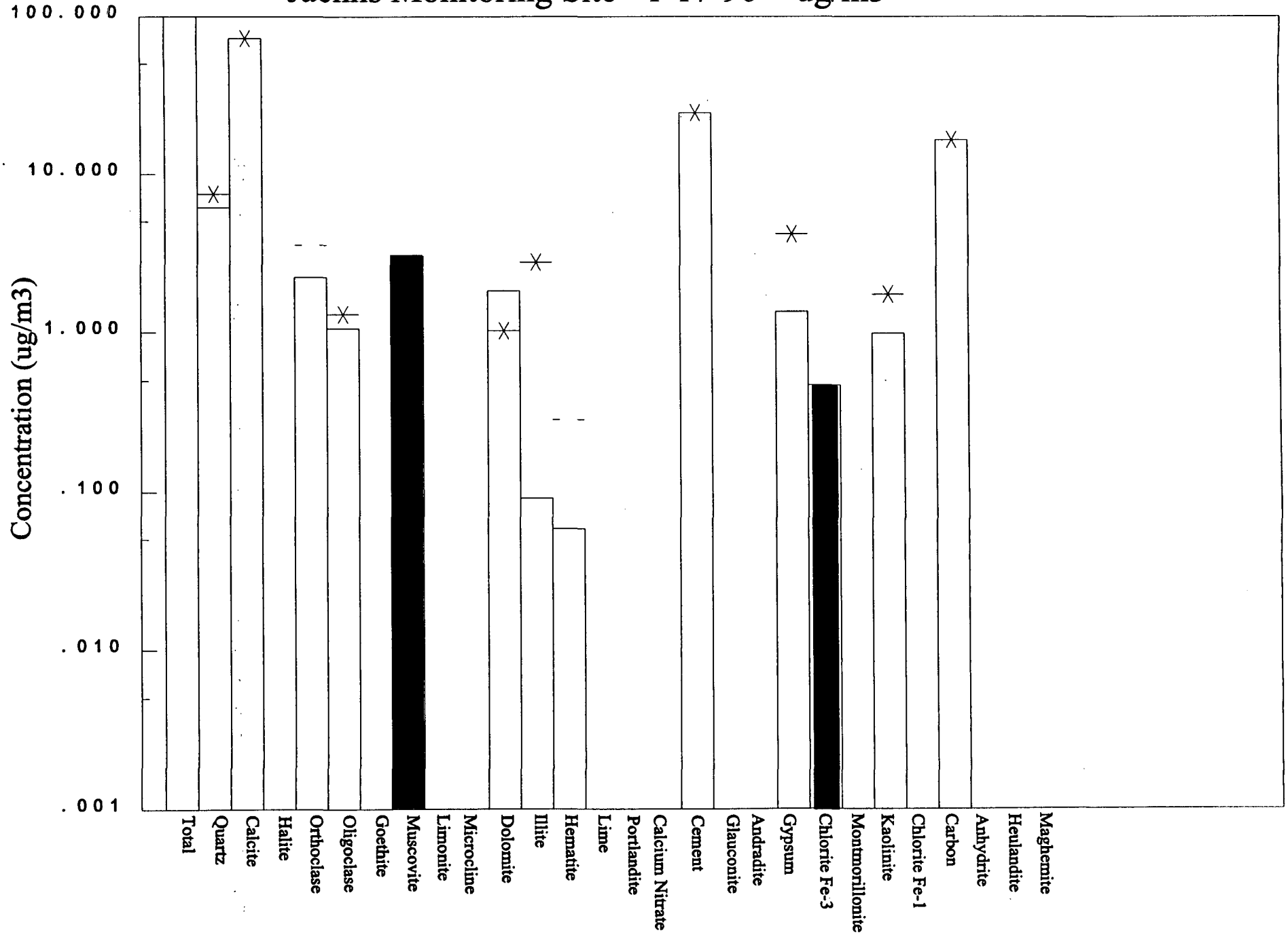
136 ug/m3 - Analysis resulted in 96% of measured mass



Mineral Species Fit



Jaehns Monitoring Site - 1-17-96 - ug/m3



FINAL WEIGHT FRACTIONS AND VARIANCE ERRORS

QUARTZ
W(I)- 1 = .0347 +- .0087
CALCITE
W(I)- 2 = .7423 +- .0531
DOLOMITE
W(I)- 3 = .0159 +- .0047
OLIGOCLASE
W(I)- 4 = .0048 +- .0014
ILLITE
W(I)- 5 = .045 +- .0212
KAOLINITE
W(I)- 6 = .0457 +- .0156
ORTHOCLASE
W(I)- 7 = 9.199999E-03
+- .004
GYPSUM
W(I)- 8 = .0015 +- .0008
CEMENT-C3S
W(I)- 9 = .0462 +- .0158
HEMATITE
W(I)- 10 = .0043 +- .0013
CEMENT-C4AF
W(I)- 11 = .0098 +- .0038
CARBONACEOUS MATTER
Woi - 1 = .04 +- .035

Joe Burns 2/10/96

CALCULATED SAMPLE DENSITY = 2.69 GM/CM3
SAMPLE CRYSTALLINE FRACTION = 1 +- 0

COMPOUND REDUCTION

	OXIDE	ELEMENT
SiO2	= 9.819999E-02	(.0459)
Al2O3	= .0351	(.0186)
Na2O	= 9.999999E-04	(.0008)
K2O	= .0045	(.0037)
CaO	= .442	(.3159)
FeO	= 8.499999E-03	(.0066)
Fe2O3	= 9.599999E-03	(.0067)
MgO	= .006	(.0036)
H2O	= .0139	(.0015)
C	= ----	(.0359)
CO2	= .3336	(.091)
SO3	= 9.999999E-04	(.0004)
MnO	= .008	(.0062)
TiO2	= .0003	(.0001)
NiO	= .0009	(.0007)

ADDITIONAL ELEMENTAL COMPONENTS

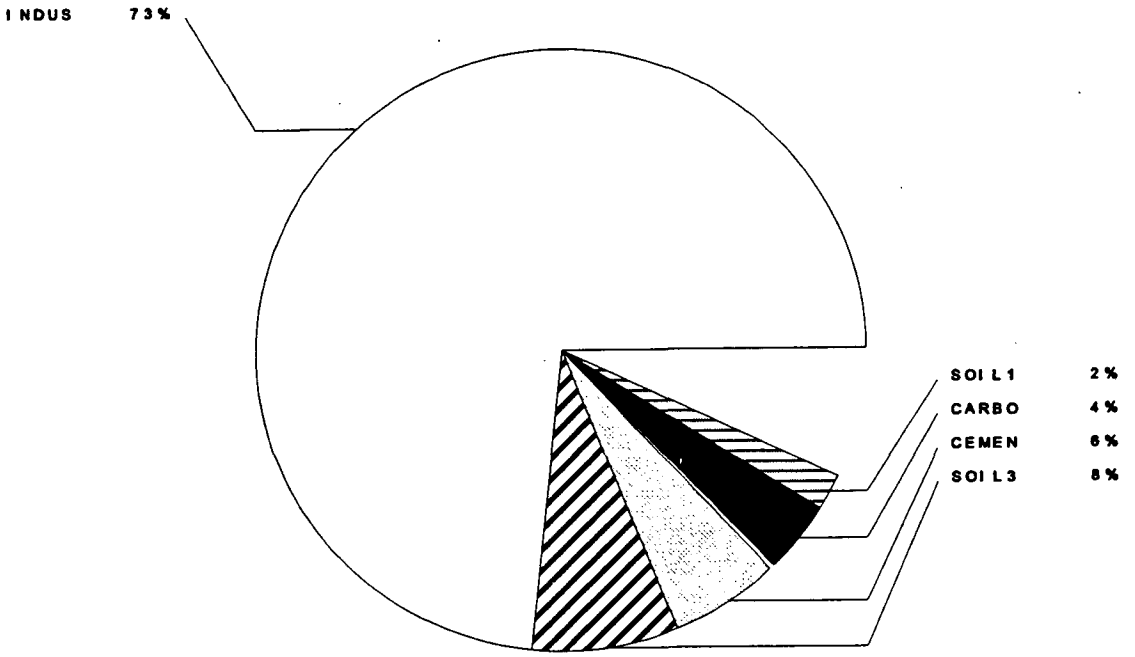
Comp-1 NONE = (0)*
Comp-2 NONE = (0)*
Comp-3 NONE = (0)*

OXIDE TOTAL = .9625 ELEMENT TOTAL = .538379
* Add these plus any C,F,Cl in ELEMENT TABLE to OXIDE TOTAL to obtain total weight fraction
RUN COMPLETE FOR SAMPLE EMES0566

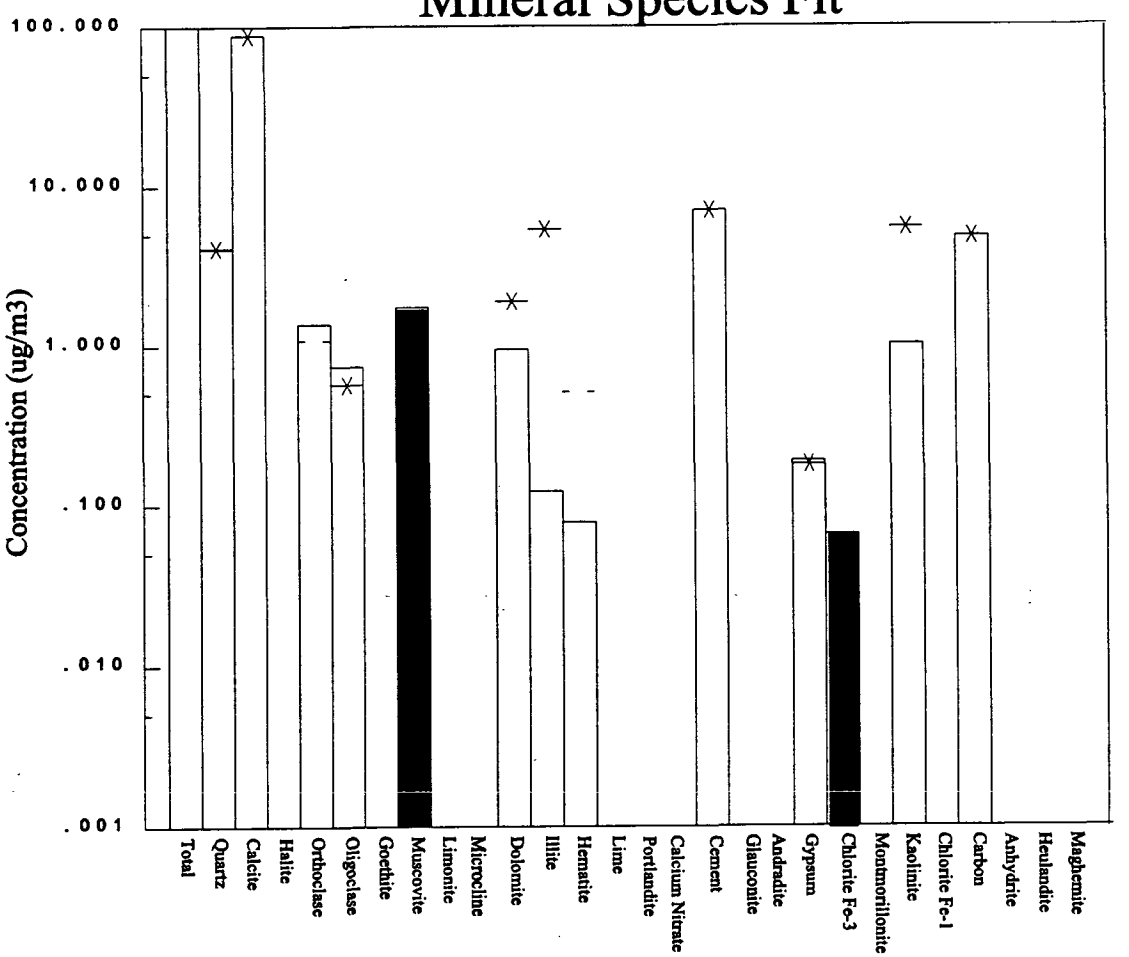
Jaehns Monitoring Site - 2-10-96

Source Apportionment

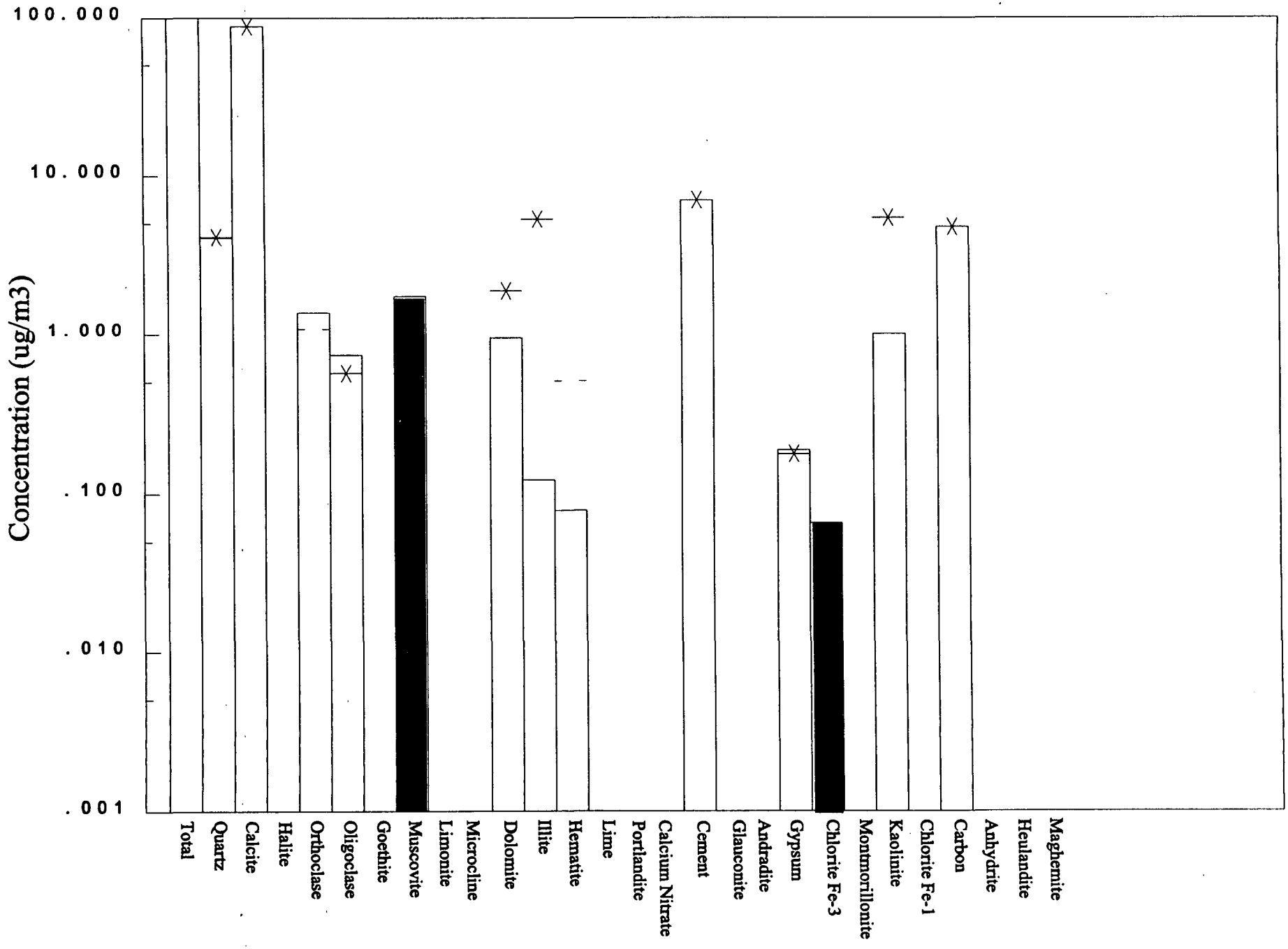
118 ug/m3 - Analysis resulted in 93% of measured mass



Mineral Species Fit



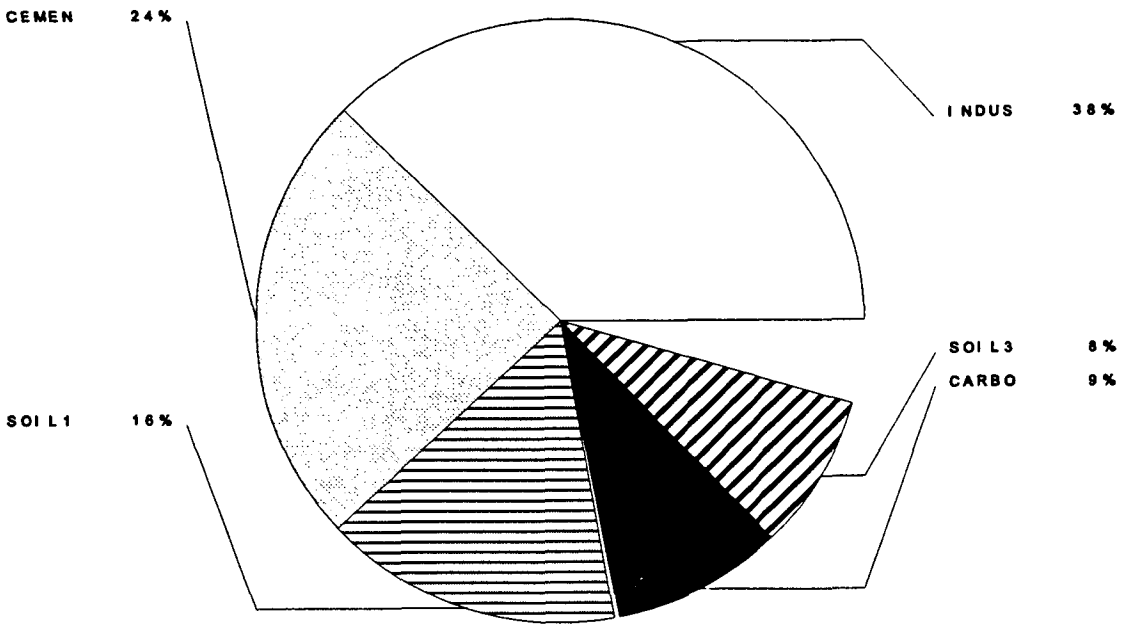
Jaehns Monitoring Site - 2-10-96 - 119 ug/m3



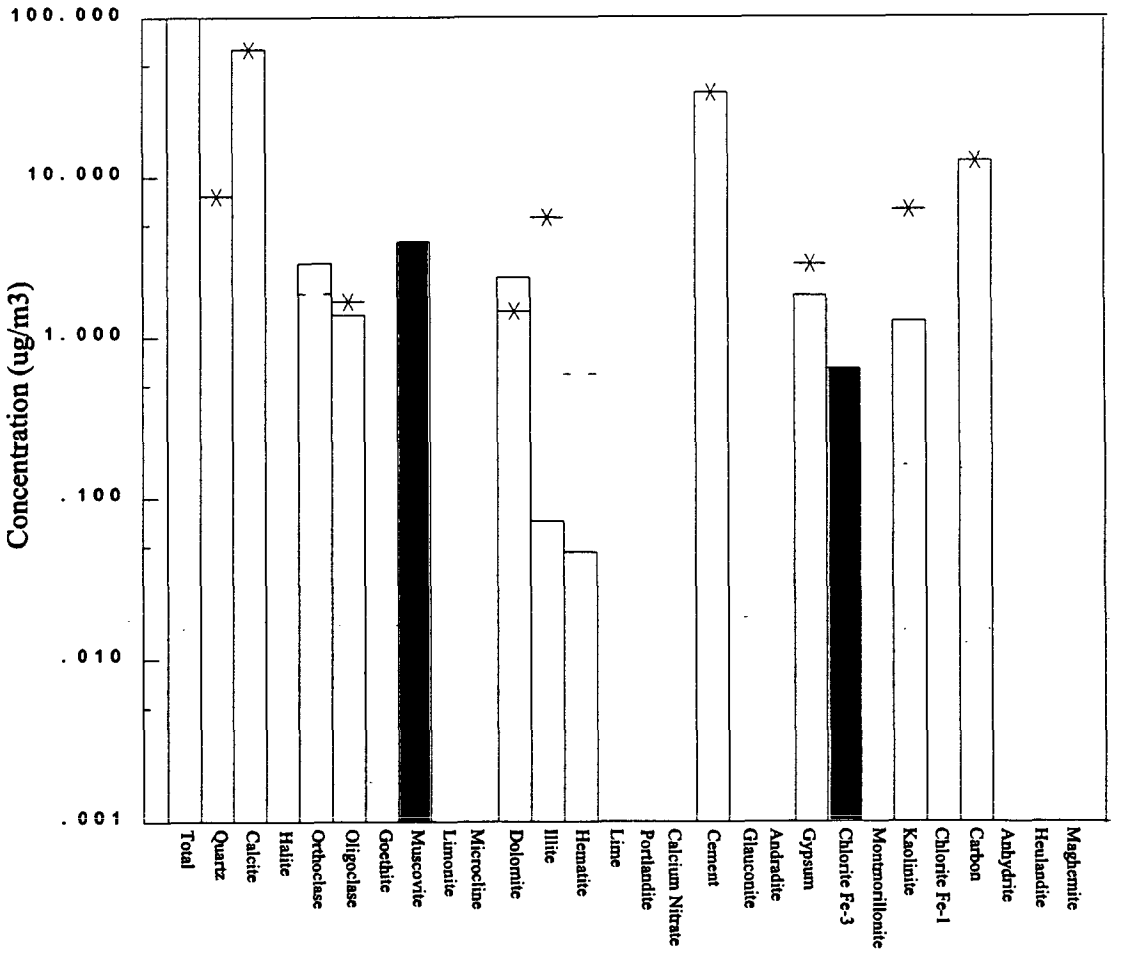
Jaehns(c) Monitoring Site - 12-17-96

Source Apportionment

132 ug/m3 - Analysis resulted in 96% of measured mass



Mineral Species Fit



FINAL WEIGHT FRACTIONS AND VARIANCE ERRORS

QUARTZ				
W(I)- 1	=	.0555	+-	.0106
CALCITE				
W(I)- 2	=	.4604	+-	.0709
DOLOMITE				
W(I)- 3	=	.0106	+-	.0027
OLIGOCLASE				
W(I)- 4	=	.0122	+-	.0025
ILLITE				
W(I)- 5	=	.0408	+-	.0182
KAOLINITE				
W(I)- 6	=	.0453	+-	.0137
ORTHOCLASE				
W(I)- 7	=	.0137	+-	.0054
GYPSUM				
W(I)- 8	=	.0209	+-	.004
CEMENT-C3S				
W(I)- 9	=	.2024	+-	.0463
HEMATITE				
W(I)- 10	=	.0043	+-	.0011
CEMENT-C4AF				
W(I)- 11	=	.0423	+-	.0129
CARBONACEOUS MATTER				
Woi - 1	=	.091	+-	.03

-C
Jackson
12/17/96

CALCULATED SAMPLE DENSITY = 2.68 GM/CM3
SAMPLE CRYSTALLINE FRACTION = 1 +- 0

COMPOUND REDUCTION

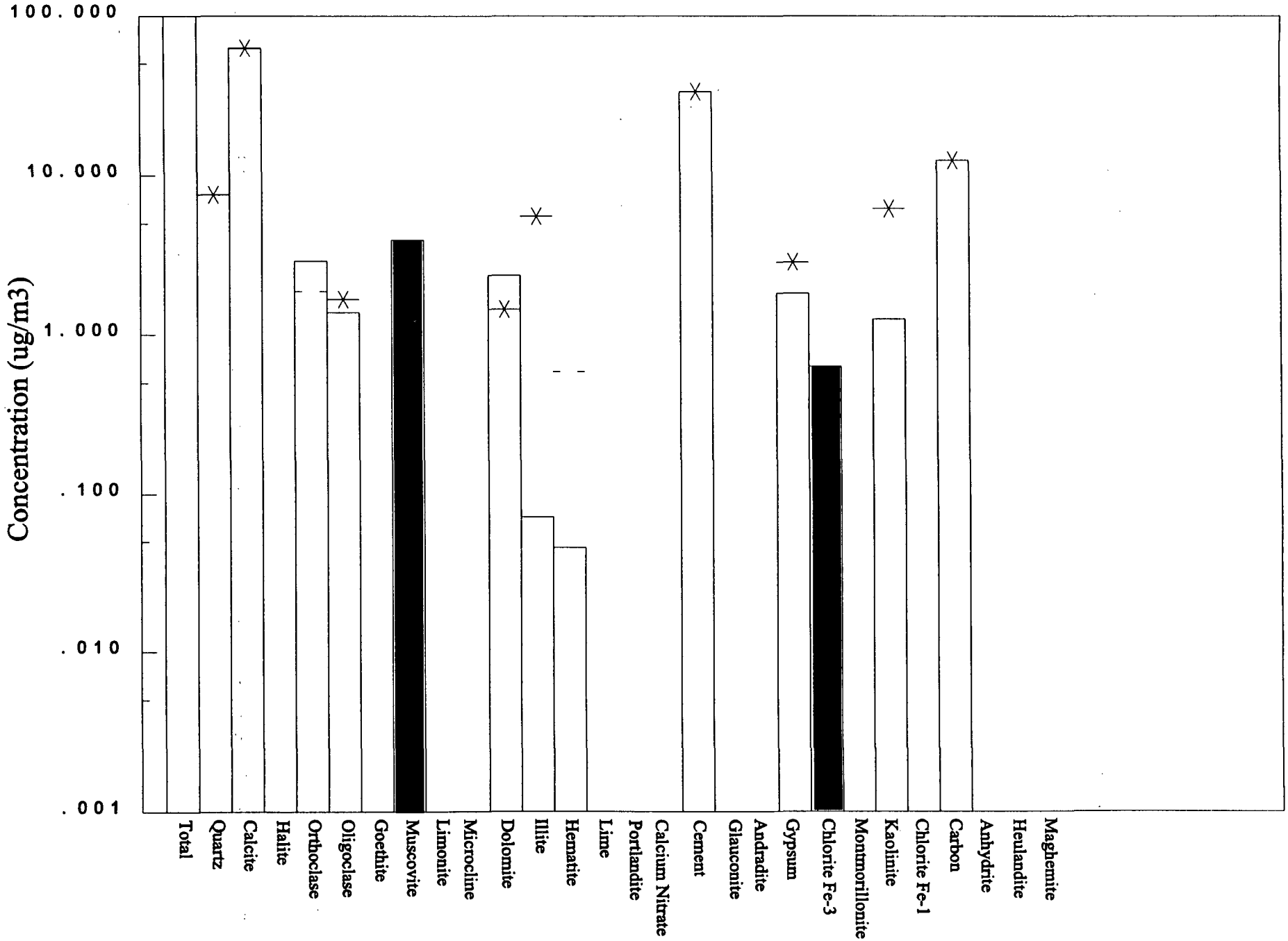
		OXIDE	ELEMENT
SiO2	=	.1654	(.0773)
Al2O3	=	.0432	(.0228)
Na2O	=	.0018	(.0013)
K2O	=	.0048	(.004)
CaO	=	.4262	(.3046)
FeO	=	.0054	(.0042)
Fe2O3	=	.0201	(.0141)
MgO	=	.0042	(.0025)
H2O	=	.0219	(.0024)
C	=	----	(.0818)
CO2	=	.2074	(.0566)
SO3	=	.0104	(.0042)
MnO	=	.0049	(.0038)
TiO2	=	.0002	(.0001)
NiO	=	.0005	(.0004)

ADDITIONAL ELEMENTAL COMPONENTS

Comp-1	NONE	= (0)*
Comp-2	NONE	= (0)*
Comp-3	NONE	= (0)*

OXIDE TOTAL = .9163 ELEMENT TOTAL = .5809958
* Add these plus any C,F,Cl in ELEMENT TABLE to OXIDE TOTAL
to obtain total weight fraction
RUN COMPLETE FOR SAMPLE EMES0569

Jaehns (C) Monitoring Site - 12-17-96 - 136 ug/m3



FINAL WEIGHT FRACTIONS AND VARIANCE ERRORS

QUARTZ
W(I)- 1 = .0636 +- .0139
CALCITE
W(I)- 2 = .6036 +- .0658
DOLOMITE
W(I)- 3 = .0233 +- .0063
OLIGOCLASE
W(I)- 4 = .0116 +- .0028
ILLITE
W(I)- 5 = .0271 +- .0128
KAOLINITE
W(I)- 6 = .038 +- .0123
ORTHOCLASE
W(I)- 7 = 9.099999E-03
+- .0039
GYPSUM
W(I)- 8 = .0142 +- .0031
CEMENT-C3S
W(I)- 9 = .1142 +- .0315
HEMATITE
W(I)- 10 = 0 +- 0
CEMENT-C4AF
W(I)- 11 = .0317 +- .0104
CARBONACEOUS MATTER
Woi - 1 = .063 +- .045

CALCULATED SAMPLE DENSITY = 2.68 GM/CM3
SAMPLE CRYSTALLINE FRACTION = 1 +- 0

COMPOUND REDUCTION

	OXIDE	ELEMENT
SiO2	= .1371	(.0641)
Al2O3	= .0333	(.0176)
Na2O	= .0015	(.0011)
K2O	= .0032	(.0027)
CaO	= .4346	(.3106)
FeO	= .007	(.0055)
Fe2O3	= .0118	(.0082)
MgO	= .0068	(.0041)
H2O	= .016	(.0017)
C	= ----	(.0566)
CO2	= .2763	(.0754)
SO3	= .0071	(.0028)
MnO	= .0065	(.005)
TiO2	= .0002	(.0001)
NiO	= .0007	(.0006)

ADDITIONAL ELEMENTAL COMPONENTS

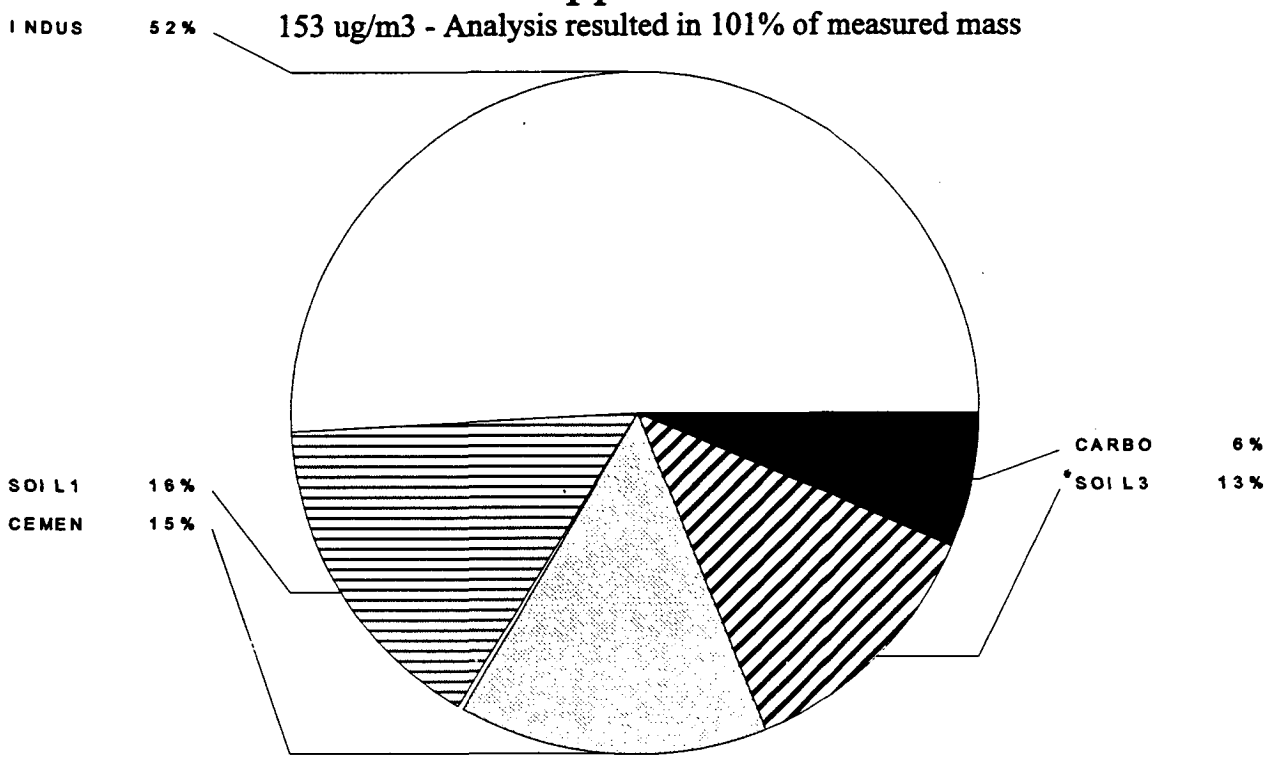
Comp-1 = (0)*
Comp-2 = (0)*
Comp-3 = (0)*

OXIDE TOTAL = .942 ELEMENT TOTAL = .5567366
* Add these plus any C,F,Cl in ELEMENT TABLE to OXIDE TOTAL
to obtain total weight fraction
RUN COMPLETE FOR SAMPLE EMES0571

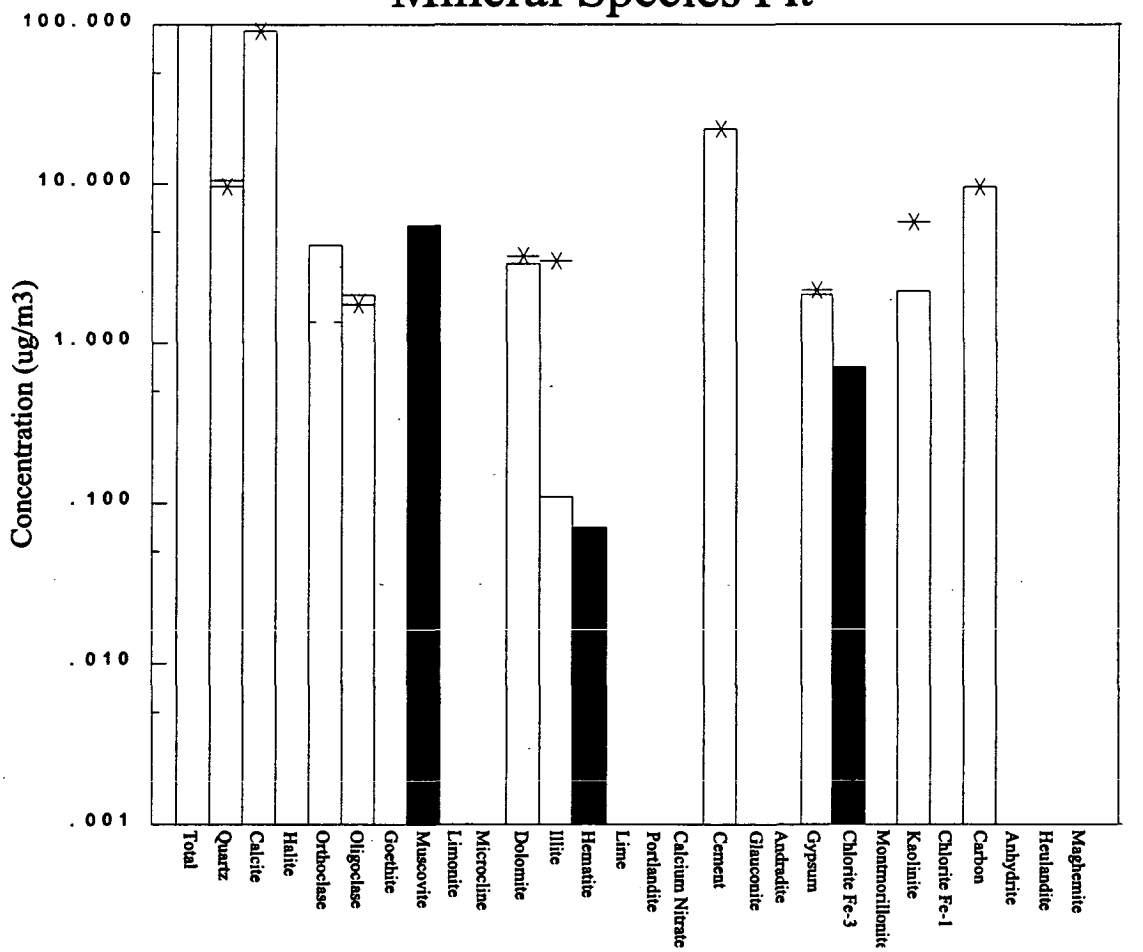
Guard Camp Monitoring Site - 12-17-96

Source Apportionment

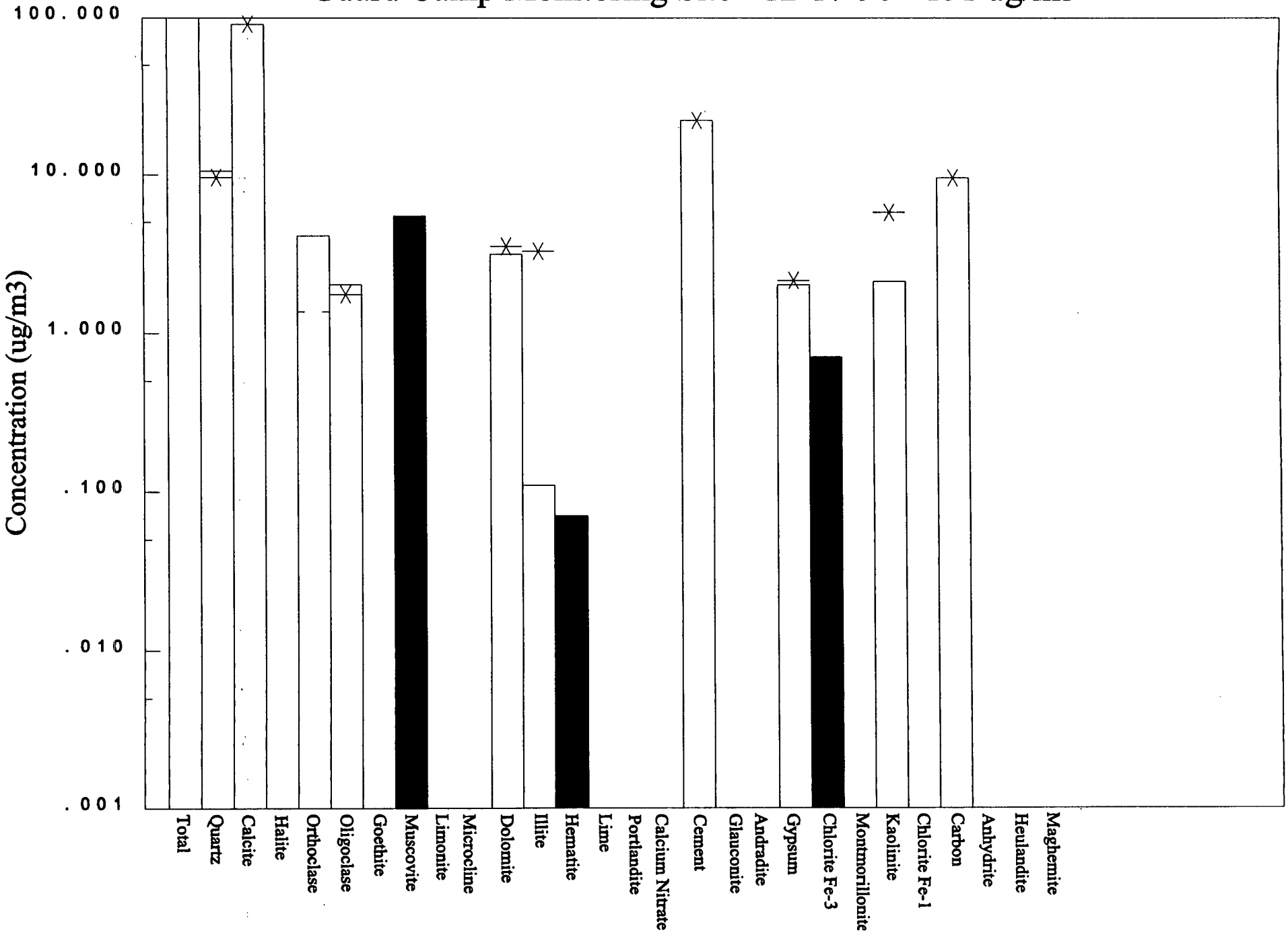
153 ug/m3 - Analysis resulted in 101% of measured mass



Mineral Species Fit



Guard Camp Monitoring Site - 12-17-96 - 151 ug/m3



FINAL WEIGHT FRACTIONS AND VARIANCE ERRORS

QUARTZ				
W(I)- 1	=	.0492	+-	.0128
CALCITE				
W(I)- 2	=	.795	+-	.0458
DOLOMITE				
W(I)- 3	=	.0221	+-	.0067
OLIGOCLASE				
W(I)- 4	=	.0019	+-	.0009
ILLITE				
W(I)- 5	=	.018	+-	8.999999E-03
KAOLINITE				
W(I)- 6	=	.0287	+-	.0101
ORTHOCLASE				
W(I)- 7	=	.0074	+-	.0033
GYPSUM				
W(I)- 8	=	.0039	+-	.0013
CEMENT-C3S				
W(I)- 9	=	.0448	+-	.0155
HEMATITE				
W(I)- 10	=	.0019	+-	.0006
CEMENT-C4AF				
W(I)- 11	=	.0055	+-	.0023
CARBONACEOUS MATTER				
Woi - 1	=	.021	+-	8.000001E-03

Thank Sender 12-17-97

CALCULATED SAMPLE DENSITY = 2.71 GM/CM3
SAMPLE CRYSTALLINE FRACTION = 1 +- 0

COMPOUND REDUCTION

		OXIDE	ELEMENT
SiO2	=	8.859999E-02	(.0414)
Al2O3	=	.0191	(.0101)
Na2O	=	.0005	(.0003)
K2O	=	.0023	(.0019)
CaO	=	.4697	(.3357)
FeO	=	.0089	(.0069)
Fe2O3	=	.0045	(.0032)
MgO	=	.0068	(.0041)
H2O	=	.0082	(.0009)
C	=	----	(.0188)
CO2	=	.3597	(.0981)
SO3	=	.0019	(.0007)
MnO	=	8.499999E-03	(.0066)
TiO2	=	.0001	(0)
NiO	=	9.999999E-04	(.0008)

ADDITIONAL ELEMENTAL COMPONENTS

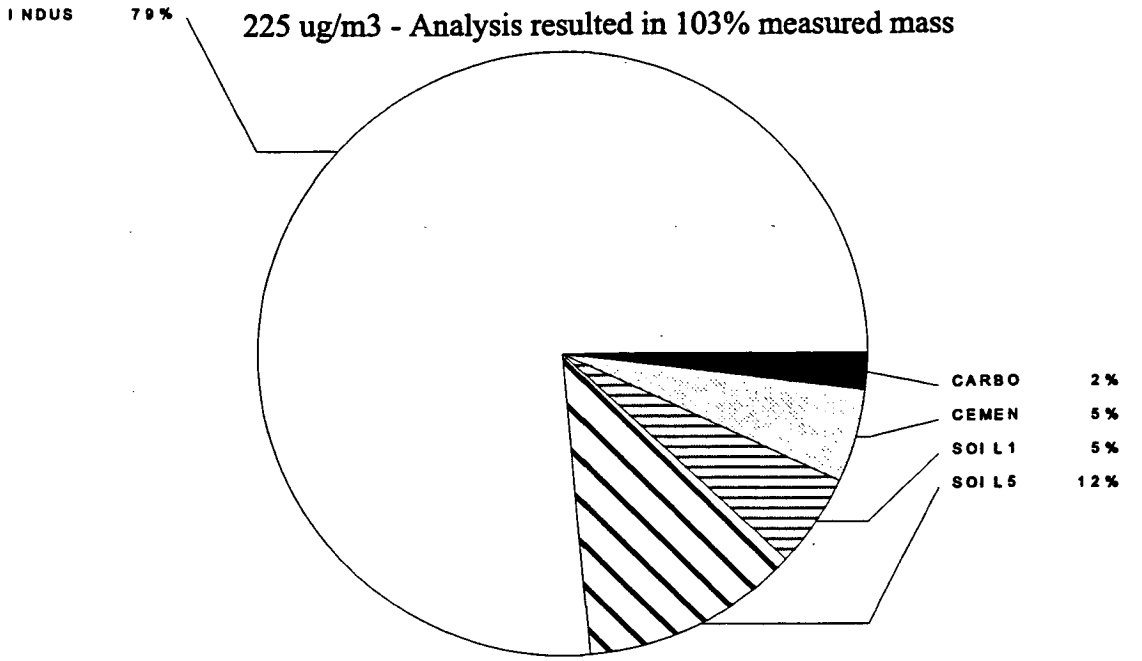
Comp-1	NONE	= (0)*
Comp-2	NONE	= (0)*
Comp-3	NONE	= (0)*

OXIDE TOTAL = .9797 ELEMENT TOTAL = .5302818
* Add these plus any C,F,Cl in ELEMENT TABLE to OXIDE TOTAL
to obtain total weight fraction
RUN COMPLETE FOR SAMPLE EMES0572

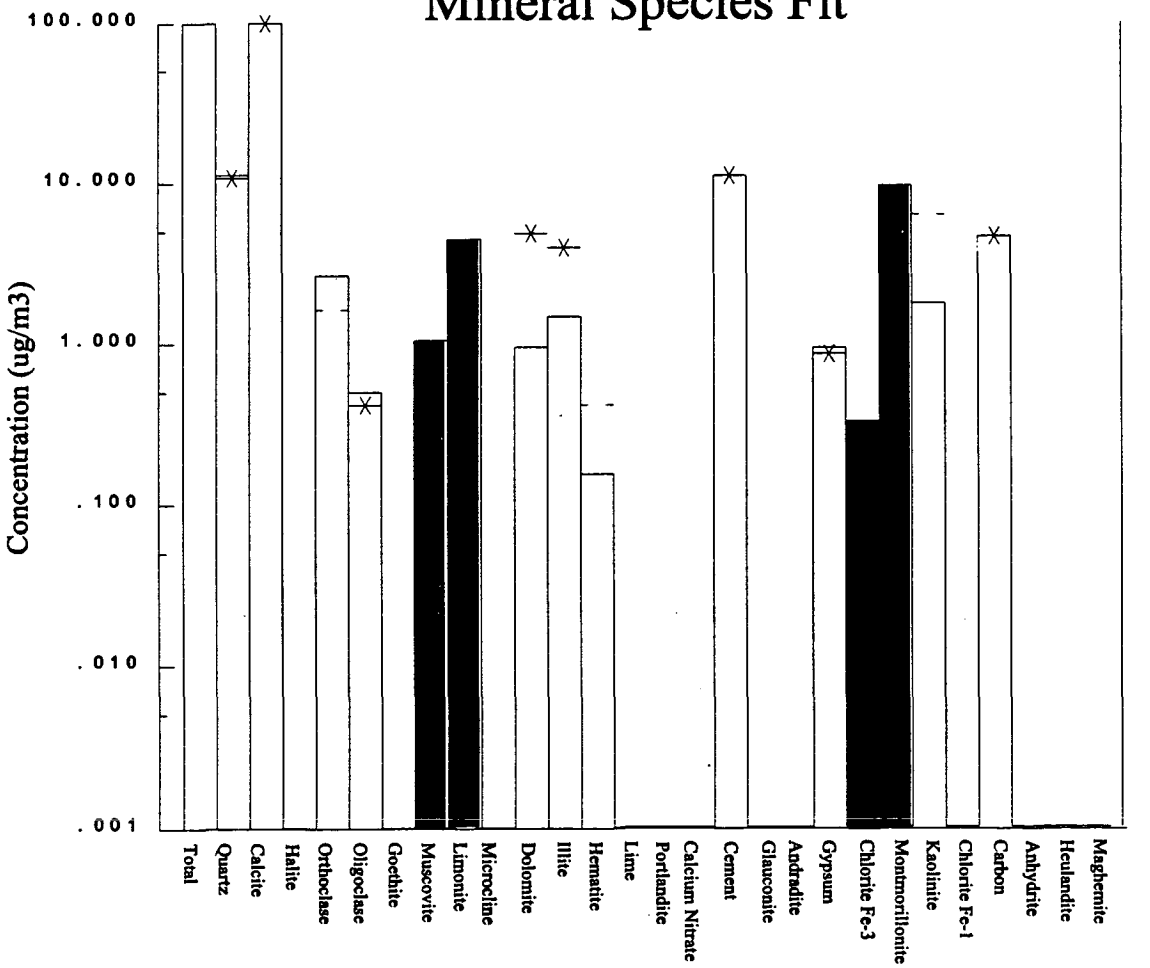
Family Thrift Center Monitoring Site - 12-17-96

Source Apportionment

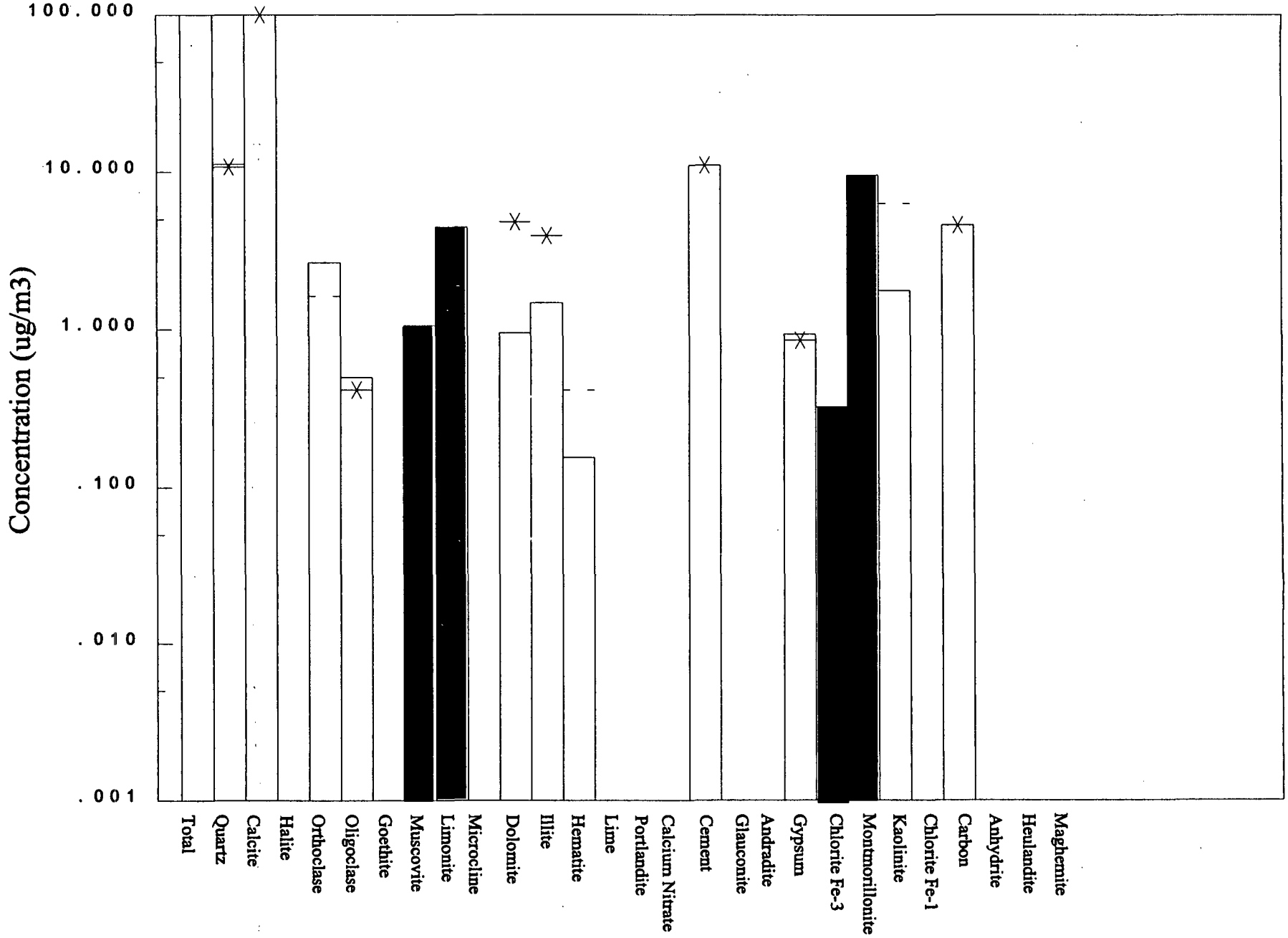
225 ug/m3 - Analysis resulted in 103% measured mass



Mineral Species Fit



Family Thrift Monitoring Site - 12-17-96 - ug/m3



FINAL WEIGHT FRACTIONS AND VARIANCE ERRORS

QUARTZ				
W(I)- 1	=	.0923	+-	.0154
CALCITE				
W(I)- 2	=	.2234	+-	.0523
DOLOMITE				
W(I)- 3	=	.0802	+-	.0179
OLIGOCLASE				
W(I)- 4	=	.0259	+-	.0068
ILLITE				
W(I)- 5	=	.1582	+-	.057
KAOLINITE				
W(I)- 6	=	0	+-	0
ORTHOCLASE				
W(I)- 7	=	.0439	+-	.0185
GYPSUM				
W(I)- 8	=	.0421	+-	.0074
CHLORITE Fe-3				
W(I)- 9	=	.1357	+-	.0379
CARBONACEOUS MATTER				
Woi - 1	=	.198	+-	.035

Nathdale 12/7/96

CALCULATED SAMPLE DENSITY = 2.47 GM/CM3
SAMPLE CRYSTALLINE FRACTION = 1 +- 0

COMPOUND REDUCTION

		OXIDE	ELEMENT
SiO2	=	.25	(.1169)
Al2O3	=	.0863	(.0457)
Na2O	=	.0047	(.0035)
K2O	=	.0171	(.0142)
CaO	=	.1605	(.1147)
FeO	=	.0229	(.0178)
Fe2O3	=	.0095	(.0066)
MgO	=	.0509	(.0307)
H2O	=	.054	(.006)
C	=	----	(.1781)
CO2	=	.1362	(.0371)
SO3	=	.0212	(8.499999E-03)
MnO	=	.0065	(.005)
TiO2	=	.0007	(.0004)
NiO	=	----	(.0002)

ADDITIONAL ELEMENTAL COMPONENTS

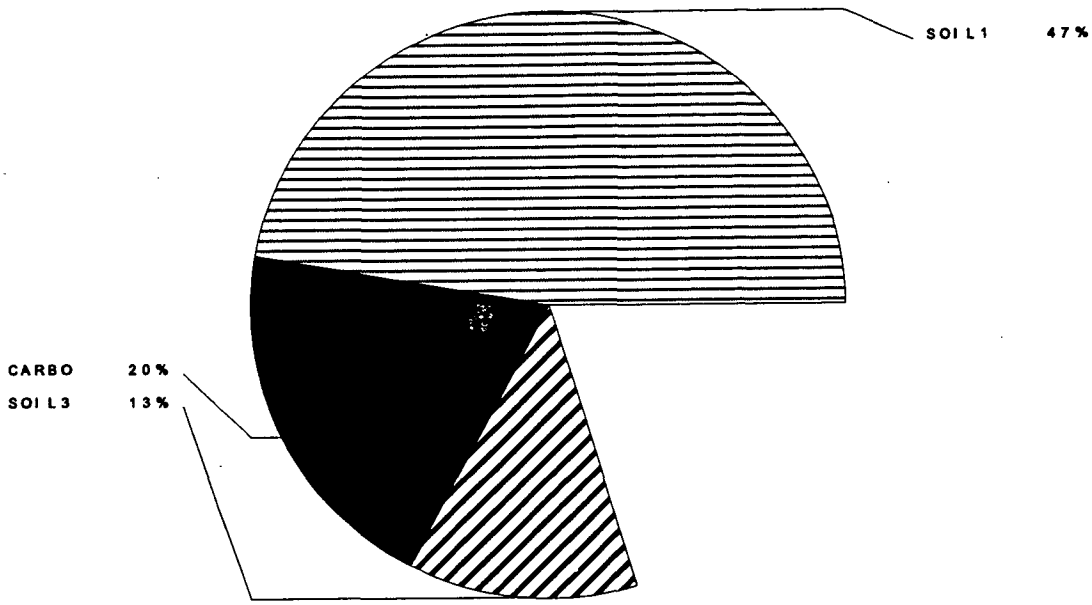
Comp-1	NONE	= (0)*
Comp-2	NONE	= (0)*
Comp-3	NONE	= (0)*

OXIDE TOTAL = .8205 ELEMENT TOTAL = .5861195
* Add these plus any C,F,Cl in ELEMENT TABLE to OXIDE TOTAL
to obtain total weight fraction
RUN COMPLETE FOR SAMPLE EMES0573

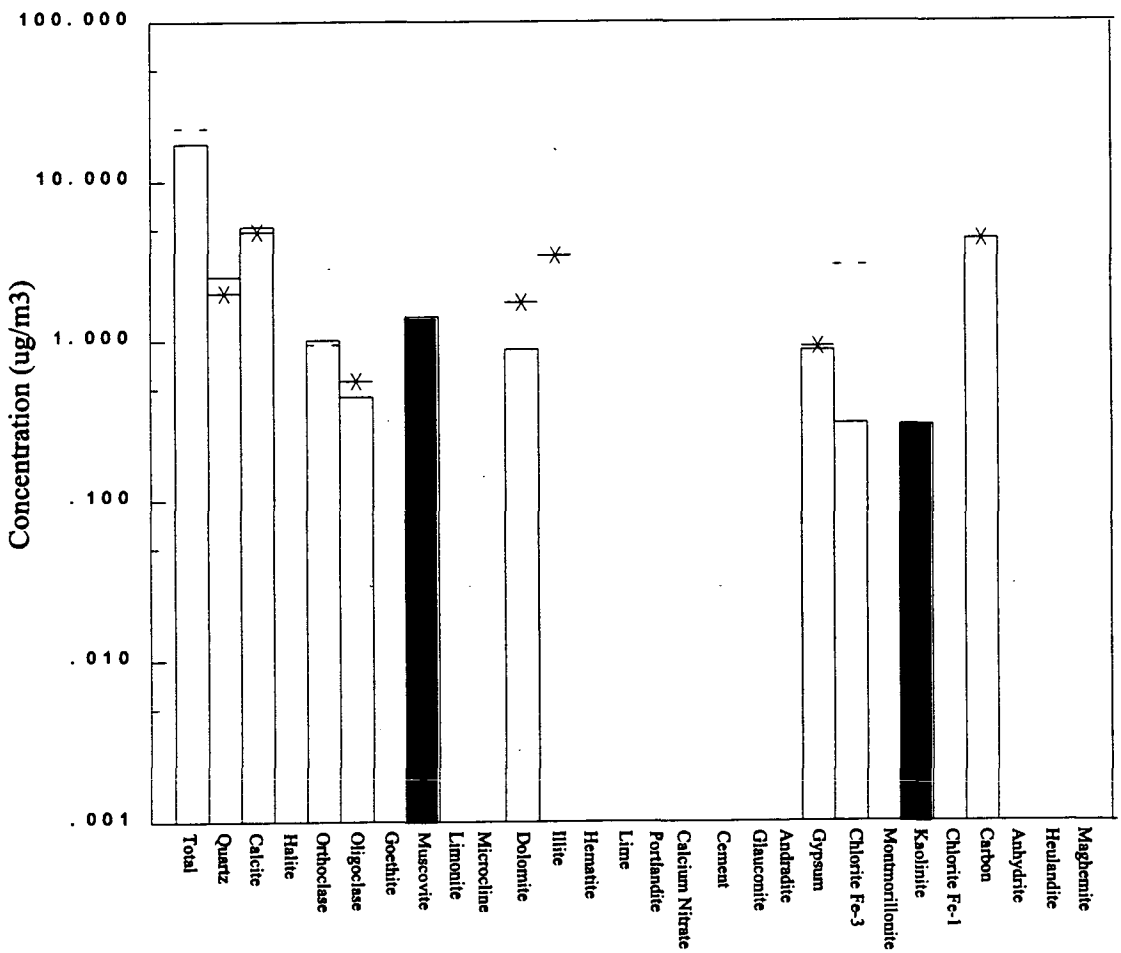
Northdale Monitoring Site - 12-17-97

Source Apportionment

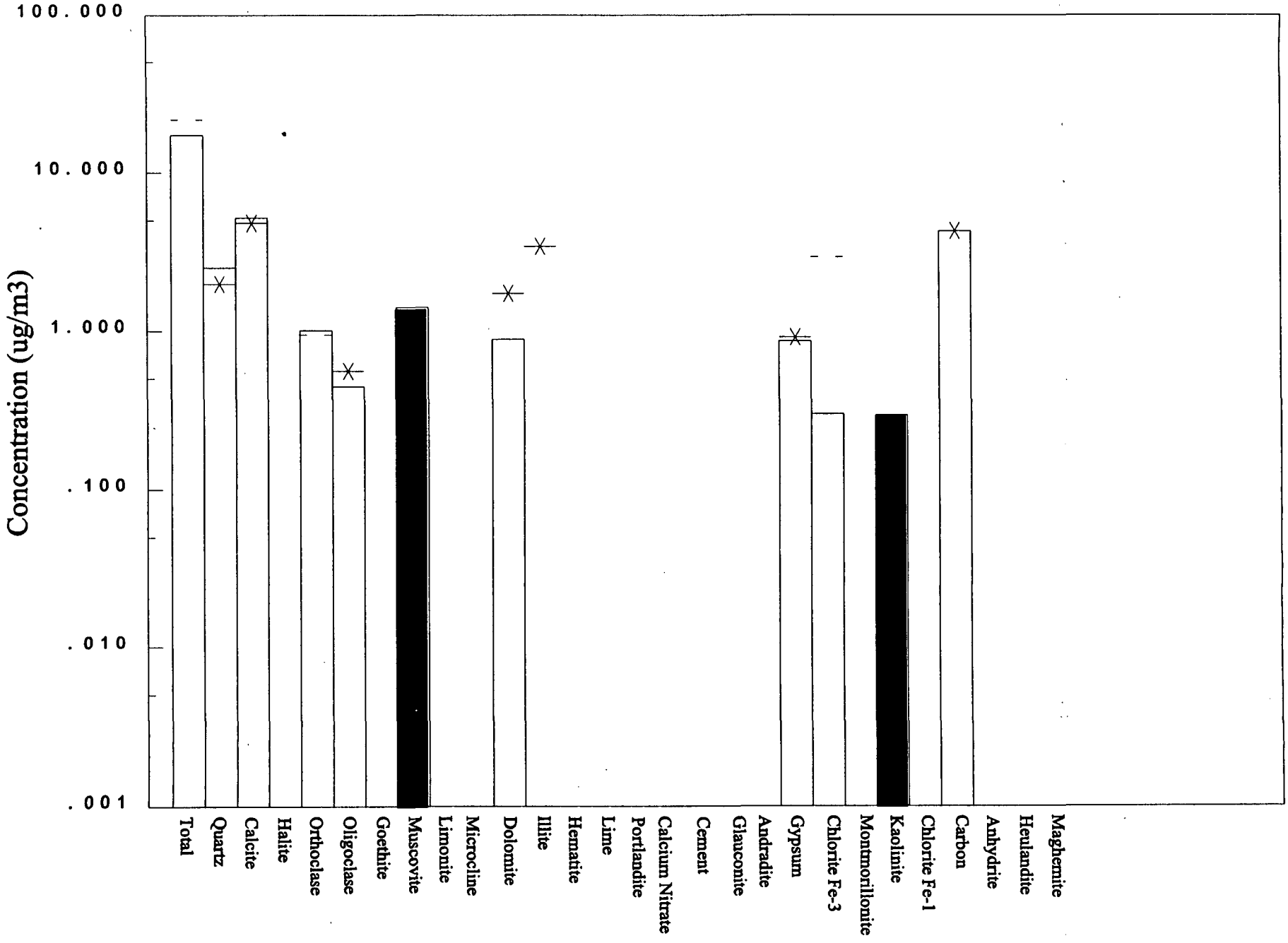
23 ug/m3 - Analysis resulted in 80% measured mass



Mineral Species Fit



Northdale Monitoring Site - 12-17-96 - 21 ug/m3



FINAL WEIGHT FRACTIONS AND VARIANCE ERRORS

QUARTZ
W(I)- 1 = .0631 +- .0127
CALCITE
W(I)- 2 = .5109 +- .0673
DOLOMITE
W(I)- 3 = .0171 +- .0044
OLIGOCLASE
W(I)- 4 = .0118 +- .0025
ILLITE
W(I)- 5 = .0405 +- .0183
KAOLINITE
W(I)- 6 = .0046 +- .0014
ORTHOCLASE
W(I)- 7 = .0247 +- .0095
GYPSUM
W(I)- 8 = 9.099999E-03
+- .002
CHLORITE Fe-3
W(I)- 9 = .0538 +- .0163
HEMATITE
W(I)- 10 = .005 +- .0013
CEMENT-C3S
W(I)- 11 = .1182 +- .0309
CEMENT-C4AF
W(I)- 12 = .0357 +- .0112
CARBONACEOUS MATTER
Woi - 1 = .105 +- .03

Jackus 5-13-97 141 2

CALCULATED SAMPLE DENSITY = 2.64 GM/CM3
SAMPLE CRYSTALLINE FRACTION = 1 +- 0

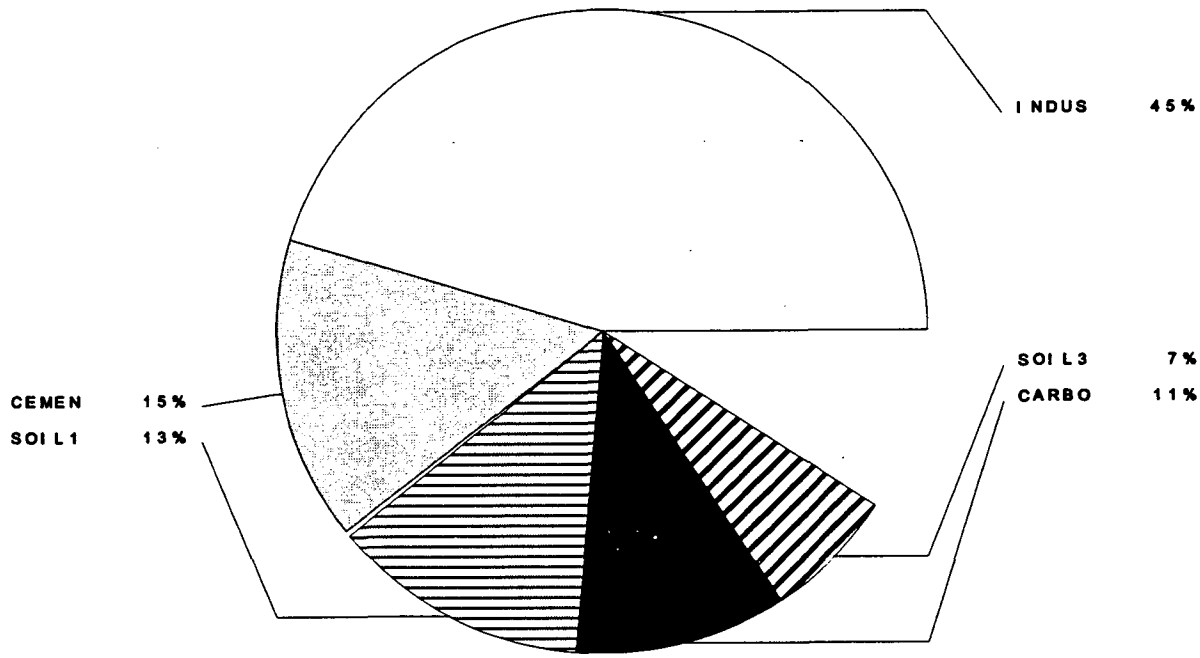
COMPOUND REDUCTION

		OXIDE	ELEMENT
SiO2	=	.1536	(.0718)
Al2O3	=	.039	(.0206)
Na2O	=	.002	(.0014)
K2O	=	.0061	(.0051)
CaO	=	.3865	(.2762)
FeO	=	.0129	(.01)
Fe2O3	=	.0195	(.0136)
MgO	=	.0178	(.0107)
H2O	=	.0214	(.0023)
C	=	----	(9.439999E-02)
CO2	=	.2326	(.0634)
SO3	=	.0052	(.002)
MnO	=	.007	(.0054)
TiO2	=	.0002	(.0001)
NiO	=	.0006	(.0005)

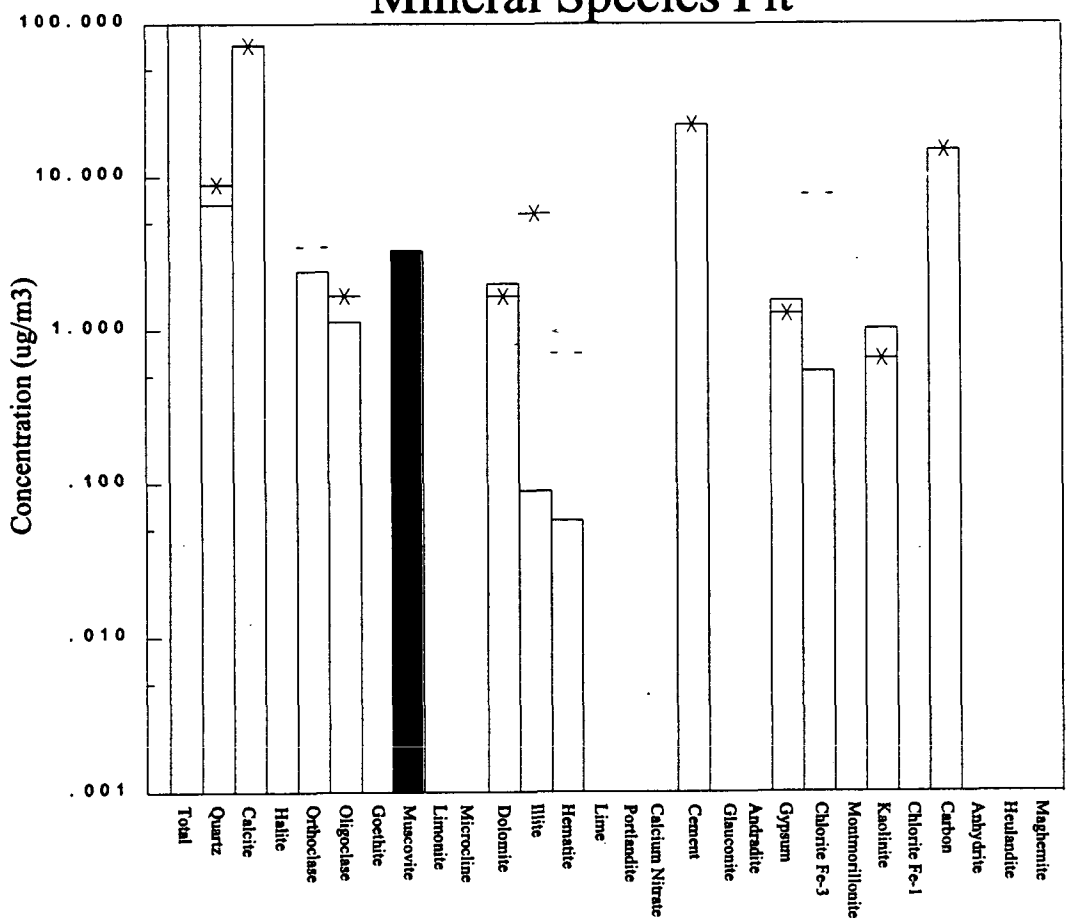
Jaehns Monitoring Site - 5-13-97

Source Apportionment

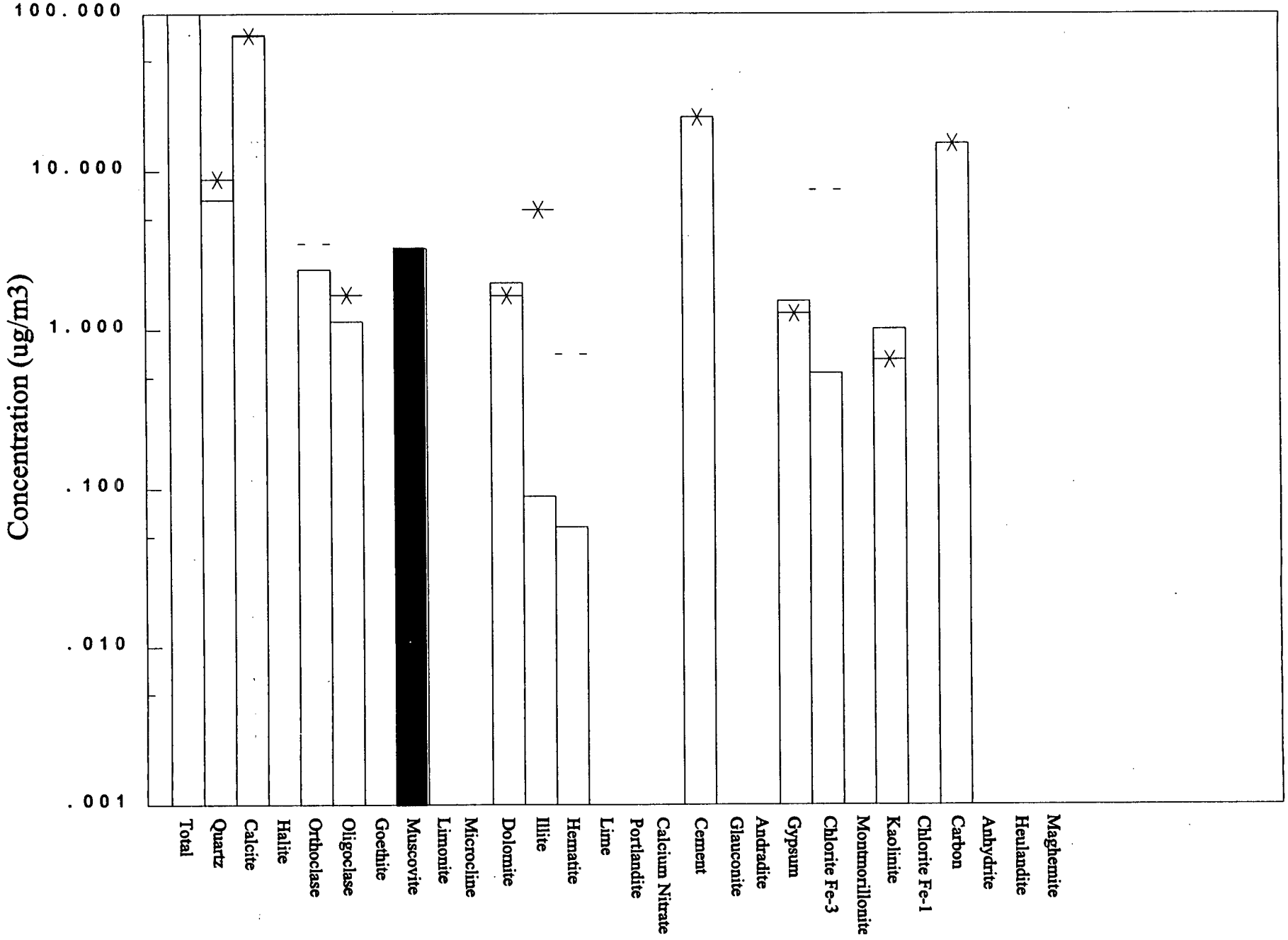
141 ug/m3 - Analysis resulted in 91% of measured mass



Mineral Species Fit



Jeahns Monitoring Site - 5-13-97 - 141 ug/m3



FINAL WEIGHT FRACTIONS AND VARIANCE ERRORS

QUARTZ				
W(I)- 1	=	.1327	+-	.022
CALCITE				
W(I)- 2	=	.2747	+-	.0594
DOLOMITE				
W(I)- 3	=	.0467	+-	.011
OLIGOCLASE				
W(I)- 4	=	.0276	+-	.0065
ILLITE				
W(I)- 5	=	.1515	+-	.0561
KAOLINITE				
W(I)- 6	=	0	+-	0
ORTHOCLASE				
W(I)- 7	=	.0347	+-	.0161
GYPSUM				
W(I)- 8	=	.0122	+-	.0033
CHLORITE Fe-3				
W(I)- 9	=	.1476	+-	.0356
CARBONACEOUS MATTER				
Woi - 1	=	.172	+-	.04

Not to scale
5/13/97

CALCULATED SAMPLE DENSITY = 2.51 GM/CM3
SAMPLE CRYSTALLINE FRACTION = 1 +- 0

COMPOUND REDUCTION

		OXIDE	ELEMENT
SiO2	=	.2854	(.1334)
Al2O3	=	.0854	(.0452)
Na2O	=	.0046	(.0034)
K2O	=	.0154	(.0128)
CaO	=	.168	(.1201)
FeO	=	.0241	(.0188)
Fe2O3	=	.0094	(.0065)
MgO	=	.0468	(.0282)
H2O	=	.0468	(.0052)
C	=	----	(.1547)
CO2	=	.1427	(.0389)
SO3	=	.0073	(.0029)
MnO	=	.0072	(.0056)
TiO2	=	.0006	(.0004)
NiO	=	.0003	(.0002)

ADDITIONAL ELEMENTAL COMPONENTS

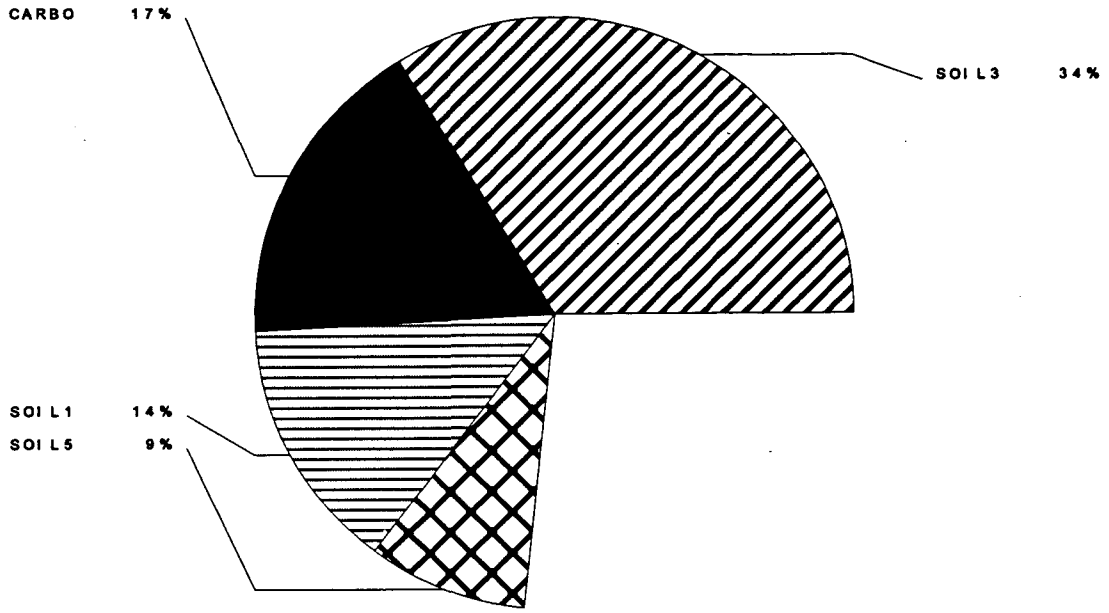
Comp-1	NONE	= (0)*
Comp-2	NONE	= (0)*
Comp-3	NONE	= (0)*

OXIDE TOTAL = .844 ELEMENT TOTAL = .5771061
* Add these plus any C,F,Cl in ELEMENT TABLE to OXIDE TOTAL
to obtain total weight fraction
RUN COMPLETE FOR SAMPLE EMES0583

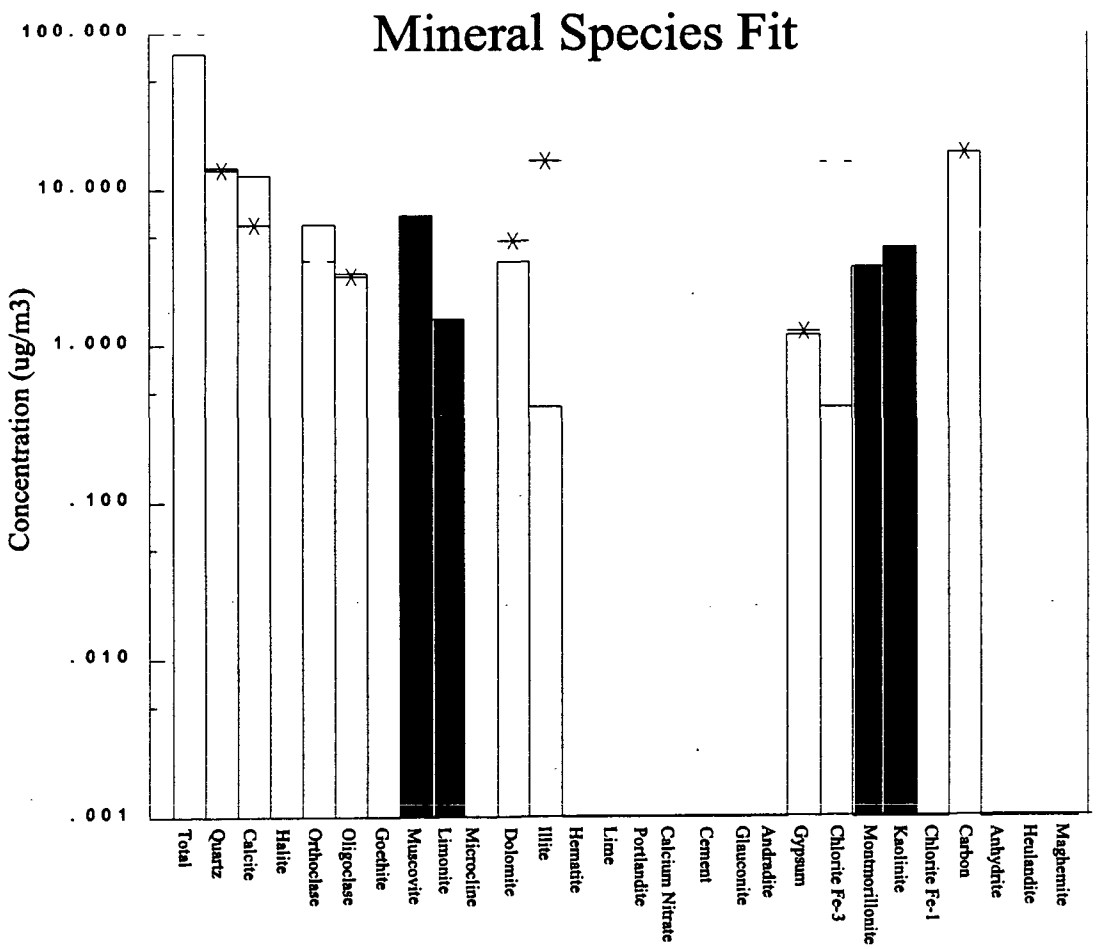
Northdale Monitoring Site - 5-13-97

Source Apportionment

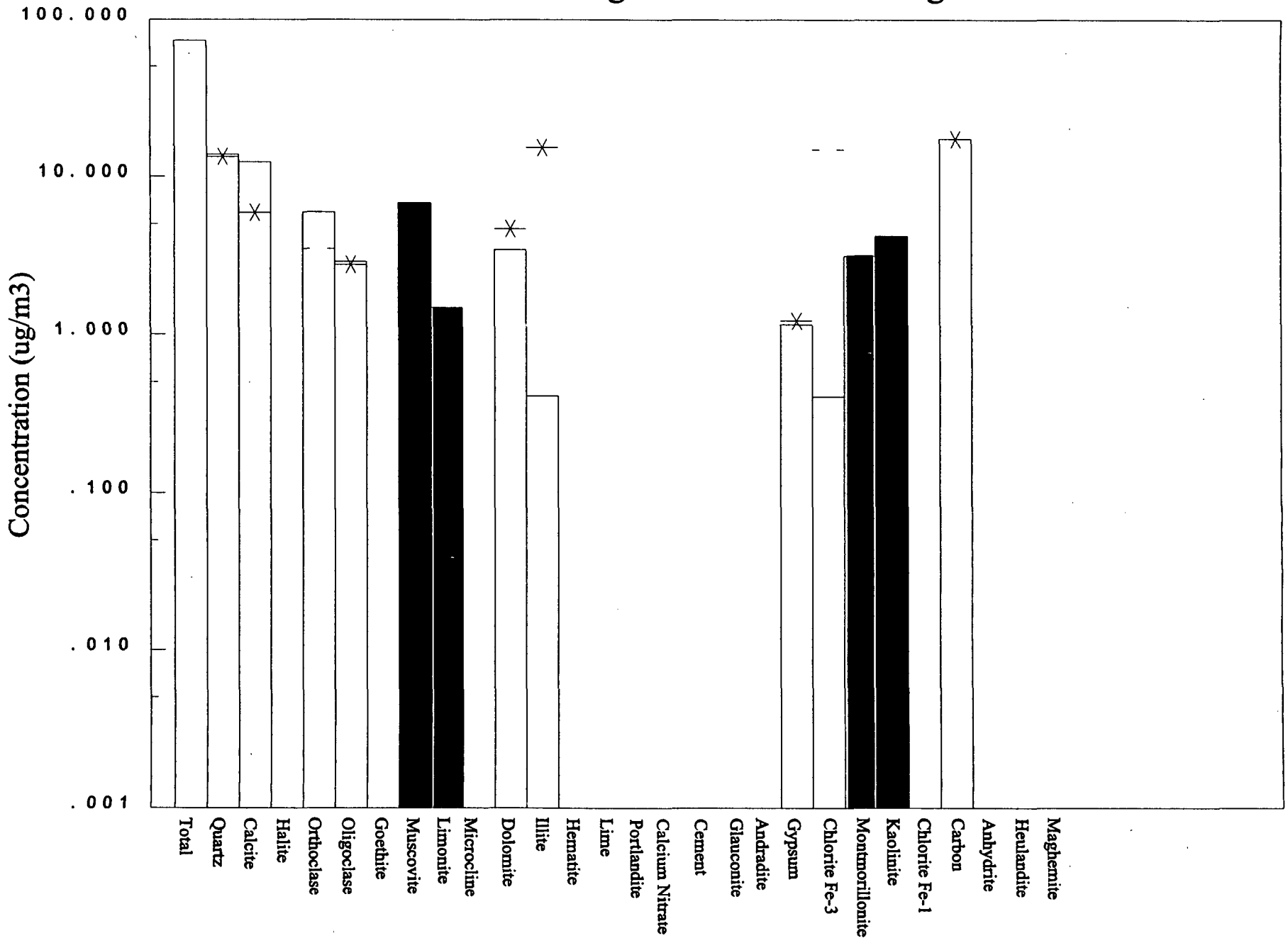
25 ug/m3 - Analysis resulted in 73% measured mass



Mineral Species Fit



Northdale Monitoring Site - 5-13-97 - 24 ug/m3



APENDIX E

PENNINGTON COUNTY ORDINANCE #12

PENNINGTON COUNTY ORDINANCE NO. 12
REVISED
(7/23/97)

AIR QUALITY ORDINANCE

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PENNINGTON COUNTY ORDINANCE NO. 12 REVISED

AIR QUALITY ORDINANCE

Be it ordained by the Board of County Commissioners of Pennington County, South Dakota:

1.0 POLICY, APPLICABILITY AND DEFINITIONS OF ORDINANCE

1.01 Policy of County: In order to maintain compliance status of the National Ambient Air Quality Standards and to prevent adverse health effects that result from fugitive emissions and smoke from wood burning, it is hereby declared to be the policy of Pennington County, South Dakota to achieve and maintain the PM_{10} National Ambient Air Quality standards by controlling fugitive emissions and wood burning so as to protect the health and welfare of all the people who inhabit the county; to limit environmental damage to plant and animal life within the county; and to promote commercial and industrial development while limiting environmental degradation, and to educate the residents of the County on air quality issues. This policy is to be achieved and maintained through the development and implementation of programs of education, air pollution prevention, abatement and control. It is the purpose of this Ordinance to provide for a program of fugitive emission control applying reasonable available control technology and solid fuel smoke abatement.

1.02 Applicability: This Ordinance shall apply to:

1. The area within the City of Rapid City and the geographical portion of Pennington County lying within three miles of the corporate limit of Rapid City, South Dakota, subject to the jurisdiction of the Board of Commissioners of Pennington County, South Dakota;
2. Smoke from fuel burning sources;
3. Construction permits;
4. Compliance plans (paved and unpaved parking lots, streets sanding and cleaning operations);
5. Fugitive emission requirements for industrial sources until permit conditions or regulations are established for industrial sources by the South Dakota Department of Environment and Natural Resources.

This ordinance applies to the sources listed above located in the area defined in Section 1.02 (1).

1.03 Definitions:

1. Air Quality Board: There is hereby created an Air Quality Board consisting of seven (7) voting members and three (3) ex-officio members.

A. The composition and further requirements of the seven voting members are as follows:

1. Two (2) members representing industry;
2. One (1) member representing the engineering profession (member shall have graduated from an accredited college or university with an engineering degree);
3. One (1) member representing environmental interests (member shall have an interest and knowledge in environmental issues, preferably air quality issues);
4. One (1) member representing homeowners (member shall own a home in the regulated area);
5. One (1) member representing the business community (member shall be associated with a business in the regulated area);
6. One (1) member at large (member shall be selected at large).

All voting members of the Air Quality Board shall be appointed by the Board of County Commissioners for a term of three (3) years on a staggered term basis.

All voting members shall be residents of the regulated area as defined in Section 1.02 (1), and with the exception of the two industry members, shall not derive a majority of his/her income, either directly or indirectly, from a person, as defined by Section 1.03 (18), who is subject to regulation by this ordinance. For purposes of this section, a person who is subject to regulation by this ordinance does not include one who is regulated solely for a parking lot or solid fuel burning device. Applicants for the above positions, except for industry representative, shall submit a signed statement that they do not derive a majority of their income from a person who is subject to regulation by this ordinance. Any further documentation which the Board of County Commissioners may require concerning the applicant's finances are to be considered confidential and shall not be made available to anyone other than the Board of Commissioners.

B. The composition and professional associations of the three Ex-Officio Members are as follows:

1. One (1) member representing State Government (Secretary of the Department of Environment and Natural Resources, or designee);
2. One (1) member representing the City of Rapid City, South Dakota (Mayor of Rapid City or designee);
3. One (1) member representing the Pennington County Commission (Chairman of Pennington County Commission or designee).

The duties of the Air Quality Board shall be to supervise and give direction to the Board's designee, review and approve compliance plans, serve as an appeal board, act on

enforcement action initiated by the Board's designee, and make recommendations to the Board of County Commissioners on policies relating to the air quality of Pennington County.
The purpose and goal of the decisions made and actions taken by the Air Quality Board shall be to protect and serve the public interest.

2. Ambient Air: That portion of the atmosphere outside of buildings to which the general public has access.

3. Burning Season: That period of time from November 1 through March 31 the following year.

4. Civil Action: In addition to the penalties set forth in this Ordinance for a smoke abatement violation, the Air Quality Board may bring civil action for appropriate relief including a temporary or permanent injunction to enforce compliance with the provisions of this Ordinance.

5. Commission: The Pennington County Board of Commissioners.

6. Construction Activity: Any temporary activity which involves the removal or alteration of the natural or pre-existing cover of one acre or more of land. Construction activity shall include but not be limited to stripping of topsoil, drilling, blasting, excavation, dredging, ditching, grading, street maintenance and repair, or earth moving. Construction activity is generally completed within one year or less.

7. Continuous Operating Activity: Any activity which may cause particulate fugitive emissions to be released into the ambient air and which is conducted on an on-going basis in the same locality. Continuous operation is associated with winter sanding of paved parking and maintenance of unpaved parking lots of more than one acre in size and street sanding and cleaning of streets, highways and roads.

8. Entry on Property: Any duly authorized officer, employee or representative of any county agency responsible for enforcing this Ordinance, after obtaining an escort and complying with safety regulations, may enter and inspect that part of any property, premises or place in which such officer, employer, or representative has reasonable grounds to believe is a source of air pollution or in which such officer, employee or representative has reasonable grounds to believe that the provisions of this Ordinance are not being followed. The entry and inspection may be conducted at any reasonable time, without prior notice, for the purpose of investigating said pollution or of ascertaining the state of compliance with the Ordinance. No person shall refuse entry or access to any authorized person who requests entry for the purpose of such an investigation, and who presents appropriate

credentials, nor shall any person obstruct, hamper or interfere with any such investigation.

9. Fuel: Solid matter burned in a solid fuel burning device and is limited to the following: untreated wood and lumber, coal and products manufactured for the sole purpose as a fuel. Untreated wood or lumber shall mean wood in its natural state that has not been chemically soaked or treated.

10. Fugitive Emissions: Those particulate emissions which do not pass through a stack, chimney, vent, or other functionally equivalent opening. In the event that any of the particulate emissions included by this definition are regulated by the State of South Dakota, the governmental entity which has the more strict and more extensive requirements for control of such emissions shall be enforced over the least restrictive requirements. Particulate emissions from rock crushers for which a permit to operate has been issued are excluded from this definition.

11. Inappropriate Fuel: Includes, but is not limited to: leaves, grass clippings, green plants, refuse, paper, rubbish, books, magazines, fiberboard, packaging, rags, fabrics, animal waste, liquid or gelatinous hydrocarbons, tar, paints and solvents, chemically soaked or treated wood, plastic or rubber, or other materials not listed in Section 2.04.

12. National Ambient Air Quality Standards: The primary and secondary 24 hour ambient air quality standards for PM_{10} particulate matter is 150 micrograms per cubic meter (ug/m^3), 24 hour average concentration and annual standard for PM_{10} particulate matter is 50 ug/m^3, annual arithmetic mean as set forth in 40 CFR Section 50.6 and Appendix J (July 1, 1988).

13. Office of Air Quality: There is hereby created the County Office of Air Quality. The head of the office of air quality will be the Board's designee. The Board's designee shall be responsible for the administration and the initiation of enforcement of this Ordinance. The Board's designee shall receive direction from the board to be outlined in the Office's operating procedures.

14. Opacity: The degree to which fugitive emissions reduce the transmission of a light source.

15. Open Burning: The burning of any matter in such a manner that the products of combustion resulting from the burning are emitted directly into the ambient air without passage through a stack, duct, or chimney.

16. Parking Lot: Any parking lot to which street sanding material is applied and any unpaved parking lot that may generate fugitive emissions to which the public has access.

17. PM_{10}: Particulate matter with an aerodynamic diameter less than or equal to a nominal ten micrometers.

18. Person: Any individual, partnership, firm, association, municipality, public or private corporation, subdivision or agency of the state, trust, estate or any other legal entity.

19. Political Subdivision: Any public or private entity that maintains street operations within the designated area in Section 1.02 (1).

20. Reasonably Available Control Technology (RACT): The emission control technology determined on a case by case basis by the Air Quality Board to be feasible in meeting the requirements of this Ordinance, taking into account energy, environmental, economic impacts and other costs.

21. Reentrainment: A process in which particulate matter has been deposited from one place to another and then liberated into the ambient air by vehicular travel, wind, or other causes.

22. Smoke: Small air borne particles resulting from incomplete combustion, consisting predominantly, but not exclusively, of carbon, ash, and other combustible material that form a visible plume.

23. Solid Fuel Burning Device: Any fireplace, fireplace insert, wood stove, wood burning heater, wood fired boiler, coal fired furnace, coal stove, or similar device burning any solid fuel used for aesthetic, cooking or space heating inside a building.

24. Three Mile Limit: The area three miles wide extending in an outward direction from the corporate limits of the City of Rapid City, South Dakota under the jurisdiction of the Pennington County Board of Commissioners.

2.0 SMOKE ABATEMENT

2.01 Inappropriate Fuels Burned in Solid Fuel Burning Device Prohibited: No person shall, at any time, burn inappropriate fuel as defined in this Ordinance in any solid fuel burning fuel device. No person shall use a fuel in a solid fuel burning device, except those fuels that are recommended by the manufacturer subject to any installation or operational restrictions imposed by the manufacturer.

2.02 Inappropriate Fuels Burned Under the Conditions of Open Burning Prohibited: No person shall, at any time, burn inappropriate fuel as defined in this Ordinance under the conditions of open burning.

2.03 Open Burning Restricted:

A. No person shall, at any time, engage in open burning activities within the area regulated by this Ordinance , except under the following conditions:

1. Open burning for fire department personnel training;
2. Open burning of a fire hazard, or open burning for noxious weed control or fire control, and solely with the permission of the local fire department;
3. For ecosystem management purposes, and solely under the supervision of State or Federal land and/or wildlife management agencies;
4. Open burning of irrigation ditches for agricultural purposes, and solely with the permission of the local fire department.

B. State Air Quality Regulations (ARSD 74:36:06) prohibit the following open burning practices:

1. A person may not burn waste oils, rubber, waste tires, tarpaper, or asphalt shingles. For the purposes of this regulation, waste oil means any oil that has been refined from crude oil, used and contaminated by physical or chemical impurities as a result of such use;
2. A municipality or county governmental agency may not burn municipal solid waste unless exempted by the small town exemption in accordance with ARSD 74:27:12:25:
3. A person may not conduct or permit the operation of a salvage operation by open burning, except as allowed in article 74:27;
4. A person may not burn railroad ties or wood treated with inorganic arsenicals, pentachlorophenol, or creosols.

2.04 Open Burning Approval Required: No person shall, at any time, engage in open burning for any purpose without first notifying the appropriate entity, as identified in 2.03, and attaining approval of the planned open burning.

2.05 Sale of New Solid Fuel Heating Devices: After July 1, 1991, no person shall sell or offer for sale, any new solid fuel heating device as defined by the United States Environmental Protection Agency in 40 CFR Part 60.530 through 60.539b, unless the solid fuel heating device has been emission certified and labeled in accordance with those requirements. After July 1, 1991, no person shall sell or offer to sell any new solid fuel heating device that can not be certified under the aforementioned federal regulation unless the solid fuel heating device has an air to fuel ratio equal to or greater than 35 to 1 as determined by an independent testing laboratory.

3.00 CONSTRUCTION AND COMPLIANCE PERMITS

3.01 Construction Permit Required: No person shall engage in any construction activity which may cause fugitive emissions to be released into the ambient air without first obtaining a Construction Permit from the Board's designee.

3.02 Compliance Plan Required: No person shall engage in any continuous operation activity which may cause fugitive emissions to be released into the ambient air without first having a Compliance Plan approved by the Air Quality Board. After approval of the compliance plan, a three (3) year operating permit shall be issued by the Board's designee. This operating permit allows the applicant to commence the eration thereunder.

A Construction Permit shall not be required for construction activity at a continuous operation activity facility if such construction activity is a part of the sites compliance plan.

3.03 Street Reentrainment Requirements:

A. No person shall place any street sanding materials upon any road, highway, driveway, or parking lot to which the public has general access located in the area defined in Section 1.02 (1) which does not meet the following requirements:

1. A durability or hardness as defined in MOH of greater than 6 for 70% of the material used;
2. No more than 3% of the total particle material content by weight may be smaller than 200 sieve.

For street sanding material, these criteria apply only to the material prior to the addition of salt or chemicals. Material of a lesser hardness may be used on steep roads unless it is determined a material that meets the above standards and has the same effectiveness can be applied.

Any political subdivisions responsible for maintaining any public road inside the area in which road sanding materials are regulated, shall clean the center line and areas immediately adjacent to the travel lane. Cleaning shall commence under one or more of the following conditions:

1. When it has been determined that the streets are sufficiently dry enough to commence street sweeping by the Board's designee;
2. When it has been determined by the Board's designee that there is a fugitive emissions problem due to street sanding material.

Street cleaning will not be required on public roads with restricted travel, when unusual weather or other circumstances prevent it. The political subdivision shall include in it's compliance plan a street cleaning plan listing priority streets and schedules.

C. Any political subdivisions maintaining any public roads inside the area in which road sanding materials are regulated, shall water flush such roadways when it has been determined by the Board's designee that street sanding

material is causing a fugitive emission problem. This will be conducted after street cleaning.

Street water flushing is not required if it endangers public safety or water use restrictions are in effect. The political subdivision shall include in it's compliance plan a water flushing plan.

D. All vehicles that are transporting fugitive dust emitting materials within the area designated in Section 1.02 (1) on public roads shall be covered with a tarp to reduce such emissions or must use a method that is equally effective in reducing such emissions.

E. Any material that is deposited, other than street sanding material, on any public roadway on which vehicular travel is not restricted, that could be reentrained as fugitive emissions shall be cleaned or removed within 24 hours of deposition. The cleaning or removal process shall be conducted so that minimal fugitive emissions are generated.

3.04 **Reasonably Available Control Technology Requirements:** Any construction activity permit, continuous operation compliance plan or political subdivision responsible for maintaining public roads shall provide for reasonably available control technology to prevent fugitive emissions from becoming airborne. Such controls may include but not be limited to the following practices:

A. For activity involving the removal or alteration of natural or pre-existing ground cover including but not limited to land clearing, excavating, grading, earthmoving, dredging, or demolition:

1. Wetting down;
2. Chemical stabilization;
3. Applying dust palliative;
4. Minimization of area disturbed;
5. Reclamation of disturbed area as soon as possible;
6. Vehicular speed limitation;
7. Cleaning of paved areas.

B. For paved and unpaved roads, alleyways and storage areas, construction, altering, yearly street or highway maintenance and repair of road surface:

1. Wetting down;
2. Chemical stabilization;
3. Applying dust palliative;
4. Vehicular speed limitation;
5. Movement of materials by enclosed vehicles or covered conveyance system;
6. Cleaning of paved areas;
7. Mechanical capture of fugitive emissions by vacuuming;

8. Water flushing (when safety is not jeopardized);
9. Wetting ahead of open sweepers on rural roads.

C. Paved and unpaved parking lots:

1. The paved parking lots shall be cleaned either by sweeping (mechanical or vacuum sweeper), water flushing (when safety is not jeopardized), or by any means possible to reduce sanding material being reentrained into the ambient air;
2. The unpaved parking lots shall be maintained by any means possible to reduce dust being reentrained into the ambient air, such as wetting down, chemical stabilization, and vehicular speed limitation.

D. For material screening, handling, storage, processing or transportation:

1. Installation of baghouses and other emission control and collection systems;
2. Enclosed conveyance systems;
3. Enclosing, covering, or applying dust suppressants on storage piles where practical;
4. Moisturizing or chemically treating the material during processing.
5. Cleaning of paved areas;
6. Movement of materials by enclosed vehicle or covered conveyance system.

E. For erosion control:

1. Planting of exposed area;
2. Installing wind screen or equivalent wind speed reduction device;
3. Chemical stabilization;
4. Covering with a non-erodible material;
5. Run off control barriers and dams.

3.05 Contents of Application for Construction Activity Permit, Compliance Plan or Amendment to a Compliance Plan: All applications shall be submitted to the Air Quality Office. The applications shall contain:

A. Name and address of the person making the application. If the applicant is a corporation, the name and address of its registered agent.

B. The legal description and location of the land affected.

C. Description of the proposed construction or proposed continuous operation activity including nature and description of equipment used.

D. Proposed date for commencement of operation and termination of operation.

3.07 Application Procedure: The following are requirements for Air Quality Construction Permits:

A. The Board's designee shall have (10) working days from the time a determination is made that the application is complete to either approve or reject the application and issue the construction activity permit. If the Board's designee determines the application is complete and is in compliance with the Ordinance, a Construction Permit shall be issued. In the event the Construction Permit Application has not been approved or rejected within the (10) working day period, it shall be deemed to be approved.

B. No change in construction shall be allowed which would result in an increase of fugitive emissions from the construction site without first amending the Construction Permit. The amendment procedure is the same as set out in Section 3.07 (A). The required fee for the amendment is described in Section 5.0.

C. The construction permit fee is as described in Section 5.0 . The fee is payable to the Air Quality Office, and shall be collected by the Board's designee at the time an application is filed.

3.08 Application Procedure: The following are requirements for Compliance Plan Permits:

A. All applications for a Compliance Plan Permit or Amendments to Compliance Plan Permit shall be submitted to the Air Quality Office at least fifteen working days before the regular monthly Air Quality Board Meeting to be considered at such meeting. The fifteen working day time period shall commence on the day after the date the application was submitted and shall include the day of a board meeting if such a date is a working day. During the fifteen day period, the Board's designee shall determine if the application is complete. No application shall be submitted to the Air Quality Board that does not have all the information required by this Ordinance. If an application is returned to the applicant as not being complete, the rejection notice shall be in writing and specifically state what information is missing or not contained in sufficient detail to meet the requirements of this Ordinance.

B. No change in continuous operation activity shall be allowed which would result in an increase of fugitive emissions from that site without first amending the approved compliance plan permit.

All Amendments to Compliance Plan Permits will take effect upon approval by the Air Quality Board. The amendment will be updated in the current compliance plan and will be valid through the life of the initial permit. Fees for amendment will be charged in accordance with Section 5.0.

C. Once an application for a Compliance Plan Permit or Amendment to Compliance Plan Permit has been submitted to the Air Quality Board, a 60 day review period shall commence. The Air Quality Board must act upon the proposed plan within 60 days or such plan shall be deemed as approved. If the applicant is requested to provide additional information within a specified period of time and fails to act within such time period, the 60 day review period shall be extended by a like number of days.

3.09 Operating Compliance Plan Permit: Upon approval of the Compliance Plan, a three (3) year operating permit shall be issued allowing the applicant to commence operation thereunder. The approved compliance plan shall become binding terms of the operating permit. Amendments to the compliance plans approved by the Air Quality Board are enforceable provisions of the Operating Permit.

Applications for a Compliance Plan Permit renewal shall be submitted to the Air Quality Office sixty (60) days prior to the expiration, and shall follow the requirements as described in Section 3.05 of this Ordinance.

All Compliance Plan Permits shall be updated every three years, or three years from the last review by the Air Quality Board, whichever is later. The update shall contain all changes, additions, modifications, and expansions which would result in an increase of fugitive emissions to the operation over the past three (3) years.

4.0 Emission Standards, Enforcement and Appeal Procedures

4.01 Emission Standard for Construction or Compliance Plan Permit Operation:

A. Facility boundary standard: The transportation of visible fugitive emissions off the property of a construction or continuous operation facility site for more than 10% of the time for any one hour period, will be considered as an indication that the provisions of the construction permit or compliance plan of the continuous operating facility are not being complied with and shall cause a determination to be made of the source of the visible fugitive emissions and an opacity reading to be made at such sources. Visible fugitive emissions limitations specified in this paragraph shall be determined by a certified observer using Tennessee Visible Emission Evaluation Method 4 (40 CFR 52.2220 Part A 73 Method 4), Visual Determination of Fugitive Dust Emission Crossing a Property Line, approved by EPA Fed. Reg. V52, No. 10, January 15, 1987, Page 1628.

B. Fugitive emission source standard: A fugitive emission source shall not have a density greater than that designated as twenty percent (20%) opacity. Exceedance of this standard shall be considered a violation of the provision of the construction permit or compliance plan of the continuous operating facility and cause a review of the construction permit or compliance plan permit. Fugitive emissions limitations specified in this paragraph shall be determined by a certified observer using Tennessee Visible Emission

Evaluation Method 1, (40 CFR 52.2220 Part A 50, 51 Method) Visual Determination of Opacity of Emission From Nontraditional Source, approved by the US EPA in Federal Register, Vol. 47, No. 235, December 7, 1982, page 54936, as amended, Federal Register Vol. 28, No. 51, March 15, 1983, page 10834, Federal Register Vol. 50, No. 78, April 23, 1985, page 15892; or operation of equipment approved by the Board's designee that is known to produce equivalent or more accurate results.

No readings shall be made when wind velocity exceeds twenty-five (25) miles per hour within thirty (30) minutes on either side of or during the reading as determined by a qualified person, or by use of one or more anemometers at the site. Anemometers shall be used where practical. The property line of public or private rights-of-way through the construction or continuous operation facility site shall not be used for a measurement location.

4.02 Notice of Violation - Order for Corrective Action Included: Whenever two members of the Air Quality Board, based upon a written complaint or petition from the Board's designee, has reason to believe that a violation of any provisions of this Ordinance has occurred, the two members of the Board may cause written notice to be served upon the alleged violator or violators. The notice shall specify:

1. The provision(s) of this Ordinance alleged to be violated;
2 The facts alleged to constitute a violation thereof.

The notice may include an order that necessary corrective action be taken within a reasonable time.

The Board's designee shall execute or issue a written notice of violation and order to the person(s) who violate any portion of this ordinance.

4.03 Penalties and Petition to Contest Notice of Violation: Any person violating any portion of this ordinance shall be subject to a fine not to exceed $100.00. Each calendar day a violation occurs shall be considered a separate offense. Any person who wishes to contest a notice of violation must request a hearing before the Air Quality Board within (15) days of receiving the notice of violation or it becomes final. A petition to contest a notice of violation to the Air Quality Board shall be heard at its next regularly scheduled meeting in which a decision on the notice of violation shall be rendered. The Air Quality Board's decision may be appealed to the Pennington County Commission in accordance with Sections 4.04 to 4.31 and must be petitioned within (15) days of the date the Air Quality Board's decision is rendered.

4.04 Petition to Initiate Contested Case: Any applicant or person wishing to contest a decision of the Air Quality Board concerning a permit application or enforcement action, shall file a petition for a contested case hearing before the Board of Commissioners of Pennington County. The petition shall contain the following:

1. A statement of the petitioner's interest in the involved matter;
2. A statement of the decision contested, if any, and the relief and decision requested from the Commission;
3. A statement alleging the relevant facts and issues known to the petitioner upon which he bases his contest;
4. A statement of the legal authority and jurisdiction under which the hearing would be held, if known;
5. A reference to the particular section of the Ordinance involved, if known;
6. The signature of the petitioner or the petitioner's attorney(s).

The petitioner shall serve a copy of the petition upon the Air Quality Board and all known persons affected by Petitioner's request who shall be considered parties to the proceeding.

4.05 Notice and Hearing Required in Contested Cases: In a contested case, all parties shall be afforded an opportunity for hearing after reasonable notice.

4.06 Answer to Petition to Initiate Contested Case: Within ten (10) days after receipt of a petition of contested case, the party whose decision is being contested shall serve a written answer thereto on the petitioner and other parties of record. The answer shall respond to the allegations in the petition and state the desired decision of the Commission. Failure to answer an allegation in a petition shall constitute an admission of that fact. Further pleadings by parties in response to an answer shall not be required unless the prehearing examiner orders them for purposes of clarification of the issues involved in the contested case.

4.07 Pleadings to be Filed with Commission: The original of any petition, motion, or other pleading shall be filed with the Commission. The person filing the pleading shall mail copies thereof to the hearing chairman, hearing examiner if applicable, and all parties of record.

4.08 Appointment of Hearing Chairman: Upon the filing of a petition for a contested case, the chairman of the Commission shall appoint himself/herself or a member of the Commission to act as hearing chairman. The hearing chairman shall be responsible for all prehearing rulings, including motions to intervene, motions for a continuance, and any other motions necessary to ensure an orderly hearing process. Any decision made by the hearing chairman is a final decision of the Commission unless reversed by a majority of the Commission at the hearing on the matter. Notice of this appointment and of the date set for a prehearing conference shall be served on all parties by the Commission.

4.09 Prehearing Motions: Any party may make a prehearing motion by filing the same in writing with the Commission before the date set for the prehearing conference. Copies of the motion shall be served upon the prehearing examiner and all parties of record. The motion shall contain the factual and legal basis for the motion. The motion shall be heard and a decision thereon made by the prehearing examiner at the prehearing conference.

4.10 Prehearing Conference: The hearing chairman shall hold a prehearing conference within twenty (20) days of the filing of a petition for a contested case. The prehearing examiner will decide all prehearing motions at this conference and will establish a reasonable discovery schedule. The prehearing examiner will also set the time and place of the hearing of the petition before the Commission. Any other issue properly discussed at a pretrial conference under the Rules of Civil Procedure of the State of South Dakota may be heard at the prehearing meeting.

4.11 Notice of Contested Case: The Commission shall issue a notice of a contested case proceeding. The notice shall reference the petition filed with the Commission and shall be served upon all parties of record.

4.12 Contents of Notice in Contested Case: The notice shall include:

1. A statement of the time, place, and nature of the hearing;
2. A statement of the legal authority and jurisdiction under which the hearing is to be held;
3. A reference to the particular sections of the Ordinance involved;
4. A short and plain statement of the matters asserted. If a party is unable to state the matters in detail at the time the notice is served, the initial notice may be limited to a statement of the issues involved. Thereafter upon application a more definite and detailed statement shall be furnished;
5. A statement of any action authorized by law, which may affect the parties, as a result of any decision made at the hearing, whether it be the revocation of a permit, enforcement action, or other effect;
6. A statement that the hearing is an adversary proceeding and that a party has the right at the hearing, to be present, to be represented by a lawyer, and that these and other due process rights will be forfeited if they are not exercised at the hearing;
7. A statement that the decision based on the hearing may be appealed to the Circuit Court and the State Supreme Court as provided by law.

4.13 Subpoenas: The hearing chairman shall issue any subpoena necessary for the conduct of the hearing. Any party wishing to obtain a subpoena shall submit a written request and a proposed subpoena to the hearing chairman prior to the rehearing conference.

4.14 Conduct of Hearing: The hearing chairman shall act as the chairman of the Commission for the contested case hearing and shall make all necessary evidentiary rulings during the proceeding.

4.15 Rights of Parties at Hearings on Contested Cases: Opportunity shall be afforded all parties to respond and present evidence on issues of fact and argument on issues of law or policy. A party to a contested case proceeding may appear in person or by counsel, or both, may be present during the giving of all evidence, may have reasonable opportunity to inspect all documentary evidence, may examine and cross-examine witnesses, may present evidence in support of the

parties interest, and may have subpoenas issued to compel attendance of witnesses and production of evidence in the parties behalf.

4.16 **Transcript in Contested Cases:** A verbatim recording of all proceedings and testimony shall be kept by the Commission. Unless otherwise provided by law the Commission shall not be required to transcribe the record unless the requesting party tenders and pays the reasonable cost thereof. If transcribed, a copy of the record shall be furnished to any other party to the hearing at the request and expense of such other party.

4.17 **Transcripts by Court Reporter:** Any party wishing to obtain a transcript of a contested case hearing must make arrangements with a court reporter prior to the hearing. The Commission may, on their own motion, have a transcript of a contested case proceeding prepared; however, parties must obtain copies of the transcript from the court reporter at their own cost.

4.18 **Means and Proof of Service:** The service of all pleadings, notices, or orders may be made by certified mail or personal service. An affidavit of mailing or service copies of the receipts for delivery of certified mail, an admission of service, or other competent evidence shall be proof of service.

4.19 **Degree of Proof Required:** Whenever, under the provisions of this Ordinance a person is required to find, demonstrate, show, or otherwise establish a fact, that fact must be established by a preponderance of the evidence.

4.20 **Rules of Evidence in Contested Cases:** Irrelevant, incompetent, immaterial, or unduly repetitious evidence shall be excluded. The rules of evidence as applied under statutory provisions and in the trial of civil cases in the Circuit Court of the State of South Dakota, or as may be provided in statutes relating to a specific agency, shall be followed.

4.21 **Appointment of Hearing Examiner:** The Chairman of the Commission may appoint a hearing examiner to conduct the hearing of the contested case. After hearing the proceeding, the hearing examiner shall make proposed findings of fact, conclusions of law, and an order to the Commission. A copy shall be served upon all parties of record. The Commission shall allow all parties to object in writing to the hearing examiner's decision and to present oral argument prior to the Commission rendering a final decision on the contested case proceeding.

4.22 **Decision of Commission:** A final decision in a contested case shall be that obtained by a majority vote from a quorum of the Commission. Any final decision and resulting orders shall be signed by the hearing chairman of the Commission.

4.23 **Findings of Fact, Conclusions of Law, and Order:** All parties to a contested case proceeding may present proposed findings of fact, conclusions of law, and an order to the Commission at the close of the hearing. The Commission shall adopt or reject findings, conclusions and an order in support of its decision which shall

constitute the final decision of the Commission. The Commission shall serve written notice of the findings, conclusions, and order upon all parties to the proceeding. A party may file written objections to the Commission's final decision within ten days of receipt of the notice, although the appeal time shall run from the date of receipt of the notice.

4.24 Contents of Record in Contested Cases: The record in a contested case shall include:

1. All pleadings, motions, intermediate rulings;
2. Evidence received and considered;
3. A statement of matters officially noticed which have been refuted;
4. Questions and offers of proof, objections, and rulings thereon;
5. Proposed findings and exceptions;
6. Any decision, opinion, or report by the officer presiding at the hearing;

4.25 Hearing Requested on Order For Correction Action-Time Allowed: Any order issued pursuant to Section 3.39 shall be final unless, no later than twenty days after the date the notice and order are served, the person or persons named therein request in writing a hearing before the Air Quality Board. Upon such request, the Air Quality Board shall proceed in the same manner as set forth for a contested case hearing before the Commission.

4.26 Contested Case Proceeding in Lieu of Order - Consent Agreement: In lieu of an order, the Air Quality Board chairman may schedule a contested case under this Ordinance before the Air Quality Board. Nothing in this Ordinance shall prevent the Board's designee from notifying an alleged violator of violations and negotiating a consent agreement instead of initiating proceedings under Section 3.39. Any consent agreement shall be approved by the Air Quality Board.

4.27 Air Quality Board Orders After Hearing: If, after proceedings held pursuant to Section 3.39 or Section 3.40, the Air Quality Board finds that a violation or violations have occurred, it shall affirm or modify any order previously issued under Section 3.39 by the Air Quality Board chairman, or issue an appropriate order or orders for theprevention, abatement or control of the emissions or air pollution involved. If, after proceedings on an order contained in a notice the Air Quality Board finds that no violation is occurring, it shall rescind the order.

4.28 Time Allowed for Corrective Action in Air Quality Board Order: Any order issued as part of a notice or after proceedings under this Ordinance, the Air Quality Board shall prescribe the date or dates by which the violation or violations shall cease and may prescribe timetables for necessary action in preventing, abating or controlling the emissions of air pollution.

4.29 Appeals: Decisions of the Board of County Commissioners may be appealed to the Circuit Court as provided by law. Decisions of the Air Quality Board may be

appealed to the Commission, which review shall be limited to the record as established before the Air Quality Board.

4.30 **Remedy Not Exclusive:** Nothing in this Ordinance shall be construed to abridge, limit or otherwise impair the right of any person to damages or other relief on account of injury to persons or property and to maintain any action or other appropriate proceedings for such relief.

4.31 **Voluntary Compliance:** Nothing in this Ordinance shall prevent the Board's designee from making efforts to obtain voluntary compliance through warning, conferences, or any other appropriate means.

4.32 **Consent Agreement:** Nothing in this Ordinance shall prevent the Board's designee from notifying an alleged violator of violations and negotiating a consent agreement. Any consent agreement shall be approved by the Air Quality Board.

5.0 Fees:

5.01 Application fees for permits and compliance plan approval are payable to Pennington County and shall be collected by the Board's designee at the time an application is filed. The City of Rapid City and County of Pennington County are exempt from paying fees. Fees administered by this office will be as follows:

1. Construction Permit - $50.00;
2. Construction Permit amendment - $25.00;
3. Compliance Plan Permit for paved parking lots larger than or equal to one acre: $15.00 per acre, not to exceed $75.00;
4. Compliance Plan Permit for unpaved parking lots larger than or equal to one acre: $25.00 per acre, not to exceed $150.00.

Failure to pay the fee will result in a fine not to exceed $100.00. Each calendar day a violation occurs (payment is not received) is considered a separate offense. An Air Quality Violation Notice will be attached to the deed of the property at the Register of Deeds Office in the Pennington County Courthouse until the fine and fee have been paid.

6.0 Severability of Provisions and Applications:

6.01 **Severability of provisions and applications:** If a part of this Chapter is invalid, all valid parts that are severable from the invalid part remain in effect. If a part of this Ordinance is invalid in one or more of its applications, the part remains in effect in all valid applications that are severable from the invalid application.

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Gale Holbrook, Chair

ATTEST:

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Nancy Kuster, Deputy Auditor

First Reading: June 4, 1991
Second Reading: June 18, 1991
Adopted: June 18, 1991
Published: July 3, 1991
Effective Date: July 23, 1991

First Reading of the Amendments: March 17, 1992
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