1001 Pennsylvania Avenue, NW, Washington, DC 20004-2595 ▪ p202 624-2500 ▪ f202 628-5116

crowell moring

Edward M. Green
(202) 624-2922
egreen@crowell.com

February 17, 2006

Rebecca J. Smith
Acting Director of the Office of Standards,
Regulations and Variances
Mine Safety and Health Administration
1100 Wilson Boulevard
Arlington, VA 22209-3939

Re: RIN: 1219—AB29, September 7, 2005 Notice of Proposed Rulemaking to Amend MSHA's Rules for Diesel Particulate Matter Exposure of Underground Metal and Nonmetal Miners

Dear Ms. Smith:

Set forth below are the comments of Kennecott Minerals Holding Company ("KMC") and Kennecott Greens Creek Mining Company ("KGCMC") on MSHA's proposal of September 7, 2005 to utilize staggered effective dates for implementation of the Agency's final limit for exposure of underground metal and nonmetal miners to diesel particulate matter ("DPM"). 70 Fed. Reg. 53280. This proposal would amend MSHA's mandatory health standards for Diesel Particulate Matter Exposure of Underground Metal and Nonmetal Miners originally published on January 19, 2001 (66 Fed. Reg. 5706), and most recently amended on June 6, 2005 (70 Fed. Reg. 32868) (collectively, the "DPM Rules").

These comments focus on the Greens Creek Mine located on Admiralty Island off the coast of Juneau, Alaska. The Mine is owned in joint venture by KGCMC (57.75%), Kennecott Juneau Mining Company (12.51%), and Hecla Mining Company (29.74%). KGCMC is the operator of the Mine and is 100% owned by KMC, located in Salt Lake City, Utah. The Greens Creek Mine extracts ore containing lead, zinc, silver, and gold. The Mine was the recipient of the 1997 and 2003 Sentinels of Safety Award for underground metal mines. For purposes of these comments, we refer to both KGCMC and KMC collectively as KMC. KMC is a member of the National Mining Association ("NMA"). As such, KMC endorses NMA's comments on this Notice of Proposed Rulemaking, and incorporates them by reference as though fully set forth.

At the outset, we want you to know that KMC is very pleased that MSHA has proposed a staggered effective date schedule for implementation of the Agency's

final DPM limit.[1] Although we have grave reservations about the feasibility of that final limit, KMC endorses a staggered schedule concept. We discuss a more practical approach to that schedule below, but it is our view that such a schedule, along with realistic and transparent procedures to further implement the special extension provisions of 30 C.F.R. § 57.5060(c) (*see* 70 Fed. Reg. 32966) offers the best hope for us to achieve compliance with the DPM Rules in their entirety.

We offer our detailed comments below. Interspersed throughout are answers to a number of the questions posed by MSHA in the preamble of this Proposal.

Background

This Notice of Proposed Rulemaking is the latest in a multitude of changes to a very controversial and complex set of mandatory standards regulating the DPM exposure of underground metal and nonmetal miners promulgated on the very last day of the Clinton Administration. These final rules were the culmination of a years-long effort by MSHA to regulate the DPM exposure of underground miners.

From the very outset of these rulemakings, the mining industry (including KMC) consistently raised fundamental objections about the technological and economic feasibility of the engineering controls that would have to be used to comply with the exposure limits imposed by the DPM Rules. Industry also consistently raised objections regarding the scientific basis for the health effects judgments used by MSHA as a justification for these exposure limits. We were (and remain) so concerned about the justification for these standards and their feasibility that KGCMC filed a petition for their judicial review in the United States Court of Appeals for the District of Columbia on January 29, 2001. Similarly, KGCMC also has sought judicial review of the June 6, 2005 amendments to the DPM Rules. Numerous other industry petitioners, including NMA, have also sought judicial review of the DPM Rules.

As a result of these lawsuits, and the willingness of MSHA and the Intervenor United Steel, Paper and Forestry, Rubber, Manufacturing, Energy, Allied and Service Workers International Union (the "Steelworkers") to settle many of the issues at stake, since January 2001, a number of KMC's concerns have been allayed. These settlement discussions continued until quite recently. However, they were terminated following the decision of the Steelworkers to withdraw from them. KMC is disappointed about the cessation of these discussions.

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[1] KMC also appreciates MSHA's delay of the applicability of the effective date for the final DPM limit to May 20, 2006. 70 Fed. Reg. 55019 (Sept. 19, 2005).

KMC continues to disagree with MSHA's conclusions about the health effects of our miners' exposure to DPM. Nevertheless, KMC has worked very hard to comply with both the interim and final exposure limits imposed by the DPM Rules. As we discuss below in greater detail, however, our best efforts to date have generally allowed us only to achieve compliance with the interim limit. Currently we are unable to reach the final concentration limit, and looking forward, based on our knowledge of feasible engineering controls, it is highly uncertain as to when we will be able to achieve that final limit.

KMC's Participation in DPM Ruling

KMC has participated in every phase of the DPM Rules, both prior to and subsequent to the promulgation of the January 19, 2001 mandatory standards. We have worked hard to implement the DPM Rules, and we will continue to work with MSHA, NIOSH, and the NIOSH-Industry-Labor Metal-Nonmetal Diesel Partnership as we search for new technologies and engineering and administrative controls that are feasible for the site-specific conditions at the Greens Creek Mine. Indeed, we believe that KMC is a leader in the industry's efforts to comply with the DPM Rules, as evidenced by the summary of feasible engineering and administrative controls used at the Greens Creek Mine set forth below.

Summary of Feasible Engineering and Administrative Controls Used by KMC to Reduce Miners' Exposure to DPM at the Greens Creek Mine

Over the past five years, on its own and with the cooperation of MSHA and NIOSH, KMC has worked aggressively to reduce the DPM exposures of its miners in connection with its efforts to implement the DPM Rules. This effort has been difficult and costly. The use of DPM filters in particular, has posed substantial trial and error challenges. Through the application of a suite of engineering and administrative controls, described below, progress in reducing the DPM exposures of Greens Creek miners is being made, and KMC is committed to achieving further reductions of DPM exposures, consistent with the DPM Rules.

Mining Equipment

The current-diesel powered underground fleet at the Greens Creek Mine consists of a total of 83 units of equipment as follows:

- 17 haul trucks;
- 13 loaders;
- 13 utility vehicles;

- 6 graders/others;
- 24 tractors; and
- 10 drills.

DPM Filters

Since 2000, Greens Creek Mine personnel have been installing and testing DPM filters on selected vehicles to ascertain the technological and economic feasibility of such filters. Our goal in this effort has been to identify "practical mine worthy filter technology," meaning DPM filters that are cost-effective and reliable in the rugged working conditions of underground mining. We are pleased that MSHA is also committed to continuing to consult with NIOSH, industry, and labor on the availability of practical mine worthy filter technology. 70 Fed. Reg. 53282. As we show below, however, while progress is being made to achieve this goal, much work remains to be done.[2]

Based on our assessment of commercially available DPM filters, Greens Creek Mine Personnel decided to utilize Engelhard and DCL ceramic soot trap filters (both of which are passive regeneration filters) for our larger horsepower production units. We also installed a DCL "Blue Sky" active regeneration filter on a smaller horsepower utility loader with a limited duty cycle engine. Currently, 13 of the 17 haultrucks in the Mine's fleet are equipped with passive regeneration filters, and the remaining four units are currently being evaluated for such filters.

The process of achieving filter reliability has been arduous, involving considerable delays between filter purchase and delivery to the Greens Creek Mine, and much discussion between Mine personnel and filter manufacturer representatives. Based on our experience, KMC agrees with MSHA's observation in this Notice of Proposed Rulemaking that "[r]elying on [filters] to be installed on older, higher DPM emitting engines may also introduce additional implementation issues since [filter] manufacturers normally do not recommend adding [filters] to older engines." *Id.* 53284. At the present time, however, we are increasingly

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[2] As MSHA itself notes:

> We projected that by this time, practical and effective filter technology would be available that could be retrofitted onto most underground diesel powered equipment. However, . . . we have become aware that this assumption may not be valid. The applications, engineering and related technological implementation issues that we believed would have been easily solved by now are more complex and extensive than previously thought.

Id. 53283.

confident that passive regeneration filter technology can be effective in the Mine's larger horsepower production units.

The feasibility of equipping medium-to low-duty cycle engines with passive and active regeneration DPM filter systems continue to be evaluated by Greens Creek Mine personnel. However, the need for fixed locations for installation of equipment used for active filter regeneration poses serious logistical problems due to the spread out nature of the Mine's layout. Currently, we believe that active regeneration will only be practical in limited areas of the Mine. Thus, we will continue to explore the use of active regeneration DPM filter systems in those areas of the Mine where successful implementation can be achieved. In addition to these logistical impediments, however, as MSHA has recognized, the medium-to low-duty cycle engines tested to date have insufficient exhaust gas temperatures to regenerate accumulated carbon. 70 Fed. Reg. 32925 (June 6, 2005).

KMC, however, has taken other steps to control DPM from the Greens Creek Mine's medium-to low-duty cycle range engines. Thus, within the group of 13 utility vehicles, six of the units have been re-powered with the latest clean engines available from Mercedes. These new engines run significantly cleaner than the engines that were replaced. Another two utility vehicle engines are scheduled for replacement before the end of this year. Most of the remaining engines in this medium-to low-duty cycle category, specifically the tractor fleet and the drill fleet, run for limited periods of time throughout the day, with typically less than two hours of operation per shift. Thus, they do not contribute significantly to DPM exposures.

Fully Enclosed Environmental Cabs

Based on our DPM filter technology experience to date, KMC also believes that both the purchase of equipment with fully enclosed environmental cabs and the replacement of engines in our existing fleet have been (and will continue to be) very important in reducing the exposure of Greens Creek miners to DPM. Consequently, purchase of enclosed cabs has essentially become standard where the application is practicable. Specifically, where cabs have been available as an option on the equipment and where the larger profile of the equipment is compatible with the heading size, we have purchased equipment with the environmental cab option. At the present time, 14 units of the Mine fleet are equipped with fully enclosed cabs. As existing fleet units are replaced, additional fully enclosed cabs will be deployed.

Engine Replacement

Replacement of old engines with new cleaner engines, where practicable, began in 2003. Such engine replacements have now become a primary focus of our efforts to control DPM at the Greens Creek Mine. To date nine units of equipment have been fitted with new engines. Three additional units of equipment remain to be fitted with new engines. After the conversion of these three outstanding engines, only five remaining engines will be of Caterpillar manufacture. All other engines in the Mine are MSHA-approved Deutz, Detroit, or Mercedes models, or EPA-approved Kubota engines. These are the cleanest engines available.

Ventilation

As can be seen on the attached Ventilation Diagram (Attachment 1) the Greens Creek Mine has a cascading ventilation system, meaning that intake air flows from stope to stope, building up DPM contaminants as the air flows through the Mine before being exhausted out a single level (1330 exhaust level).

Like many other underground metal mines built prior to the existence of the DPM Rules, the Greens Creek Mine has a relatively narrow opening and workings (generally 14 feet high and 16 feet wide). Consequently the volume of ventilating air that can be circulated throughout the Mine to sweep away DPM is physically limited. The reason why the Mine has such a narrow opening and workings is because, like virtually all existing underground metal mines, it was constructed to follow its ore body. Constructing the Mine to make the opening and workings larger than necessary for extraction of ore would have been cost prohibitive. Ventilation at the Greens Creek Mine is further complicated because of the Mine's location within the boundaries of a National Monument under the jurisdiction of the National Park Service. National Park Service limitations as to surface disturbances for the development of additional ventilation airways to the surface are very restrictive, requiring detailed and lengthy environmental impact studies and baselines to be established before any increase to the "footprint" of disturbed lands can be authorized.

In light of these constraints, while ventilation "upgrades" have been implemented since 2000, the Greens Creek Mine also relies on improved maintenance of the Mine's ventilation system to maximize the ventilating air current underground. These ventilation upgrades consist of the installation of 17 new fans purchased since 2000, increased from 75 HP up to 100 HP ratings. These more powerful fans move more air to the Mine's headings. Currently, boosting fan sizes even higher is being evaluated.

As development of the Mine takes place, ventilation upgrades, including the possible construction of new bore holes, will continue. The resulting increase of airflow through affected portions of the Mine should reduce miners' DPM exposures. However, the upgrades will not enhance greater flows of air throughout the Mine in its entirety.

Administrative Controls

Administrative controls employed at the Greens Creek Mine include elimination of idling of diesel powered equipment while waiting to load in confined areas underground and restriction of the number of operating engines in stopes.

KMC's Specific Comments On The September 7, 2005 Notice Of Proposed Rulemaking

In the context of the information offered above, KMC now turns to specific comments on the September 7, 2005 Notice of Proposed Rulemaking.

Staggered Effective Dates for the Final Limit

Although KMC does not believe that the final DPM limit is feasible, nevertheless, following careful consideration of MSHA's proposed staggered effective date schedule for implementation of that final limit, KMC endorses it in concept. We say that because in spite of the fact that we are among the industry leaders in our efforts to achieve compliance with the DPM Rules, our best efforts to date have generally allowed us only to achieve compliance with the interim limit. Currently, we are unable to reach the final concentration limit, and looking forward, based on our knowledge of feasible engineering controls, it highly uncertain as to when we will be able to achieve that final limit. It is our view, therefore, that a staggered effective date schedule, along with realistic and transparent procedures to further implement the special extension provisions of 30 C.F.R. § 57.5060(c), offers the best hope for us to achieve compliance with the DPM Rules in their entirety.

Our endorsement of the proposed staggered effective date schedule is qualified, however, because of: (a) the uncertainties surrounding development of an accurate conversion factor from total carbon ("TC") to elemental carbon ("EC") for the final DPM limit; and (b) the practical problems associated with a 50 microgram reduction on an annual basis (including the feasibility of doing so), until the final limit becomes effective on January 20, 2011.

With regard to the conversion factor issue, we agree with MSHA that more work is required to develop an appropriate conversion factor from TC to EC for the

proposed phased-in final limits. We agree with MSHA that the variety of DPM controls being adopted by mine operators have complicated the conversion factor issue. Indeed our own sampling data demonstrates the problem. Thus, samples taken at the Greens Creek Mine during the joint 31-Mine Study conducted in 2002 averaged 77% EC for acidified samples equating to a 1.3 conversion factor for samples above 400 TC $\mu g/m^3$. However, our more recent sampling data shows that below the interim limit, sampling and analysis variability for EC increases, and accuracy and precision decreases as lower EC levels are achieved and measured. *See* Compilation of Sampling Results at the Greens Creek Mine at Attachment 2. MSHA data confirm that no accurate conversion factor exists for the highly variable ratio of TC to EC at levels below the interim exposure limit. This ratio becomes even more unstable once diesel powered equipment is modified by installation of DPM filters like those being used the Greens Creek Mine. KMC understands that MSHA will deal with the conversion factor problem in a separate rulemaking (70 Fed. Reg. 53287), and we appreciate the need to do so. KMC is pleased that MSHA will work with NIOSH to try to resolve this critically important issue – and we offer our assistance in this effort. Please know, however, that identifying an accurate, scientifically supportable, and peer-reviewed conversion factor is absolutely fundamental to KMC's acceptance of any staggered effective date schedule.

In addition to this conversion factor problem, from a purely practical point of view, KMC believes that it will be more realistic if MSHA were to revise its proposed staggered effective date schedule so that it becomes effective in two or three phases ending on January 20, 2011, instead of the current annual six step phase-in period. We say this because, for all practical purposes our DPM Rules-related purchasing decisions (and we believe those of most other mine operators) are not based on an artificial yearly staggered effective date schedule. Our purchasing decisions are designed to achieve compliance with the final limit. Thus, we believe a two or three-phase staggered effective date schedule ending of January 20, 2011 would more realistically take into account the purchase of new equipment and engineering controls designed to ultimately meet that final limit.

The Need for Realistic, Transparent Special Extension Procedures

Also essential to KMC's endorsement of a staggered effective date schedule is the need for realistic, efficient, and transparent special extension procedures. The provisions of 30 C.F.R. § 57.5060(c) are a step in the right direction on this critical issue. As written, however, these procedures are so open-ended that both MSHA managers and industry personnel could spend enormous amounts of time and resources, with no assurance that special extensions will be finally processed in a timely fashion. KMC believes that a transparent, efficient procedure can and must be developed. Its hallmark should be timely and certain decision making. Such a

result will allow both MSHA's and industry's limited resources to be directed to implementation of DPM controls underground, instead of endless paperwork.

To accomplish this goal, KMC recommends that MSHA propose revisions to 30 C.F.R. § 57.5060(c) consistent with the precepts contained in the comments of NMA on this issue.

Medical Evaluation and Transfer of Miners

With regard to MSHA's request for comments on the appropriateness of including a provision for medical evaluation of miners required to wear respiratory protection, and transfer of miners who have been determined by a medical professional to be unable to wear a respirator, KMC offers the following comments. First and foremost, KMC recognizes that while MSHA has authority to require medical evaluation and transfer of miners "where appropriate," the Agency is not mandated to do so. 30 U.S.C. § 811(a)(7). However, KMC recommends deferring promulgation of such a provision until more is known about the number of miners who may be affected by such a provsion, we say this, because as we discuss below, currently the number of our miners who wear respirators is small. To the extent, however, that 30 C.F.R. § 57.5060(d) requires the use of respiratory protection when feasible engineering and administrative controls have reduced a miner's DPM exposure to as low a level as is feasible, the population of our miners required to wear respirators is likely to increase substantialy. Once MSHA and industry gain experience with this provision, as well as special extensions, then KMC is prepared to accept a carefully crafted medical evaluation and transfer procedure.

Answers to Questions Asked by MSHA at the January 9, 2006 Public Hearing in Salt Lake City

During our testimony at the MSHA public hearing on this Notice of Proposed Rulemaking, the MSHA hearing panel asked that we furnish answers to a number of questions. We do so below.

What is the Cost of Medical Monitoring?

To date, medical monitoring at the Greens Creek Mine has been solely for the purpose of monitoring the exposure of miners to lead containing dusts. Each of our miners is required, as a condition of employment, to submit to a drawing of blood that is sent out to a laboratory for analysis. Each of these analyses costs roughly $73.00 per miner. The relationship of this type of medical monitoring to the DPM Rules, however, is unclear. Greens Creek also conducts its own pulmonary function tests on individuals required to wear respirators under our respiratory protection program. That program also includes proper fit testing. We have onsite technicians

who are certified to conduct these tests, however, the analysis of the pulmonary function tests is provided by a licensed healthcare provider. The tests cost roughly $17.00 per individual.

What is the Cost of Bio-Diesel Fuel?

While we are still analyzing the use of bio-diesel fuel, our current diesel fuel supplier has indicated that the cost for bio-diesel fuel at the port of Seattle would be priced at a premium of 20 to 25 cents per gallon for a B20 blend. That does not include costs for specialized transport during the winter season to keep the bio-diesel fuel from gelling. Further, we would have to install separate fuel tankage to segregate bio-diesel fuel from other fuels used in the Greens Creek Mine's surface facilities. In addition, we do not have a firm idea as to the costs of any fuel additives that might be required to make bio-diesel fuel a viable alternative. Nor do we have any estimate of costs for blends in excess of B20 that might be required, and we do not know how higher blends would impact cold weather storage and performance of the fuels.

How Many Miners Have Been Put into Respiratory Protection and for How Long?

The Greens Creek Mine has fewer than 10 miners enrolled in a mandatory respiratory protection program. To reemphasize, our current program is aimed at protecting miners from lead containing dusts. The longest any of our miners has been enrolled in a mandatory respirator program requiring daily usage has been for over a two-year period. Some Greens Creek miners also wear respirators on a voluntary basis out of personal preference, and some of these individuals have been wearing respirators for several years.

What is the Breakdown of Trucks and Loaders?

The answer to this question is contained in Attachment 3, Trucks and Loaders.

Can You Re-Graph the EC:TC Data Provided by Year and/or Study?

The answer to this question is found in Attachment 4, EC:TC Ratio.

What are the Accrued Hours on Greens Creek's Ceramic Filters and What is Their Manufacture?

The answer to this question is found in Attachment 5, Filter Hours.

What are the Costs of the Filters?

The passive regeneration filter systems we have purchased range from $6,600 to $8,700 each. These filters also have back pressure monitors costing roughly $700 each. Installation on equipment usually will cost about $1,000. The last quote we received for an on-board active regeneration filter was $28,000, excluding the regeneration station which would cost an additional $8,600 and a back pressure monitor estimated at $1,100, for a total cost of $37,700 excluding freight and installation. Costs for our passive regeneration filter systems will be borne over the filter life, which in our experience has ranged between 2,500 and 9,000 hours with most failing around 6,000 hours. By way of comparison a new tier 3 engine only costs $25,000 and will run for three times longer than the filters with which we have had experience.

What is the Procedure for Ash Removal from Our Ceramic Filter Systems?

Our procedure for cleaning accumulated ash from our passive regeneration filter systems is to remove the filter every 250 hours and blow it clean with compressed air from the exhausting side of the filter. The filter is then re-mounted on the equipment with the exhaust flowing in the reverse direction from its original position.

Do You Have Any Proposals or Suggestions for Sampling Strategies for Multi-Tasking Individuals Working in Numerous Areas of the Mine?

At the Greens Creek Mine, it is difficult to quantify which occupation or area contributes to a full shift exposure because our miners are capable of performing a number of different jobs in various areas of the Mine throughout a shift. For example a miner will be exposed to ambient DPM concentrations based on his location in the Mine, and that exposure may not be dependent on the equipment he is operating. Thus, high DPM exposures have been recorded for miners working near the end of the air circuit while operating electrically powered equipment that generates no DPM whatsoever.

At the Greens Creek Mine, therefore, measuring occupational exposures would require swapping out of filter cassettes every time a miner changes occupations throughout the day. Area samples coinciding with the activities of miners in a heading would also need to be taken in order to determine ambient concentrations of DPM exposures based on location. Area samples will also be affected by all upstream diesel exhaust activity; and that activity will be different

from shift to shift based on the various mining functions necessitated during a particular shift.

Conclusion

KMC appreciates the opportunity to provide MSHA with these comments. As in the past, we stand ready to work with the Agency to seek feasible solutions to the continuing multitude of problems associated with efforts to achieve the final DPM limit.

Sincerely yours,

Edward M. Green
Counsel for Kennecott Minerals Company
and Kennecott Greens Creek Mining
Company

Attachments

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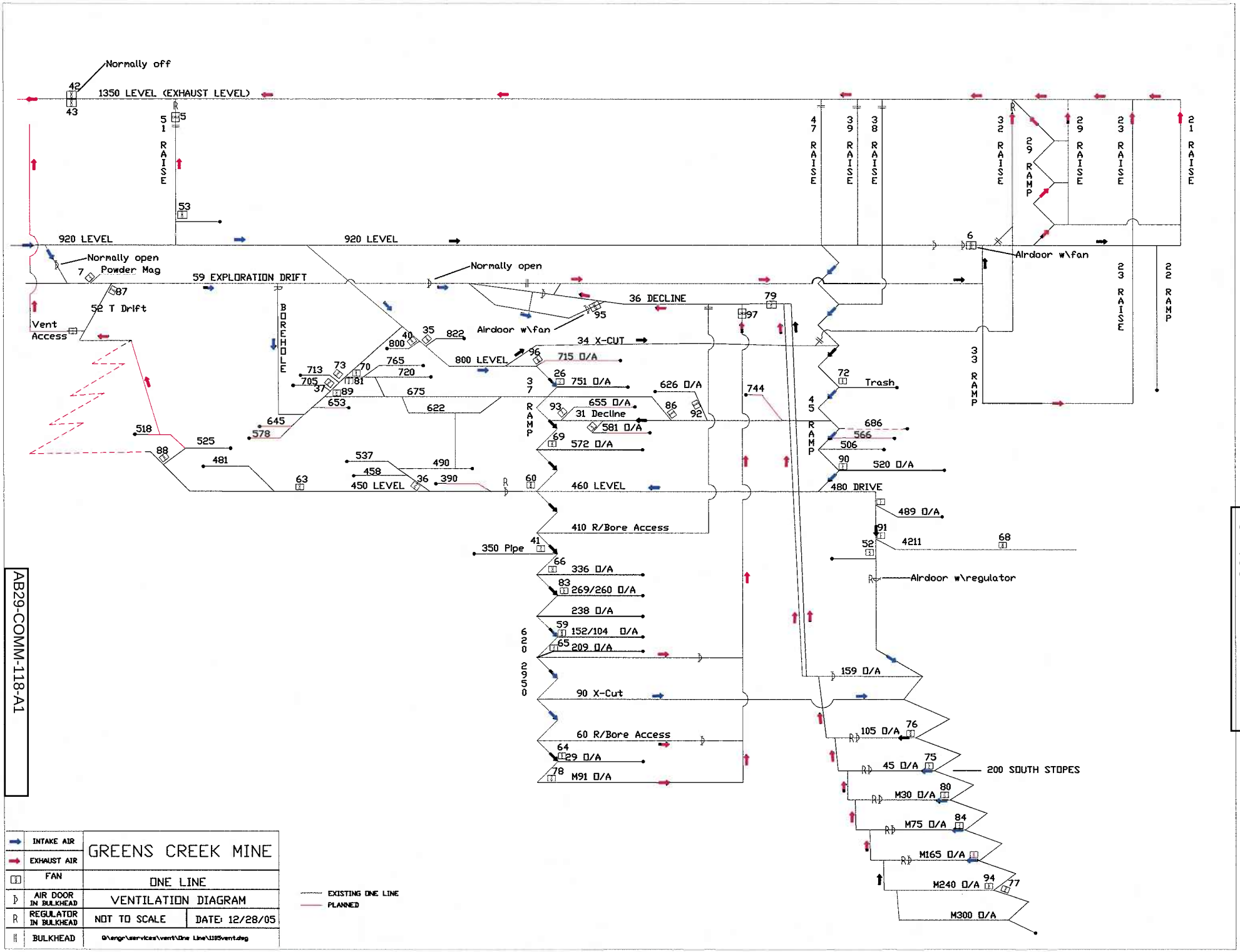
Attachment 1



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Attachment 2

Compilation of Sampling Results - Greens Creek Mine

Date	Occupation	Location	Filter	EC	TC	EC:TC Ratio
7/24/2000	Mucker Outside	Area	No	409	769	1.88
7/24/2000	Mucker Outside	Area	No	405	783	1.93
7/24/2000	Mucker Outside	Area	No	424	795	1.88
7/25/2000	Mucker Outside	Area	No	682	1066	1.56
7/25/2000	Mucker Outside	Area	No	689	1084	1.57
7/25/2000	Mucker Outside	Area	No	717	1103	1.54
7/26/2000	Mucker Outside	Area	No	331	613	1.85
7/26/2000	Mucker Outside	Area	No	362	657	1.81
7/26/2000	Mucker Outside	Area	No	340	567	1.67
7/27/2000	Mucker Outside	Area	No	1096	1553	1.42
7/27/2000	Mucker Outside	Area	No	1129	1606	1.42
7/28/2000	Mucker Outside	Area	No	315	677	2.15
7/28/2000	Mucker Outside	Area	No	267	563	2.11
7/28/2000	Mucker Outside	Area	No	280	496	1.77
9/19/2001	Backfill	Personal	No	1141	1402	1.23
9/19/2001	Backfill	Personal	No	1100	1300	1.18
9/19/2001	Bolter	Personal	No	432	554	1.28
9/19/2001	Bolter	Personal	No	538	690	1.28
9/19/2001	Driller	Personal	No	328	433	1.32
9/19/2001	Grader	Personal	No	222	293	1.32
9/19/2001	Grader	Personal	No	260	340	1.31
9/19/2001	Mucker	Personal	No	118	187	1.58
9/19/2001	Powderman	Personal	No	260	425	1.63
9/19/2001	Powderman	Personal	No	260	390	1.50
9/20/2001	Driller	Personal	No	680	869	1.28
9/20/2001	Mucker	Personal	No	1085	1295	1.19
9/20/2001	Mucker	Personal	No	307	386	1.26
9/20/2001	Mucker	Personal	No	1290	1620	1.26
9/20/2001	Mucker	Personal	No	860	960	1.12
9/20/2001	Mucker Outside	Area	No	1200	1300	1.08
9/20/2001	Powderman	Personal	No	223	283	1.27
9/20/2001	Stope Exhaust	Area	No	590	790	1.34
1/23/2003	Mucker Outside	Area	Yes	73	140	1.92
1/23/2003	Ramp Exhaust	Area	Yes	170	234	1.38
1/23/2003	Ramp Exhaust	Area	Yes	100	210	2.10
1/23/2003	Ramp Intake	Area	Yes	158	204	1.29
1/23/2003	Stope Exhaust	Area	Yes	165	204	1.24
1/23/2003	Stope Exhaust	Area	Yes	190	350	1.84
1/23/2003	Stope Intake	Area	Yes	178	277	1.56
1/24/2003	Mucker	Personal	Yes	28	57	2.00
1/24/2003	Mucker Inside	Area	Yes	35	62	1.75
1/24/2003	Mucker Outside	Area	Yes	156	229	1.47
1/24/2003	Ramp Exhaust	Area	Yes	126	184	1.46
1/24/2003	Ramp Intake	Area	Yes	120	178	1.48
1/24/2003	Stope Exhaust	Area	Yes	148	215	1.45
1/24/2003	Stope Intake	Area	Yes	132	193	1.46
1/24/2003	Truck	Personal	Yes	106	159	1.50
1/24/2003	Truck	Personal	Yes	82	273	3.35
1/25/2003	Mucker	Personal	Yes	79	103	1.30

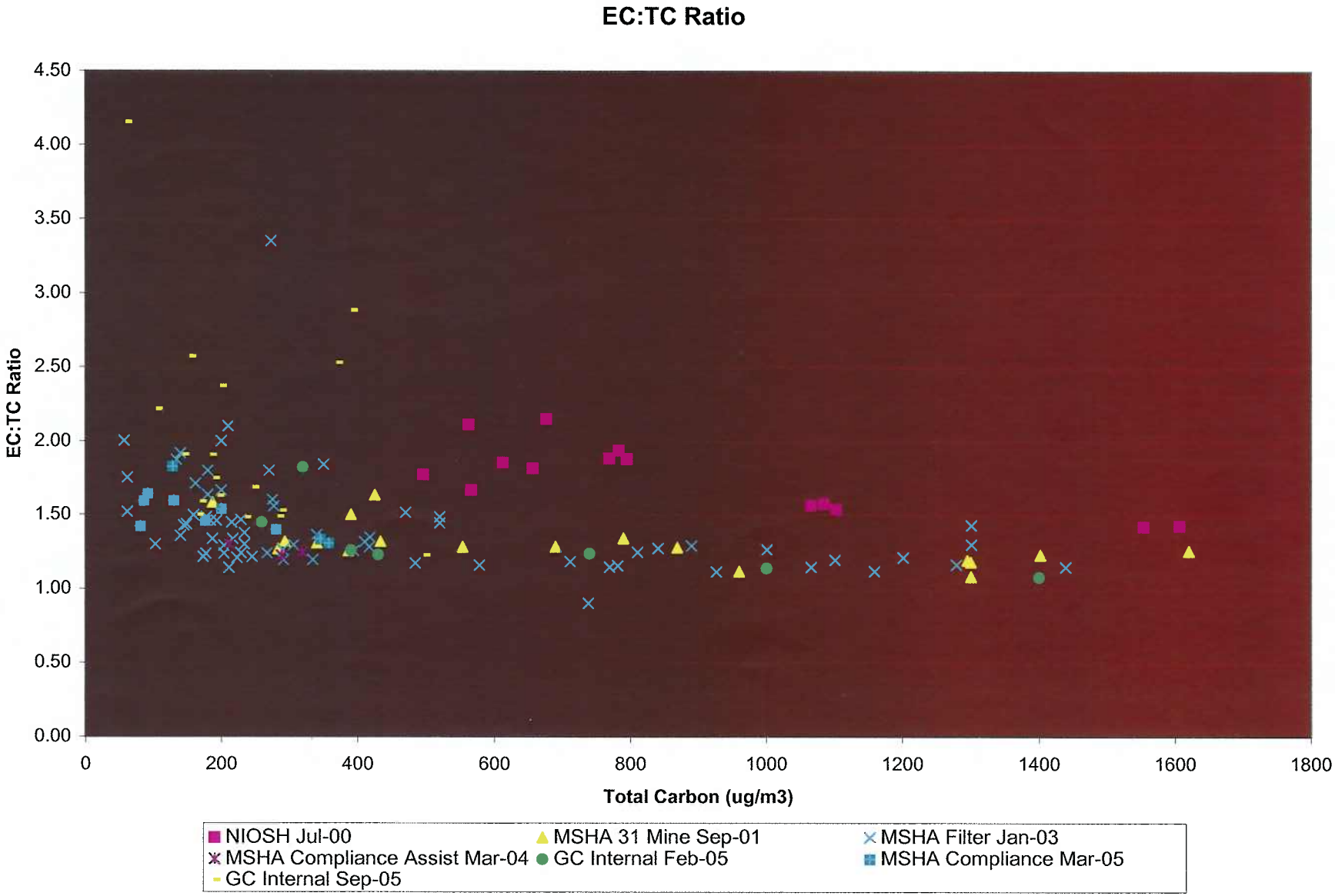
53	1/25/2003	Mucker Outside	Area	Yes	140	187	1.34
54	1/25/2003	Mucker Outside	Area	Yes	150	270	1.80
55	1/25/2003	Mucker Inside	Area	Yes	41	62	1.52
56	1/25/2003	Ramp Exhaust	Area	Yes	104	149	1.43
57	1/25/2003	Ramp Intake	Area	Yes	103	140	1.36
58	1/25/2003	Stope Ambient	Area	Yes	120	200	1.67
59	1/25/2003	Stope Exhaust	Area	Yes	180	234	1.30
60	1/25/2003	Stope Exhaust	Area	Yes	110	180	1.64
61	1/25/2003	Stope Intake	Area	Yes	143	177	1.24
62	1/25/2003	Stope Intake	Area	Yes	100	180	1.80
63	1/25/2003	Truck	Personal	Yes	102	145	1.43
64	1/25/2003	Truck	Personal	Yes	72	134	1.87
65	1/28/2003	Mucker	Personal	No	142	173	1.22
66	1/28/2003	Mucker Inside	Area	No	279	334	1.20
67	1/28/2003	Mucker Outside	Area	No	830	926	1.12
68	1/28/2003	Mucker Outside	Area	No	920	1100	1.20
69	1/28/2003	Ramp Exhaust	Area	No	816	738	0.90
70	1/28/2003	Ramp Intake	Area	No	236	306	1.30
71	1/28/2003	Ramp Intake	Area	No	310	470	1.52
72	1/28/2003	Stope Exhaust	Area	No	676	781	1.16
73	1/28/2003	Stope Exhaust	Area	No	690	890	1.29
74	1/28/2003	Stope Intake	Area	No	310	418	1.35
75	1/28/2003	Stope Intake	Area	No	350	520	1.49
76	1/28/2003	Truck	Personal	No	215	267	1.24
77	1/28/2003	Truck	Personal	No	230	290	1.26
78	1/28/2003	Truck	Personal	No	249	340	1.36
79	1/29/2003	Mucker	Personal	No	185	223	1.21
80	1/29/2003	Mucker Inside	Area	No	185	211	1.14
81	1/29/2003	Mucker Outside	Area	No	1035	1158	1.12
82	1/29/2003	Mucker Outside	Area	No	910	1300	1.43
83	1/29/2003	Ramp Exhaust	Area	No	314	394	1.26
84	1/29/2003	Ramp Intake	Area	No	95	162	1.71
85	1/29/2003	Ramp Intake	Area	No	100	200	2.00
86	1/29/2003	Stope Exhaust	Area	No	1099	1279	1.16
87	1/29/2003	Stope Exhaust	Area	No	990	1200	1.21
88	1/29/2003	Stope Intake	Area	No	601	711	1.18
89	1/29/2003	Stope Intake	Area	No	660	840	1.27
90	1/29/2003	Truck	Personal	No	325	417	1.28
91	1/29/2003	Truck	Personal	No	244	291	1.19
92	1/29/2003	Truck	Personal	No	312	410	1.32
93	1/30/2003	Mucker	Personal	No	185	229	1.24
94	1/30/2003	Mucker Inside	Area	No	162	217	1.34
95	1/30/2003	Mucker Outside	Area	No	1254	1438	1.15
96	1/30/2003	Mucker Outside	Area	No	1000	1300	1.30
97	1/30/2003	Ramp Exhaust	Area	No	498	578	1.16
98	1/30/2003	Ramp Intake	Area	No	412	484	1.17
99	1/30/2003	Ramp Intake	Area	No	360	520	1.44
100	1/30/2003	Stope Exhaust	Area	No	928	1065	1.15
101	1/30/2003	Stope Exhaust	Area	No	790	1000	1.27
102	1/30/2003	Stope Intake	Area	No	670	769	1.15
103	1/30/2003	Stope Intake	Area	No	650	810	1.25
104	1/30/2003	Truck	Personal	No	172	275	1.60

105	1/30/2003	Truck	Personal	No	202	245	1.22
106	1/30/2003	Truck	Personal	No	218	294	1.35
107	3/11/2004	Mucker	Personal		256	319	1.25
108	3/11/2004	Truck	Personal		235	288	1.22
109	3/11/2004	Truck	Personal		162	211	1.30
110	2/16/2005	Mucker	Personal	No	600	740	1.23
111	2/16/2005	Mucker Outside	Area	No	880	1000	1.14
112	2/16/2005	Powderman	Personal	No	180	260	1.44
113	2/16/2005	Mucker	Personal	No	310	390	1.26
114	2/16/2005	Backfill	Area	No	176	320	1.82
115	2/16/2005	Mucker Outside	Area	No	1300	1400	1.08
116	2/16/2005	Mine Exhaust	Area	No	350	430	1.23
117	3/19/2005	Backfill	Personal	No	258	345	1.33
118	3/19/2005	Backfill	Personal	No	130	200	1.54
119	3/19/2005	Bolter	Personal	No	70	128	1.83
120	3/19/2005	Bolter	Personal	No	54	86	1.59
121	3/19/2005	Driller	Personal	No	273	357	1.31
122	3/19/2005	Driller	Personal	No	200	280	1.40
123	3/19/2005	Mucker	Personal	No	82	130	1.59
124	3/19/2005	Mucker	Personal	No	56	92	1.64
125	3/19/2005	Truck	Personal	Yes	121	176	1.46
126	3/19/2005	Truck	Personal	Yes	57	81	1.42
127	9/13/2005	Driller	Personal	No	128		
128	9/13/2005	Driller	Personal	No	120	196	1.63
129	9/13/2005	Mucker	Personal	No	78		
130	9/13/2005	Mucker	Personal	No	190	283	1.49
131	9/13/2005	Truck	Personal	Yes	175		
132	9/13/2005	Truck	Personal	Yes	146	369	2.53
133	9/13/2005	Truck	Personal	Yes	61		
134	9/13/2005	Truck	Personal	Yes	75	144	1.91
135	9/13/2005	Truck	Personal	Yes	41		
136	9/13/2005	Truck	Personal	Yes	47	105	2.22
137	9/27/2005	Backfill	Personal	No	15	61	4.15
138	9/27/2005	Dozer	Personal	No	146	247	1.69
139	9/27/2005	Mucker	Personal	No	159	235	1.48
140	9/27/2005	Powderman	Personal	No	136	391	2.88
141	9/27/2005	Truck	Personal	Yes	97	184	1.91
142	9/27/2005	Utility	Personal	No	108	189	1.75
143	9/28/2005	Grader	Personal	No	110	166	1.50
144	9/28/2005	Loader/Drill	Personal	No	406	498	1.23
145	9/28/2005	Powderman	Personal	No	188	287	1.53
146	9/28/2005	Truck	Personal	No	60	154	2.57
147	9/28/2005	Truck	Personal	Yes	84	200	2.37
148	9/28/2005	Utility	Personal	No	107	170	1.59

Attachment 3
Trucks and Loaders

Class	Equipment Type	Unit Number	Engine Size	Horsepower		Engine Manufacture	Engine Series	DPM Manufacture Installed	DPF Size	Planned Installation
Haul Trucks	420 Backfill Truck	HT27	8.7 L	225	HP	Navistar	40 Series	DCL	11 1/4 x 14	
	420 Backfill Truck	HT29	8.7 L	225	HP	Navistar	40 Series	DCL	11 1/4 x 14	
	420 Backfill Truck	HT30	8.7 L	225	HP	Navistar	40 Series	DCL	11 1/4 x 14	
	420 Backfill Truck	HT31	8.7 L	225	HP	Navistar	40 Series	DCL	11 1/4 x 14	
	420 Backfill Truck	HT33	8.7 L	225	HP	Navistar	40 Series	Engelhard	11x12	
	Water Truck	HT35	8.7 L	225	HP	Navistar	40 Series	Engelhard	12x15	
	420 Backfill Truck	HT36	8.7 L	225	HP	Navistar	40 Series	Engelhard	12x15	
				1575						
	Dux 24 T Backfill Truck	HT44	8.5 L	315	HP	Detroit	50 Series	Engelhard	12x15	Yes
	Dux 24 T Backfill Truck	HT45	8.5 L	315	HP	Detroit	50 Series	Engelhard	12x15	Yes
				630						
	Toro 40 D	HT24	12.7 L	475	HP	Detroit	60 Series	Engelhard	15x15	
	Toro 40 D	HT37	12.7 L	475	HP	Detroit	60 Series	Engelhard	15x15	
	Toro 40 D	HT38	12.7 L	475	HP	Detroit	60 Series	DCL	15x15	
	Toro 40 D	HT40	12.7 L	475	HP	Detroit	60 Series	Engelhard	15x15	
	Toro 40 D	HT42	12.7 L	475	HP	Detroit	60 Series	Engelhard	15x15	
	Toro 40 D	HT43	12.7 L	475	HP	Detroit	60 Series	Engelhard	15x15	
				2850						
	436 Backfill Truck	HT39	12.7 L	375	HP	Detroit	60 Series			No - Temp Profile Inadequate
	436 Backfill Truck	HT41	12.7 L	375	HP	Detroit	60 Series			No - Temp Profile Inadequate
				750						
Loaders	3 1/2 Yd	LR09	12.7 L	184	HP	Deutz	F8L413FW			
	3 1/2 Yd	LR18	12.7 L	184	HP	Deutz	F8L413FW			
	3 1/2 Yd	LR38	6.4 L	201	HP	Mercedes	OM906LA	Engelhard	11.25x14	Yes
	3 1/2 Yd	LR39	7.6 L	210	HP	Detroit	40 Series			
	4 Yd	LR47	10.5 L	165	HP	Caterpillar	3306 DITA	DCL	Blue Sky	
	2 Yd	LR15	6.1 L	63	HP	Deutz	F6L912W			
	Bobcat	LR16								No - 5 hr / year utilization
	2 Yd Jammer	LR17	4.2 L	122	HP	Detroit	704			
	3 1/2 Yd Jammer	LR37	6.4 L	201	HP	Mercedes	OM906LA	Engelhard	11.25x14	Yes
	450 Loader	LR40	11.1 L	285	HP	Detroit	60 Series	Engelhard	15x15	Yes
	450 Loader	LR44	11.1 L	285	HP	Detroit	60 Series	Engelhard	15x15	Yes
	1250 Loader	goodm	11.1 L	300	HP	Detroit	60 Series	Engelhard	15x15	
	1250 Loader	LR49	11.1 L	300	HP	Detroit	60 Series	Engelhard	15x15	Yes
				2500						

Class	Equipment Type	Unit Number	Engine Size	Horsepower		Engine Manufacture	Engine Series	DPM Manufacture Installed	DPF Size	Planned Installation
Haul Trucks	420 Backfill Truck	HT27	8.7 L	225	HP	Navistar	40 Series	DCL	11 1/4 x 14	
	420 Backfill Truck	HT29	8.7 L	225	HP	Navistar	40 Series	DCL	11 1/4 x 14	
	420 Backfill Truck	HT30	8.7 L	225	HP	Navistar	40 Series	DCL	11 1/4 x 14	
	420 Backfill Truck	HT31	8.7 L	225	HP	Navistar	40 Series	DCL	11 1/4 x 14	
	420 Backfill Truck	HT33	8.7 L	225	HP	Navistar	40 Series	Engelhard	11x12	
	Water Truck	HT35	8.7 L	225	HP	Navistar	40 Series	Engelhard	12x15	
	420 Backfill Truck	HT36	8.7 L	225	HP	Navistar	40 Series	Engelhard	12x15	
				1575						
	Dux 24 T Backfill Truck	HT44	8.5 L	315	HP	Detroit	50 Series	Engelhard	12x15	Yes
	Dux 24 T Backfill Truck	HT45	8.5 L	315	HP	Detroit	50 Series	Engelhard	12x15	Yes
				630						
	Toro 40 D	HT24	12.7 L	475	HP	Detroit	60 Series	Engelhard	15x15	
	Toro 40 D	HT37	12.7 L	475	HP	Detroit	60 Series	Engelhard	15x15	
	Toro 40 D	HT38	12.7 L	475	HP	Detroit	60 Series	DCL	15x15	
	Toro 40 D	HT40	12.7 L	475	HP	Detroit	60 Series	Engelhard	15x15	
	Toro 40 D	HT42	12.7 L	475	HP	Detroit	60 Series	Engelhard	15x15	
	Toro 40 D	HT43	12.7 L	475	HP	Detroit	60 Series	Engelhard	15x15	
				2850						
	436 Backfill Truck	HT39	12.7 L	375	HP	Detroit	60 Series			No - Temp Profile Inadequate
	436 Backfill Truck	HT41	12.7 L	375	HP	Detroit	60 Series			No - Temp Profile Inadequate
				750						
Loaders	3 1/2 Yd	LR09	12.7 L	184	HP	Deutz	F8L413FW			
	3 1/2 Yd	LR18	12.7 L	184	HP	Deutz	F8L413FW			
	3 1/2 Yd	LR38	6.4 L	201	HP	Mercedes	OM906LA	Engelhard	11.25x14	Yes
	3 1/2 Yd	LR39	7.6 L	210	HP	Detroit	40 Series			
	4 Yd	LR47	10.5 L	165	HP	Caterpillar	3306 DITA	DCL	Blue Sky	
	2 Yd	LR15	6.1 L	63	HP	Deutz	F6L912W			
	Bobcat	LR16								No - 5 hr / year utilization
	2 Yd Jammer	LR17	4.2 L	122	HP	Detroit	704			
	3 1/2 Yd Jammer	LR37	6.4 L	201	HP	Mercedes	OM906LA	Engelhard	11.25x14	Yes
	450 Loader	LR40	11.1 L	285	HP	Detroit	60 Series	Engelhard	15x15	Yes
	450 Loader	LR44	11.1 L	285	HP	Detroit	60 Series	Engelhard	15x15	Yes
	1250 Loader	goodm	11.1 L	300	HP	Detroit	60 Series	Engelhard	15x15	
	1250 Loader	LR49	11.1 L	300	HP	Detroit	60 Series	Engelhard	15x15	Yes
				2500						



Attachment 5
Filter Hours

Unit	Description	Filter Make	Size	Hours at 12/31/05	Status
HT27	Wagner MTT420	DCL	11.25 x 14	2155	
HT29	Wagner MTT420	DCL	11.25 x 14	4063	
HT30	Wagner MTT420	DCL	11.25 x 14	3456	
HT31	Wagner MTT420	DCL	11.25 x 14	3256	
HT33	Wagner MTT420	Engelhard	11 x 12	8782	
HT35	Wagner MTT420	Engelhard	12 x 15	4068	
HT36	Wagner MTT420	Engelhard	12 x 15	2715	
HT24	Toro 40D	Engelhard	15 x 15	1867	
HT37	Toro 40D	Engelhard	15 x 15	2095	
HT38	Toro 40D	DCL	15 x 15	5703	
HT40	Toro 40D	Engelhard	15 x 15	7141	
HT42	Toro 40D	Engelhard	15 x 15	6382	
HT(22)43	Toro 40D	Engelhard	15 x 15	9024	Failing
LR46	Toro 1250	Engelhard	15 x 15	4790	
LR47	Elphinstone R1300	DCL	Blue Sky	4633	