Respirable Dust Rule Phase II Stakeholder Meeting Beckley, WV

March 24, 2016

Outline

- Rule Review – Dates of Implementation

- Sampling – General Information

- Review of Compliance Criteria

- Quartz

- CPDM 3700

General Sampling

- Sampling is full shift, portal-to-portal
- When sampling shifts longer than 12 hours, the CPDM must be switched out before the start of the 13th hour
- Miners expected to wear CPDM must be trained on CPDM prior to wearing it and retrained every 12 months
  - The importance of monitoring dust concentrations and properly wearing the CPDM
  - Clip-on sample inlet assembly should be attached to the miner's lapel or pocket
  - Inlet is not to be obstructed by clothing
  - How to display information screens and what the information is
  - How to start and stop second sampling runs
- Operator must keep record of the training for 24 months after completion of the training
  - Includes: date of training, name of miner, and subject trained

Duties – Certified Person; Sampling

- Program the CPDM for compliance sampling
- Ensure the miner(s) being sampled are properly wearing the CPDM at all times
- Monitor concentrations and status conditions at mid-shift or more frequently
  - Assure sampling device is in correct location
  - Assure CPDM is operating properly
  - Assure work environment remains in compliance with applicable standard
  - Transmit compliance samples to MSHA electronically within 24 hours of the end of each sampling shift
  - Also note any samples that were not taken on a normal work shift

Duties – Certified Person; Sampling
(Continued)

- Provide each part 90 miner a paper record of the sample run within an hour after the start of the miner's next work shift
- Must check CPDM within 3 hours before the sampling shift to assure operational readiness
  - If not in proper working order, arrange for or conduct appropriate procedures to put CPDM into working condition
  - *In the event that a unit were to fail the preoperational check during the pre-shift warm-up period, the operator would either use another CPDM for sampling, or notify the District orally and in writing that sampling will not occur because a CPDM is not available
  - Checks Includes:
    - Required cleaning
    - Installation of a new filter

Duties – Certified Person; Sampling - CPDM
(Continued)

- Except for Part 90 Miners, within 12 hours of the end of a sampling shift post the dust data card with the mine ID number, shift length, location sampled, equivalent concentration reported, and status conditions encountered (if any are recorded by the CPDM)
  - **Do not post a dust data card for part 90**
- Dust data card posted must remain posted until an MSHA report covering these respirable dust samples is received*
- Ensure that the data transmitted to MSHA is kept for at least 12 months*

Duties – Certified Person; Sampling
(Continued)

- Upon request from the District Manager (DM), the operator must submit the date and time any sampling required by the rule is scheduled to start. This information must be submitted at least 48 hours before the scheduled sampling*

- Regarding the transmission of samples by the certified person to MSHA, all samples collected are to fulfill regulatory requirements unless the sample has been identified in writing to the District Manager prior to the sampling shift as a sample to be used for some other purpose

* Responsibility of the operator which the certified person; sampling or maintenance and calibration can complete

Duties – Certified Person; Sampling

Not permitted to perform calibrations (is allowed to perform flow audit, not flow calibration)

Not permitted to open CPDM case

.msha file must not be altered in any way and must be maintained for at least 12 months

Certification in sampling with the CPDM is required in order to collect samples with CPDM

ECV
(Excessive Concentration Value)

Accounts for margin of error between true dust concentration and observed dust concentration measurement. The appropriate chart for instrument, number of samples and standard must be utilized (Table 70-1 is one Example).

TABLE 70-1 - EXCESSIVE CONCENTRAITON VALUES (ECV) BASED ON SINGLE, FULL SHIFT CMDPSU/CPDM CONCENTRATION VALUES

Applicable standard (mg/m³)	ECV (mg/m³)	
	CMDPSU	CPDM
2.0	2.33	2.26
1.9	2.22	2.15
1.8	2.12	2.04
1.7	2.01	1.92
1.6	1.90	1.81
1.5	1.79	1.70
1.4	1.69	1.58
1.3	1.59	1.47
1.2	1.47	1.36
1.1	1.37	1.25
1.0	1.26	1.13
0.9	1.16	1.02
0.8	1.05	0.91
0.7	0.95	0.79
0.6	0.85	0.68
0.5	0.74	0.57
0.4	0.65	0.46
0.3	0.54	0.34
0.2	0.44	0.23

Noncompliance

Operator Sampling

- Based on:
  - 2 or more of 5 valid respirable dust samples from a DWP, DA or Part 90 miner are ≥ ECV
  - 3 or more of 15 valid respirable dust samples from a DO or ODO are ≥ ECV
  - "Or" the average for all valid respirable dust samples in a sampling set are ≥ ECV (average of 5 or 15)

MSHA Sampling

- A single valid respirable dust sample ≥ ECV (single sample)

Abatement
(Continued)

- Upon issuance of a citation for excessive dust – sequential actions to be taken:
  - Make approved respirators available
  - Immediately take corrective action to lower respirable dust levels to at or below the applicable standard
  - Make record of corrective actions taken
  - Certified by mine foreman or equivalent no later than the end of the mine foreman's or equivalent officials next regularly scheduled working shift
    - ❖ In secure book or electronically
    - ❖ Retained at a surface location at the mine for at least 1 year
    - ❖ Available for inspection by MSHA
  - Within 8 calendar days after the date the citation is issued, sample the entity on consecutive normal production shifts until 5 valid respirable dust samples are collected

MMU Sampling

- DO and ODO sampling must be conducted on consecutive normal production shifts
    - material produced by an MMU is at least 80 percent of the 30 shift average
    - The 30 shift average is a running average. The most recent production shift must be used in determining the 30 shift average

- Intake air for an MMU must meet the intake air standard anywhere <u>within</u> 200 feet outby the working faces of each section

- DOs on an MMU are required to be sampled before sampling ODOs

Quartz

- Environment must be maintained at or less than 100 micrograms per cubic meters (100 µg/m³) based on an MSHA sample

- A reduced standard will be established if respirable quartz dust exceeds 100 µg/m³ (0.100 mg/m³)

- When the dust standard is changed, the new standard becomes effective 7 calendar days after notification from MSHA

CPDM
(PDM 3700)

- Charging
- Programming
- Sampling Screens
- Status Codes
- Troubleshooting
- Cleaning and Changing Filters
- Downloading and Transmitting Data
- Items to Remember

Features
(Continued)

- Run time of 12 hours - battery recharging time of 6 hours

- Heated internal sample line removes excess moisture

- Measures concentration of respirable dust without regard to composition

- Display has bright, large characters for easy readability

Main System Components

Sample inlet assembly

Sample line

Block with Flow Sensor orifice, Temp and RH sensors

Grit pot

Battery

Foam spacer

Display and buttons

Air heater (behind)

Pump

Sample Filter

TEOM Mass Transducer
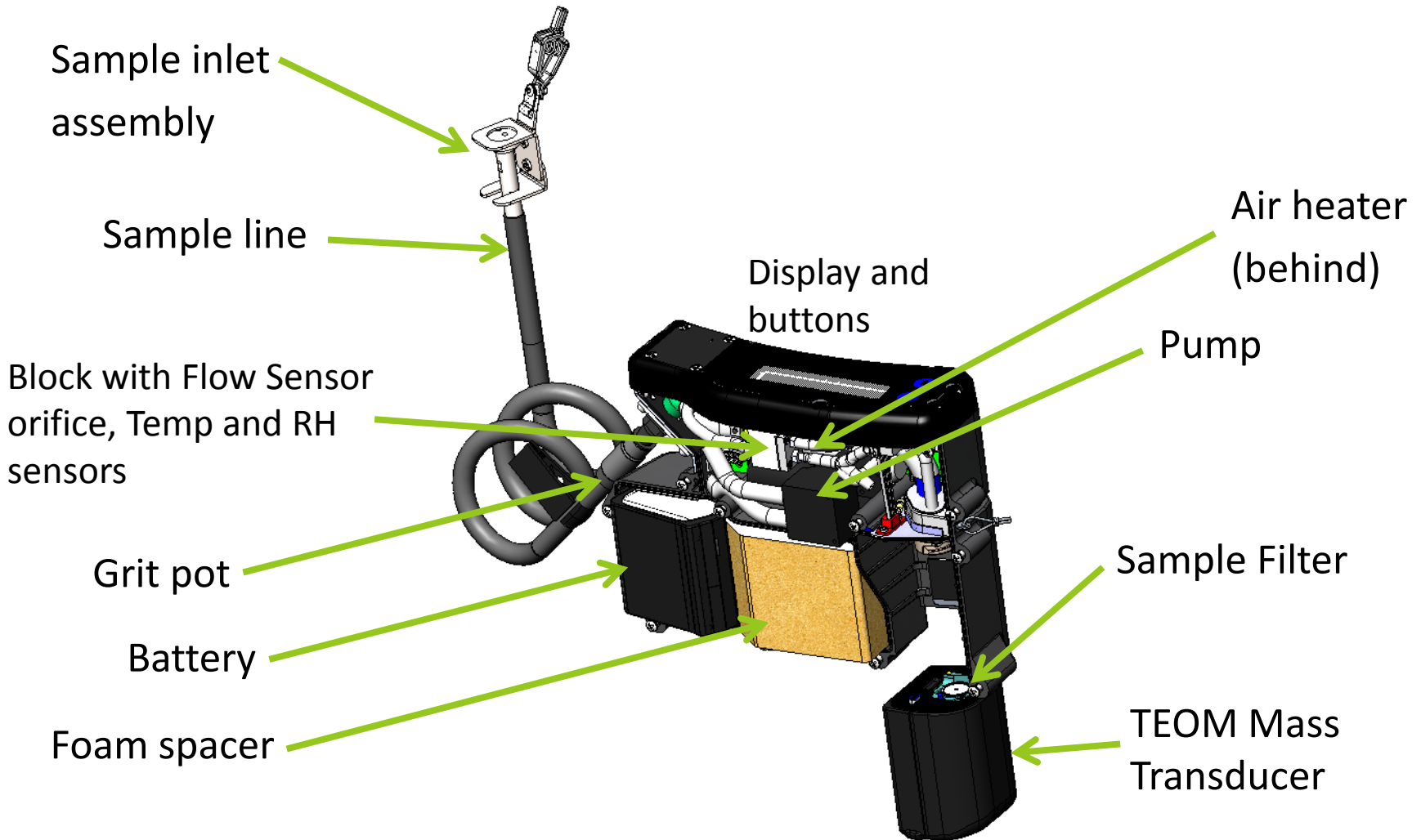
Purpose

- The CPDM unit is a device designed to provide a continuous readout of respirable coal mine dust concentrations during the work shift
- Only current approved CPDM unit is the PDM3700

Charging PDM Unit

Charger Lights

▪Red
- ▪ Solid: Charging
- ▪ Flashing: Problem with charger or connection

▪Green
- ▪ Solid: Fully charged
- ▪ Flashing: 80% charged minimum

Keep PDM unit on charge when not in use. If PDM unit is not used within 3 months, run down PDM unit and recharge. Do not charge in environment below 32°F $(0^{o}C)$

Opening WinPDM

- Use of WinPDM software requires Windows operating system
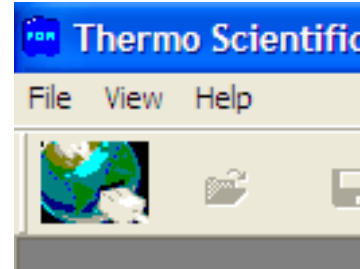
- Click button on top left corner of screen
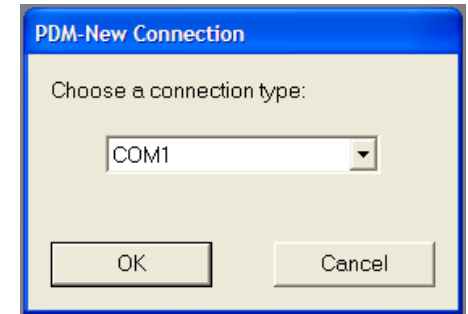
- Choose connection type COM1 and click "OK"

Programming the PDM Unit
Computer-programmed Start

- Program PDM unit from computer:
  - 30 MIN CONC, CUM1, CUM2 measurements are available
  - **Required method for compliance sampling**
  - Can only be stopped by computer or when allotted sampling time ends

9-Pin RS232 port and cable

PDM Unit and Computer Connections

- Connect PDM unit to charging unit

- Connect charging unit to serial port on computer with RS232 Cable or via a RS232/USB adapter

Information to Get Started

2 Buttons

(**A**) is the "wake up" button (blank screen)

(**B**) is the "scroll" button

(!) When not programmed the PDM displays idle screen: serial number and firmware version
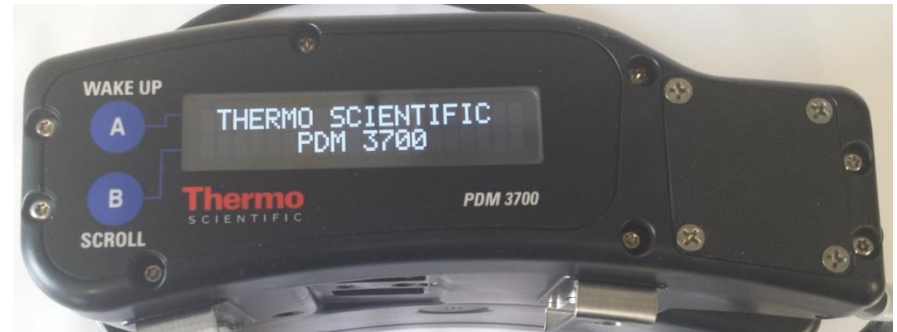
Warm-up Time

- PDM unit will automatically start a warm-up period of 35 minutes prior to <u>ANY</u> sampling type's start time

- During warm-up period, the PDM will display the time remaining until sampling starts

Program PDM Unit from Computer

- Connect PDM unit to charging unit

- Connect charging unit to personal computer

- Open WinPDM software

- Click "**Program Shift**"

This should be the temperature where the unit will begin and end the sampling shift, **NOT** the average temperature it is exposed to throughout the day.

Programming – Notes

- The temperature entered should reflect the environment in which the CPDM will start and end the shift (where it charges).

- The wearer ID can be the miner's MIIN, company's employee number or whatever other means the mine has to identify the employee (The SSN MUST NOT be entered as the wearer ID)

First Sample Screen

(Default screen for programmed start)

```
30 MIN CONC    0.22
   CUM1 CONC    1.21
```


30 Min Conc: Average concentration for the past 30 minutes

Cum1 Conc: Average concentration from the beginning of the shift (updated every minute)

Shift Concentration Limit


```
SHIFT LIMIT    2.00
PERCNT OF LIMIT  25%
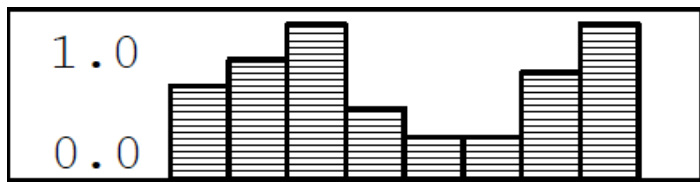```
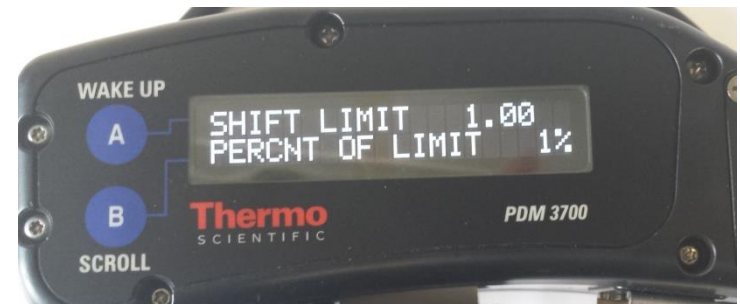


**Shift Limit:**            **(applicable standard)**

Shift concentration limit for the full-shift sample

**Percent of Limit:**       Percentage of exposure of the full-shift limit

# Bar Graph Screen
## (Press **B** )



- 30-minute average for each bar

- New bar added every 30 minutes

**PDM must operate for 30 minutes before bar graphs are available**

# Sample Duration Screen
## (Press **B** )

```
ELAPSED  TIME:  001:15
PROGRAM  TIME:  008:00
```


Elapsed Time: From start of sample

Program Time: For entire sample

Blinking "S"
(Upper Right Corner)

Status Condition Encountered

Status Screen

- Indicates a status condition encountered
- "S" remains for sample duration
- "S" restarts blinking if new status condition is logged

View Status Codes

Press **A** and **B** together


```
(A)  RESET SAMPLE 2
(B)  MORE OPTIONS...
```

Press **B** until you see


```
(A)  VIEW STATUS
(B)  MORE OPTIONS...
```

Press **A** to view status

PDM3700 Firmware Status Codes

Status Code	Description
TE not detected	Mass transducer not detected
High filter load	Differential pressure approaching maximum
Flow out of range	Flow rate is out of allowable range
Mass offset	The PDM3700 has gained or lost mass over a short period of time
CPU fault	A CPU fault was detected
Power low	Power remaining in the battery has reached a critically low level
TE Frequency	The TEOM frequency is out of range
CPDM CPU reset	The PDM3700's CPU was reset
Power low shutdown	The PDM3700 was shutdown due to insufficient power
TE Temp out of range	The difference between the mass transducer and the setpoint is greater than 1°C

Downloading Data

- Connect PDM unit to charging unit
- Connect charging unit to computer
- Open WinPDM software
- Choose a connection type
- Click "Download Sample"
- Highlight desired sample
- Click "Download"
- Save status file if available
- Save data file
- Click "Done"

PDM - COM1

23:10:00, Wednesday, 05/20/2009 - 09:39:45, Thursday, 05/21/2009 (64550 Bytes)
22:24:31, Wednesday, 05/20/2009 - 23:06:41, Wednesday, 05/20/2009 (4475 Bytes)
15:58:02, Wednesday, 05/20/2009 - 16:58:03, Wednesday, 05/20/2009 (6510 Bytes)

Download   Cancel
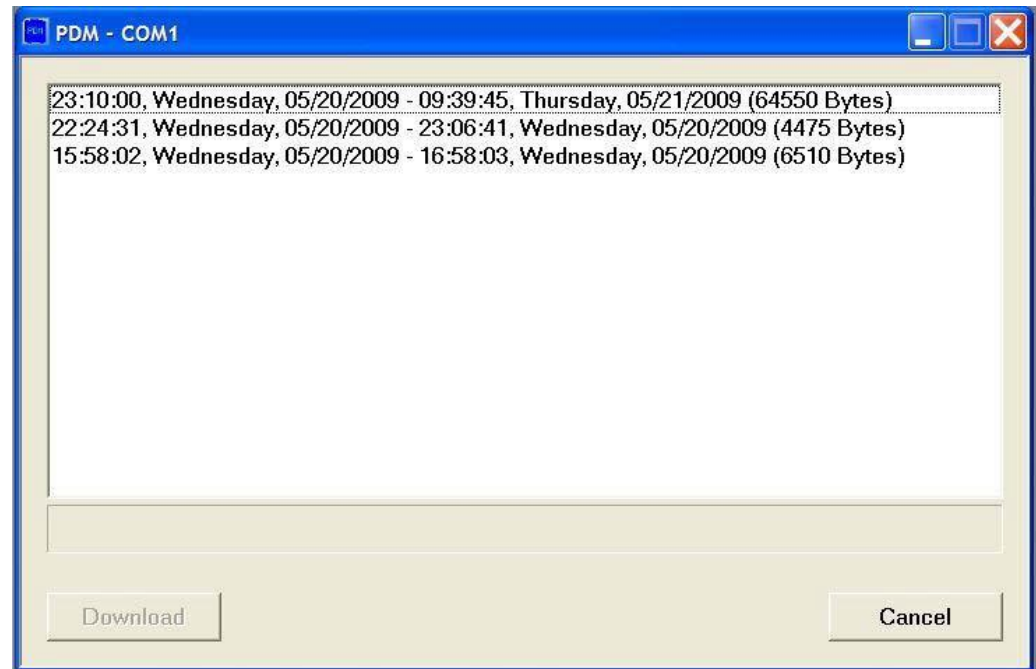
Items to Remember

- ## Use appropriate software

  WinPDM 7.52 (or higher) software should be installed on the computer.

- ## Wipe down connectors

  Always wipe down the connectors on the PDM unit and charging bracket to obtain a good connection. Using an alcohol swab is recommended

Downloading Data

- **.msha** files are the only file extensions to be submitted for compliance

- Status code files do not need to be submitted. Status codes are included in the **.msha** file as well as **.csv** files

  (MSHA will evaluate status code entries to determine if the sample is valid – simply having a status code does not determine if sample is valid or not)

Dust Data Card

Dust Data Card: (Serial Number 37015040266)

Wearer ID	**Mine ID Number**
xyz	1212121
Contractor Code	**Mine Name**
0	abc
Company Name	**Date Sampled**
cde	Tuesday, March 15, 2016 16:00:00
Sampling Time (minutes)	**Type of Sample**
978	(E) Engineering Study
MMU DA/SA	**Occ Code**
0011	000
Part 90 Miner Sampled MIIN	**Certified Person MIIN**
(N/A)	M00000000

Results
MRE Equivalent: Yes
Respirable Dust Standard: 2.00 mg/m³
EOS Final Concentration: 0.004 mg/m³

Status Conditions
03/16/2016 08:13:36 - POWER LOW
03/16/2016 08:18:36 - POWER LOW SHUTDOWN

30 Minute Mass Concentration (mg/m³)

Cumulative Mass Concentration (mg/m³)
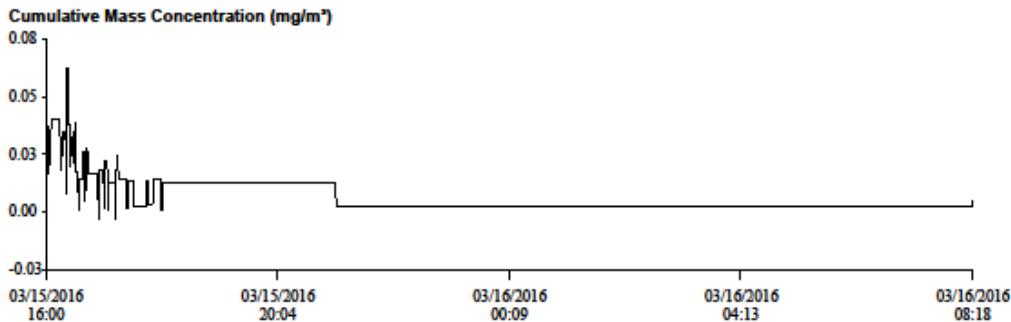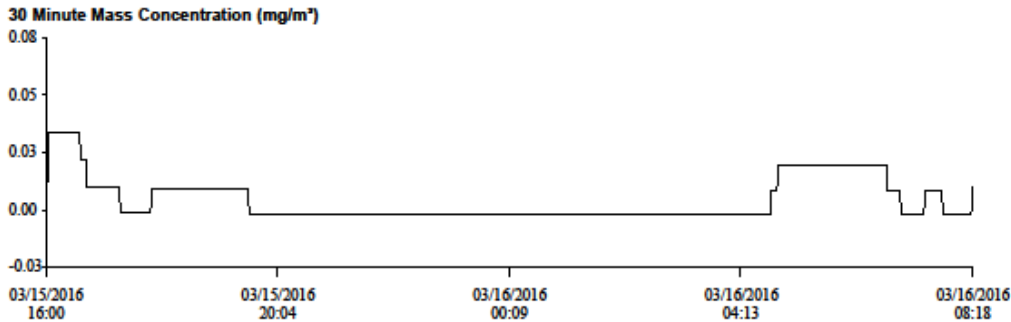
Tonnage
Average Tons – 30 Shifts: 350 tons   Tons This Shift: 350 tons

Multi-unit Shift: No
First: Second:

Notes:

NOTICE - Knowingly making any false statement, representation, or certification on this document is a violation of the federal criminal code which may be punished by a fine or by imprisonment or both.

Transmitting Data

CPDM Sample File Transmission

Coal mine operators can transmit Continuous Personal Dust Monitor (CPDM) sample files to MSHA and check the status of previously uploaded files using the links below.

If you have trouble transmitting or have transmission questions, contact MSHA's Help Desk at desk.help@dol.gov or (877) 778-6055.

- Upload CPDM sample files
- Digital Dashboard - Check the status of successfully uploaded CPDM sample files

Click this link to begin the upload process

Transmitting Data

Enter your egov ID and password and select Login

Transmitting Data

eGov Forms > CPDM File Upload

Welcome to the Coal Mine Respirable Dust CPDM File Upload Site

Within twenty-four hours of the end of each sampled shift, Continuous Personal Dust Monitoring files must be uploaded to MSHA. For more information visit http://www.msha.gov/endblacklung.

Use the fields below to upload and send files to MSHA for processing.

CPDM Upload Information
(*required field)
1. Click the "Browse" button, then select a CPDM Sample file to be sent to MSHA
2. Click the "Add File to List" button
3. The file will appear in Selected Files
4. Repeat steps 1 - 3 for each additional CPDM Sample file to be sent to MSHA
5. Click the "Submit Samples to MSHA" to upload the CPDM sampling file(s)
6. A confirmation message will be displayed once the transfer is complete

UPLOADED BY: Coal12 Health

DATE/TIME: 3/22/2016 9:12:28 PM MDT

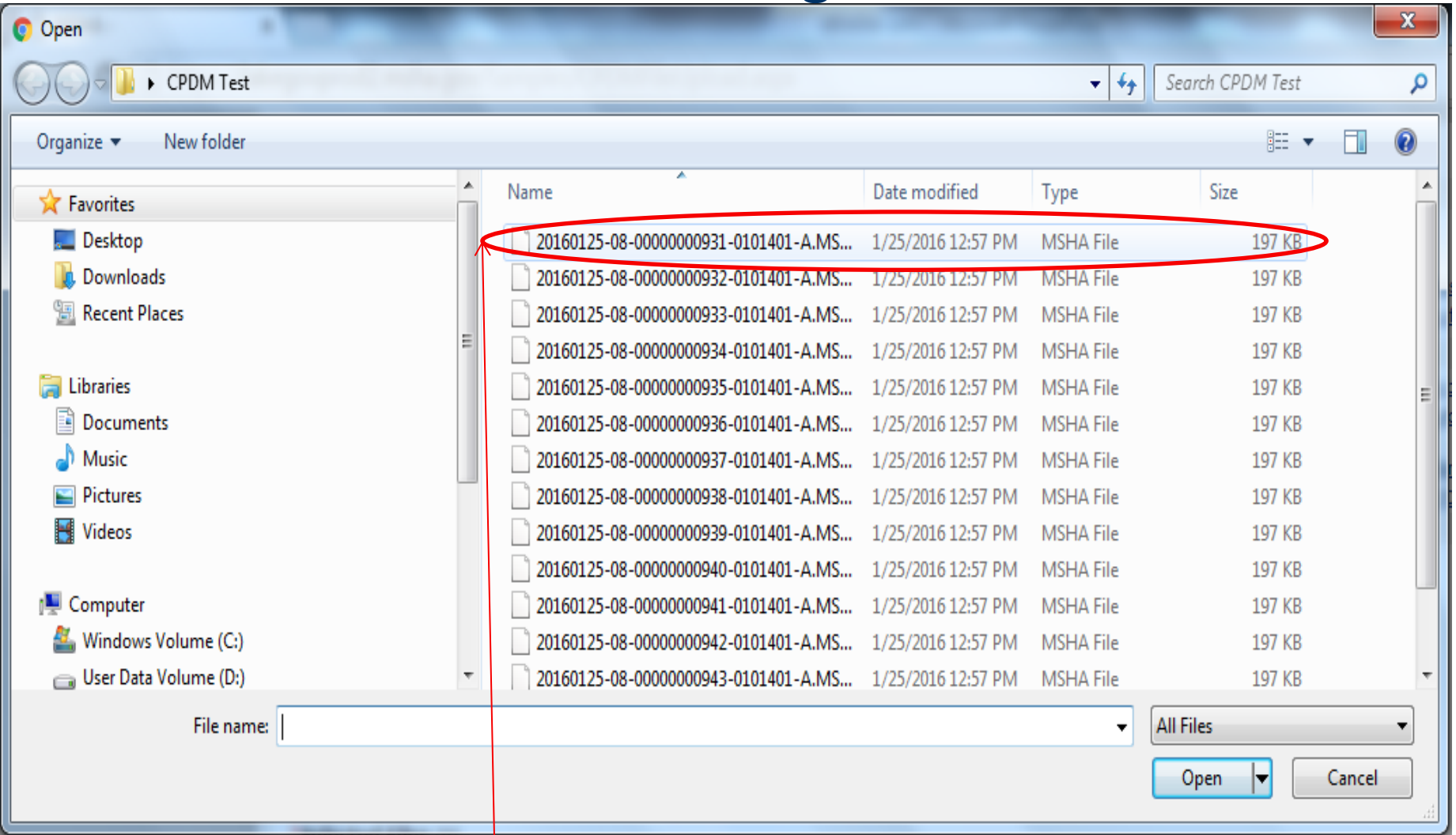*Upload CPDM Files (Max count of files that can be uplodaded : 15)

[Choose File] No file chosen

[Add File to List]

*Selected Files (0)

[Cancel] [Submit Samples to MSHA]

If you have trouble transmitting or have transmission questions you may contact MSHA's Help Desk by Email at desk.help@dol.gov or by calling (877) 778-6055.

Click here to select the file you want to add to the Selected Files box.

Transmitting Data

Select the appropriate file

Transmitting Data

> CPDM File Upload

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UPLOADED BY: Coal12 Health
DATE/TIME: 3/22/2016 9:12:28 PM MDT

*Upload CPDM Files (Max count of files that can be uplodaded : 15)

Choose File   20160125-08-0000000931-0101401-A.MSHA

Add File to List

*Selected Files (0)

Cancel   Submit Samples to MSHA

Click here to place the file in the upload list. Repeat this process until you have the desired files in the Selected Files box, up to a maximum of 15.

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Transmitting Data

within twenty-four hours of the end of each sampled shift, Continuous Personal Dust Monitoring files
must be uploaded to MSHA. For more information visit http://www.msha.gov/endblacklung.

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(*required field)
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3. The file will appear in Selected Files
4. Repeat steps 1 - 3 for each additional CPDM Sample file to be sent to MSHA
5. Click the "Submit Samples to MSHA" to upload the CPDM sampling file(s)
6. A confirmation message will be displayed once the transfer is complete

UPLOADED BY: Coal12 Health
DATE/TIME: 3/22/2016 9:12:28 PM MDT

Upload CPDM Files (Max count of files that can be uplodaded : 15)

Choose File   No file chosen

Add File to List

Selected Files (1)

20160125-08-00000000931-0101401-A.MSHA

Cancel   Submit Samples to MSHA

Click here to upload all files in the Selected Files box to MSHA.

Remember that only .msha files should be transmitted.

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Digital Dashboard

Click this link to view your dashboard

Digital Dashboard

Enter a date range of samples taken and the Mine ID and click Search Samples.

Review of Sampling Procedures

➢ Pre-shift Check

  ➢ 3 Hours or less prior to shift start

➢ Place unit on miner with instructions for wear/care

➢ Mid-shift check by certified person

➢ Download and validate sample data

  ➢ Transmit .msha file to MSHA within 24 hours of the end of sampling shift

➢ Print, review and sign dust data card

  ➢ Post within 12 hours of the end of sampling shift

Dust Rule Single Source Website:

www.msha.gov/endblacklung

MSHA Contact Directory:

www.msha.gov/CONTACTS/COALNOS.HTM