

Comments for EPA and SAB Regarding Libby Amphibole Asbestos

Submitted by Dr. Jay Flynn
April 17th, 2012

Thank you for making available the SAB Panels' deliberative draft report, dated April 11, 2012 (Panel's Draft Report). While I reiterate my previously presented comments and concerns, I wanted to take this opportunity to address a new issue reflected in the Panel's draft report. I concur with the SAB Panels' observation that "additional analyses/cohorts are needed to strengthen and support the RfC." However, I suggest that the SAB Panel reconsider and remove any suggestion that the EPA use a recent Larson paper that uses the ATSDR data from Libby, Montana, 2000 and 2001, for assessing pleural abnormalities among the Libby participants.

At issue is the scientific validity of the following paper: **Associations between radiographic findings and spirometry in a community exposed to Libby amphibole**; Theodore C Larson,¹ Michael Lewin,¹ E. Brigitte Gottschall,² Vinicius C Antao,¹ Vikas Kapil,³ Cecile S Rose² which was published online March 1st, 2012 in the Journal of Occupational and Environmental Medicine. This paper has not yet been published in the Journal itself and will be referenced in this report as the Larson paper.

Due to the following significant problems with this paper and underlying data deficiencies as discussed below, the paper should not assist the EPA in deriving the non-cancer endpoint. In addition, as pointed out in my comments herein, there are significant questions as to whether radiographic evidence of localized pleural thickening (LPT) in humans is scientifically sufficient for derivation of the RfC. I recommend that the SAB Panel reconsider its preliminary assessment of that issue as reflected in the Panel's Draft Report, in light of the limited reliability of this radiographic evidence.

1. Larson's Study Used Data that Failed to Distinguish Between Pleural Abnormalities and Other Innocuous Observations.

Larson used the ATSDR data that grouped together in one category all readings from < 1 to 5 mm in width, but only those that are greater than 2 mm in width are defined under the Larson's methodology as pleural abnormalities. Thus the use of readings of less than 2 mm in width biases the data.

As background, the ATSDR B readers in 2000 and 2001 followed the 1980 ILO Guidelines when interpreting Posterior / Anterior PA Chest X-Rays. Under these 1980 guidelines, the threshold required to identify the thickness of any pleural abnormality was not specified. Thus the B reader had discretion to determine whether a pleural abnormality existed. The 1980 ILO guidelines used by the ATSDR B readers do not have a minimal thickness for reading a pleural abnormality so that the B readers could read any minimal pleural thickening, including pleural fat, as an abnormality.

In the ATSDR data, category "A" reflects all observations that fell within a range of 0 to 5 mm. There is no way to determine which of the X-Rays reflected observations of less than 2 mm. The

Larson paper adapts this ATSDR data, including the determinations from the ATSDR B Readers for use in their 2012 analysis.

In 1990 Bourbeau et al realized a minimal thickness for reading pleural plaques on a chest x-ray by B readers needed to be established. The 1980 ILO Guidelines used by the ATSDR B readers were flawed and outdated. To address this, the Bourbeau model established a minimal threshold of 2mm for pleural abnormalities. Later, further addressing this deficiency in 2000 the ILO established the minimal thickness for reading a pleural plaque at about 3mm in the Revised Edition 2000 of the ILO guidelines, published in 2002.

Simply put: the model and the data are incompatible. The Larson paper uses the Bourbeau model to develop index scores of pleural thickening and the Bourbeau model is incompatible with the ATSDR data. The Bourbeau model establishes a minimal threshold of 2mm for pleural abnormalities. As described above, the ATSDR data applied the 1980 guidelines, so it had no minimal threshold. The Larson paper used the Category A readings from the ATSDR data (encompassing readings within a range of 0 to 5 mm) and applied a scoring system designed only for readings of at least 2 mm. Since these two systems are mis-matched they never should have been used together, making the data flawed and the paper invalid.

Bear in mind, Larson's results were in the very low range of the scoring system 0-24. Modest was a score of <2.5 for LPT and high = or >2.5. The median value for all subjects with LPT was only 2.5. At this low range, minimal degrees of thickness become important especially with the B readers having no minimal threshold to read an abnormality.

- The Bourbeau et al paper uses only one B reader because “one reader was selected prior because a previous study indicated that he achieved better reproducibility for reading of pleural abnormality.” The Larson paper had to depend on two or three B readers to detect a pleural abnormality because this was how the ATSDR medical testing study for Libby, Montana was designed. Bourbeau et al do not specify how the pleural abnormalities identified by multiple B readers should be tabulated. Larson states 708 had circumscribed pleural plaques indentified by at least 2 B readers, but does not state how the index scores were derived or what the range of the index scores was. Were the individual scores averaged for only those with positive reads or were the negative B reader reports also included in the averaging?. Including the negative reports when tabulating the index scores could result in a significant lowering of the mean score of 2.5.
- The methodology designed by Bourbeau et al was developed for their research and publications. This has never been validated and accepted by the world wide scientific community.

The Bourbeau et al Assessment of Pleural Abnormality scoring system for chest wall pleural thickening is not recognized by:

- The American College of Radiology Pneumoconiosis Committee
- The American Thoracic Society
- The American College of Chest Physicians

- The National Institute for Occupational Safety and Health (NOISH)

2. Larson's Study Counted Single B Reader Reports, and This Error Caused the Data to be Biased, as Shown in Larson's Table 3.

The Larson paper states in Table 2 that 708 have LPT "as seen by at least two B readers". In Table 3 the numbers are increased to 1,060 because of the Larson study's use of unreliable single B reader reports, for which there may have been conflicting readings by one or two other B readers.

In Table 2, the following should have been provided:

- The breakdown of the 708 with LPT as to their Bourbeau et al index scores. How many had "modest" with an index < median score 2.5 and how many had "high" with an index $\geq 2/5$ median score?
- How was the median index score determined?
- What is the range and breakdown of the high index scores for LPT?
- Of the 708 with LPT how many had 2 B readers and how many had 3 B readers reporting especially since 1,118 of the x-rays were read by B Reader 3?

In Table 3, for the analysis, 561 have LPT less than or equal to the median of 2.5 and 499 greater than the median 2.5. This makes a total of 1,060 for the analysis. This is an increase of 352 (50%) of the ATSDR Libby participants over the 708 with LPT. The breakdown of the index scores for this group is also missing, so that one is unable to determine the contribution of this group to each of the modest and high groups. We are further informed the 352 "add-ons" had "LPT detected by only one reader". Since all x-rays were read by 2 or 3 B readers, this implies each of the 352 "add-ons" had one or two B readers that did not identify LPT. If Larson had provided this data indicating the number of B readers for each ATSDR Libby participant, one would be able to determine how many of the 352 "add-ons" had 2 B readers indicating LPT was not present. By omitting all of the above data and methodology, this paper becomes very unscientific.

The Larson paper changed from using 2 or 3 B readers to identify a pleural plaque (LPT) to a single B reader. This change was announced in fine print under Table 3 and never mentioned in the **Methods, Results, or Discussion** in the paper. This critical change in methodology makes the paper flawed and unscientific.

3. The Study Fails to Consider B Reader's Significant Findings of Pleural Fat as Required to Be Noted Under ATSDR B Reader Report Form Box "4D.Fat?" and Therefore the Larson Paper is Unscientific and Seriously Flawed

On a PA chest x-ray pleural fat can mimic pleural plaques and one cannot be distinguished from the other, CT scanning is necessary to do this. The adult population of Libby, Montana has an

incidence of obesity of 49%.³ This obesity compounds the problems of distinguishing pleural plaques from pleural fat on a PA chest x-ray. ATSDR attempted to try to identify pleural fat by putting box "4D.FAT?" on the B reader reporting forms.⁴ This portion of the ATSDR form asks B Readers to note observations of pleural fat.

Larson relied upon the ATSDR reporting forms to obtain the index scores reported in their paper. However, the Larson paper fails to consider the B Reader observations of pleural fat, as documented in box "4D.FAT?" because this data from the B reader report forms is not discussed in the paper. The Larson paper fails to consider documenting pleural fat and its influence on the interpretation of the PA chest x-rays by the ATSDR B readers.

- If a B reader identified a pleural plaque(s) on the PA x-ray and checked box "4D.FAT?" was the result considered to be pleural fat and the report omitted from the paper by the authors?
- If the report was counted, then pleural fat was construed in Larson's paper as pleural plaque. This is not accurate.
- Box "4D.FAT?" was not restricted to the oblique x-rays. The Libby Medical Program has examples where a B reader identifies a plaque(s) in 3A, 3B, or 3C, checks no in Box 4C, and then checks box "4D.FAT?" as positive^{5 6}. The Larson paper omitted box "4D.FAT?" from the analysis of the B reader reporting forms that determined the index scores. By ignoring box "4D.Fat?" pleural fat was never identified before being incorporated into the Methods and Results of the paper.

The fact that pleural fat was not accounted for in the B reader reports is unscientific and a serious flaw of the paper. In their paper Larson acknowledge "no negative radiographs were deliberately included as controls." This was a significant mistake in the ATSDR study design. The 2000 – 2001 study should have had control chest x-rays from an unexposed population with BMI's that match those in the Libby study. The inclusion of control chest x-rays would clearly show the impact of pleural fat when attempting to identify pleural plaques in this population.

A significant flaw in the methodology employed by the Larson paper is that it failed to distinguish between pleural plaques and pleural fat, such that observed incidences of pleural plaques may well have been nothing other than irrelevant pleural fat. Obesity not only affects the accuracy of distinguishing between pleural plaques and pleural fat but it also has an impact on pulmonary functions testing, causing restrictive changes. The associations between radiographic findings and spirometry in the Larson paper may be nothing more than the effects of obesity in the Libby population and be unrelated to pleural plaques.

For all of these reasons, in conclusion, in view of the scientifically unsound methodology employed by the Larson paper, the SAB should recommend that EPA not rely on this Larson study, in whole or in part, to reach a determination that pleural plaques cause a loss of pulmonary function.

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Attachments

1. Bourbeau et al 1990; Assessment of Pleural Abnormality
2. Larson et al 2012; Table 3
3. Libby Medical Program BMI data 12/31/2010
4. Standard B Reader Forms for Panel Radiologists (BR1, BR2, BR3) from ATSDR study in Libby, Montana, 2000 – 2001
5. ATSDR Libby participant #10774002, B Reader 1 identifies a face on plaque in 3C., 4C. is checked no and 4D.Fat? is checked positive.
6. ATSDR Libby participant #10548802, B Reader 3 identifies an in profile plaque in 3C., 4C. is checked no and 4D.Fat? is checked positive.

Assessment of Pleural Abnormality

High kilovoltage PA chest radiographs were taken in each subject and read into the ILO 1980 International Classification of Radiographs of Pneumoconioses (24) by two NIOSH-certified B readers. For the present study, one reader was selected a priori because a previous study (25) indicated that he achieved better reproducibility for readings of pleural abnormality. The pleura had to be thickened by 2 mm or more for abnormality to be read. Semiquantitative scores were computed for each of three sites: chest wall, costophrenic angle, and diaphragm. The score for chest wall pleural thickening was computed by summing the reading in profile for each site, using the product of the width category a, b, or c (converted to a numerical score of 1, 2, or 3) and the extent category 1, 2, or 3 plus the reading *en face* (using the extent category 1, 2, or 3). Right and left sides were then added together giving a score ranging from zero to 24. Scores of 1 or 2 were given for obliteration of one or both costophrenic angles and of 1 or 2 for thickening of one or both diaphragms. Because a previous study from our laboratory using the same readers suggested that confluent pleural plaques and diffuse thickening could not be reliably distinguished using the criteria stated in the ILO 1980 instructions (25), our readers were instructed to consider diffuse thickening to be present *only* when there was blunting of the costophrenic angle.

Environment

Table 3 Odds of restrictive and obstructive spirometry by degree of radiographic pleural abnormality and covariates* (ORs (95% CI))

| | Row n | Restriction | Obstruction |
|------------------------|-------|--------------------------|------------------|
| DPT† | | | |
| Index=0 | 6341 | 1 | 1 |
| 0<index ≤ median (3.0) | 78 | 2.1 (1.1 to 3.8) | 1.9 (0.9 to 3.8) |
| Index > median | 57 | 5.6 (2.7 to 11.6) | 1.7 (0.6 to 4.9) |
| LPT‡ | | | |
| Index=0 | 5416 | 1 | 1 |
| 0<index ≤ median (2.5) | 561 | 1.3 (1.0 to 1.7) | 1.0 (0.7 to 1.4) |
| Index > median | 499 | 1.9 (1.5 to 2.5) | 0.9 (0.6 to 1.3) |

Statistically significant associations are in bold.

*All models control for parenchymal abnormality, age, sex, smoking history, body mass index, exposure group, number of exposure pathways, duration of residence in Libby and shortness of breath.

†Pleural abnormality index calculated by converting in-profile diffuse thickening widths from 'a', 'b' and 'c' to 1, 2 and 3, then multiplying in-profile widths by in-profile extents and adding face-on extents, and summing the result for each hemithorax. Average severity from two or three B readers used. Possible range of severity index: 0–24. The sum of participants with a DPT abnormality index score >0, n=135, is greater than number of participants with DPT presented in table 2 due to counting participants with DPT detected by only one reader.

‡Pleural abnormality index calculated by converting in-profile localised thickening widths from 'a', 'b' and 'c' to 1, 2 and 3, then multiplying in-profile widths by in-profile extents and adding face-on extents, and summing the result for each hemithorax. Average severity from two or three B readers used. Possible range of severity index: 0–24. The sum of participants with an LPT abnormality index score >0, n=1060, is greater than number of participants with LPT presented in table 2 due to counting participants with LPT detected by only one reader.

DPT, diffuse pleural thickening; LPT, localised pleural thickening.

BMI

Calculations of Body Mass Index on Applicants and Members of the Libby Medical Program Updated December 31st, 2010

As of December 31st, 2010, 1581 applicants and members of the LMP have had BMIs calculated. The results are as follows:

| | | |
|----------------|-------------|-------------|
| BMI 40 or > | 93 | 6% |
| BMI 30 to 39.9 | 678 | 43% |
| BMI 25 to 29.9 | 564 | 36% |
| BMI < 25 | 246 | 15% |
| Total | 1581 | 100% |

A. OUTCOME FORM FOR CHEST X-RAYS

BR 1

CASE ID

| | | | | | | | |
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|---|---|---|-----|--|---|---|---|-----|--|
| 1A. DATE OF X-RAY <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table> MONTH DAY YEAR | | | | 1B. FILM QUALITY If not Grade 1 give reason: <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="width: 20px; height: 20px;">1</td><td style="width: 20px; height: 20px;">2</td><td style="width: 20px; height: 20px;">3</td><td style="width: 20px; height: 20px;">U/R</td></tr></table> | 1 | 2 | 3 | U/R | 1C. IS PA FILM COMPLETELY NEGATIVE? Yes <input type="checkbox"/> PROCEED TO SECTION 4C No <input type="checkbox"/> PROCEED TO SECTION 2 |
| | | | | | | | | | |
| 1 | 2 | 3 | U/R | | | | | | |

2A. ANY PARENCHYMAL ABNORMALITIES CONSISTENT WITH PNEUMOCONIOSIS? Yes COMPLETE 2B AND 2C No PROCEED TO SECTION 3

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| 2B. SMALL OPACITIES a. SHAPE/SIZE PRIMARY SECONDARY <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="width: 20px; height: 20px;">p</td><td style="width: 20px; height: 20px;">s</td></tr><tr><td style="width: 20px; height: 20px;">q</td><td style="width: 20px; height: 20px;">t</td></tr><tr><td style="width: 20px; height: 20px;">r</td><td style="width: 20px; height: 20px;">u</td></tr></table> <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="width: 20px; height: 20px;">p</td><td style="width: 20px; height: 20px;">s</td></tr><tr><td style="width: 20px; height: 20px;">q</td><td style="width: 20px; height: 20px;">t</td></tr><tr><td style="width: 20px; height: 20px;">r</td><td style="width: 20px; height: 20px;">u</td></tr></table> b. ZONES <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table> c. PROFUSION <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="width: 20px; height: 20px;">0_r</td><td style="width: 20px; height: 20px;">0_l</td><td style="width: 20px; height: 20px;">0_{1/1}</td></tr><tr><td style="width: 20px; height: 20px;">1_{1/0}</td><td style="width: 20px; height: 20px;">1_{1/1}</td><td style="width: 20px; height: 20px;">1_{1/2}</td></tr><tr><td style="width: 20px; height: 20px;">2_{1/1}</td><td style="width: 20px; height: 20px;">2_{1/2}</td><td style="width: 20px; height: 20px;">2_{1/3}</td></tr><tr><td style="width: 20px; height: 20px;">3_{1/2}</td><td style="width: 20px; height: 20px;">3_{1/3}</td><td style="width: 20px; height: 20px;">3_{1/4}</td></tr></table> R L | p | s | q | t | r | u | p | s | q | t | r | u | | | | | | | 0 _r | 0 _l | 0 _{1/1} | 1 _{1/0} | 1 _{1/1} | 1 _{1/2} | 2 _{1/1} | 2 _{1/2} | 2 _{1/3} | 3 _{1/2} | 3 _{1/3} | 3 _{1/4} | 2C. LARGE OPACITIES SIZE <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="width: 20px; height: 20px;">O</td><td style="width: 20px; height: 20px;">A</td><td style="width: 20px; height: 20px;">B</td><td style="width: 20px; height: 20px;">C</td></tr></table> PROCEED TO SECTION 3 | O | A | B | C |
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| 0 _r | 0 _l | 0 _{1/1} | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 2 _{1/1} | 2 _{1/2} | 2 _{1/3} | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 _{1/2} | 3 _{1/3} | 3 _{1/4} | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| O | A | B | C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

3A. ANY PLEURAL ABNORMALITIES CONSISTENT WITH PNEUMOCONIOSIS? Yes COMPLETE 3B, 3C AND 3D No Proceed to Section 4

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| 3B. PLEURAL THICKENING a. DIAPHRAGM (plaque) SITE <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="width: 20px; height: 20px;">O</td><td style="width: 20px; height: 20px;">R</td><td style="width: 20px; height: 20px;">L</td></tr></table> b. COSTOPHRENIC ANGLE SITE <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="width: 20px; height: 20px;">O</td><td style="width: 20px; height: 20px;">R</td><td style="width: 20px; height: 20px;">L</td></tr></table> | O | R | L | O | R | L | 3C. PLEURAL THICKENING ... Chest Wall a. CIRCUMSCRIBED (plaque) SITE <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="width: 20px; height: 20px;">O</td><td style="width: 20px; height: 20px;">R</td><td style="width: 20px; height: 20px;">L</td></tr></table> IN PROFILE i. WIDTH <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="width: 20px; height: 20px;">O</td><td style="width: 20px; height: 20px;">A</td><td style="width: 20px; height: 20px;">B</td><td style="width: 20px; height: 20px;">C</td></tr></table> <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="width: 20px; height: 20px;">O</td><td style="width: 20px; height: 20px;">A</td><td style="width: 20px; height: 20px;">B</td><td style="width: 20px; height: 20px;">C</td></tr></table> ii. EXTENT <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="width: 20px; height: 20px;">O</td><td style="width: 20px; height: 20px;">1</td><td style="width: 20px; height: 20px;">2</td><td style="width: 20px; height: 20px;">3</td></tr></table> <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="width: 20px; height: 20px;">O</td><td style="width: 20px; height: 20px;">1</td><td style="width: 20px; height: 20px;">2</td><td style="width: 20px; height: 20px;">3</td></tr></table> iii. EXTENT <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="width: 20px; height: 20px;">O</td><td style="width: 20px; height: 20px;">1</td><td style="width: 20px; height: 20px;">2</td><td style="width: 20px; height: 20px;">3</td></tr></table> <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="width: 20px; height: 20px;">O</td><td style="width: 20px; height: 20px;">1</td><td style="width: 20px; height: 20px;">2</td><td style="width: 20px; height: 20px;">3</td></tr></table> b. DIFFUSE SITE <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="width: 20px; height: 20px;">O</td><td style="width: 20px; height: 20px;">R</td><td style="width: 20px; height: 20px;">L</td></tr></table> IN PROFILE i. WIDTH <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="width: 20px; height: 20px;">O</td><td style="width: 20px; height: 20px;">A</td><td style="width: 20px; height: 20px;">B</td><td style="width: 20px; height: 20px;">C</td></tr></table> <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="width: 20px; height: 20px;">O</td><td style="width: 20px; height: 20px;">A</td><td style="width: 20px; height: 20px;">B</td><td style="width: 20px; height: 20px;">C</td></tr></table> ii. EXTENT <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="width: 20px; height: 20px;">O</td><td style="width: 20px; height: 20px;">1</td><td style="width: 20px; height: 20px;">2</td><td style="width: 20px; height: 20px;">3</td></tr></table> <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="width: 20px; height: 20px;">O</td><td style="width: 20px; height: 20px;">1</td><td style="width: 20px; height: 20px;">2</td><td style="width: 20px; height: 20px;">3</td></tr></table> iii. EXTENT <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="width: 20px; height: 20px;">O</td><td style="width: 20px; height: 20px;">1</td><td style="width: 20px; height: 20px;">2</td><td style="width: 20px; height: 20px;">3</td></tr></table> <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="width: 20px; height: 20px;">O</td><td style="width: 20px; height: 20px;">1</td><td style="width: 20px; height: 20px;">2</td><td style="width: 20px; height: 20px;">3</td></tr></table> | O | R | L | O | A | B | C | O | A | B | C | O | 1 | 2 | 3 | O | 1 | 2 | 3 | O | 1 | 2 | 3 | O | 1 | 2 | 3 | O | R | L | O | A | B | C | O | A | B | C | O | 1 | 2 | 3 | O | 1 | 2 | 3 | O | 1 | 2 | 3 | O | 1 | 2 | 3 |
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| O | A | B | C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| O | 1 | 2 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| O | 1 | 2 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| O | 1 | 2 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| O | 1 | 2 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| O | R | L | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| O | A | B | C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| O | A | B | C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| O | 1 | 2 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| O | 1 | 2 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| O | 1 | 2 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| O | 1 | 2 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| 3D. PLEURAL CALCIFICATION a. DIAPHRAGM SITE <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="width: 20px; height: 20px;">O</td><td style="width: 20px; height: 20px;">R</td></tr></table> EXTENT <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="width: 20px; height: 20px;">O</td><td style="width: 20px; height: 20px;">1</td><td style="width: 20px; height: 20px;">2</td><td style="width: 20px; height: 20px;">3</td></tr></table> b. WALL SITE <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="width: 20px; height: 20px;">O</td><td style="width: 20px; height: 20px;">R</td></tr></table> EXTENT <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="width: 20px; height: 20px;">O</td><td style="width: 20px; height: 20px;">1</td><td style="width: 20px; height: 20px;">2</td><td style="width: 20px; height: 20px;">3</td></tr></table> c. OTHER SITES SITE <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="width: 20px; height: 20px;">O</td><td style="width: 20px; height: 20px;">R</td></tr></table> EXTENT <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="width: 20px; height: 20px;">O</td><td style="width: 20px; height: 20px;">1</td><td style="width: 20px; height: 20px;">2</td><td style="width: 20px; height: 20px;">3</td></tr></table> | O | R | O | 1 | 2 | 3 | O | R | O | 1 | 2 | 3 | O | R | O | 1 | 2 | 3 | a. DIAPHRAGM SITE <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="width: 20px; height: 20px;">O</td><td style="width: 20px; height: 20px;">L</td></tr></table> EXTENT <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="width: 20px; height: 20px;">O</td><td style="width: 20px; height: 20px;">1</td><td style="width: 20px; height: 20px;">2</td><td style="width: 20px; height: 20px;">3</td></tr></table> b. WALL SITE <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="width: 20px; height: 20px;">O</td><td style="width: 20px; height: 20px;">L</td></tr></table> EXTENT <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="width: 20px; height: 20px;">O</td><td style="width: 20px; height: 20px;">1</td><td style="width: 20px; height: 20px;">2</td><td style="width: 20px; height: 20px;">3</td></tr></table> c. OTHER SITES SITE <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="width: 20px; height: 20px;">O</td><td style="width: 20px; height: 20px;">L</td></tr></table> EXTENT <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="width: 20px; height: 20px;">O</td><td style="width: 20px; height: 20px;">1</td><td style="width: 20px; height: 20px;">2</td><td style="width: 20px; height: 20px;">3</td></tr></table> PROCEED TO SECTION 4 | O | L | O | 1 | 2 | 3 | O | L | O | 1 | 2 | 3 | O | L | O | 1 | 2 | 3 |
| O | R | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| O | 1 | 2 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| O | R | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| O | 1 | 2 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| O | R | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| O | 1 | 2 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| O | L | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| O | 1 | 2 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| O | L | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| O | 1 | 2 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| O | 1 | 2 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

4A. ANY OTHER ABNORMALITIES? Yes COMPLETE 4B, 4C AND 4D No PROCEED TO SECTION 4C

4B. OTHER SYMBOLS (OBLIGATORY)

| | | | | | | | | | | | | | | | | | | | | | |
|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| O | ax | bu | ca | cn | co | cp | cv | di | ef | em | es | fr | hi | ho | id | ih | kl | pl | px | rp | tb |
|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|

Report items which may be of present clinical significance in this section. SPECIFY od.

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| 4C. OBLIQUE PLEURAL ABNORMALITY Yes <input type="checkbox"/> No <input type="checkbox"/> RIGHT OBLIQUE <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="width: 20px; height: 20px;">O</td><td style="width: 20px; height: 20px;">R</td><td style="width: 20px; height: 20px;">L</td></tr></table> LEFT OBLIQUE <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="width: 20px; height: 20px;">O</td><td style="width: 20px; height: 20px;">R</td><td style="width: 20px; height: 20px;">L</td></tr></table> | O | R | L | O | R | L | 4D. FAT? <input type="checkbox"/> /OTHER COMMENTS <hr/> <hr/> <hr/> <hr/> <hr/> |
| O | R | L | | | | | |
| O | R | L | | | | | |

SHOULD PARTICIPANT SEE A PHYSICIAN BECAUSE OF COMMENTS IN SECTION 4D? Yes No

LIBBY COMMUNITY ENVIRONMENTAL HEALTH PROJECT

BR 3

CASE ID

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| 1A. DATE OF X-RAY <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td> </td><td> </td><td> </td></tr></table> MONTH DAY YEAR | | | | 1B. FILM QUALITY If not Grade 1 give reason: <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>1</td><td>2</td><td>3</td><td>U/R</td></tr></table> | 1 | 2 | 3 | U/R | 1C. IS PA FILM COMPLETELY NEGATIVE? Yes <input type="checkbox"/> PROCEED TO SECTION 4C No <input type="checkbox"/> PROCEED TO SECTION 2 |
| | | | | | | | | | |
| 1 | 2 | 3 | U/R | | | | | | |

2A. ANY PARENCHYMAL ABNORMALITIES CONSISTENT WITH PNEUMOCONIOSIS? Yes COMPLETE 2B AND 2C No PROCEED TO SECTION 3

| | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|--|--|--|---|---|---|---|---|
| 2B. SMALL OPACITIES a. SHAPE/SIZE PRIMARY SECONDARY <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>p</td><td>s</td></tr><tr><td>q</td><td>t</td></tr><tr><td>r</td><td>u</td></tr></table> <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>p</td><td>s</td></tr><tr><td>q</td><td>t</td></tr><tr><td>r</td><td>u</td></tr></table> b. ZONES <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr></table> R L | p | s | q | t | r | u | p | s | q | t | r | u | | | | | | | 2C. LARGE OPACITIES SIZE <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>0</td><td>A</td><td>B</td><td>C</td></tr></table> PROCEED TO SECTION 3 | 0 | A | B | C |
| p | s | | | | | | | | | | | | | | | | | | | | | | |
| q | t | | | | | | | | | | | | | | | | | | | | | | |
| r | u | | | | | | | | | | | | | | | | | | | | | | |
| p | s | | | | | | | | | | | | | | | | | | | | | | |
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| 0 | A | B | C | | | | | | | | | | | | | | | | | | | | |

3A. ANY PLEURAL ABNORMALITIES CONSISTENT WITH PNEUMOCONIOSIS? Yes COMPLETE 3B, 3C AND 3D No Proceed to Section 4

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 3B. PLEURAL THICKENING a. DIAPHRAGM (plaque) SITE <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>0</td><td>R</td><td>L</td></tr></table> b. COSTOPHRENIC ANGLE SITE <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>0</td><td>R</td><td>L</td></tr></table> | 0 | R | L | 0 | R | L | 3C. PLEURAL THICKENING . . . Chest Wall a. CIRCUMSCRIBED (plaque) SITE <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>0</td><td>R</td></tr></table> <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>0</td><td>L</td></tr></table> IN PROFILE i. WIDTH <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>0</td><td>A</td><td>B</td><td>C</td></tr></table> <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>0</td><td>A</td><td>B</td><td>C</td></tr></table> ii. EXTENT <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>0</td><td>1</td><td>2</td><td>3</td></tr></table> <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>0</td><td>1</td><td>2</td><td>3</td></tr></table> FACE ON <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>0</td><td>1</td><td>2</td><td>3</td></tr></table> <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>0</td><td>1</td><td>2</td><td>3</td></tr></table> iii. EXTENT <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>0</td><td>1</td><td>2</td><td>3</td></tr></table> <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>0</td><td>1</td><td>2</td><td>3</td></tr></table> b. DIFFUSE SITE <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>0</td><td>R</td></tr></table> <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>0</td><td>L</td></tr></table> IN PROFILE i. WIDTH <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>0</td><td>A</td><td>B</td><td>C</td></tr></table> <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>0</td><td>A</td><td>B</td><td>C</td></tr></table> ii. EXTENT <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>0</td><td>1</td><td>2</td><td>3</td></tr></table> <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>0</td><td>1</td><td>2</td><td>3</td></tr></table> FACE ON <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>0</td><td>1</td><td>2</td><td>3</td></tr></table> <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>0</td><td>1</td><td>2</td><td>3</td></tr></table> iii. EXTENT <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>0</td><td>1</td><td>2</td><td>3</td></tr></table> <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>0</td><td>1</td><td>2</td><td>3</td></tr></table> | 0 | R | 0 | L | 0 | A | B | C | 0 | A | B | C | 0 | 1 | 2 | 3 | 0 | 1 | 2 | 3 | 0 | 1 | 2 | 3 | 0 | 1 | 2 | 3 | 0 | 1 | 2 | 3 | 0 | 1 | 2 | 3 | 0 | R | 0 | L | 0 | A | B | C | 0 | A | B | C | 0 | 1 | 2 | 3 | 0 | 1 | 2 | 3 | 0 | 1 | 2 | 3 | 0 | 1 | 2 | 3 | 0 | 1 | 2 | 3 | 0 | 1 | 2 | 3 |
| 0 | R | L | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | R | L | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | R | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | L | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | A | B | C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | A | B | C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 0 | 1 | 2 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 1 | 2 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 1 | 2 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 1 | 2 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 1 | 2 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | R | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | L | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | A | B | C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | A | B | C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 1 | 2 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 3D. PLEURAL CALCIFICATION SITE <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>0</td><td>R</td></tr></table> EXTENT a. DIAPHRAGM <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>0</td><td>1</td><td>2</td><td>3</td></tr></table> b. WALL <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>0</td><td>1</td><td>2</td><td>3</td></tr></table> c. OTHER SITES <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>0</td><td>1</td><td>2</td><td>3</td></tr></table> | 0 | R | 0 | 1 | 2 | 3 | 0 | 1 | 2 | 3 | 0 | 1 | 2 | 3 | SITE <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>0</td><td>L</td></tr></table> EXTENT a. DIAPHRAGM <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>0</td><td>1</td><td>2</td><td>3</td></tr></table> b. WALL <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>0</td><td>1</td><td>2</td><td>3</td></tr></table> c. OTHER SITES <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>0</td><td>1</td><td>2</td><td>3</td></tr></table> PROCEED TO SECTION 4 | 0 | L | 0 | 1 | 2 | 3 | 0 | 1 | 2 | 3 | 0 | 1 | 2 | 3 |
| 0 | R | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 1 | 2 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 1 | 2 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 1 | 2 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | L | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 1 | 2 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 1 | 2 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 1 | 2 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | |

4A. ANY OTHER ABNORMALITIES? Yes COMPLETE 4B, 4C AND 4D No PROCEED TO SECTION 4C

4B. OTHER SYMBOLS (OBLIGATORY)

| | | | | | | | | | | | | | | | | | | | | | |
|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 0 | ax | bu | ca | cn | co | cp | cv | di | ef | em | es | fr | hl | ho | ld | lh | kl | pl | px | tp | tb |
|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|

Report items which may be of present clinical significance in this section. SPECIFY od. OD

| | | | | | | | |
|--|---|---|---|---|---|---|---|
| 4C. OBLIQUE PLEURAL ABNORMALITY Yes <input type="checkbox"/> No <input type="checkbox"/> RIGHT OBLIQUE <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>0</td><td>R</td><td>L</td></tr></table> LEFT OBLIQUE <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>0</td><td>R</td><td>L</td></tr></table> | 0 | R | L | 0 | R | L | 4D. FAT? <input type="checkbox"/> /OTHER COMMENTS _____ _____ _____ _____ |
| 0 | R | L | | | | | |
| 0 | R | L | | | | | |

SHOULD PARTICIPANT SEE A PHYSICIAN BECAUSE OF COMMENTS IN SECTION 4D? Yes No

LIBBY COMMUNITY ENVIRONMENTAL HEALTH PROJECT

BR 1

CASE ID: 10774002

5877

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|--|--|--|---|---|--|---------|--|---|-------------|--|---|----------|---|---|------------|---|---|---------|---|---|-------------|---|---|-----|-----|---|--|
| <p>1A. DATE OF X-RAY</p> <p>10 30 00 MONTH DAY YEAR</p> | <p>1B. FILM QUALITY If not Grade 1 give reason:</p> <p><input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> UR</p> | <p>1C. IS PA FILM COMPLETELY NEGATIVE?</p> <p>Yes <input type="checkbox"/> PROCEED TO SECTION 4C No <input checked="" type="checkbox"/> PROCEED TO SECTION 2</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>2A. ANY PARENCHYMAL ABNORMALITIES CONSISTENT WITH PNEUMOCONIOSIS? Yes <input type="checkbox"/> COMPLETE 2B AND 2C No <input checked="" type="checkbox"/> PROCEED TO SECTION 3</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>2B. SMALL OPACITIES</p> <p>a. SHAPE/SIZE</p> <table style="display: inline-table; margin-right: 20px;"> <tr><td>PRIMARY</td><td>SECONDARY</td></tr> <tr><td>P S</td><td>P S</td></tr> <tr><td>q t</td><td>q t</td></tr> <tr><td>r u</td><td>r u</td></tr> </table> <p>b. ZONES</p> <table style="display: inline-table; margin-right: 20px;"> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td>R</td><td>L</td></tr> </table> <p>c. PROFUSION</p> <table style="display: inline-table;"> <tr><td>0/</td><td>0/0</td><td>0/1</td></tr> <tr><td>1/0</td><td>1/1</td><td>1/2</td></tr> <tr><td>2/1</td><td>2/2</td><td>2/3</td></tr> <tr><td>3/2</td><td>3/3</td><td>3/4</td></tr> </table> | PRIMARY | SECONDARY | P S | P S | q t | q t | r u | r u | | | | | | | R | L | 0/ | 0/0 | 0/1 | 1/0 | 1/1 | 1/2 | 2/1 | 2/2 | 2/3 | 3/2 | 3/3 | 3/4 | <p>2C. LARGE OPACITIES</p> <p>SIZE <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C</p> <p style="text-align: right;">PROCEED TO SECTION 3</p> | |
| PRIMARY | SECONDARY | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P S | P S | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| q t | q t | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| r u | r u | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R | L | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0/ | 0/0 | 0/1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1/0 | 1/1 | 1/2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2/1 | 2/2 | 2/3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3/2 | 3/3 | 3/4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>3A. ANY PLEURAL ABNORMALITIES CONSISTENT WITH PNEUMOCONIOSIS? Yes <input checked="" type="checkbox"/> COMPLETE 3B, 3C AND 3D No <input type="checkbox"/> Proceed to Section 4</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>3B. PLEURAL THICKENING</p> <p>a. DIAPHRAGM (plaque) SITE <input checked="" type="checkbox"/> R <input type="checkbox"/> L</p> <p>b. COSTOPHRENIC ANGLE SITE <input checked="" type="checkbox"/> R <input type="checkbox"/> L</p> | <p>3C. PLEURAL THICKENING ... Chest Wall</p> <p>a. CIRCUMSCRIBED (plaque) SITE <input type="checkbox"/> R <input checked="" type="checkbox"/> L</p> <p>IN PROFILE</p> <table style="display: inline-table; margin-right: 20px;"> <tr><td>i. WIDTH</td><td><input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C</td><td><input type="checkbox"/> O <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C</td></tr> <tr><td>ii. EXTENT</td><td><input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3</td><td><input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3</td></tr> <tr><td>FACE ON</td><td><input type="checkbox"/> 0 <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3</td><td><input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3</td></tr> <tr><td>iii. EXTENT</td><td><input type="checkbox"/> 0 <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3</td><td><input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3</td></tr> </table> <p>b. DIFFUSE SITE <input checked="" type="checkbox"/> R <input checked="" type="checkbox"/> L</p> <p>IN PROFILE</p> <table style="display: inline-table; margin-right: 20px;"> <tr><td>i. WIDTH</td><td><input type="checkbox"/> O <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C</td><td><input type="checkbox"/> 0 <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C</td></tr> <tr><td>ii. EXTENT</td><td><input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3</td><td><input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3</td></tr> <tr><td>FACE ON</td><td><input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3</td><td><input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3</td></tr> <tr><td>iii. EXTENT</td><td><input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3</td><td><input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3</td></tr> </table> | | i. WIDTH | <input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C | <input type="checkbox"/> O <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C | ii. EXTENT | <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 | <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 | FACE ON | <input type="checkbox"/> 0 <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 | <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 | iii. EXTENT | <input type="checkbox"/> 0 <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 | <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 | i. WIDTH | <input type="checkbox"/> O <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C | <input type="checkbox"/> 0 <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C | ii. EXTENT | <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 | <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 | FACE ON | <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 | <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 | iii. EXTENT | <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 | <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 | | | | |
| i. WIDTH | <input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C | <input type="checkbox"/> O <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ii. EXTENT | <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 | <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FACE ON | <input type="checkbox"/> 0 <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 | <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| iii. EXTENT | <input type="checkbox"/> 0 <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 | <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| i. WIDTH | <input type="checkbox"/> O <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C | <input type="checkbox"/> 0 <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ii. EXTENT | <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 | <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FACE ON | <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 | <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| iii. EXTENT | <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 | <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>3D. PLEURAL CALCIFICATION</p> <table style="width:100%;"> <tr> <td style="width:50%;">a. DIAPHRAGM SITE <input checked="" type="checkbox"/> R EXTENT <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3</td> <td style="width:50%;">a. DIAPHRAGM SITE <input checked="" type="checkbox"/> L EXTENT <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3</td> </tr> <tr> <td>b. WALL SITE <input type="checkbox"/> R EXTENT <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3</td> <td>b. WALL SITE <input checked="" type="checkbox"/> L EXTENT <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3</td> </tr> <tr> <td>c. OTHER SITES SITE <input type="checkbox"/> R EXTENT <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3</td> <td>c. OTHER SITES SITE <input checked="" type="checkbox"/> L EXTENT <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3</td> </tr> </table> <p style="text-align: right;">PROCEED TO SECTION 4</p> | | | a. DIAPHRAGM SITE <input checked="" type="checkbox"/> R EXTENT <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 | a. DIAPHRAGM SITE <input checked="" type="checkbox"/> L EXTENT <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 | b. WALL SITE <input type="checkbox"/> R EXTENT <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 | b. WALL SITE <input checked="" type="checkbox"/> L EXTENT <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 | c. OTHER SITES SITE <input type="checkbox"/> R EXTENT <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 | c. OTHER SITES SITE <input checked="" type="checkbox"/> L EXTENT <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 | | | | | | | | | | | | | | | | | | | | | | |
| a. DIAPHRAGM SITE <input checked="" type="checkbox"/> R EXTENT <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 | a. DIAPHRAGM SITE <input checked="" type="checkbox"/> L EXTENT <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| b. WALL SITE <input type="checkbox"/> R EXTENT <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 | b. WALL SITE <input checked="" type="checkbox"/> L EXTENT <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| c. OTHER SITES SITE <input type="checkbox"/> R EXTENT <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 | c. OTHER SITES SITE <input checked="" type="checkbox"/> L EXTENT <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>4A. ANY OTHER ABNORMALITIES? Yes <input checked="" type="checkbox"/> COMPLETE 4B, 4C AND 4D No <input type="checkbox"/> PROCEED TO SECTION 4C</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>4B. OTHER SYMBOLS (OBLIGATORY)</p> <p><input type="checkbox"/> O <input type="checkbox"/> ax <input type="checkbox"/> bu <input type="checkbox"/> ca <input type="checkbox"/> ch <input checked="" type="checkbox"/> co <input type="checkbox"/> cp <input type="checkbox"/> cv <input type="checkbox"/> di <input type="checkbox"/> ef <input type="checkbox"/> em <input type="checkbox"/> es <input type="checkbox"/> fr <input type="checkbox"/> hi <input type="checkbox"/> ho <input type="checkbox"/> kd <input type="checkbox"/> lh <input type="checkbox"/> kl <input type="checkbox"/> pl <input type="checkbox"/> px <input type="checkbox"/> rp <input type="checkbox"/> tb</p> <p>Report items which may be of present clinical significance in this section. SPECIFY od. <input type="checkbox"/> OD</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>4C. OBLIQUE PLEURAL ABNORMALITY Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p> <p>RIGHT OBLIQUE <input type="checkbox"/> O <input type="checkbox"/> R <input type="checkbox"/> L</p> <p>LEFT OBLIQUE <input type="checkbox"/> O <input type="checkbox"/> R <input type="checkbox"/> L</p> | <p>4D. FAT? <input checked="" type="checkbox"/> / OTHER COMMENTS</p> <p>• increased cardiac size</p> <p>• pleural change on @ advised us please.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>SHOULD PARTICIPANT SEE A PHYSICIAN BECAUSE OF COMMENTS IN SECTION 4D? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

BY COMMUNITY ENVIRONMENTAL HEALTH PROJECT

CASE ID 1 0 5 4 8 8 0 2

BR 3

2557

1A. DATE OF X-RAY 08 15 00
MONTH DAY YEAR

1B. FILM QUALITY 2 3 U/R If not Grade 1 give reason:

1C. IS PA FILM COMPLETELY NEGATIVE? Yes PROCEED TO SECTION 4C No PROCEED TO SECTION 2

2A. ANY PARENCHYMAL ABNORMALITIES CONSISTENT WITH PNEUMOCONIOSIS? Yes COMPLETE 2B AND 2C No PROCEED TO SECTION 3

2B. SMALL OPACITIES

a. SHAPE/SIZE PRIMARY SECONDARY

| | | | |
|---|---|---|---|
| p | s | p | s |
| q | l | q | l |
| r | u | r | u |

b. ZONES

| | |
|--|--|
| | |
| | |
| | |

R L

c. PROFUSION

| | | |
|-----|-----|-----|
| 0/ | 0/0 | 0/1 |
| 1/0 | 1/1 | 1/2 |
| 2/1 | 2/2 | 2/3 |
| 3/2 | 3/3 | 3/4 |

2C. LARGE OPACITIES

SIZE O A B C

PROCEED TO SECTION 3

3A. ANY PLEURAL ABNORMALITIES CONSISTENT WITH PNEUMOCONIOSIS? Yes COMPLETE 3B, 3C AND 3D No Proceed to Section 4

3B. PLEURAL THICKENING

a. DIAPHRAGM (plaque) SITE O R L

b. COSTOPHRENIC ANGLE SITE O R L

3C. PLEURAL THICKENING ... Chest Wall

a. CIRCUMSCRIBED (plaque) SITE O R L

IN PROFILE

i. WIDTH O A B C O A B C

ii. EXTENT FACE ON O 1 2 3 O 1 2 3

iii. EXTENT O 1 2 3 O 1 2 3

b. DJFFUSE SITE O R L

IN PROFILE

i. WIDTH O A B C O A B C

ii. EXTENT FACE ON O 1 2 3 O 1 2 3

iii. EXTENT O 1 2 3 O 1 2 3

3D. PLEURAL CALCIFICATION

a. DIAPHRAGM SITE O R EXTENT 0 1 2 3

b. WALL SITE O R EXTENT 0 1 2 3

c. OTHER SITES SITE O R EXTENT 0 1 2 3

a. DIAPHRAGM SITE O L EXTENT 0 1 2 3

b. WALL SITE O L EXTENT 0 1 2 3

c. OTHER SITES SITE O L EXTENT 0 1 2 3

PROCEED TO SECTION 4

4A. ANY OTHER ABNORMALITIES? Yes COMPLETE 4B, 4C AND 4D No PROCEED TO SECTION 4C

4B. OTHER SYMBOLS (OBLIGATORY)

O ax bu ca cn co cp cv di ef em es fr hi ho ld lh kl pi px rp tb

Report items which may be of present clinical significance in this section. SPECIFY od. OD

4C. OBLIQUE PLEURAL ABNORMALITY Yes No

RIGHT OBLIQUE O R L

LEFT OBLIQUE O R L

4D. FAT? /OTHER COMMENTS _____

SHOULD PARTICIPANT SEE A PHYSICIAN BECAUSE OF COMMENTS IN SECTION 4D? Yes No