

米国の石綿飛散防止対策の制度 及び分析手法等について

中央環境審議会大気環境部会
石綿飛散防止専門委員会ヒアリング

平成24年7月20日(金)

株式会社EFAラボラトリーズ

亀元 宏宣

お施主さんが言ったこと

「真面目にやったら損するよ。日本では、みんな除去業者が雇った分析会社がエアモニして、工事中は全部『不検出』の結果が出る。行政に届けた完了報告書も問題無く受領されるんだからね。もし30年後、隣の人が中皮腫になっても、行政に出された報告書は問題が無いんだから、その因果関係を証明できないでしょ。だから真面目に測定して、飛散しましたと馬鹿正直に報告に行くのは、やらないよ。誰もやってないんだから。」

元請さん達が言ったこと

「調査でアスベスト含有建材を一生懸命見つければ見つけるほど、お金がかかるんだよね。調査で見つからない、イコール、アスベストは無いだからね。真面目にやり過ぎないでよ。」

「壁を解体したら、吹付け出てきちゃったよ。お施主さんに言えないよな、工事遅らせて、工事費・処理費が増えるって。絶対に言えねえよ。」

「分析会社から上がってきたエアモニのデータ、低くするシステム作ったぞ。」

解体業者さん達が言ったこと

「上の階、もうすぐ解体が終わっちゃうよ。まだ除去やってんの。早く養生シート外してよ。この階も解体始めたいから。たらたらしてたら、今週中に終わんねえんだよ。」

「どれがレベル3建材って分かんないよな。レベル1、2の除去業者って知ってるけど、レベル3建材の専門除去業者って聞いた事ないよ。だいたい俺ら解体業者がやるんだよな。」

「今の産廃の積み出しでゲート開けて、建物の中の空気やっときれいになったな。粉じんちよっとすごかったな。」

アスベスト除去業者さん達が言ったこと

「全体の養生区画容積と換気回数だけど、行政が除塵機4台数でいいつつたんだから、いいじゃねえか。7工区あるって分かってないんだから。」

「今度の行政の担当は、ちよろいよ。」

「新品の除塵機で、フィルターも新品に変えたんだから、アスベスト漏れるわけがねえんだよ。俺達の調査会社は空気測定結果がNDだって言ってたんだからよお。」

環境測定調査分析会社さん達が言ったこと

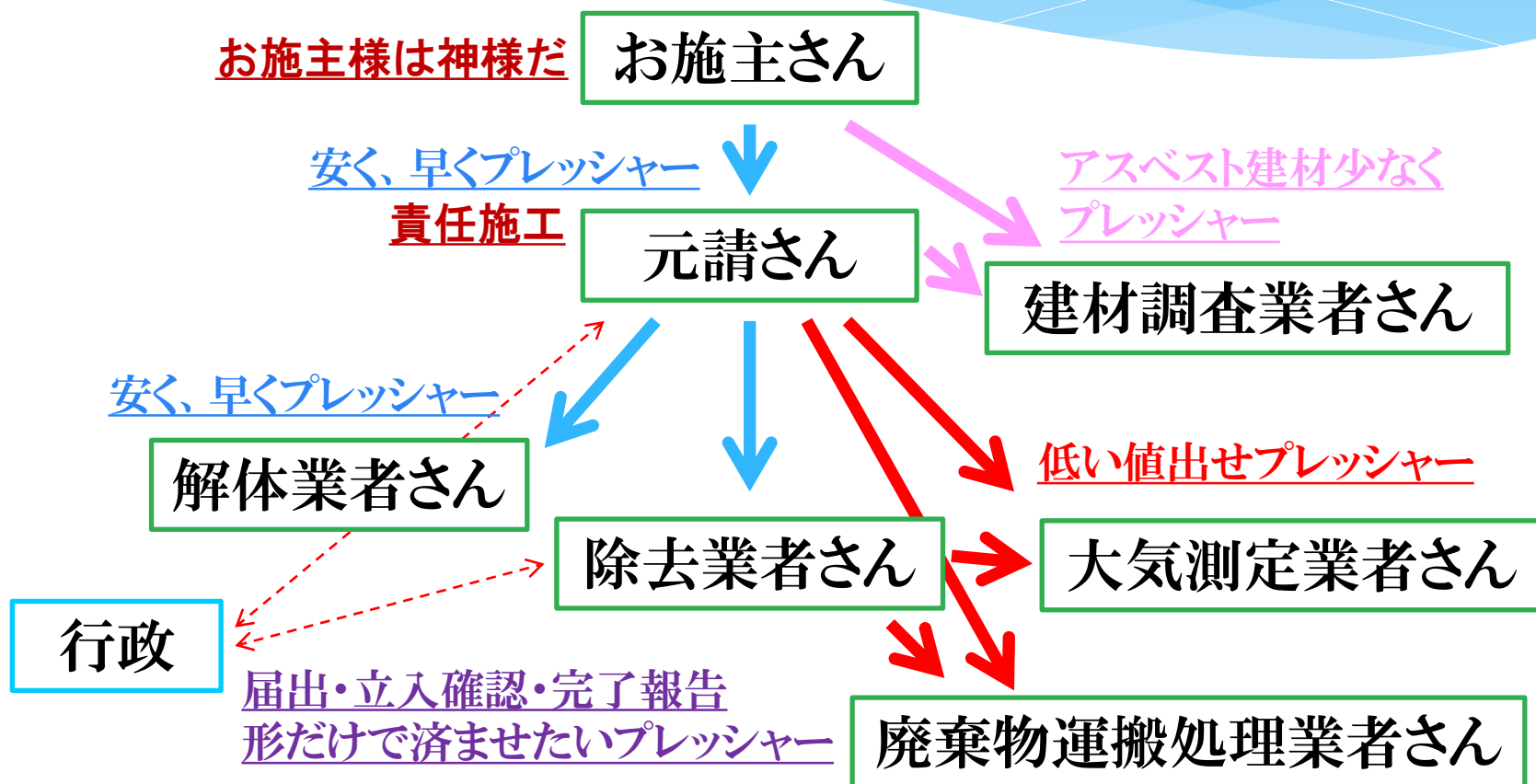
「あんまり高いデータを出したら、仕事が来なくなるからね。」

「隣で天井板落してて、低い値を出せって言われても無理なんですよ。」

「もうそのフィルター残ってないよ。捨てちゃったかなあ」

「クリソタイルの繊維が消えない時もあるんだけど、93号法でやってもいいんじゃない。法的に何でやれって無いんだから。アモサイトの現場でも使ってるよ。」

施主が頂点に立つ 利益相反関係の構造



強制力のある米国のアスベスト法規制

Asbestos NESHAP と AHERA

* Asbestos NESHAP

- * 建物所有者(施主)または管理者(元請)の責任は重い
- * レベル3建材も隔離養生シート・除塵機設置
- * アスベスト対策工事は先行して実施、他の工事と一緒にやらない

* AHERA

- * アスベスト対策会社、建材調査会社、環境測定会社、分析会社、コンサル会社の認可登録と取消
- * 違反解消まで工事停止、違反者への罰金、懲役
- * 違反会社の履歴データベース
- * クリアランスサンプリング
- * 利益相反関係の排除

Asbestos NESHAP

- * 1970年CLEAN AIR ACTは、一般国民の健康に影響を及ぼす有害な空気中汚染物への曝露を防ぐために、米国環境庁(EPA)が、その規制を作り、強制することを要求している。それを受けてEPAは、National Emission Standards for Hazardous Air Pollutants (NESHAP)を策定した。
- * 1971年にEPAは、アスベストが有害汚染物であると確定し、1973年にAsbestos NESHAPが公布された。Asbestos NESHAPは数回改正され、最新のもののは1990年台に改正されたものである。

Asbestos NESHAP (2)

- * 目的: アスベストを取扱う活動のアスベスト繊維飛散を最小に
- * アスベスト(Friable、Non-friable)を一定量含む建物の改修工事中及び解体工事中に遵守する具体的作業手順
 - * 成形板もシート隔離養生・除塵機設置をして除去
 - * Non-friable建材の研磨、粉砕、切断、削り取り作業はアスベスト粉塵を発生させる。
- * 大部分がOwners(施主)とOperators(元請・管理者)の行動規定
 - * Owners: 解体または改修工事される建物を所有、賃貸、稼働、管理、または監督する人(施主)
 - * Operators: 建物の解体または改修工事を実施、管理、または監督する人(元請・管理者)

Asbestos NESHAP (3)

施主または元請は

- * アスベスト含有建材を含む全ての解体工事または80mの長さのアスベスト含有配管または15m²の面積を超えるアスベスト含有建材に係る改修工事がある場合、行政に届出しなければならない。
- * 解体または改修工事が始まる前に、全てのアスベスト含有建材または含有機器を、認定工事業者に法に定められた適切な方法で、除去させなければならない。
 - * →アスベスト除去工事と解体/改修工事を同時にやらない
- * 除去したアスベスト含有物は法に定められた適切な方法で、認定廃棄物運搬処理業者によって運搬・処理させなければならない。

AHERA

- * 1982年Toxic Substance Control Actの下、EPAは最初の学校のアスベスト管理のための規制(Asbestos-in-Schools Rule)を制定。
- * 1985年からローンや補助金でのLocal Education Agency(LEA)によるアスベスト対策工事が開始。
- * 1986年にEPAによりさらに包括的なAsbestos Hazard Emergency Response Act (AHERA):Asbestos Containing Materials in Schoolsが制定。
 - * AHERAは、子供達のアスベスト曝露を低減するために、LEAに学校のアスベスト含有建材の調査とアスベスト管理計画の準備・遂行を要求。

AHERA(2)

- * AHERAアスベスト管理計画に含まれるオプション5つ
 - ① 損傷したアスベスト建材の補修、
 - ② 封じ込め、
 - ③ 囲い込み、
 - ④ 除去、
 - ⑤ アスベストが飛散しないように建材を良い状態に保つ。
- * 州政府に認定登録されたアスベスト管理計画者がアスベスト管理計画を策定する。管理計画はLEAによって親、先生、従業員たちに知らされ、必ず認定登録された業者によって実施される。
- * **LEAや認定登録業者は、AHERAとNESHAPの法規制を徹底遵守。**

アスベスト業務資格研修と認定プログラム

Asbestos Model Accreditation Plan

- * 1987年にEPAが州政府に資格認定登録の計画の実施を要請
- * EPAまたは州政府が認定した講師による研修
 - * 6つの資格コース、一クラス25人以下、実地訓練有り、ビデオ研修を推奨
- * 州政府または認定機関による試験
 - * Closed book examination
 - * 100問または50問試験で70点以上が合格
- * 州政府が毎年リフレッシュコース、3年毎の資格更新試験

Asbestos Model Accreditation Plan (2)

6つの資格(1, 2, 3)

資格者名	役割	研修プログラム期間
1. アスベスト関連作業者 Workers	アスベスト建材を攪乱する恐れのある小規模の維持管理または対策作業を行う者。その作業について大規模なアスベスト飛散対応担当者	4日間、 14時間の実地訓練を含む
2. アスベスト対策業者と監督者 Contractor/ Supervisors	小規模以上の対策作業に責任を持つ者 小規模以上の維持管理作業を行う者 大規模なアスベスト飛散対応担当者	5日間、 14時間の対策実地訓練を含む
3. アスベスト建材調査者 Inspector	建物のアスベスト建材調査を行う者	3日間、 4時間の実地訓練を含む

Asbestos Model Accreditation Plan (3)

6つの資格(4, 5, 6)

資格者名	役割	研修プログラム期間
4. アスベスト管理計画者 Management Planner	テナントの健康を守るために、アスベスト建材の維持管理、対策の優先順位等の決定・実行に責任を持つ者	建材調査者コース3日間、 管理計画者コース2日間
5. アスベスト対策プロジェクトデザイナー Project Designer	小規模の維持管理作業、対策工事、大規模なアスベスト飛散対応の設計をする者	3日間、 対策現場検査・対策設計 実地訓練
6. 対策工事監視者 Project Monitor	ビルオーナーを守るために、その代理として、アスベスト対策業務が、計画通りに、安全に、且つ法を遵守して行われたかどうかを監視する者 クリアランスサンプリングを行う者	5日間、 6時間(3日間に渡る)実地 訓練を含む

アスベスト業務資格研修と認定プログラム

Asbestos Model Accreditation Plan

- * 州政府による認定登録
 - * 専門事業者賠償責任保険(E&O insurance) 1 million \$
 - * 対策請負業者賠償責任保険(Asbestos abatement liability insurance) 1 million \$
- * 州政府による認定登録取り消し、違法資格使用は罰金も
- * 州政府間の相互運用の要請
- * 国と州政府で認定登録者をデータベース管理。
 - * 違反者については違反歴も管理(National Asbestos Registry System: NARS)。
- * 1994年に資格認定登録の内容を強化

AHERA Conflict of Interest

利益相反関係の排除

- * アスベスト対策会社は、クリアランスサンプリング調査、分析を行ってはいけない。
 - * クリアランスサンプリング結果を工事会社の都合の良いものにする
- * アスベスト対策計画を策定した者は、アスベスト対策を行ってはいけない。
 - * アスベスト除去工事費用を不当に増やす

Conflict of Interest

利益相反関係の排除(2)

- * 認定業者経歴データベースチェック
- * 認定業者3社間入札を発注者に奨励
- * 3つの最新過去プロジェクトの発注者に、評判を確認
- * 契約書に利益相反関係がない事を保証する項を追加
- * 契約書にクリアランスサンプリングにパスするまでやり直し作業すること記述してあるか？その費用は含まれているか？

規制する側 v.s. 規制される側

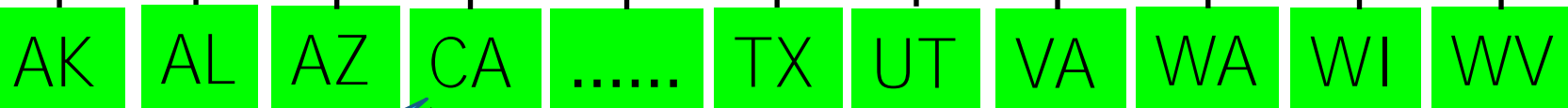
罰金 最大\$25,000/日 当初
37,500/日 2009年 R-IV

国 Asbestos NESHAP
AHERA

U.S. EPA リージョン I - X

2011年 TSCA 法強制執行予算
5.2 Million \$ 4億円

州
州法



市、郡
市法等

Air Resource Board
2002年 1 Million \$
8千万円 罰金



国、州、市・郡の
アスベスト監視官が
解体・改修工事の届出を観て、いきなり訪問

ビルオーナー

ビル所有会社

REIT

ビル管理会社

認定許可を受けた個人または会社

アスベスト管理計画

元請工事

アスベスト建材調査

アスベスト対策工事設計

解体工事

アスベスト分析

アスベスト対策工事

アスベストコンサルタント

2007年9月25日付 バイエリア大気質管理地区のニューズレター

- * 不動産管理会社 (REIT) : アスベスト含有天井板張替えを、認定アスベスト対策会社を使わずに普通の業者にやらせて \$125,000の罰金の判決
- * 大気管理地区執行官のコメント「不動産所有者達は、公衆の健康保護のために、アスベスト建材が建物内にあるかどうか調べる必要がある。もしそうしなければ、彼らは罰金を払うことになる。」

2007年9月25日付 ベイエリア大気質管理地区のニューズレター(2)

- * 複合住宅の不動産管理会社マネージャーは、無認可の従業員に天井のアスベスト含有建材を無理やり削り取らせた。その従業員はマネージャーに違法で危ないことだと何度も苦情を言っていた。裁判所は、不動産管理会社に\$300,000の罰金を命じた。
- * 大気管理地区執行官のコメント「この強制執行努力は、『大気管理地区は、不動産所有者や管理会社のアスベスト取扱いの違法を見逃さないという』意思の表れだ。我々は法を破るものを捕まえるためにあらゆる努力をする。その際、違法に対する著しい罰金を徴収する必要があるれば、違反者を裁判所に連れて行く。」

2012年6月14日付 ニューハンプシャー州ニュースリリース

- * 所有者・管理者：M&Eジェスパーセン(購入者)、ホルゲート・リミテッド・パートナー(売却者)、ハーリントン・イレボカブル・トラスト(信託銀行)、ウィリアム・ホプキンス・ジュニア(個人)、
- * 除去工事業者：ドウ・イット・オール・デイヴィス、マイケル・J・デイヴィス(個人)に対して、除去工事と廃棄処理違反で総額\$110,000(880万円)の罰金
- * 購入時に対象不動産にアスベストが有ると分かっている、
 - * 解体工事の届出無し、
 - * アスベスト調査無し、
 - * アスベスト建材(屋根材、pタイル)を除去せずに解体、
 - * 適切な湿潤化無し、
 - * 養生シート無し、
 - * アスベスト廃棄物適正梱包・ラベル無し
- * \$85,000は判決後6日以内に支払、\$25,000は法律を守れば2年間で支払
- * 除去工事業者のドウ・イット・オール・デイヴィスは破産申請中だが、NH州政府は罰金徴収許可を裁判所からもらう予定

ニューヨーク市の分かり易い執行しやすい 罰金リスト(配布資料)

- * 虚偽の記述、偽文書提出: \$2,400
- * ニューヨーク市環境部の立入調査を断った: \$2,400
- * 建物のアスベスト調査を認可会社にやらせなかった: \$2,400
- * アスベスト調査レポートに証明印をしなかった: \$1,200
- * 対策エリアの計算と仕様を間違えた: \$2,400
- * 所有者が許可対象アスベストの量を特定しなかった: \$2,400
- * 対策計画の変更の届出を出し忘れた: \$1,200
- * 無認定の大気測定会社を使った: \$4,800

AHERAクリアランスサンプリング

- * クリアランスサンプリングでアスベスト飛散がない事が確認されるまでアスベスト工事関係者以外は、除去エリアに入ってはいけない。
- * 除去工事完了後、除去工事業者は養生シート内をHEPA掃除機と濡れた布でシート内全部を拭き掃除。
- * 工事監視者が工事完了後の目視確認
 - * 取り残しの有無の確認、
 - * 濡れた布で表面を拭取り、ホコリが付かないことを確認

AHERAクリアランスサンプリング(2)

TEM分析

- * 工事監視者が工事完了後にエアサンプリング
 - * 養生シート内と外で最低5サンプルずつ、
 - * ブランク3サンプル: 2個30秒蓋を開け、1個現地で蓋を開けない
 - * アグレッシブサンプリング:ブロワーとファンを用いて養生シート内の空気を攪乱する
 - * 透過型電子顕微鏡(TEM)による分析
 - * 養生シート内と外の分析結果の有意差の有無をz-検定で確認
- * 外(バックグラウンド)と同等の濃度が確認されてから、対策工事エリアの養生シートを取り外す。除去工事業者を現場から解放。
- * そうでなければ、再度掃除作業(HEPA掃除機・濡れ拭き)をやり直し。

AHERAクリアランスサンプリング(3)

PCM分析

- * 小規模工事の場合に、PCM分析
 - * 工事面積 160 square feet (14.86m²) または
 - * 工事延長 260 linear feet (79.2m) 以下の場合
- * 工事監視者が工事完了後にエアサンプリング
 - * 養生シート内で最低5サンプルずつ
 - * アグレッシブサンプリング:ブロワーとファンを用いて養生シート内の空気を攪乱する
 - * NIOSH METHOD 7400(PCM)による分析
 - * 基準値: 全サンプルが0.01 fibers/cubic cc以下
- * 全サンプルが基準値を達成したら、対策工事エリアの養生シートを取り外す。除去工事業者を現場から解放。
- * そうでなければ、再度掃除作業(HEPA掃除機・濡れ拭き)をやり直し。

強制力のある法律にするには

* 所有者(発注者)の責任規定

- * 日本でも土壌汚染対策法は所有者の責任がある。
- * きちんとやる所が馬鹿を見ないしくみ作りの要。
- * お施主様は神様だ → 法は神様だ(法は万人に公平)
- * ここが今回の法改正に魂を吹き込むポイント。

* アスベスト関連業者の認可登録

- * 廃掃法の許認可が参考
- * 違反業者は仕事ができない。
- * 違反者個人名付き経歴データベース作成。
- * 人材の品質確保の資格・研修体制。土対法でもやってきている。

強制力のある法律にするには(2)

* **コンフリクト・オブ・インタレスト規定**

- * 除去業者はエアモニタリング業者に発注できない。
- * 除去計画を作った業者は対策工事ができない。
- * 日本でもConflict of Interestの概念はある。

* **罰金・罰則**

- * 違反を発見したら、解消するまで**工事ストップ**。
- * もしアスベストを飛散させたら、行政は所有者を追及し、所有者は対策業者を追及する。**行政が執行しやすい罰金リストを**。
- * 専門家賠償責任保険、対策請負業者賠償責任保険等を認可登録要件に。

強制力のある法律にするには(3)

- * レベル3建材も養生シートと除塵機は必要
 - * 養生シート除塵機無しで、飛散したアスベスト繊維は廃棄物積み出しで、通行人がいる建物外へ拡散している。
 - * そもそもセキュリティゾーンのサンプリング中に他の解体工事をやっていたら、何の測定をやっているか分からない。
- * 大気モニタリングはクリアランスが大事。
 - * クリアランスが終らなければ養生撤去ができない。
 - * アスベスト除去工事と他の工事をいっしょにやらない。

ASBESTOS PENALTY SCHEDULE - June 1, 2002

ECB Code	15RCNY Section	Description	1st Offense		2nd Offense*		Compliance
			Penalty	Stip.	Penalty	Stip.	
X01	1-01(E)	Knowingly made a false statement or submitted a false document to DEP	2400	1500	4800	3000	Submit corrected documentation to DEP
X03	1-01(F)	Did not permit DEP inspection of Asbestos project/Abatement Activities	2400	1500	4800	3000	Permit DEP inspection of Asbestos project/Abatement Activities
X02	1-01(G)	Interfered with or obstructed DEP personnel	2400	1500	4800	3000	Cease interference with or obstruction of DEP personnel

ASBESTOS INVESTIGATION CERTIFICATE

X1F	1-16(A)	Conducted building survey and hazard assessment without DEP certification	2400	1500	4800	3000	Cease assessing asbestos hazards until certified by DEP
X1G	1-16(F)	Failed to sign/affix valid investigators seal to plan report as required	1200	1000	2400	1500	Use a valid seal and submit all papers with a valid seal
X1H	1-21(A)	Failed to comply with reporting and filing requirements	2400	1500	4800	3000	File proper notification
X1I	1-21(B)	Failed to calculate project size and scope as required	2400	1500	4800	3000	Calculate project size and scope and classify project as specified

NOTIFICATION

X1J	1-22(B)	Owner failed to determine the amount of ACM to be disturbed by permitted activity	2400	1500	4800	3000	Owner to determine the amount of ACM to be disturbed
X1K	1-22(C)	Failed to file required DEP notification w/Buildings Department application	2400	1500	4800	3000	File required asbestos notification with Buildings Department
X1L	1-22(D)	Failed to notify DEP in writing of changes in project notification	1200	1000	2400	1500	File required changes in DEP Asbestos notification with DEP
X1M	1-23(B)	Failed to file required Not An Asbestos project notice with Buildings Department	1200	1000	2400	1500	Submit required notification to Buildings Department
X1O	1-23(C)	Failed to submit DEP Asbestos inspection report to NYC Department of Buildings	2400	1500	4800	3000	File required Asbestos inspection report

*A second offense is a violation within two years, for an infraction within the same category as the prior infraction. (Categories are defined by description subheadings on this schedule, e.g. "Notification".)

ASBESTOS PENALTY SCHEDULE - June 1, 2002

ECB Code	15RCNY Section	Description	1st Offense		2nd Offense*		Compliance
			Penalty	Stip.	Penalty	Stip.	
X1Q	1-23(D)	Failed to notify DEP in writing of any change in project notification	1200	1000	2400	1500	File required amendments to Asbestos inspection report
X1R	1-25(C)	Failed to file Asbestos inspection report 7 days before work starts	2400	1500	4800	3000	Submit required notification to DEP
X1S	1-25(D)	Failed to notify DEP in writing of any change in project notification	1200	1000	2400	1500	Submit required amendments to Asbestos inspection report to DEP
X1T	1-26(B)	Failed to immediately notify DEP of emergency project as required	2400	1500	4800	3000	Submit required notification to DEP
X1U	1-26(C)	Failed to notify DEP in writing of emergency project within 48 hours	2400	1500	4800	3000	File required notification

RECORDKEEPING REQUIREMENTS FOR INVESTIGATOR

X1V	1-27(A)	Failed to maintain permanent records of Asbestos surveys as required	2400	1500	4800	3000	Maintain and have available all Asbestos survey/assessment records
X1W	1-27(B)	Failed to compile complete records of Asbestos survey as required	1200	1000	2400	1500	Compile all records in accordance with all requirements
X1Y	1-27(C)	Failed to properly record work by non-certified individual as required	1200	1000	2400	1500	Indicate in each record work performed by non-certified person
							as specified
X1Z	1-27(D)	Failed to maintain records of Asbestos surveys for 30 years	1200	1000	2400	1500	Maintain Asbestos survey records for 30 years
X1O	1-27(E)	Failed to make Asbestos survey records available for inspection by DEP	2400	1500	4800	3000	Make Asbestos survey records available for inspection by DEP

AIR MONITORING

X12	1-36(A)	Employed unqualified/uncertified Air Monitor	4800	3000	9600	6000	Retain qualified/certified Third Party Air Monitor or Team
X13	1-36(B)	Used Lab without required qualifications to perform bulk sample analysis	2400	1500	4800	3000	Retain accredited qualified laboratory for bulk sample analysis

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ASBESTOS PENALTY SCHEDULE - June 1, 2002

ECB Code	15RCNY Section	Description	1st Offense		2nd Offense*		Compliance
			Penalty	Stip.	Penalty	Stip.	
X14	1-36(C)	Used Lab without required qualifications to perform Air sample analysis	2400	1500	4800	3000	Retain accredited laboratory for Air sample analysis (PCM)
X15	1-36(D)	Employed unqualified analyst to perform Air sample analysis (TEM)	2200	1500	4800	3000	Have TEM analysis performed by qualified analyst as specified
X16	1-37(A)	Failed to perform bulk sampling as required	1200	1000	2400	1500	Perform bulk sampling procedures as specified
X17	1-37(B)	Failed to utilize area Air sampling equipment for PCM per 60 NIOSH 7400	1200	1000	2400	1500	Utilize required equipment and follow procedures specified
X2A	1-37(C)	Failed to utilize area Air sampling equipment for TEM as required	1200	1000	2400	1500	Utilize required TEM equipment and follow procedures as specified
X2B	1-41(A)	Failed to conduct Air sampling in accordance with required schedule	4800	3000	9600	6000	Use required protocol for Air sampling
X2C	1-41(B)	Failed to conduct Pre-Abatement Air sampling as required	1200	1000	2400	1500	Take required number of Air samples as specified
X2D	1-41(C)	Failed to conduct Air sampling during abatement as required	2400	1500	4800	3000	Take required Air samples as specified
X2E	1-41(D)	Failed to conduct Post-Abatement Air monitoring as required	1200	1000	2400	1500	Take required number of Post-Abatement samples as required
X2F	1-42(A)	Utilized unrepresentative sampling zone for indoor Air samples	1200	1000	2400	1500	Utilize representative sampling zone as specified
X2G	1-42(B)	Failed to locate ambient samplers properly	1200	1000	2400	1500	Place Air samplers in locations as specified
X2H	1-42(C)	Placed Air sampling equipment in corners or near obstructions	1200	1000	2400	1500	Place sampling equipment away from corners and obstructions
X2I	1-42(D)	Failed to have a chain of custody record for air samples	2400	1500	4800	3000	Provide chain of custody record for samples
X2J	1-42(E)	Failed to follow specified area sampling schedule for air monitoring	2400	1500	4800	3000	Conduct Air sampling in accordance with area sampling schedule

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ASBESTOS PENALTY SCHEDULE - June 1, 2002

ECB Code	15RCNY Section	Description	1st Offense		2nd Offense*		Compliance
			Penalty	Stip.	Penalty	Stip.	
X2K	1-42(F)	Failed to conduct air sampling for glovebag and tent procedures as required	2400	1500	4800	3000	Conduct Air sampling concurrently with glovebag or tent procedures
X2L	1-43(A)	Failed to confirm absence of visible ACM before final air monitoring	2400	1200	4800	2400	Perform clearance monitoring as specified
X2M	1-43(B)	Failed to properly place required number of samples in work area	1200	1000	2400	1500	Utilize required number of properly placed samples for sampling
X2N	1-43(C)	Failed to properly place samples outside work area	1200	1000	2400	1500	Conduct Air sampling as specified at locations outside work area
X2O	1-43(D)	Failed to conduct aggressive sampling according to required procedures	2400	1500	4800	3000	Conduct aggressive Air sampling, as specified
X2P	1-43(E)	Area Air samples did not meet schedule for Post-Abatement monitoring	2400	1500	4800	3000	Perform post-Abatement sampling, as specified on schedule
X2Q	1-43(F)	Failed to reclean and re-sample in areas that failed clearance as required	2400	1500	4800	3000	Reclean and collect new samples until clearance is achieved
X2R	1-43(G)	Failed to meet release criteria for any independent work area	2400	1500	4800	3000	Conduct Air sampling until each area passes clearance criteria
X2S	1-44(A)	Failed to analyze and report PCM area Air samples as required	2400	1500	4800	3000	Analyze and report PCM area Air samples as specified
X2U	1-44(B)	Failed to analyze and report TEM area Air samples as required	2400	1500	4800	3000	Analyze and report TEM area Air samples as specified
X2V	1-44(C)	Failed to analyze and report bulk sample as required	1200	1000	2400	1500	Analyze and report bulk samples as specified
X2W	1-44(D)	Failed to submit bulk/Air sampling results w/in 5 days of DEP request	2400	1500	4800	3000	Submit requested reports as directed
X2X	1-45(A)	Failed to follow proper procedures when action criteria exceeded	4800	3000	9600	6000	Stop work and take required corrective action including clean-up
X2Y	1-45(B)	Failed to meet clearance and/or reoccupancy criteria	2400	1500	4800	3000	Satisfy clearance criteria prior to re-occupancy/demolition

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ASBESTOS PENALTY SCHEDULE - June 1, 2002

ECB Code	15RCNY Section	Description	1st Offense		2nd Offense*		Compliance
			Penalty	Stip.	Penalty	Stip.	
WORKER PROTECTION REQUIREMENTS							
X2Z	1-51(A)	Employed uncertified workers on an Asbestos project	4800	3000	9600	6000	Employ only DEP certified workers on Asbestos Projects
X21	1-51(B)	Failed to have supervisor present during abatement activities	4800	3000	9600	6000	Stop work until supervisor is present
X22	1-51(C)	Allowed persons inside work place w/out proper protective clothing	4800	3000	9600	6000	Provide proper protective clothing and ensure its use in
							workplace
X23	1-51(D)	Failed to perform personal Air monitoring as per OSHA standards	2400	1500	4800	3000	Perform required personal Air monitoring and/or supply records
							to DEP
X25	1-51(E)	Failed to meet personal hygiene requirements at work site	1200	1000	2400	1500	Ensure compliance with all personal hygiene requirements
X26	1-51(F)	Failed to have required info in clean room	2400	1500	4800	3000	Have all required information available in the clean room
X27	1-51(G)	Failed to post Asbestos warning signs at all approaches to work place	2400	1500	4800	3000	Post required warning signs at all approaches to work place
X28	1-51(H)	Failed to affix required warning labels to all ACM waste containers	2400	1500	4800	3000	Affix required warning labels to all ACM waste containers
MATERIALS AND EQUIPMENT							
X30	1-61(A)	Did not store replacement materials outside work area as required	2400	1500	4800	3000	Store replacement materials outside work area to prevent contamination
X3P	1-61(B)	Used replacement materials which did not comply with NYC Code and regulations	1200	1000	2400	1500	Comply with applicable provisions of NYC Code and regulations
X3Q	1-61(C)	Failed to use plastic of 6-mil thickness or greater for plasticizing	2400	1500	4800	3000	Plasticize using polyethyelene of 6-mil thickness or greater

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ASBESTOS PENALTY SCHEDULE - June 1, 2002

ECB Code	15RCNY Section	Description	1st Offense		2nd Offense*		Compliance
			Penalty	Stip.	Penalty	Stip.	
X3R	1-61(D)	Used duct tape and/or adhesive incapable of properly sealing plastic	2400	1500	4800	3000	Use duct tape or adhesive which seals plastic sheeting as required
X3S	1-61(E)	Failed to use and/or label 6-mil bags or containers for ACM as required	2400	1500	4800	3000	Use Air and water tight 6-mil container/bags and label as required
X3T	1-61(F)	Failed to enclose ACM in airtight manner with impact resistant material	2400	1500	4800	3000	Enclose ACM in impact resistant material and assemble in air-tight manner
X3V	1-61(G)	Failed to use HEPA filtration as required on hand power tools	1200	1000	2400	1500	Use only HEPA filtered power tools as required
X3W	1-61(H)	Failed to provide ladders/scaffolds and/or seal joints/ends of same	2400	1500	4800	3000	Supply ladders/scaffolds for inspectors; seal scaffold joints
X3Y	1-61(I)	Failed to use UL listed and approved electrical equipment	1200	1000	2400	1500	Use electrical equipment that is underwriters lab listed and
X32	1-61(J)	Failed to obtain DEP approval for substitute equipment/material	1200	1000	2400	1500	Obtain approval from DEP for substitute equipment and material

GENERAL WORK PLACE PREPARATION - LARGE PROJECT

X34	1-81(A)	Failed to post notice of Asbestos project as specified	1200	1000	2400	1500	Provide and post notification of Asbestos project as specified
X35	1-81(B)	Failed to vacate work place prior to and during abatement activities	4800	3000	9600	6000	Vacate occupants from work place until successful final Air clearance
X36	1-81(C)	Failed to provide power from outside the work area thru GFI at source	4800	3000	9600	6000	Provide electricity from outside work area through GFI as required
X39	1-81(D)	Failed to install worker and/or waste decon in required sequence	4800	3000	9600	6000	Install worker/waste decon enclosure system as specified
X4B	1-81(E)	Did not limit disturbance of ACM before erecting partition as required	2400	1500	4800	3000	Remove ACM by tent/wet methods, limit removal to 1 foot wide strips

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ASBESTOS PENALTY SCHEDULE - June 1, 2002

ECB Code	15RCNY Section	Description	1st Offense		2nd Offense*		Compliance
			Penalty	Stip.	Penalty	Stip.	
X4C	1-81(F)	Failed to lockout/isolate heating/ventilation/Air conditioning system	4800	3000	9600	6000	Lockout/isolate HVAC or obtain DEP approval re positive pressurization
X4D	1-81(G)	Commenced abatement prior to completion of work place preparation	4800	3000	9600	6000	Complete the work place preparation
X4E	1-81(H)	Failed to properly pre-clean and remove moveables and/or cover carpet	1200	1000	2400	1500	Clean and remove moveable objects and/or cover carpet as specified
X4F	1-81(I)	Failed to properly pre-clean and plasticize fixed objects in work area	1200	1000	2400	1500	Clean and plasticize all fixed objects in the work area as specified
X4G	1-81(J)	Failed to properly pre-clean the work area prior to plasticizing	2400	1500	4800	3000	Pre-clean the work area as required
X4H	1-81(K)	Failed to install isolation barriers over all openings to work place	4800	3000	9600	6000	Install isolation barriers forthwith, as required
X4I	1-81(L)	Did not segregate work area from work site with partitions as required	4800	3000	9600	6000	Construct and install partitions to segregate work area as required
X4J	1-81(M)	Failed to properly seal floors and walls with 2 layers of 6-mil plastic	4800	3000	9600	6000	Seal floors/ walls with 2 layers of 6-mil plastic sheeting as required
X4K	1-81(N)	Failed to remove/clean ceiling-mounted objects not previously sealed	1200	1000	2400	1500	Remove and/or clean ceiling mounted objects as specified
X4L	1-81(O)	Removed contaminated ceiling tiles prior to full work area preparation	2400	1500	4800	3000	Remove/dispose of contaminated ceiling tiles and components as required
X4M	1-81(P)	Failed to establish and maintain emergency/fire exits from work area	4800	3000	9600	6000	Establish and maintain emergency fire exits as required
X4N	1-81(Q)	Failed to lock entrances not used for workers or as emergency exits	2400	1500	4800	3000	Lock entrances leading to work place to prevent unauthorized entry
X4O	1-81(R)	Failed to properly seal and/or cover floor drains, pits, sumps, etc.	1200	1000	2400	1500	Seal and cover all floor drains, pits, sumps, etc., as required

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ASBESTOS PENALTY SCHEDULE - June 1, 2002

ECB Code	15RCNY Section	Description	1st Offense		2nd Offense*		Compliance
			Penalty	Stip.	Penalty	Stip.	
X4P	1-81(S)	Did not maintain, secure, lockout elevators running thru work area	4800	3000	9600	6000	Seal off, lockout, isolate and/or maintain elevators as specified
X4Q	1-81(T)	Failed to provide adequate toilet facilities in vicinity of clean room	1200	1000	2400	1500	Provide or install adequate toilet facilities as specified

WORKER DECONTAMINATION ENCLOSURE - LARGE PROJECT

X4R	1-82(A)	Failed to provide or locate worker decon outside work area as required	4800	3000	9600	6000	Provide worker decontamination system according to specifications
X4S	1-82(B)	Failed to construct worker decon as specified	4800	3000	9600	6000	Construct worker decon system according to specifications
X4T	1-82(C)	Failed to fully line worker decon with 2 layers of opaque 6-mil plastic	2400	1500	4800	3000	Plasticize the worker decon system according to specifications
X4U	1-82(D)	Failed to secure/weatherproof outside or publicly accessible decon	2400	1500	4800	3000	Secure and/or weatherproof worker decon system
X4V	1-82(E)	Failed to provide proper prefabricated or trailer worker decon	1200	1000	2400	1500	Provide functional secure worker decon and/or decontaminate decon system
X4W	1-82(F)	Failed to construct and/or maintain clean room as required	1200	1000	2400	1500	Install, supply, secure and/or maintain clean room with required
X4X	1-82(G)	Failed to install and/or maintain shower room as required	2400	1500	4800	3000	Install/provide shower room according to specifications
X4Z	1-82(H)	Failed to provide shower filtration system as specified	2400	1500	4800	3000	Filter and/or handle and/or dispose of shower water as required
X4O	1-82(I)	Failed to properly use or maintain equipment room	1200	1000	2400	1500	Use and maintain equipment room/maintain supply of ACM bags

WASTE DECONTAMINATION ENCLOSURE SYSTEM - LARGE PROJECT

*A second offense is a violation within two years, for an infraction within the same category as the prior infraction. (Categories are defined by description subheadings on this schedule, e.g. "Notification".)

ASBESTOS PENALTY SCHEDULE - June 1, 2002

ECB Code	15RCNY Section	Description	1st Offense		2nd Offense*		Compliance
			Penalty	Stip.	Penalty	Stip.	
X41	1-83(A)	Failed to properly construct waste decon as specified	4800	3000	9600	6000	Construct waste decon washroom and/or holding area to specifications
X42	1-83(B)	Failed to locate/install waste/worker decon where 1 exit exists	2400	1500	4800	3000	Construct and/or use holding area and/or waste washroom as specified
X43	1-83(C)	Failed to construct waste decon in accordance with 1-117A, C,D,E,F,G & H	2400	1500	4800	3000	Construct waste decon enclosure system as specified

ENGINEERING CONTROLS - LARGE PROJECT

X44	1-91(A)	Failed to utilize negative pressure ventilation equipment	4800	3000	9600	6000	Utilize negative pressure ventilation equipment
X45	1-91(B)	Failed to use negative pressure ventilation equipment 24hrs/day	4800	3000	9600	6000	Continuously operate negative pressure ventilation equipment
X46	1-91(C)	Did not maintain static negative Air pressure of 0.02 in. water column	4800	3000	9600	6000	Maintain 0.02 inches water column static negative pressure
X47	1-91(D)	Failed to turn on negative Air units 1 by 1 to check barrier integrity	2400	1500	4800	3000	Turn on negative Air units one by one to check containment integrity
X48	1-91(E)	Failed to use dedicated power supply for negative Air units	2400	1500	4800	3000	Provide and utilize dedicated power supply for negative Air Units
X49	1-91(F)	Failed to follow procedures for loss of power to negative Air units	4800	3000	9600	6000	Stop abatement; perform required procedures for a loss of negative Air
X5A	1-91(G)	Failed to provide one Air change every 15 mins. in work area	2400	1500	4800	3000	Provide 1 Air change every 15 minutes in work area
X5B	1-91(H)	Failed to make openings for negative Air units airtight	1200	1000	2400	1500	Make openings for negative Air units airtight
X5C	1-91(I)	Used negative Air units not in compliance w/ANSI 9.2 standards	4800	3000	9600	6000	Use negative Air equipment that meets ANSI 9.2 (1979) standards

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ASBESTOS PENALTY SCHEDULE - June 1, 2002

ECB Code	15RCNY Section	Description	1st Offense		2nd Offense*		Compliance
			Penalty	Stip.	Penalty	Stip.	
X5D	1-91(J)	Operated negative Air system contrary to EPA report 560/5-85 (1985)	4800	3000	9600	6000	Operate negative Air system as per EPA report 560/5-85(1985)
X5E	1-91(K)	Failed to exhaust negative Air units to outside as required	2400	1500	4800	3000	Exhaust negative Air pressure ventilation equipment as specified
X5F	1-91(L)	Failed to properly use second negative Air unit in series as required	2400	1500	4800	3000	Vent exhaust of negative Air units to indoor area with sufficient capacity
X5G	1-91(N)	Failed to smoke test/inspect/monitor ducts to ensure no fiber release	1200	1000	2400	1500	Routinely test, monitor and inspect that ducting is properly sealed

WORK PLACE ENTRY AND EXIT PROCEDURES - LARGE PROJECT

x5H	1-92(A)	Failed to ensure proper work place entrance procedures are followed	2400	1500	4800	3000	Ensure that all specified entry procedures are followed
X5I	1-92(B)	Failed to ensure that proper work area exit procedures are followed	4800	3000	9600	6000	Ensure that all requirements for exiting work area are followed

EQUIP/WASTE CONTAINER DECON & REMOVAL PROC. LARGE PROJ.

X5J	1-93(A)	Permitted storage of ACM/carts in clean room when used as holding area	1200	1000	2400	1500	Remove ACM waste and/or carts from the clean room
X5K	1-93(B)	Improperly removed waste while workers used combined decon system	1200	1000	2400	1500	Prevent all ACM waste removal during worker shift changes
X5L	1-93(C)	Improper worker transit during waste transfer in combined decon	1200	1000	2400	1500	Prevent workers transiting shower room during waste or equipment transfer
X5M	1-93(D)	Did not clean ACM container/equipment properly before transfer into decon	1200	1000	2400	1500	Wet clean/HEPA vac containers/equipment before transfer to decon
X5N	1-93(E)	Failed to properly bag/package containerized ACM waste and equipment	1200	1000	2400	1500	Place ACM waste containers/equipment in clean leak tight containers

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ASBESTOS PENALTY SCHEDULE - June 1, 2002

ECB Code	15RCNY Section	Description	1st Offense		2nd Offense*		Compliance
			Penalty	Stip.	Penalty	Stip.	
X5O	1-93(F)	Improper washroom transit of workers prior to end of waste removal	1200	1000	2400	1500	Prevent worker transit of waste washroom until waste transfer completed
X5P	1-93(G)	Failed to properly remove waste and equipment from airlock to holding area	1200	1000	2400	1500	Have waste/cleaned equipment removed as required
X5Q	1-93(H)	Failed to use/clean waste storage carts as required	1200	1000	2400	1500	Use open top watertight storage carts and clean as required after use
X5R	1-93(I)	Failed to secure exit from waste decontamination system	1200	1000	2400	1500	Secure exit from waste decontamination system
X5S	1-93(J)	Failed to store waste storage carts in worksite holding area	1200	1000	2400	1500	Store carts in worksite holding area

MAINTENANCE OF DECON SYSTEM AND BARRIERS-LARGE PROJECT

X5T	1-94(A)	Failed to inspect plastic barriers and partitions twice per shift	1200	1000	2400	1500	Supervisor must inspect barriers and partitions at least twice per shift
X5U	1-94(B)	Failed to smoke test plastic barriers and decon twice daily	1200	1000	2400	1500	Smoke test barriers and decons at least twice daily as required
X5V	1-94(C)	Failed to immediately repair damage or defects in decon	2400	1500	4800	3000	Repair damages and defects in the decon system immediately
X5W	1-94(D)	Failed to follow proper procedure upon fiber release or barrier damage	4800	3000	9600	6000	Restore integrity of barriers and follow required cleaning procedures
X5X	1-94(E)	Failed to document specified events in daily project log	1200	1000	2400	1500	Supervisor must document specified occurrences in daily project log

ACM ABATEMENT PROCEDURES

X5Y	1-102(A)	Performed dry removal of ACM without EPA and/or DEP approval	4800	3000	9600	6000	Stop abatement forthwith and submit plans for approval as specified
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*A second offense is a violation within two years, for an infraction within the same category as the prior infraction. (Categories are defined by description subheadings on this schedule, e.g. "Notification".)

ASBESTOS PENALTY SCHEDULE - June 1, 2002

ECB Code	15RCNY Section	Description	1st Offense		2nd Offense*		Compliance
			Penalty	Stip.	Penalty	Stip.	
X5Z	1-102(B)	Failed to sufficiently wet down ACM for enhanced penetration	4800	3000	9600	6000	Sufficiently wet down ACM frequently for enhanced penetration
X5O	1-102(C)	Failed to properly apply removal encapsulant as per federal guidelines	1200	1000	2400	1500	Use removal encapsulants in accordance with Federal guidelines
X51	1-102(D)	Failed to bag ACM directly upon detachment from substrate as specified	2400	1500	4800	3000	Handle detached ACM in a safe manner as specified by the regulations
X52	1-102(E)	Failed to properly wet, wrap and secure large components of ACM	2400	1500	4800	3000	Wet, wrap and seal large components of ACM as specified
X53	1-102(F)	Failed to remove all visible ACM residue from abated surfaces	2400	1200	4800	2400	Properly clean all surfaces which had ACM stripped from them
X54	1-102(G)	Failed to encapsulate abated surfaces with pigmented encapsulant	2400	1200	4800	2400	Encapsulate all areas from which ACM has been removed as specified

ENCAPSULATION PROCEDURES

X55	1-103(A)	Failed to repair damaged insulation w/proper replacement material	1200	1000	2400	1500	Repair existing insulation as specified
X56	1-103(B)	Failed to properly remove loose or hanging ACM before encapsulation	1200	1000	2400	1500	Remove loose or hanging ACM prior to encapsulation as specified
X57	1-103(C)	Failed to use acceptable pigmented encapsulant	1200	1000	2400	1500	Use acceptable pigmented encapsulants as specified
X58	1-103(D)	Used encapsulant solvent or vehicle containing volatile hydrocarbon	1200	1000	2400	1500	Use appropriate encapsulant solvent or vehicle
X59	1-103(E)	Improperly used latex paint as encapsulant	1200	1000	2400	1500	Use latex paint as encapsulant only as permitted
X6A	1-103(F)	Failed to properly field test encapsulant prior to use	1200	1000	2400	1500	Field test encapsulant for suitability as specified before use
X6B	1-103(G)	Failed to apply required thickness of bridging encapsulant over ACM	1200	1000	2400	1500	Apply bridging encapsulant to required thickness

*A second offense is a violation within two years, for an infraction within the same category as the prior infraction. (Categories are defined by description subheadings on this schedule, e.g. "Notification".)

ASBESTOS PENALTY SCHEDULE - June 1, 2002

ECB Code	15RCNY Section	Description	1st Offense		2nd Offense*		Compliance
			Penalty	Stip.	Penalty	Stip.	
X6C	1-103(H)	Failed to use a different color for each coat of encapsulant	1200	1000	2400	1500	Use a different color for each coat of encapsulant
X6D	1-103(I)	Failed to properly apply penetrating encapsulant to ACM	1200	1000	2400	1500	Apply penetrating encapsulant as specified
X6E	1-103(J)	Failed to apply encapsulant with airless spray equipment as specified	1200	1000	2400	1500	Apply encapsulants to ACM using airless spray equipment as specified
X6F	1-103(K)	Failed to properly identify encapsulated ACM	2400	1500	4800	3000	Identify encapsulated ACM as specified to warn maintenance personnel

ENCLOSURE PROCEDURE

X6G	1-104(A)	Did not properly remove loose/hanging ACM before installing enclosure	2400	1500	4800	3000	Remove loose/hanging ACM by wet methods before continuing enclosure
X6H	1-104(B)	Failed to properly repair areas damaged during enclosure procedure	1200	1000	2400	1500	Repair damaged areas prior to continuing enclosure installation
X6I	1-104(C)	Failed to properly lower/remove/replace utilities service components	1200	1000	2400	1500	Move or reinstall utilities service components as specified
X6J	1-104(D)	Failed to properly identify enclosed ACM	2400	1500	4800	3000	Identify enclosed ACM as specified to warn maintenance personnel

GLOVEBAG PROCEDURES

X6K	1-105(A)	Failed to properly conduct glovebag procedures	4800	3000	9600	6000	Use glovebag in accordance with specified procedures
X6M	1-105(B)1	Failed to bring tools/materials into work area before glovebag begins	2400	1500	4800	3000	Have all tools/materials in work area prior to glovebag procedures
X6N	1-105(B)2	Failed to conduct Air monitoring during glovebag procedure as required	2400	1500	4800	3000	Conduct Air monitoring as specified for glovebag procedure
X6O	1-105(B)3	Failed to have trained/equipped workers to conduct glovebag procedures	2400	1500	4800	3000	Stop glovebag until trained workers and protective equipment provided

*A second offense is a violation within two years, for an infraction within the same category as the prior infraction. (Categories are defined by description subheadings on this schedule, e.g. "Notification".)

ASBESTOS PENALTY SCHEDULE - June 1, 2002

ECB Code	15RCNY Section	Description	1st Offense		2nd Offense*		Compliance
			Penalty	Stip.	Penalty	Stip.	
X6P	1-105(B)4	Failed to use properly sized glovebag for diameter of insulation	2400	1500	4800	3000	Use glovebag of specified dimension
X6Q	1-105(B)5	Failed to wet ACM prior to stripping during glovebag procedure	4800	3000	9600	6000	Wet ACM with amended water as specified
X6R	1-105(B)6	Failed to properly attach glovebag to insulation	4800	3000	9600	6000	Attach glovebag to insulation according to specifications
X6S	1-105(B)7	Failed to smoke test glovebag as required	2400	1500	4800	3000	Smoke test the glovebag seal by specified procedures
X6T	1-105(B)8	Failed to properly seal adjacent insulation during glovebag procedure	2400	1500	4800	3000	Wrap and seal insulation adjacent to glovebag seal
X6U	1-105(B)9	Failed to properly clean/wet surface, tools, etc. before glovebag is moved	2400	1500	4800	3000	Clean surface, etc. perform specified wetting procedures inside glovebag
X6V	1-105(B)10	Failed to properly seal insulation ends	2400	1200	4800	2400	Encapsulate or wet/seal insulation ends as specified
X6O	1-105(B)11	Failed to properly remove tools/tool pouch from glovebag	2400	1500	4800	3000	Seal and separate tools from glovebag by specified procedures
X61	1-105(B)12	Failed to use HEPA vacuum to evacuate glovebag or for clean up	2400	1500	4800	3000	Use HEPA vacuum in preparation for removal of glovebag and/or cleanup
X62	1-105(B)13	Failed to properly collapse or seal glovebag prior to bag removal	2400	1500	4800	3000	Seal section containing ACM before removing glovebag
X63	1-105(B)14	Failed to properly double-bag and detach glovebag	2400	1500	4800	3000	Bag glovebag before detaching it as specified
X64	1-105(B)15	Failed to properly wet/bag, dispose of waste from glovebag procedure	2400	1500	4800	3000	Wet sufficiently, double bag and dispose of ACM waste etc., as specified

Glovebag Procedure:
 The glovebag procedure is a step-by-step process which is numerically outlined in Section 1-105(b). Each numbered subparagraph may stand alone.
 This unique procedure is dependent on the chain of events which are involved. Therefore, in order for this process to be completed correctly each and every subparagraph must be treated individually.

TENT PROCEDURES

*A second offense is a violation within two years, for an infraction within the same category as the prior infraction. (Categories are defined by description subheadings on this schedule, e.g. "Notification".)

ASBESTOS PENALTY SCHEDULE - June 1, 2002

ECB Code	15RCNY Section	Description	1st Offense		2nd Offense*		Compliance
			Penalty	Stip.	Penalty	Stip.	
X65	1-106(A)	Conducted tent procedures on 260 linear ft/160 sq. ft or more of ACM	2400	1500	4800	3000	Use procedures for large projects and remediate disturbed ACM
X66	1-106(B)	Failed to properly install and/or construct tent	2400	1500	4800	3000	Install a plastic tent meeting all specifications
X	1-106(C)	Failed to wear appropriate personal protective equipment during tent procedure	2400	1500	4800	3000	Stop work until workers wear proper personal protection
X67	1-106(D)	Failed to attach tent to surface to produce an airtight seal	2400	1500	4800	3000	Attach tent to produce an airtight seal
X68	1-106(E)	Failed to provide/maintain proper negative Air in tent	1200	1000	2400	1500	Exhaust tent properly provide at least two Air changes per hour
X69	1-106(F)	Failed to use required wet removal methods during tent procedures	2400	1500	4800	3000	Use methods to remove ACM as specified in section 1-137
X7A	1-106(G)	Failed to place ACM removed in tent procedures in leaktight container	2400	1500	4800	3000	Place ACM waste directly into leaktight containers
X7B	1-106(H)	Failed to properly clean/encapsulate enclosed surfaces in tent	2400	1500	4800	3000	Clean and encapsulate surfaces in tent as specified
X7C	1-106(I)	Failed to clean/encapsulate surfaces after tent failure/termination	2400	1500	4800	3000	Clean and encapsulate enclosed surfaces
X7D	1-106(J)	Failed to properly clean/double bag ACM for disposal as specified	2400	1500	4800	3000	Wet clean/HEPA vac and double bag ACM waste for disposal as specified
X7E	1-106(K)	Failed to follow specified procedures for worker exit from tent	2400	1500	4800	3000	Ensure workers perform specified decon exiting procedures
X7F	1-106(L)	Failed to have 6 Air changes after abatement but before tent collapse	2400	1500	4800	3000	Provide the 6 required Air changes before tent collapse
X7G	1-106(M)	Did not collapse tent or dispose of contaminated material as specified	2400	1500	4800	3000	Collapse and bag tent and seal HEPA vacuum as specified

PRELIMINARY CLEANUP PROCEDURES - LARGE PROJECT

*A second offense is a violation within two years, for an infraction within the same category as the prior infraction. (Categories are defined by description subheadings on this schedule, e.g. "Notification".)

ASBESTOS PENALTY SCHEDULE - June 1, 2002

ECB Code	15RCNY Section	Description	1st Offense		2nd Offense*		Compliance
			Penalty	Stip.	Penalty	Stip.	
X7H	1-111(A)	Failed to wet/clean up loose visible accumulations of ACM As required	4800	3000	9600	6000	Wet down and/or clean up loose ACM waste as required
X7I	1-111(B)	Failed to properly clean accumulations of dust off all surfaces daily	2400	1500	4800	3000	Wet clean or HEPA vacuum dust on work area surfaces daily
X7J	1-111(C)	Failed to properly clean waste decon on completion of waste removal	2400	1500	4800	3000	Wet clean the waste decon after waste removal as specified
X7K	1-111(D)	Failed to properly clean worker decon when required	2400	1500	4800	3000	Wet clean and/or HEPA vacuum worker decon as specified
X7L	1-111(E)	Failed to stop work and dispose of excess water in work area	1200	1000	2400	1500	Stop work and dispose of excess water in the work area
X7M	1-111(F)	Failed to clean spillage of ACM in elevator shaft as required	4800	3000	9600	6000	Perform elevator shaft cleanup as specified in sub-section 1-4

FINAL CLEAN-UP PROCEDURES

X7O	1-112(A)	Failed to HEPA vacuum all surfaces after removal of all visible ACM	1200	1000	2400	1500	HEPA vacuum all surfaces after all ACM residue is removed
X7P	1-112(B)	Failed to wet clean all surfaces in work area (first cleaning)	2400	1500	4800	3000	Wet clean all surfaces as required
X7Q	1-112(C)	Dismantled isolation barriers/decons before final clean up completed	4800	3000	9600	6000	Wet clean and HEPA vac barriers/areas contaminated by early dismantling
X7R	1-112(D)	Failed to follow required procedures for second cleaning	1200	1000	2400	1500	Vacate for 12 hours and then wet clean/HEPA vac, as specified
X7S	1-112(E)	Failed to follow required procedures for third cleaning	1200	1000	2400	1500	Vacate for 4 hours and then wet clean/HEPA vacuum all work area surfaces
X7T	1-112(F)	Failed to verify absence of ACM prior to clearance Air monitoring	2400	1200	4800	2400	Ensure the absence of Asbestos dust prior to clearance Air monitoring

*A second offense is a violation within two years, for an infraction within the same category as the prior infraction. (Categories are defined by description subheadings on this schedule, e.g. "Notification".)

ASBESTOS PENALTY SCHEDULE - June 1, 2002

ECB Code	15RCNY Section	Description	1st Offense		2nd Offense*		Compliance
			Penalty	Stip.	Penalty	Stip.	
X7U	1-112(G)	Failed to remove containerized waste from work area as required	1200	1000	2400	1500	Remove containerized waste from work area thru decons and holding areas
X7V	1-112(H)	Failed to properly decontaminate or dispose of tools, equipment, etc.	1200	1000	2400	1500	Remove and decontaminate tools/equipment' dispose of cleaning aids as ACM
X7W	1-112(I)	Removed isolation barriers before successful clearance Air monitoring	4800	3000	9600	6000	Replace barriers and perform clearance Air monitoring procedures

PRE-DEMOLITION ABATEMENT PROCEDURES

X7X	1-125(A)	Failed to post notice of Asbestos Project as required before abatement	2400	1500	4800	3000	Post required notice of Asbestos Project in English and Spanish
X7Y	1-125(B)	Failed to evacuate all occupants prior to abatement activities	2400	1500	4800	3000	Vacate building of occupants as required
X7Z	1-125(C)	Failed to lock out electrical power and/or provide outside power as required	1200	1000	2400	1500	Provide outside electricity to work area thru ground fault interrupter
X70	1-125(D)	Failed to install worker waste decon in required sequence	2400	1500	4800	3000	Install worker decontamination enclosure system as specified
X71	1-125(E)	Failed to lock out HVAC and/or install isolation barriers at ducts	4800	3000	9600	6000	Lock out HVAC system and install isolation barriers
X72	1-125(F)	Commenced abatement prior to completion of work place preparation	4800	3000	9600	6000	Complete the work place preparation as required
X73	1-125(G)	Used methods that raise dust during work area preparation	2400	1500	4800	3000	Vacuum work place with HEPA-filter equipped vacuum cleaner
X74	1-125(H)	Failed to properly preclean and/or remove movable objects from work area	1200	1000	2400	1500	Pre-clean and remove movable objects from work area as required
X75	1-125(I)	Failed to install required isolation barriers as specified	2400	1500	4800	3000	Install all isolation barriers as specified

*A second offense is a violation within two years, for an infraction within the same category as the prior infraction. (Categories are defined by description subheadings on this schedule, e.g. "Notification".)

ASBESTOS PENALTY SCHEDULE - June 1, 2002

ECB Code	15RCNY Section	Description	1st Offense		2nd Offense*		Compliance
			Penalty	Stip.	Penalty	Stip.	
X76	1-125(J)	Failed to properly cover/seal cinderblock/porous construction material	2400	1500	4800	3000	Cover porous material with 6-mil plastic and seal edges and seams
X78	1-125(K)	Failed to make flooring in work area watertight	2400	1500	4800	3000	Make floor of work area watertight
X8A	1-125(L)	Disturbed contaminated ceiling tiles prior to full work area prep	2400	1500	4800	3000	Remove and dispose of ceiling tiles/t-grid as required
X8B	1-125(M)	Failed to establish and maintain emergency/fire exits from work area	2400	1500	4800	3000	Maintain emergency and fire exits as required
X8C	1-125(N)	Failed to lock entrances to work area against unauthorized entry	2400	1500	4800	3000	Lock all work area entrances to prevent unauthorized entry
X8D	1-125(O)	Failed to maintain/secure/lock-out elevators running thru work area	2400	1500	4800	3000	Comply with all elevator requirements specified in sub-sections 1-4
X8E	1-125(P)	Failed to provide adequate external toilet facilities near clean room	1200	1000	2400	1500	Provide adequate external toilet facilities as required

ACM PROCEDURES: ORDER OF WORK

X8F	1-126(A)	Failed to prevent demolition from compromising abatement on lower floors	4800	3000	9600	6000	Cease demolition until all ACM is removed from lower floors
X8G	1-126(B)	Improperly routed demolition debris through removal project work area	1200	1000	2400	1500	Cease routing removal demo debris thru areas being prepared or abated
X8H	1-126(D)	Failed to maintain proper separation between abatement and demolition areas	1200	1000	2400	1500	Establish required separation between abatement and demolition areas
X8I	1-126(E)	Failed to remove ACM from underground floors in proper sequence	1200	1000	2400	1500	Remove ACM from lower floor below street before removal from higher floor
X8J	1-126(F)	Failed to remove ACM from street level floor last	1200	1000	2400	1500	Remove ACM from all other floors before removing from street level floor

LOCKDOWN ENCAPSULATION PROCEDURES

*A second offense is a violation within two years, for an infraction within the same category as the prior infraction. (Categories are defined by description subheadings on this schedule, e.g. "Notification".)

ASBESTOS PENALTY SCHEDULE - June 1, 2002

ECB Code	15RCNY Section	Description	1st Offense		2nd Offense*		Compliance
			Penalty	Stip.	Penalty	Stip.	
X80	1-127(A)	Used unacceptable lockdown encapsulants	1200	1000	2400	1500	Use encapsulants rated acceptable or marginally acceptable
X81	1-127(B)	Used encapsulant solvent or vehicle containing hydrocarbons	1200	1000	2400	1500	Use encapsulant solvent or vehicle with no volatile hydrocarbons
X82	1-127(C)	Used unacceptable latex paint as a lockdown sealant on non-metal	1200	1000	2400	1500	Use specified encapsulant on non-metallic surfaces
X83	1-127(D)	Failed to apply encapsulant with airless spray equipment as specified	1200	1000	2400	1500	Apply encapsulant to abated surfaces using specified procedures

CLEAN-UP PROCEDURES DURING ABATEMENT

X85	1-128(A)	Failed to properly wet/clean up loose visible accumulations of ACM	4800	3000	9600	6000	Wet down and/or clean up loose ACM waste. Use non-metallic equipment
X86	1-128(B)	Failed to properly clean accumulations of dust off all surfaces daily	2400	1500	4800	3000	Wet clean or HEPA vac dust from all work area surfaces daily
X87	1-128(C)	Failed to properly clean waste decon on completion of waste removal	2400	1500	4800	3000	Wet clean the waste decontamination system as specified
X88	1-128(D)	Failed to clean worker decon after shift/meal break as specified	2400	1500	4800	3000	Wet clean/HEPA vac worker decon as specified
X89	1-128(E)	Failed to stop work and dispose of excess water in work area	1200	1000	2400	1500	Stop work and dispose of excess water in the work area
X90	1-128(F)	Failed to clean spillage of ACM waste in elevator shaft as required	2400	1500	4800	3000	Perform elevator shaft cleanup as specified in sub-sections 1-4

CLEAN-UP PREPARATION FOR CLEARANCE AIR MONITORING

X91	1-129(A)	Failed to properly remove/containerize visible accumulations of ACM	4800	3000	9600	6000	Containerize and remove all visible ACM waste as specified
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*A second offense is a violation within two years, for an infraction within the same category as the prior infraction. (Categories are defined by description subheadings on this schedule, e.g. "Notification".)

ASBESTOS PENALTY SCHEDULE - June 1, 2002

ECB Code	15RCNY Section	Description	1st Offense		2nd Offense*		Compliance
			Penalty	Stip.	Penalty	Stip.	
X92	1-129(B)	Failed to remove containerized waste from work area as required	2400	1500	4800	3000	Remove containerized ACM waste via decon enclosure and holding area
X93	1-129(C)	Failed to properly wet-clean/HEPA vac surfaces in work area	2400	1500	4800	3000	Thoroughly clean up using wet methods and HEPA vacuum as specified
X94	1-129(D)	Failed to properly clean and/or encapsulate plastic on porous material	2400	1500	4800	3000	Clean and encapsulate surface barrier plastic sheeting before removal
X95	1-129(E)	Failed to properly encapsulate surfaces in work area	2400	1500	4800	3000	Spray work area surfaces with encapsulant and allow to dry
X96	1-129(F)	Failed to remove and decontaminate all tools and equipment as required	1200	1000	2400	1500	Remove and decontaminate all tools and equipment as specified
X99	1-129(G)	Remove isolation barriers before final Air clearance	4800	3000	9600	6000	Install isolation barriers and obtain successful Air clearance
X		Violation of New York State Industrial Code Rule 56-level 1	4800	3000	9600	6000	
X		Violation of New York State Industrial Code Rule 56-level 2	2400	1500	4800	3000	
X		Violation of New York State Industrial Code Rule 56-level 3	1200	1000	2400	1500	

*A second offense is a violation within two years, for an infraction within the same category as the prior infraction. (Categories are defined by description subheadings on this schedule, e.g. "Notification".)

ISO定性分析法 ISO定量分析法 アップデート

2012年7月4日

株式会社EFAラボラトリーズ

ISO定性分析法最終発行

Ballot Information

Reference	ISO/FDIS 22262-1	Committee	ISO/TC 146/SC 3
Edition number	1		
English title	Air quality -- Bulk materials -- Part 1: Sampling and qualitative determination of asbestos in commercial bulk materials		
French title	Qualité de l'air -- Matériaux solides -- Partie 1: Échantillonnage et dosage qualitatif de l'amianté dans les matériaux solides d'origine commerciale		
Start date	2012-04-05	End date	2012-06-05
Opened by ISO/CS on	2012-04-05 00:20:30	Closed by ISO/CS on	2012-06-07 00:27:22
Status	Closed		
Voting stage	Approval	Version number	1
Note			

Result of voting

P-Members voting: 11 in favour out of 11 = 100 % (requirement \geq 66.66%)

(P-Members having abstained are not counted in this vote.)

Member bodies voting: 0 negative votes out of 12 = 0 % (requirement \leq 25%)

Approved

4月5日からの
FDISへの2カ月間
の投票を終わり、
6月12日に最終発
行段階へ

6月29日最終発行

日本も賛成票

Votes by members					
Country	Member	Status	Approval	Disapproval	Abstention
Australia	SA	O-Member			X
Austria	ASI	O-Member			X
Belgium	NBN	O-Member	X		
Canada	SCC	P-Member	X *		
China	SAC	O-Member			X
France	AFNOR	P-Member	X		
Germany	DIN	P-Member	X		
Italy	UNI	P-Member	X		
Japan	JISC	P-Member	X		
Korea, Republic of	KATS	P-Member	X		
Malaysia	DSM				X
Netherlands	NEN	P-Member	X		
Poland	PKN	P-Member	X		
Russian Federation	GOST R	P-Member			X
Spain	AENOR	P-Member			X
Sweden	SIS	P-Member	X		
United Kingdom	BSI	P-Member	X		
United States	ANSI	Secretariat	X		
P-Member TOTALS			11	0	2
Total of P-Members voting: 11					
TOTALS			12	0	6
(*) A comment file was submitted with this vote					

Comments from Voters

Canada	SCC	P-Member	ISO_FDIS_22262-1_SCC.doc
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ISO定性分析法の概要

* 前提条件

- * ISOではアスベスト含有の商業製品に意図的に混入されたアスベスト量は0.1%未満のものがないという事実から、製品中のアスベスト含有を各国の規制値：1本超(英国)、重量0.1%超(日本)、0.5%超(カナダ)、1%超(米国)を判定する方法として本分析法を策定

* 対象アスベスト8種類：アスベスティフォームを特定

- * クリソタイル、アモサイト、クロシドライト、アンソフィライトアスベスト、トレモライトアスベスト、アクチノライトアスベスト
- * リビー産バーミキュライト由来のウィンチャイト・リヒテライト

* 偏光顕微鏡分析法が中心

- * EDXAを搭載した透過型または走査型電子顕微鏡分析法がオプション

ISO定性分析法の概要(2)

- * 規定された適切な前処理(灰化、酸処理、沈降浮遊)を行うことで検出下限値が0.01%をかなり下回る定性分析
- * 製品中の0.1%を下回るものから100%までのアスベスト含有量を5段階区分で判定
- * ISO定性分析法の5段階区分
 - * 「不検出」、
 - * 「検出」、
 - * 「0.1%超5%以下」、
 - * 「5%超50%以下」、
 - * 「50%超から100%」

定性分析→定量分析

- * 「0.1%超過5%以下」またはごく微量の含有である「検出」と判定された試料についてより詳細な含有量分析が必要な場合

ISO/WD定量分析法の状況

- * ISO/WDIS 22262-2は、国際標準化機構で審議中の
建材中のアスベスト定量分析法(ドラフト版)
- * 2012年6月現在、作業原案段階
 - * 具体的には分析手順についてはほぼ確定、語句等を含
めたマイナー調整を行っている段階

ISO/WD 定量分析法の概要

含有物の種類	規制基準の種類			
	1本でも含有 (英国)	重量0.1%超 (日本)	重量0.5%超 (カナダ)	重量1%超 (米国)
商業的に製造された物 ¹⁾	もし商業製品に何らかのアスベストが検出された場合、さらなる定量分析は要求されない (0.1%超と判断)		もし5%未満でアスベストが含有していると目視評価された場合、基準超過を正確に判定するためには定量分析が必要である	
その他の物 ²⁾	もし商業製品に何らかのアスベストが検出された場合、さらなる定量分析は要求されない	もし5%未満でアスベストが含有していると目視評価された場合、基準超過を正確に判定するためには定量分析が必要である		

1) クリソタイル、アモサイト、クロシドライト、アンソフィライトアスベストを含む製品。

2) トレモライトアスベスト、アクチノライトアスベスト、ウィンチャイト/リヒテライトアスベストを含んだもの。

ISO/WD 定量分析法の概要 (2)

- * 日本の規制基準「重量0.1%超」の場合、定量分析の対象は主にISO定性分析法の表記区分で「0.1%超5%以下」または「検出」と判定された試料
- * 重量濃縮法とポイントカウント法を組み合わせることで試料中のアスベスト含有量を定量
- * ISO/WD 定量分析法は偏光顕微鏡、走査型または透過型電子顕微鏡を用い、規定された適切な重量濃縮及びポイントカウントを行うことで定量下限値が0.001%を下回る定量分析法
- * 製品中の0.001%を下回るものから100%までのアスベスト含有量を95%信頼区間で定量

石綿検出JIS法落選

毎日新聞
大阪版
2012年
6月25日
夕刊
11ページ
社会面

ISO、欧米型を採用

建材に含まれている鉱物がアスベスト(石綿)であるかどうか調べる方法について、国際標準化機構(JISO)が、欧米普及型の方法を国際標準とすることを決めたことが分かった。日本で使われている日本工業規格(JIS)の方法は欠陥があるとして、採用されなかった。建材中のアスベストの検査を担当する厚生労働省は検査方法を見直すつもりはないとしているが、専門家は「早急に国際標準に合わせるべきだ」と指摘している。

【大島秀利】

ISOが石綿の検出方法の国際標準化を目指して審議し、日本を含む議決権のある11カ国が4〜6月に投票。満票で欧米普及型が承認された。日本が欧米普及型に投票した理由について厚生労働省化学物質対策課は「日本は欧米普及型に反対していたわけでは



国際標準化機構(JISO)と日本工業規格(JIS)の計量、品質、安全などについて、国際的に共通して使用する尺度を規定しているのがISO。約160カ国が参加し、約1万8500の国際規格を定めている。JISは経済産業省が事務局を担当する日本工業標準調査会が審議し、担当大臣が制定。世界貿易機関(WTO)の協定は、各国の規格はISOを基礎とするよう求めている。

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厚労省「見直すつもりない」

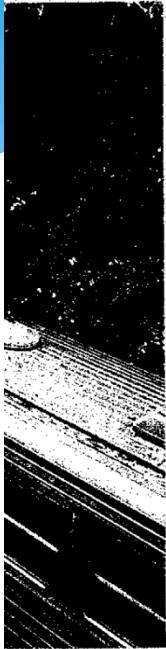
なく、JIS法との同時採用を求めていたため、反対に回らなかったと説明している。石綿の要件は、発がん性の観点から、鉱物が細くて長い繊維状のアスベスト繊維状態になっていることとされる。

ISOは今回、顕微鏡で石綿の形態を見た上、鉱物としての複数の性質を見分ける欧米普及型の方法を採用した。これに対してJIS法は、石綿の元となる鉱物を結晶の構造で見分ける「エックス線回折法」などを採用。05年の大規模な石綿被害発覚を受けて厚生労働省が通達で建物の検査にJIS法を指定。国内の多くの自治体は建築物の取り壊しに伴う検査に同法を採用している。しかし、今回のISOの審議過程では「アスベストの形態がどうか特定できない

「などと検査の信頼性が疑問視されていた。仮に検査方法を変更することになれば、担当職員や委託業者への研修・指導などが必要となる。欧米普及型の方法に詳しい専門家によると、欧米普及型は、検査の信頼性に加えて、JIS法よりも分析機器が安価で、結果が出る時間も極めて短い利点がある。

妥当な判断

厚田福子・愛媛大客員教授(廃棄物化学)の話。鉱物繊維を見分けるという観点で欧米普及型が優れ、ISOの判断は妥当。日本がJISの方法を存続するならば術的な検証も必要になる。東日本大震災の災害廃棄物の分析でも、迅速に鉱物繊維を見分けられる欧米普及型を基本とした分析方法が評価されつつある。



大雨で土砂崩れ
愛媛のJR脱線
回送列車
25日午前5時20分

上下線とも運転を見合わせている。JR四国はバスによる代替輸送をしている。

【来住哲司】